THE SOCIAL, STRUCTURAL, AND ENVIRONMENTAL PRODUCTION OF HIV TRANSMISSION RISK AMONG WOMEN IN SURVIVAL SEX WORK: EVIDENCE FROM THE MAKA PROJECT PARTNERSHIP

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A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF

DOCTOR OF PHILOSOPHY

in

THE FACULTY OF MEDICINE
(Health Care and Epidemiology)

THE UNIVERSITY OF BRITISH COLUMBIA
August 2008

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ABSTRACT

Background: Given the limited contextual understanding of the HIV risk environment of survival sex workers in resource rich settings, the objectives of this thesis were: To explore the role of social and structural violence and gendered power relations in mediating women's negotiation of HIV prevention; To examine the relationship between drug sharing with clients and the negotiation of sexual and drug transmission risk; To model the impact of early sexual abuse on subsequent HIV infection; To investigate the relationship between environmental and structural factors and the negotiation of condom use with clients.

Methods: Qualitative and quantitative data were drawn from a community-based research project partnership in Vancouver, Canada. Women engaged in street-based sex work were invited through targeted peer outreach and time-space sampling to participate in interview-administered questionnaires, HIV screening, and social mapping. Additionally, women were purposively sampled to participate in focus group discussions about the contextual factors shaping HIV prevention.

Results: Analysis of the narratives of sex workers revealed the paramount role of social and structural violence in mediating women's agency and access to resources and ability to practice HIV prevention. Drug sharing with clients was shown to be an important risk marker for elevated violence and unprotected sex. Early sexual abuse before 12 years was independently associated with HIV infection, and any sexual abuse before 18 years was associated with suicidal ideations and generational vulnerability to sex work. Finally, structural and environmental barriers, including violence, displacement, and servicing clients in public spaces, were shown to elevate women's sexual HIV risk through being pressured into unprotected sex by a client.

Conclusions: The findings support the urgent need for social and environmental-structural HIV prevention efforts, in particular legal reforms, concomitantly with gender-sensitive harm reduction, that facilitate sex worker's ability to negotiate condom use in safer sex work environments.
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ACKNOWLEDGEMENTS

I would like to express my sincere gratitude to my co-supervisors, Drs. Mark Tyndall and Thomas Kerr, and my committee members, Drs. Jean Shoveller, and Steffanie Strathdee for their ongoing and generous support and dedication to this work. Over the past three years, their guidance and feedback have been instrumental and have extended well beyond what is expected of committee members.

I would also like to express my utmost gratitude to our community partner, the WISH-Drop In Centre Society, in particular the executive director, Kate Gibson, whose continued support throughout this project has been incredible. This thesis would not be possible without the expertise, generosity, and time of the women in the Maka Project Peer Team who are dedicated to advancing the issues of highly marginalized population of women: Shari, Debbie, Adrian, Laurie, Rose, Chanel, Shawn, Sandy and Laura, and Candice. I also want to acknowledge several community members and Maka Staff for their own going support in this research, Vicki Bright, Jill Chettiar, Devi Parsad, Hayley Sinclair, Laura Housden, and Erin Gilbert. Finally, a special thanks to the Maka Community Advisory Board and the women of WISH and Sex Workers United Against Violence (SWUAV) for their feedback and consultations on the interpretation and recommendations of the research.

I would also like to acknowledge my doctoral funding support from the Canadian Institutes of Health Research, the Michael Smith Foundation for Health Research, the Gender, Women and Addictions Research Training Program (IMPART), a strategic initiative of CIHR, and the BC Centre for Excellence in HIV/AIDS, as well as financial support to present this work at national and international conferences from the International AIDS Society and the Canadian Association of HIV/AIDS Research. A portion of my thesis work was acknowledged through a New Investigator Award from the Canadian Association for HIV/AIDS Research. I would also like to acknowledge operating grant support from the CIHR Community-Based HIV Research Program for the Maka Project, for which I am a co-principal investigator. I am happy to note that we recently received additional CIHR funding in the form of a Knowledge Translation Grant to support the translation of this thesis work to policy and practice, for which I am the nominated principal investigator. At the BC Centre for Excellence in HIV/AIDS, I would also like to extend my gratitude to Calvin Lai and Ruth Zhang for their ongoing statistical mentorship, as well as Dr. Melanie Rusch for her ongoing enthusiasm and generous support with the GIS
mapping analyses. A special thanks to friends and colleagues: Angela Kaida, Elisa Lloyd-Smith, Beth Rachlis, Cari Miller, Sarah Fielden and Melanie Rusch.

As most of the manuscripts have been externally peer-reviewed to publication, I would also like to pass on my gratitude for the anonymous peer-reviewers who provided critical feedback for much of this work.

Finally, I'd like to thank my partner, my family and friends for their endless support throughout my PhD.
DEDICATION

I dedicate this dissertation to the women of the Maka Peer Team and all those who continue struggle daily to survive on the streets of Vancouver.
CO-AUTHORSHIP STATEMENT

This is to certify that the work presented in this thesis was conceived, instrumented, written, and disseminated by the PhD candidate. The co-authors of the manuscripts that make up part of this thesis made contributions only as is commensurate with committee or collegial duties. The co-authors reviewed each manuscript prior to submission for publication and offered critical evaluations, however, the student was responsible for conducting the analyses and preparing the initial drafts of all manuscripts. In addition, the candidate was responsible for revising the manuscripts based on the suggestions of the co-authors, submitting manuscripts for publication, and preparing final revisions based on the comments of the journal editors and external peer reviewers.
CHAPTER 1
BACKGROUND, STUDY JUSTIFICATION, AND OBJECTIVES

1.1 Global Overview of Women, HIV Prevention, and Sex Work

With women currently estimated to account for over half of the 33 million people living with HIV worldwide, there is now unequivocal evidence documenting the 'feminization' of the HIV pandemic due to both increased social and biological susceptibility to HIV infection among women compared to men (UNAIDS 2004). Women's risk of HIV transmission is increasingly shown to be mediated by social and structural factors including gender, cultural and economic inequities, prohibitive government policies, and institutionalized racism and poverty (Farmer 1996; Zierler 1997; Rhodes 2002). Thus while initial HIV prevention efforts focused largely on individual level strategies, such as behavioural change interventions, public health advocates have increasingly called for social and environmental-structural prevention strategies, particular among female sex workers (FSWs) in several developing country settings (Parker 2000; Overs 2002; Synergy AIDS 2002; Basu 2004; Blanchard 2005; Halli 2006; Kerrigan 2006; Withers 2007). Social and environmental-structural interventions aim to mediate factors operating at macro and meso levels that interact with micro-level negotiation in producing and reproducing individual risk of HIV transmission (Parker 2000; Rhodes 2002; Latkin 2005).
In 2000 UNAIDS released a best practice document on HIV prevention among sex workers. The document highlighted interventions in three resource poor settings that adopted both social and structural approaches to HIV prevention and were highly successful in reducing HIV/STI incidence and improving condom use in sex work transactions (UNAIDS 2000). Additionally, a recent systematic review that examines the effectiveness of interventions targeting FSWs in 28 resource poor settings further demonstrates the effectiveness of social empowerment, access to interventions and testing, and structural policy support as HIV prevention strategies within sex work settings (Shahmanesh 2008). At the same time, the review highlights the current paucity of evidence surrounding the specific structural components that facilitate HIV risk reduction practices in sex work transactions. Despite the growing success of social and environmental-structural HIV prevention efforts in several developing country settings, including India, Thailand, Brazil, there has been limited consideration of similar interventions in resource rich settings.

In an effort to curtail the gendered vulnerability among women to HIV transmission both locally and internationally, there is a significant need for evidence elucidating the specific social, environmental, and structural factors mediating negotiation of HIV risk reduction among FSWs in resource rich settings. This dissertation attempts to fill the current paucity of information on
the risk environment of women in street-based sex work by examining the contextual barriers and facilitators to HIV prevention in this population. It is hoped that this work will contribute to the development of evidence-based policy and prevention efforts targeting FSWs.

1.2 Sex Work and HIV Prevention in a Canada setting

The Downtown Eastside community of Vancouver, British Columbia is an inner city community that has become synonymous with a high concentration of poverty, mental health issues, substance use and extreme health disparities, including an HIV epidemic among injection drug users that peaked in the mid-1990's (Patrick 1997; Strathdee 1997; Wood 2002). Within this community and across the streets of Canadian cities, women living in poverty and exchanging sex for drugs, money, shelter or other commodities as a means of basic subsistence (ie: survival sex work) have been shown to experience multiple adverse health outcomes, including enhanced vulnerability to STI and HIV infection (Weber 2002; Spittal 2002; 2003). Although estimates in 2000 suggested that street-based sex work accounted for less than 20% of the sex industry in Canada (Benoit 2001), this population is among the most marginalized under the current legal and policy framework (Lowman 2000). Further, due to significant overlap with the drug use community, street-based sex workers been almost
exclusively considered by policy makers and health authorities within larger drug policy and harm reduction efforts.

Significant evidence to date has highlighted the multiple antecedents to sex work initiation among at-risk populations including early sexual and emotional abuse, homelessness, engagement in the street economy and runaway behaviour (Brannigan 1997; Mezzich 1997; McClanahan 1999; Weber 2004; Edwards 2006; Stoltz 2007). Among those women entering sex work in Vancouver, we have shown that initiation into sex work during adolescence (less than 18 years of age) nearly doubles the likelihood of HIV infection (Shannon 2007). At the same time, the median age of sex work initiation among this sample was 16 years (IQR: 14-22 years) and over 40% had initiated sex work before 18 years of age. Among female substance users who engage in sex work both in this setting and others, research has identified several individual and micro-level factors associated with increased likelihood of HIV infection, including daily cocaine injection, crack cocaine smoking, requiring assistance to inject, and unprotected sex with intimate partners (Edlin 1994; Inciardi 1995; Spittal 2002; Weber 2002; Tyndall 2003; Wechsberg 2003; O'Connell 2005). Since the 1980’s the synergistic relationship between survival sex and crack cocaine smoking since has increasingly been documented both in Vancouver and elsewhere with substantial evidence suggesting increased risk of sexual transmission of HIV.

1.3 Social, Political, and Environmental Context of Sex Work in Vancouver

Over the past two decades, over 60 women have been reported missing or murdered from Vancouver’s DTES community, a large number of whom were of First Nations’ ancestry. Drug using women in Vancouver, BC have been shown to experience a 50-fold increased likelihood of mortality as compared to the age-matched general population, with the vast majority in survival sex work (Spittal 2006). Indigenous women are highly over-represented in the street-level sex work market with estimates suggesting that 70% of women in visible sex work across Canada are Aboriginal and most are young, single mothers (Culhane 2003; Amnesty International 2004). The multiple vulnerabilities experienced by Aboriginal women have been increasingly shown to stem from the multigenerational effects of colonization, loss of traditional lands, residential school system and historical trauma (BC Aboriginal HIV/AIDS Task Force 1999; Public Health Agency of Canada 2001; Culhane 2003).

In response to significant public scrutiny for the delayed response to the missing women by the police, the judicial system, and society, an extensive
police investigation was launched in 1999 along with the inception of the Missing
Women's Taskforce. In early December of 2007, a year-long serial murder trial
came to a close, with a murder conviction brought forward for the deaths of six
sex workers, and another 20 charges still pending. If convicted on all counts,
Robert William Pickton will be the most prolific serial murderer in Canadian
history. Yet despite the extensive media coverage and over CD$116 million spent
to date on the police investigation and serial murder trial (Ottawa Citizen 2007),
close to two decades later the most vulnerable women who sell sex to meet basic
subsistence needs on the streets across Canadian cities remain largely neglected
by society and policy makers. In early January of 2008, police launched an
investigation into another potential serial murderer in Greater Vancouver, and
over 30 cases of missing women remain under investigation. While in Edmonton
sex workers and advocates have long purported that a serial murderer was
preying on sex workers, with the bodies of 20 women discovered since 1983.
Perhaps, the saddest evidence of this hypocrisy occurred in early 2008 when sex
workers in Edmonton began to voluntarily provide their DNA to the police to
enable their bodies to be more readily identified if they are killed (Edmonton
Journal 2008; The Star 2008). In the face of repeated violence and health
disparities among sex workers the continued lack of evidence-based policy and
prevention responses is staggering.
1.4 Canadian Sex Work Legislation

While sex work itself has never been illegal in Canada, enforcement based strategies and legal restrictions on communicating in public spaces or working indoors in managed or cooperative settings (ie: brothels) have effectively concentrated street-based sex work in defacto tolerance zones in outlying and industrial settings in Vancouver. Similar to other prohibitive sex work environments, such as those in the United Kingdom (Hubbard 2003), these defacto tolerance zones operate under unwritten rules of engagement between police, sex workers, and clients, are exposed to periodic police crackdowns, high rates of violence, exploitation and harassment of sex workers (Lowman 2000; Cusick 2006; Day 2007). In 2007, two separate legal cases were launched challenging the criminal codes of prostitution (communicating, procuring and bawdy house provisions) as a violation of the Canadian Charter of Rights and Freedom (The Vancouver Sun 2007). It is anticipated that these legal challenges will reach the Supreme Court in early 2009.

At the provincial and municipal level, as part of the Vancouver Agreement between the city, local and provincial governments to address disparities in the DTES, the Living in Community (LIC) committee was formed in 2004 to develop a coordinated action plan to address issues associated with sex work and sexual exploitation in Vancouver, Canada. The LIC is comprised of
representatives of community, business, sex worker organizations, police and government and focuses on balancing the interests of residents, businesses, sex workers and clients. The report released in 2007 provides key recommendations aimed at reducing harms at all levels of sex industry, including adverse impacts on residents, businesses, police and sex workers themselves (Vancouver Agreement Sex Work Steering Committee 2007). However the report underscores the urgent need for research to inform evidence-based policy and prevention targeting the most marginalized women in street-based sex work in this setting. Of particular concern, the report recommends 'No Go' zones to address the harms of street-based sex work on residents and businesses, despite repeated evidence from other settings, including the United States and several European cities, of the adverse impacts of prostitution free zones on the health and safety of street-based sex workers (Sanchez 2004; Sanders 2007). In light of current legal challenges to the Canadian criminal code, and local policy discussions, there is a desperate need for research to examine the impact of legislation and policies on the health of street-based sex workers.
Early in the HIV epidemic, among substance using populations, HIV infection was initially shown to be largely transmitted through injection routes. However, increasing evidence suggests sexual transmission may play a larger role in HIV transmission risk among substance users than initially estimated (Kral 2001; Strathdee 2003). Of concern, our understanding of how sexual and drug use partners overlap in Vancouver and elsewhere remains fairly limited, making our estimation of the potential sexual transmission risk largely unknown in this population. Further, research on street-level sex work has been primarily derived from injection drug using and street youth cohorts, which have different inclusion criteria and recruitment and outreach strategies compared to a study specifically targeting street-level sex workers. For example, in initial research among women at a sex worker drop-in in this setting we found that only just over half of street-level sex workers have ever injected drugs, while the primarily drug of choice is crack cocaine (Shannon 2005). Yet much of our understanding to date has relied on evidence among sex workers within IDU cohorts.

While several important individual and micro-level factors have been associated with elevated rates of HIV risk among who use substances and engage in sex work, including daily cocaine injection, crack cocaine smoking, requiring assistance to inject, and unprotected sex with intimate partners (Miller,
Spittal et al. 2002; Spittal, Craib et al. 2002; Tyndall, Currie et al. 2003; O'Connell 2005), the social, structural and environmental contexts that mediate micro level negotiation of HIV risk among FSWs in this setting remains much less well understood. For example, consideration of only the individual-level practice of "unprotected sex" does not describe the gendered negotiation process of male condom use, which is of particular importance given the current lack of widespread women controlled prevention resources (Zierler 1997; Krieger 1999).

In order to support interventions that increase condom use, it is necessary to elucidate the full range of factors that facilitate condom negotiation between women and their male partners. Further, consistent evidence from developing countries highlights the importance of elucidating social and environmental-structural factors that support risk reduction and positive sexual health practices among sex workers and clients (Parker 2000; Overs 2002; Synergy AIDS 2002; Basu 2004; Kerrigan 2006; Withers 2007). Of particular importance given the current legal challenges to Canada's criminal prostitution codes mentioned above, there is an important need for research that identifies the impact of current sex work laws and policies on the health and HIV prevention practices of survival sex workers.

Finally, traditional "risk factor" epidemiology in Canada has identified sex work as a predictor of increased likelihood of HIV infection among substance
use populations (Miller 2002; Spittal, Craib 2002; Spittal 2003). Given that sex 
work in and of itself is not a route of HIV transmission, it is crucial to elucidate 
the social and contextual factors of survival sex work that mediate women’s risk 
environment and both directly and indirectly reduce women’s ability to 
negotiation sexual and drug transmission risk.

1.6 Objectives

Given the limited contextual understanding of the HIV risk environment 
of survival sex workers in resource rich settings, the overall aim of this thesis is 
to examine the social, structural and environmental factors that mediate HIV 
prevention among women in survival sex work and provide recommendations 
for a renewed policy and prevention strategy that is responsive to this 
population.

The following four objectives were explored:

1) **To explore the HIV risk environment of survival sex work and the role 
of gender-based violence and power relations in shaping HIV 
prevention practices of women in survival sex work.** Chapter 3 provides 
the results and interpretation of a qualitative analysis of sex work 
narratives from a series of focus group discussions conducted in 2006. In
addition to be instrumental in informing policy and prevention gaps, the findings of this paper were used to generate hypothesis, construct structured questions and define variables for subsequent epidemiological analyses in Chapters 4-6.

2) To examine the role of drug-sharing with clients in the negotiation of sexual and drug transmission risk for HIV infection among women in survival sex work. In order to identify the overlap of sexual and drug use partners in sex work transactions, this analysis will consider the micro negotiation process of drug sharing with clients and its relationship to broader risk environment, including economic necessity, violence and sexual and drug use practices of survival sex workers and their clients. It is hypothesized that the practice of drug sharing with clients will act as a risk marker for elevated risk of HIV transmission through dual sexual and drug use pathways, including economics of negotiating safer sexual services.

3) To model the impact of early sexual abuse on subsequent violence and HIV infection among women in survival sex work. While there has been extensive research to date focused on HIV positive and substance using women that has identified early sexual trauma as an important predictor of initiation into sex work and transition to risky injection practices, it is
equally important to understand the relationship between early sexual abuse and subsequent HIV infection among both injection and non-injection using women involved in survival sex work. It is my hypothesized that sexual abuse before 13 years of age will have a direct relationship with HIV infection risk in adulthood, while any sexual abuse before adulthood (<18 years) will predict elevated generational vulnerability to survival sex work and mediate women’s HIV risk environment in adulthood.

4) To determine the structural and environmental barriers to condom negotiation with clients among women in survival sex work. Given increasing calls for policy reforms to Canada’s sex work legislation, this study examined the structural and environmental context of women’s sexual HIV risk through the negotiation of condom use for sexual services. It is hypothesized that both indirect and direct enforcement of sex work laws, alongside drug use policies, will reduce sex worker’s ability to safely negotiate condom use.
1.7 Summary

This thesis is separated into 7 chapters. In order to illustrate the current research gaps and objectives addressed by the thesis, the first chapter provides an initial background regarding the feminization of the HIV pandemic, the intersections of poverty, substance use and survival sex work in driving HIV infection risk, and the Canadian context of street-based sex work. The second chapter provides a global literature of the role of social, structural and environmental factors in shaping HIV prevention among FSWs and clients. Adapting the HIV risk environment framework to the sex work context, this review paper also provides a conceptual model that guides subsequent thesis research in Chapters 3-6. Using the risk environment framework, Chapters 3 provides a qualitative analysis of the contextual factors at micro, meso and macro levels that mediate HIV prevention with this population. Chapters 4, 5, and 6 provide social epidemiological analyses of the relationship between social, structural and environmental factors and negotiation of HIV risk reduction among women in survival sex work. Chapter 7 provides a summary of the key findings, policy and prevention implications and next steps in research.
1.8 References


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CHAPTER 2
SOCIAL, STRUCTURAL, AND ENVIRONMENTAL BARRIERS AND FACILITATORS FOR HIV PREVENTION AMONG FEMALE SEX WORKERS: TOWARDS ‘ENABLELING ENVIRONMENTS’

2.1 Introduction

Global HIV prevention efforts targeting female sex workers (FSWs) have largely focused on individual level strategies, such as behaviour change interventions, STI/ HIV testing and condom distribution. However, a growing body of research points to the effectiveness of social and environmental-structural level HIV prevention efforts in reducing HIV incidence among FSWs and clients, particularly those interventions that foster involvement of all sex work stakeholders, including FSWs, clients, sex work establishments, government and society (Blanchard 2005; Parker 2000; Overs 2002; Synergy AIDS 2002). Environmental-structural interventions aim to mediate factors operating at macro and meso levels that interact with micro-level negotiation in producing individual HIV transmission risk (Parker 2000; Rhodes 2002; Latkin 2005). According to WHO estimates, only 16% of sex workers worldwide have access to HIV prevention services, of significant concern given substantial evidence

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1 This chapter is currently under review for peer-reviewed publication as: Shannon K. Social, structural and environmental barriers and facilitators to HIV prevention among female sex workers: Towards ‘enabling environments’. Social Science and Medicine.
indicating that poor access to HIV prevention directly correlates with increased HIV/STI prevalence (WHO-WPRO. 2001). While the role of targeted HIV prevention is well established in early concentrated epidemics, there is also evidence to support targeted HIV prevention in generalized epidemic settings, such as in South Africa (Overs 2002; UNAIDS 2006a; Vickerman 2006), given increasingly high levels of mobility, migration, and sex tourism globally.

Among the most notable structural interventions, and considered a UNAIDS best practice for HIV/STI prevention among FSWs (UNAIDS 2000), the Sonagachi Project in West Bengal, India is a multi-pronged model facilitating economic, political and occupational power for FSWs that has shown significant success in increasing condom use in commercial sex work and in reducing rates of HIV/STIs (Basu 2004; Jana 2004). The intervention model focused on: defining HIV/STIs as occupational health hazards; promoting the citizenship and human rights of sex workers; enhancing access to HIV prevention and care resources; peer education and enhanced social capital; and community and political advocacy for sex worker issues and rights (Basu 2004; Jana 2004). Other settings in South East Asia (Kumar 1998), South Africa (Stadler 2006) and Dominican Republic (Kerrigan 2006) have successfully adapted similar social and environmental-structural HIV prevention interventions targeting FSWs to local contextual factors. Despite the recent successes, as well as challenges, with social,
environmental-structural level HIV prevention efforts in sex work markets across the globe, to date, there has been limited attempt to synthesis the evidence of barriers and facilitators for HIV prevention among FSWs.

A review of the global typology of sex work (Harcourt 2005) highlights the heterogeneity of sex work markets ranging from more formal sectors, such as brothels or escort agencies, to informal sectors, such as transactional sex and survival sex that include the exchange of sexual services for drugs, food, shelter, or other material gains as a means of daily subsistence. Two important review papers of sex work and harm reduction (Rekart 2005; Cusick 2006) have recently highlighted the variation in benefits and harms experienced by sex workers across different sex work markets, with the highest incidence of harms arising among women in the lowest paying, street-based sex work environments (Plumridge 2001; Surratt 2004). Sex workers may be female, male or transgender (male to female, or female to male). However for the purposes of this review, we will focus on the literature of female sex workers (FSWs). The HIV epidemic is inherently gendered, both biological and socially, with women being significantly more at risk of HIV infection through sexual transmission from male to female (as compared to female to male) that is compounded by a lack of widespread access to women-controlled protection (Amaro 1995a; Farmer 1996; Zierler 1997b). Women's risk of HIV infection needs to be placed within the
larger political, cultural, economic and social inequities that shape and construct the HIV risk environment (Zierler 1997b). Traditional epidemiological literature on sexual and drug-related risks among FSWs often ignores the complex gendered nature of negotiation of HIV prevention practices, including use of male condoms, sexual health, and the exchange of sex for drugs or money transactions (Amaro 1995a; Rhodes 2002), and instead categorizes sex workers as 'vectors of disease'. Rather than focusing on individual risk behaviour independent of social and contextual factors, qualitative and social epidemiological research increasingly document the need for 'risk' to be conceptualized as 'negotiated interactions' (Rhodes 1999), inexplicitly linked to gendered power dynamics, agency and access to resources, as well as institutionalized gender inequality, racism and poverty (Amaro 1995a; Farmer 1996; Zierler 1997b).

The risk environment framework developed to conceptualize the broader context of risk impacting HIV prevention among injection drug users (IDUs) moves beyond focusing solely on individual cognitive decision making to the physical, social, and policy environment that facilitates HIV risk (Parker 2000; Rhodes 2002; Latkin 2005). To date, the risk environment framework has been primarily used to describe risks encountered by IDUs, or substance-using sex workers (Moore 2004; Moore 2005); however, a review of the literature suggests
the adaptation of this framework to sex work is particularly useful in describing the broader context and environment of HIV risk. The risk environment is thus defined as of ‘factors exogenous to the individual that interact to increase vulnerability to HIV’ (Rhodes 2005b), and refers to space, social situations, structures and places, in which risk is produced and re-produced. Factors can be either direct or indirect barriers to/ or facilitators of, an individual’s HIV risk and prevention practices. This approach broadly encompasses social norms and networks, poverty, mobility, social dislocation, gender and ethnic inequities, and ‘social capital’ at the level of networks and communities (Rhodes 2005b). The framework includes three broad levels of risk: micro, meso and macro, and four environments in which risk is produced: social, structural, economic and environmental (Rhodes 2002).

However, unlike drug use itself, sex work is an income generation strategy, with monetary or material acquisition inexplicitly embedded in social, environmental and structural contexts of risk (Miller 2002). For example, factors operating at the level of interpersonal relationships or micro-level may include negotiating the use of male condoms with clients as part of the sexual service transaction, while at the environmental level, factors may include the role of working conditions, such as sanitation and hygiene standards of brothels, on sexual health and risk reduction. At the structural level, core or distal causes
such as laws, policies and social inequalities may interplay with micro-level factors, such as ability to negotiate safe sexual services, to produce HIV risk (Farmer 1996; Bourgois 1998; Parker 2000; Miller 2002; Rhodes 2005b). This framework builds on other theoretical frameworks used to guide HIV prevention programs targeting FSWs and clients (Parker 2000; Bourcier 2002; Overs 2002; Synergy AIDS 2002; Basu 2004; Jana 2004).

Drawing on the risk environment framework, this paper reviews the role of social, structural and environmental factors in shaping FSWs' negotiation of individual sexual and drug transmission risk for HIV infection. Consistent with the risk environment framework (Rhodes 2002), there is significant interplay and interconnectedness between levels that produce and reproduce risk. The review will describe these interconnections between social, economic, environment, and structural factors in relation to negotiation of individual risk and HIV prevention literature among FSWs and suggest a conceptual model to guide future research and prevention efforts (Fig 2.1). Given the relatively limited information on specific structural and environmental barriers and facilitators for HIV prevention, the review draws on the broader literature of sex work policy and geography to consider ways in which environmental and structural factors may impact HIV prevention. Finally, the review considers evidence of successful
structural, environmental, economic and social strategies in facilitating ‘enabling environments’ for HIV prevention among FSWs.

2.2 The role of social, structural, and environmental factors in mediating the negotiation of HIV risk reduction among FSWs

The conceptual model helps to elucidate the underlying mechanisms through which contextual factors mediate HIV prevention and negotiation of risk reduction practices among FSWs. As shown in Figure 2.1, HIV prevention among FSWs is inherently structural with gender, ethnic, cultural, legal, and political inequities and sex work laws and polices operating at the macro level driving the risk environment of FSWs. These structural factors interact with environmental, economic and social factors at the meso level in shaping the micro negotiation of risk reduction practices. Within the overarching role of structural inequities in this model, the subsequent sections explore the impact of laws and policies (structural); spatial relations of sex work and working conditions (environmental); access to material resources, poverty, survival and transactional sex (economic); and gender-based violence, social norms, lack of women controlled protection, social isolation, stigma, discrimination, and ability to foster peer networks (social) in shaping FSWs' ability to safely negotiate sexual and drug transmission risks. In sex work settings where structural, environmental,
economic, and social factors produce a risk environment in which FSWs must prioritize reducing the risk of violence and promoting safety at the expense of physical, emotional, sexual and reproductive health, women's ability to safely negotiate HIV risk reduction is severely compromised.

2.2.1 Sexual decision-making and the need for women-controlled prevention

Over two decades of HIV prevention and reproductive health research highlight the gendered nature of sexual decision making in negotiating male condom use, both with primary and commercial sex partners, and the urgent need for women-controlled prevention (Gollub 2000; UNAIDS 2006b). The complex process of sexual negotiation of male condoms among women is deeply embedded in social, cultural, environmental and structural contexts, and is further complicated by economic resource acquisition of selling and buying sexual services. Among FSWs globally, there is significant evidence in both outdoor and indoor sex markets to suggest that regular partners play more of a role in sexual transmission risk for HIV infection with sex workers, than paying customers (Voeten 2007). There is also evidence to suggest that perceived intimacy among regular paying partners is negatively associated with consistent condom use (Murray 2007).
The female condom, first approved in 1993, has been shown to successfully prevent unplanned pregnancy and reduce STI and HIV transmission risk, and is considered to be as efficacious as the male condom (Gollub 2006b). Among FSWs, studies have identified high acceptability to use of the female condom (Jivasak-Apimas 2001; Yimin 2003; Weeks 2007), with ethnographic work among informal sex work establishments in China suggesting the need for peer-based approaches to female condom education to ensure broad accessibility (Weeks 2007). A review of over a dozen clinical trials of the female condom demonstrated an “empowerment effect” when supported by training and education, with the female condom enabling women to control their own risk reduction, reproductive health capacity, and sexual decision making, and ultimately, changing the dynamics of sexual negotiation in the dyad (Gollub 2000). Following the introduction of both female and male condoms in brothel-based sex work establishments in Thailand, a randomized controlled trial showed a reduction in unprotected sex by 17% and a reduction in STI incidence by 24% in sex work transactions, beyond the reduction observed by use of male condoms only (Fontanet 1998). Unfortunately lack of widespread availability, cost and accessibility of female condoms across the globe continue to challenge the use of female condoms as a women-controlled HIV prevention strategy. While spermacides, microbicides, and nonoxynol-9-containing products have
been shown to offer no additional protection and some may even predispose to HIV acquisition (Wilkinson 2002; Padian 2007), there is significant evidence of the potential for cervical barriers to be effective HIV prevention tools given the increased susceptibility of the cervix to HIV transmission (Gollub 2006a).

2.2.2 Social exclusion, stigma and discrimination

FSWs have been shown to experience high prevalence of stigma, discrimination and social isolation that have direct impact on access to health services and effectiveness of HIV prevention strategies (Lawless 1996; Vanwesenbeeck 2001; Wojcicki 2001; Shannon 2005). Individual stigma and discrimination attached to specific HIV risk practices has been shown to be further compounded by societal stigma and negative social norms attached to certain groups, such as, the early media and public health discourse labeling FSWs as ‘vectors of disease’ (Basu 2004; Jana 2004). Importantly, stigma has been increasingly recognized as a key factor hindering HIV prevention and care efforts worldwide (Valdiserri 2002). Although stigma has been reported by sex workers in all sectors, higher prevalence of stigma and barriers to care have been reported in settings where sex workers have less autonomy and recognition of rights, are more isolated and have limited ability to foster peer networks. In contrast, environments that enable fostering of peer networks have been shown
to enhance social capital and collective action, thereby reducing societal and individual-level stigma and increasing effectiveness of HIV prevention strategies (Ward 2004; Halli 2006). A particularly illustrative example of enhanced peer network and collective action in shifting societal stigma developed out of the Sonagachi model of HIV prevention where over 60,000 sex workers convened in Calcutta in October of 2001 advocating for change in societal attitudes towards sexuality and sex work (Basu 2004; Jana 2004).

FSWs have also been shown to be consistently less likely to access and utilize conventional health and HIV service models, particularly sexual and reproductive health and STI/HIV testing, due to fear of stigma and discrimination, previous negative health experiences, inaccessible physical locations of services, restrictive hours, absence of women specific services, fear of running into bad dates or previous aggressors, and concerns of privacy and disclosure (Lawless 1996; Wojcicki 2001; Shannon 2005). Negative interactions with health providers have been reported by sex workers in many different regions and sex markets, and include negative judgment, public humiliation, refusal of service, or denial of access to HIV care unless agreeing to exit sex trade (Scambler 2008).

Mandatory HIV/STI testing is one key example of stigma and discrimination in a health setting that has a negative impact on sex workers’
human rights and access to care, decreased likelihood of accessing HIV/STI testing, and an influx of sex workers to more informal and hidden sex work markets (Tan 1994; Rekart 2005). For example in Russia, enforced HIV/STI testing of arrested sex workers and hospitalization for STI treatment led to negative perceptions of clinical services and reduced likelihood of seeking testing, particularly in the case of migrant sex workers in Moscow, who without legal papers cannot access free health services (Aral 2003; Lowndes 2003). In addition to negative impacts of stigma on STI/HIV testing among marginalized populations, particularly women, emerging evidence suggests that stigma and discrimination may play a key role in mediating access to antiretroviral therapy (ART) and HIV care among FSWs (UNAIDS 2004; Shannon 2005). Of particular importance, reproductive health needs of FSWs, including non-judgmental support on positive sexual health, pregnancy and motherhood, have been historically neglected in research and public health interventions, of particular concern given that majority of FSWs globally are of child-bearing age, and in many settings, single mothers are at increased likelihood of engaging in sex work to support themselves and their children (Chacham 2007).
2.2.3 Survival and transactional sex: Interplay between economic disparities, drug use, and gender-based violence in facilitating HIV risk

Survival sex and transactional sex have been documented in environments in which women have low access to resources and high rates of poverty, and are commonly motivated by basic survival and subsistence needs (Bronfman 2002; Hunter 2002; Lowndes 2003; Luke 2003; Dunkle 2007). The inherent link between early childhood sexual abuse and subsequent exchange of sex for money, drugs or other commodities as a means of daily survival has been well described (Braitstein 2003; Farley 2005). Evidence indicates that in circumstances where a woman exchanges sex for a basic necessity or needed commodity her control over negotiating HIV prevention practices may be severely compromised (Pyett 1997a; Weeks 1998; O'leary 2000). Transactional and survival sex need to therefore be considered within the context of high rates of gender-based violence in both intimate and client relationships, substance use, and economic disparities (Zierler 1997a). Transactional sex has been well described, particularly in sub-Saharan Africa, as the exchange of sex for material gain, with few women identifying as sex workers, and with evidence suggesting increased vulnerability to HIV infection (Wojcicki 2001; Luke 2003; Dunkle 2004; Dunkle 2007). In Soweto, South Africa, transactional sex was found to be associated with intimate partner violence and substance use, as well as increased
odds of HIV seropositivity (Dunkle 2004). The interplay between gender-based violence, substance use, and economic disparities in access to resources was found to mediate the relationship between transactional sex and sexual risk of HIV transmission.

High rates of survival or transactional sex have also been reported in displaced populations and refugee camps, compared to non-conflict settings (UNAIDS 1997). Increased sexual risk of HIV transmission through the exchange of sex for money or food as a survival strategy, as well as heightened rates of sexual violence and rape of women, is linked to unequal power and access to resources in conflict settings and associated with dispersion of new outbreaks of HIV infection (Hankins 2002; Jewkes 2007).

Among substance using populations, the exchange or selling of sex for money, drugs, shelter or other commodities is inherently linked to street-based economy and driven largely by poverty and the need to sustain drug habit (Inciardi 1995; Spittal 2003). The role of social, structural and environmental factors in facilitating or preventing negotiation of sexual HIV risk reduction is therefore further complicated by the intersections of sex work with drug use, resulting in dual vulnerabilities for HIV infection through both sexual and drug use pathways (Edlin 1994; Shannon 2007a; Strathdee 2008).
**Intersections of open drug use and street-based sex work market spaces in impacting risk of HIV transmission**

The intersections of sex work and addiction arise in circumstances where drug markets and sex work share space (Maher 1997b; Cusick 2006). A recent review of sex work and harm reduction suggest that the greatest concentration of harms experienced by sex workers are concentrated in low status, street-based, open sex markets, which generally limit the benefits of autonomy and control of working conditions experienced by other levels of sex work industry (Cusick 2006). These open sex work markets frequently co-exist with open drug use markets and are largely unregulated, and heavily policed, with high rates of violence and victimization, child exploitation, trafficking and pimping (Miller 2002; Potterat 2004; Surratt 2004). The impact of heavy policing, crackdowns and harassment is particularly elevated in these settings, largely due to the criminalization nature of both drug use and sex work practices, such as exchange of sexual services in public spaces (Lowman 2000; Cusick 2006). Documentation of human rights violations of drug users suggest that substance-using women and street-level sex workers face particularly high rates of violence and harassment, including unlawful confiscation of syringes, drugs, and condoms without arrest, and frequent “jack ups”, that negatively impact access to care and

The social context and gendered norms of street-entrenched, drug use populations suggest that both violence and gendered power dynamics mediate micro-risk environments and negotiation of risk reduction practices among women in both intimate and client-worker relationships (Amaro 1995b; Quina 1997; Zierler 1997a; Amaro 2000; El-Bassel 2000; May 2001; Sherman 2006; Shannon 2008a). Drug-using within intimate partnerships have been identified as a key target for risk management in individual’s drug use patterns (Rhodes 1998; Simmons 2006). FSWs who inject drugs (FSW-IDU) are significantly more likely to have large social networks and overlapping sexual and drug use partnerships that increase risk of HIV infection (Sherman 2001). FSW-IDU are also significantly more likely to require assistance to inject, a practice recently associated with increased risk of HIV seroconversion (O'Connell 2005). Further, FSW-IDU may be less likely to negotiate condom use due to fear of withdrawal (Strathdee 2008). In qualitative and ethnographic work, the interpersonal control of older male partners (boyfriends/ pimps) over the female partner’s injection practices and access to drugs has consistently been documented, with male partners procuring and supplying the drugs, and controlling drug preparation and micro-injecting practices, and the female partner generating the income for
drugs through sex work (Maher 1997b; Zierler 1997a; Bourgois 1998; Maher 2001; Shannon 2008a). The social norms and gendered role of boyfriends as pimps has further implications for limitations of over reliance on individually-focused HIV prevention, such as syringe exchange and condom distribution, with growing evidence of male partners limiting women’s ability to practice risk reduction with clients and control their working environment, including access to clean syringes, condoms, and regulating the negotiation process.

Among intimate partner and client relationships, partnered drug-involvement has been found to be directly associated with male psychological dominance, increased physical and sexual violence, and concomitant sexual HIV risks (El-Bassel 2004; Shannon 2007a). Interpersonal dynamics among drug-using intimate partnerships have also been shown to interplay with treatment barriers and larger structural forces in mediating individual’s access to detox and other treatment facilities (Simmons 2006). The normalization of gendered violence, or “everyday violence”, among street-based sex workers has been shown to limit the effectiveness of harm reduction, HIV and STI prevention initiatives (Bourgois 2004; Shannon 2008a).

Among non-injection drug users, a synergistic relationship between survival sex and smoking crack cocaine has been consistently documented since the emergence of smokeable crack cocaine in the mid-1980’s in many urban
centres, along with media images and discourses of the “crack whore”. Given that the smallest quantity of crack cocaine costs between 5-10$US, and the fairly short high associated with each hit of crack, the ability to insist on risk reduction, including types of sexual services, locations of dates, and use of male condoms, is further limited, with women often having to do dates for as little as $1-2US (Maher 1997). Crack cocaine smoking has been associated with enhanced risk for STI and HIV transmission among both men and women who exchange and buy sex (Edlin 1994; Ward 2000; Edwards 2006; Sherman 2006), as well as heightened violence and exploitation and decreased control of working conditions among sex workers (Edlin 1994; Logan 1998). Crack cocaine smokers have also been shown to have a high prevalence of oral sores, cuts and burns to lips and mouth that have been hypothesized to facilitate STI/HIV infections, through both sexual and drug use practices, including unprotected sexual encounters, exchanging of oral sex for drugs in crack houses, and sharing of non-injection drug use paraphernalia (Edlin 1994; Ward 2000; Tortu 2004; Edwards 2006; Sherman 2006). Further, the emergence of the “crack house” as a physical environment of risk has important ecological implications for HIV prevention. Early qualitative and ethnographic research suggests that physical and setting-specific social norms of crack houses mediate HIV prevention and risk reduction practices, including poor sanitation and lack of running water to prepare drugs, social isolation, lack
of peer networks between sex workers, high rates of violence, and increased likelihood of direct sex for drug transactions (Inciardi 1993; Ratner 1993; Inciardi 1995). The high rates of binge crack use in this environment and the frequent anonymous sexual exchanges for crack often constrain the negotiation process between sex workers and clients in these settings (Inciardi 1993; Inciardi 1995).

2.2.4 Spatial relations of sex work

Migration, mobility and sexual trafficking

The social dynamics of migration and mobility have, historically, played a role in shaping commercial sex work, with significant variation in spatial concentration and relations of buying and selling of sex being driven by mobility, migration and displacement within and between countries (Soskolne 2002). Employment-related mobility of male clients away from home has been shown to play a key role in HIV transmission among sex workers, spouses, and regular sex partners (Van Blerk 2007). Migration and mobility among clients has largely focused on truck drivers along trade routes, ship personnel at main ports, military officers and soldiers, mining workers, labourers, and more recently, sex tourists. In addition, increased concentration of male migrant workers, such as in mining communities in South Africa, have been shown to have a significant impact on increasing demand for FSWs and enhancing HIV transmission risk in
the context of low access to resources (Brockerhoff 1999; Rachlis 2007). FSWs servicing US clients in US-Mexico border town of Tijuana were more likely to have STIs and report being paid more for sexual services without condoms (Strathdee 2007).

Among FSWs, migration and mobility may be voluntary or forced, individual or through agents, and legal or illegal (Overs 2002). Sex work may enable or require mobility, such as the use of cell phones and internet to facilitate mobility of sex workers in Estonia (Aral 2006), or may restrict mobility through contractual arrangements with brothels and middlemen/ women (Cwikel 2003; Okonofua 2004; Van Blerk 2007). There is also significant evidence globally of migration and mobility of girls and young women from rural areas to urban areas due for increased economic opportunity and increased client demand to buy sexual services through greater access to economic resource (UNAIDS 2006b). Economic and political transitions may lead to social disruption and shifts in social norms that facilitate increased opportunity for commercial sex work, particularly among women, such as in Ukraine, Moldova and Russia (Aral 2005; Renton 2006). The role of migration and mobility in sex work may be further complicated by intersections with drug trafficking and mobility among drug users (Rachlis 2007), that have been associated with increased incidence
rates of STI and HIV, as in Lavitia, Russia and Finland (Atlani 2000; Aral 2005; Platt 2005).

Migration and mobility may also be through sexual trafficking within and across international borders, sexual slavery and debt bondage, and may involve coercion, lack of consent, rape and exploitation (Overs 2002). The transportation of FSWs across the US-Mexico border to serve migrant workers has been shown to elevate risk of HIV and STI transmission (Bronfman 2002). Human trafficking for sex work has been consistently associated with increased risk of HIV/STI infection, reduced access to health and legal services, and increased risk of violence and substance use (Kilmarx 1998; UN 2000). The UN estimates suggest that one million children enter sex work each year, often sold or pimped out by their families, and consistent evidence shows a high demand for young FSWs that fuels trafficking and exploitation, such as perceptions of reduced likelihood of HIV/STI risk among girls, cultural beliefs around sex with young virgin sex workers in increasing sexual potency, curing disease or extending lifespan, and cultural norms of young males' introduction to manhood through sex with a female sex worker (UNAIDS 2002; Willis 2002; Rekart 2005). Sexually exploited young girls have been shown to have reduced agency to negotiate condom use, increased physiological susceptibility to HIV and STIs due to immature vagina and cervix, reduced access to health and HIV prevention resources, and higher
risk of violence, sexual abuse and rape, substance use, mental health issues, pregnancy complications, suicide and mortality (Willis 2002; Rekart 2005). Unfortunately the majority of public health response and media attention surrounding mobility of women in sex work has focused on sexual trafficking, slavery and exploitation, failing to appreciate the diversity of social dynamics of mobility and migration in sex work that impact HIV prevention (Aral 2006).

Significant evidence shows that sex workers who migrate or are mobile are at higher risk for HIV and STI infection than local sex workers (Uribe-Salas 2003; Van Blerk 2007). However there is also some recent evidence documenting reductions in STI incidence in commercial sex work due to increased influx of migrant workers into formal sex work markets that may suggest a potential reorientation of HIV incidence among migrant workers (Ward 2004). A steep decline in acute STI infections in the London sex industry documented between 1985 and 1992 was attributed to major restructuring of the sex industry through a large shift from a local to primarily migrant workforce. The influx of migrant workers fostered increased rates of condom use in commercial sex work transactions that led to the decline in acute STI infections. At the same time, research among sex work populations in Mexico examined the mobility and spatial concentration of commercial sex workers and HIV/STI vulnerability by municipalities and identified more vulnerable groups of illegal immigrant
women from Central America working in cities along the Guatemalan border, while women from Mexico were working in cities more centrally located (Uribe-Salas 2003).

Mobility and migration along borders and major trade routes have been identified as key environmental/structural determinants of heightened risk of HIV infection, as well as factors driving increased buying and selling of sex work (Rachlis 2007). Borders and trade routes represent social locations of HIV vulnerability due to high population movement, increased social and economic disadvantage, violence, rape, and exploitation, lack of legal rights, fears of deportation, and social disruption, marked by social and political transition (Lyttleton 2002; Rhodes 2005a). Research at eleven transit stations in Central America and Mexico documented heightened HIV vulnerability at cross-border points among primarily undocumented migrants due to low economic resources and lack of legal rights, high rates of poverty, violence and rape, corruption by border authorities, and reduced ability to negotiate condom use among migrant women in transactional and survival sex (Bronfman 2002). In South Africa, heterogeneity in HIV prevalence among pregnant women in Hlabisa health district was correlated with proximity of homestead in each clinic catchment area to primary and secondary roads (Tanser 2000), with communities with better access to transport routes at higher risk for HIV transmission due to increased
mobility and concentration of transactional sex along transport routes. Similarly, mapping of transactional truck spots along the Northern Corridor Highway in Kenya revealed several geographic "hotspots" for sex work transactions that highlighted the need for environmental interventions targeting "vulnerable places", in addition to "vulnerable populations" (Ferguson 2006).

The difference in recognition of rights of migrant and mobile workers has been shown to have particularly important implications for STI/ HIV prevention and risk reduction. Where migrant and mobile workers lack legal rights, FSWs are more likely to be working in informal and outdoor sex markets with reduced benefits of autonomy and control over working conditions, reduced access to health care, HIV/STI testing, and HIV prevention resources, language and cultural barriers due to lack of legal status, restricted freedom due to sexual bonding and trafficking, and fear of deportation and mistrust of authorities (WHO 2000; Bronfman 2002; Aral 2003). At the same time, where migration and mobility patterns are well established, some sex workers benefit from increased autonomy over working environments, access to services and peer networks, such as Ukraine migrant workers in Moscow, Cote D'Ivoire women in Ghana, and Latin American transgender and male sex workers in Europe (Overs 2002).
Spatial programming, neighbourhood disadvantage, and the production of sex work space

The role of place, both physical setting and the social meanings attached to place, have been shown to have increasing importance in public health and HIV prevention (Rhodes 2002). The informal and formal management of sex work spaces and access to resources among FSWs have been facilitated through spatial relations of government, policing, community and sex workers for centuries, often displacing sex workers to marginalized spaces, such as red-light districts, to reduce the ‘visibility’ of sex work (Hubbard 1998; 2004). In industrial settings, neighbourhood disadvantage and high concentration of low-income housing and poverty has been associated with increased concentration of open drug use and intersection with open sex work markets, as well as heightened vulnerability to HIV transmission and reduced survival among HIV positive individuals (Hogg 1994; Corneil 2006). The spatial concentration of sex work in inner city areas has also been shown to result in increased police surveillance and harassment (Benson 2000). In the UK, where sex work itself is legal, but criminalized laws make it difficult for sex workers to work without breaking the law, de facto toleration zones have emerged in which police use powers of arrest to effectively concentrate sex work in red-light districts (Bellis 2007b). Unlike managed safety zones, these de facto “tolerance zones” operate under unwritten
rules of engagement between police, sex workers, and sex industry, are exposed to periodic police crackdowns, and have been described as the reclaiming of red-light districts from sex workers to the control of enforcement. Spatial programming through urban renewal and gentrification have been further associated with displacement of sex work, breakdown in social networks and loss of safe physical spaces, such as informal safety zones, as well as, reducing access to health and social supports, and redistribution of harm (Hubbard 2003). While a growing body of research has focused on the geography of sex work and production of urban space, as of yet there is little empirical evidence or evaluation of the impact of spatial programming on the ability of sex workers and clients to enact risk reduction practices and HIV prevention in street-based sex markets.

One particular example of spatial programming impacting the health and safety of sex workers, labeled spatial governmentality (Sanchez 2004), is "prostitution free zones" or "no-go zones" in which exclusionary laws prohibit sex workers from working in specific public spaces, and are designed to address concerns of ‘quality of life’ and ‘livability’ of communities, neighbourhoods, businesses, and governments, as well as remove the ‘visibility’ of open sex work (Sanders 2007). A prostitution free zone ordinance was first introduced in Portland, Oregon in 1995 in five areas of the city, and further replicated in cities
across the United States, Europe (Sanders 2007). Initial evidence suggests these exclusionary zones limit access to resources through displacement of sex work to isolated and outlying areas, redistribution of harm to neighbouring communities, and reduced ability of workers to protect themselves from violence (Sanders 2007). In contrast to informal tolerance and prostitution free zones, there is emerging evidence to support more formal models of managed street sex work zones, such as those operating in cities in Germany, the Netherlands, and Scotland, in mediating the risk reduction practices and violence among open street-based sex work markets (Van Doorninck 2006; Sanders 2007). In Leith, Edinburgh, a ‘non-harassment’ zone for street-based sex workers operating for over two decades saw a dramatic decrease in rates of violence among sex workers, reduced HIV infection rates, improved access to sexual health resources and reduced criminal offences when compared to other UK cities (Van Doorninck 2006; Sanders 2007). More recently, in Utrecht, the Netherlands, zoning of sex work to main, well lit areas, reduced rates of violence, increased access to services and referral, and supported police targeting exploitation and violence in street-level sex work (Van Doorninck 2006). However, policies around zero tolerance of drug use and dealing in these areas have not been systematically investigated and research with street-based sex workers have highlighted the imperative need for managed sex work zones to build in support
for harm reduction, rather than enforcement based drug strategies (Bellis 2007a; Shannon 2008a).

2.2.5 Policies and laws as barriers and/ facilitators to ‘enabling environments’
for HIV prevention

The legal status of sex work has important implications for the effectiveness of HIV prevention. In contexts where sex work is illegal or operates in largely prohibitive environment, laws are usually oriented towards criminalizing individual sex workers, resulting in displacement to outlying areas and dispersion of sex work to underground settings, intensifying policing and crackdowns, increasing harassment and violence of workers by clients and police, reducing access to health and HIV prevention services, and disrupting social networks (UNAIDS 2002; Lowman 2004; Goodyear 2005; Rekart 2005; Cusick 2006; Ramaiah 2006; Day 2007; Goodyear 2007). Evidence also consistently documents higher rates of arrests of sex workers compared to clients, under prohibitive legal frameworks. In Russia, although soliciting for sexual exchange is not illegal, sex workers are arrested under administrative codes for "petty hooliganism" or for not possessing appropriate documents, an ambiguous legislation is open to interpretation and subject to abuse by police through bribery and forced sexual exchanges (Dehne 2000). At the same time,
several policy strategies focus on criminalizing and targeting individual johns, though the impact of these strategies on the risk environment of commercial sex work in these settings is largely unknown. Targeted education and rehabilitation of arrested johns have been implemented in both Canada and the UK, known as “Kerb Crawler Rehabilitation” in the UK and “Johns School” in Canada, with some evidence of reductions in recidivism (Sanders 2007). Another strategy employed to target buyers of sex industry is the confiscation of john’s cars, a policy enacted in several states in the United States, and used as part of wider policing sweeps in Canada. Although these strategies shift the focus from sex workers to clients, they rarely address other sex work stakeholders, such as brothel owners or pimps, and evidence suggests these strategies may have adverse effects on the autonomy of workers, by reducing or displacing access and availability of clients, while failing to alter the economic opportunities or environment in which sex workers operate (Sanders 2007).

In contexts where sex work is legal and/or decriminalized, laws against exploitation and violence are more likely to be enforced, reducing harassment and exploitation by clients, third parties and local enforcement (Parker 2000; Overs 2002; SynergyAIDS 2002). In most developing countries, sex work is legal or quasi-legal and sex workers are entitled to the same rights and benefits as other workers. However, the legal status of sex work is often designated to
specific geographic settings and associated with registration and mandatory health check-ups, often resulting in increased influxes of more vulnerable sex workers to informal sectors and more hidden forms of sex work outside of this regulation, thus increasing the stigma associated with sex work. In many developed countries in Western and Eastern Europe, as well as more recently New Zealand and parts of Australia, sex work is decriminalized and/or regulated (Sanders 2007). Growing evidence suggests decriminalization facilitates increased access to sexual health services and support for condom use in these settings (Harcourt 2001). In Nevada, Las Vagas, the legalization of brothels has led to a significant reduction in occupational violence to 1 in 40 sex workers, with sex workers, brothel owners and policy markers arguing that legislation brings about a level of public scrutiny on the sex industry that facilitates reduced violence (Brents 2005). In Victoria, Australia, where licensed brothels have been legalized since 1994, increasing prevalence of trafficking and exploitation of youth has challenged the effectiveness of the legislation in reducing violence (Sullivan 2002). However, increased rates of trafficking and exploitation have been attributed by many to a failure of authorities to monitor licensed premises and enforce the policies, as well as global shifts in mobility of sex workers (Sanders 2007).
2.2.6 Working conditions and client-perpetrated violence

Working conditions and policies impacting sex work environment have a direct impact on the degree to which sex workers can protect themselves from client violence and negotiate HIV risk reduction practices (Overs 2002; Synergy AIDS 2002). Significant evidence suggests that violence, fear of violence and lack of resources to protect oneself from potential violence directly reduce sex worker’s ability to negotiate condom use with clients and likelihood of protected sex (Sanders 2007). Street-based open sex markets, in which clients are solicited in streets and other public spaces, and are serviced in alleys, parks, vehicles or short-term rooms, are particularly common both in developing countries and displaced populations with significant economic disparities (eg. Eastern Europe, parts of sub-Saharan Africa, Latin America, Southeast Asia), and in higher income countries where legislation denies sex workers the ability to work indoors (eg. North America, United Kingdom). Prohibitive laws around solicitation in public spaces, including those in Canada, the United States, the UK, and parts of Australia, have been shown to result in increased police presence and crackdowns and displacement of street-level sex work to outlying areas (Lowman 2004; Goodyear 2005; Cusick 2006). As a result of displacement and legal restrictions on taking clients indoors or working in cooperative sex work establishments, drug-using workers, migrant workers and youth, are
pushed to work in prostitution strolls on off-streets, dark alleys and industrial settings, with poor lighting, no protections or security from violence, limited to no access to social, health or crisis support, poor sanitation, and limited access to condoms, clean syringes and other drug use preparation equipment (clean water, alcohol swabs, etc) (Lowman 2000; Hubbard 2003; Shannon 2008b). Research has shown that between 50 and 100% of outdoor sex workers experience physical, sexual and economic violence in their work (Pyett 1997b; Lowman 2000; Kurtz 2005). Qualitative research in outdoor sex markets operating within prohibitive legal frameworks suggests that the immediacy and ‘everyday violence’ experienced in outdoor sex work transforms the occupational risk of HIV/STI transmission and physical health to a secondary role (Maher 1997a; Epele 2002).

In terms of indoor sex work markets, significant variation exists (from private rooms to massage parlours), with the most common indoor sectors being brothels and escort agencies. Escort agencies are more likely to be tolerated by law enforcement and community, and can offer sex workers more freedom to choose clients (UNAIDS 2002). However, violence and reduced access to health services has also been reported in these settings, as escort workers travel to clients’ premises. Working conditions of brothels vary widely, however, brothels are most likely to be subject to state regulation and generally offer greater personal safety and autonomy than outdoor sex markets, and better access to
health care work (Harcourt 2005). Safety strategies that facilitate sex worker's ability to ensure risk reduction include house rules, video cameras, registration of clients, 100% condom use enforcement, call buttons, and occupational health and safety standards. Registration is however a limitation to clients who want to ensure anonymity (Harcourt 2005). Occupational health and safety standards, such as those applied in Australian brothels, have historically been regulated among other occupations and evidence supports their application in sex work occupations in order to ensure the health and safety of workers, including reduction of HIV risk (Sullivan 2002). In New Zealand, signed contracts between sex workers and clients are a further protection for workers that have been shown to be an effective environmental risk reduction strategy.

Within brothel markets, there is increasing evidence to suggest environmental structural support for condom use has a significant impact of HIV/STI prevention (Kerrigan 2003). Research in the Dominican Republic found an aggregate measure of environmental-structural support for condom use and HIV/STI prevention, including social and policy environment of the sex work establishment, that significantly predicted consistent condom use in sex work transactions (Kerrigan 2003). In Hillbrow, South Africa, a mobile clinic intervention providing access to STI services, education and condoms to FSWs and clients was shown to be effective in transforming hotels to "healthy
brothels" by facilitating enabling environments for risk reduction (Stadler 2006). Among primarily indoor sex work markets in the UK (namely, brothels, licensed saunas, and escorts), greater autonomy and control over working environment facilitated a hierarchy of risk reduction practices in which emotional risk was given priority, followed by violence and health-related risk reduction (Sanders 2007). While extensive qualitative and ethnographic research to date, as well as some epidemiological evidence using aggregate measures, supports the role of working conditions and policies regulating working environment on the ability of sex workers to enact risk reduction and safety strategies, there is remains limited quantitative research aimed at delineating the role of specific environmental factors and structural regulation of working conditions on HIV transmission risk (Miller 2002).

2.3 Successful strategies shown to facilitate 'enabling environments' for HIV prevention among FSWs

A synthesis of successful social and environmental-structural intervention strategies to support enabling environments for HIV prevention among FSWs is described in Table 2.1. As described throughout the review of the literature and illustrated in Figure 2.1, HIV prevention is inherently structural when applied to commercial sex work. Based on the synthesis of the literature, Table 2.1 shows
the imperative need for laws and policies oriented towards decriminalized and regulated sex work markets in order to facilitate an environment in which FSWs can safely negotiate risk reduction through the removal of structural inequities, and environmental and social barriers (Parker 2000; Overs 2002; SynergyAIDS 2002; Rekart 2005; Cusick 2006). At the meso level, environmental interventions, facilitated by the overarching role of structural support illustrated in the model, need to be embedded in existing spatial relations and address issues of mobility and migration of FSWs and clients in order to foster safer sex work environments (Zierler 1997a; Bourgois 1998; Parker 2000; Maher 2001; Aitken 2002; Latkin 2005; Rekart 2005; Small 2005; Kerrigan 2006; Rhodes 2006; Sherman 2006). Further, the review highlights the critical component of empowerment models in HIV prevention efforts targeting FSWs that are focused on strengthening peer networks and enhancing social capital and collective action (Basu 2004; Jana 2004; Halli 2006). There is crucial evidence to support the role of peer-networks and positive social norms in facilitating sex workers ability to ensure consistent condom use (Ward 2000; Halli 2006). Effective strategies include meaningful inclusion of sex workers, peer-led education and support groups that increase social capital and strengthen collective action of sex workers (Basu 2004; Jana 2004; Halli 2006).
Finally, as evidenced in Table 2.1, Overs (2002) highlights the core principles behind a theoretical framework for effective HIV prevention strategies targeting FSWs, drawing on successes in a number of settings. In particular, the health and human rights of sex workers need to be understood as essential elements of HIV prevention and a legitimate means in themselves; responsibility of sexual health must go beyond sex workers to clients, third parties (e.g., sex work establishment owners, managers), government and society; and commitment to work in full partnership with sex workers that includes addressing social marginalization, economic exclusion, violence and overall health.

2.4 Limitations

There are several limitations that should be taken into account when interpreting this review. A lack of methodological information in many peer and non-peer reviewed studies make it difficult to assess the reliability and quality of the findings across studies. Evidence from the grey literature and qualitative work, as well as across target populations and regions, make it difficult to interpret and generalize findings to other contexts. However, the risk environment framework highlights the interconnectedness of social, economic, environmental and structural factors in producing and reproducing risk
elucidated through a review of both qualitative and quantitative research. Finally, although a review of sex work geography literature offers important evidence concerning possible pathways of risk and role of place and context in risk reduction and HIV prevention, it is important to recognize that in many cases the impact on HIV prevention was not considered, and thus further research is needed to more clearly delineate the links between structural factors, environmental context and HIV risk.

2.5 Conclusions

In summary, this review highlights the body of evidence demonstrating the critical need for community action, environmental, and economic changes that are supported by structural prevention efforts in order to promote FSWs’ ability to safely negotiate risk reduction practice and thus reduce the risk of HIV transmission. While the model is clearly simplified given the known interactions between macro, meso, and micro levels, the proposed conceptual model provides a useful framework for delineating the multiple pathways through which structural, environmental, economic and social factors may impact the FSWs’ micro negotiation of HIV prevention. Future research and prevention efforts need to identify and develop measures for systematically evaluating specific structural, environment, economic, and social factors as effective HIV prevention
strategies, as well as identifying barriers to HIV prevention efforts for FSWs. Of particular importance, a review of the literature of geography of sex work and urban space suggests that policies impacting working conditions and spatial programming in urban settings may play key roles in reorienting or dispersing HIV risk in sex work. Finally, a renewed conceptual approach to HIV prevention targeting FSWs needs to be based on evidence of the barriers and facilitators for HIV prevention experienced at all levels of the sex industry, not just FSWs, including clients, sex work establishments (brothel owners, managers), third parties (pimps, dealers), law enforcement, and health authorities.
Figure 2.1. The role of social, economic, environmental and structural factors in mediating the negotiation of HIV risk reduction among FSWs (in both generalized and concentrated epidemics)
Table 2.1. Successful social, structural, economic and environmental strategies shown to promote ‘enabling environments’ for HIV risk reduction among FSWs

| Social                          | -Empowerment models that promote social capital (including peer support networks and sex work-led initiatives; adoption of rights based approaches – not tokenism of sex worker involvement)  
|                                | -Ensuring peer support, mentorship, extends beyond sexual health to physical, emotional and reproductive health support and advocacy  
|                                | -Health education, including sexual health resources, that reaches sex workers, clients and sex work establishments  

| Economic                       | -Increased access to material resources and economic opportunity  
|                                | -Subsidized housing, child care options  
|                                | -Systems for generating and managing income, e.g., labour unions, bank accounts  
|                                | -Support sex workers in conception/design/ and implementation through employment opportunities/skills building  

| Environmental                  | -Environmental, peer driven interventions that are located in existing spatial relations and accessible locations (e.g., transport routes, border crossings)  
|                                | -Drop-ins/safe spaces for sex workers to access services and support, with flexible hours, locations, low threshold approach and promote sex worker involvement  
|                                | -Ensuring spaces and accessibility of resources to meet and build peer networks  
|                                | -Harm reduction interventions to reduce drug-related harm embedded in existing spatial relations and accessible locations to working women: such as peer-driven interventions, comprehensive drug-treatment, low-threshold, satellite drug consumption rooms, drug maintenance therapy, safer crack use interventions  
|                                | -Peer-led outreach to both supervised and unsupervised indoor and outdoor sex work settings (including, informal settings, e.g., crack houses, saunas, hotels)  
|                                | -Mobile, low threshold services (primary health care, syringe/condom use distribution, referral/support)  
|                                | -Sex worker crisis intervention/access to emotional health support  
|                                | -Safe sex work sites that are peer-driven (semi-supervised/supervised environments – e.g., sex worker co-operatives)  
|                                | -Women’s only health access – dialogues and sensitivity training with health providers to reduce stigma and increase access in non-judgmental manner  
|                                | -Linking prevention with care: Improve access to voluntary HIV/STI testing, HIV care and antiretroviral therapy, and integration with reproductive health services  

| Structural                     | -Laws/policies that facilitate ‘enabling environments’ for HIV prevention (decriminalized/regulated sex work environments that promote human rights and full citizenship of FSWs, including those living with HIV)  
|                                | -Supportive housing options  
|                                | -Occupational health and safety standards for sex work establishments  
|                                | -Managed sex work zones for outdoor sex markets  
|                                | -Legislative support for sex worker unions that promote human rights, including labour rights, and reduce occupational health and safety risks  
|                                | -Legal licensing of sex work establishments, (e.g., co-operatives, massage parlours)  
|                                | -Laws that promote legal rights of sex workers against violence in the workplace and ensure opportunities for redress of right violations and criminalization of client violence, sex trafficking, exploitation, forced migration, pimping  
|                                | -Dialogue between local police/enforcement and sex workers on local policing strategies that promote and support sex workers health, safety and human rights  

Adapted from UNAIDS 2006; WHO 2006; Overs 2002; Sweat & Denson; Bourcier et al.; Cusick 2006; Rhodes 2002; Reichart 2006
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3.1 Introduction

“Well there's how many dead Native women? What do you think, right? I would think a lot of people think we're shit, right? Disposable.”

Aboriginal Sex Worker (SW) Respondent

Alarmingly high rates of assault and victimization of street-level sex workers have been described across the globe (Goodyear, 2007). In Vancouver, British Columbia, the disappearance of over 60 women from the Downtown Eastside community, primarily women of First Nations' ancestry engaged in survival sex work, and the current serial murder trials have garnered international attention, while in cities across Canada, the assault, violence and predation of sex workers is ongoing (Cler-Cunningham 2001; Amnesty International 2004). More recently, discussions at local, federal and international levels have focused on environmental and legal approaches to addressing the harms faced by sex workers (Goodyear 2007). In January of 2005 a Canadian

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parliamentary sub-committee traveled across the country speaking with various sex work groups and advocates in an effort to address Canada’s prostitution laws (Betteridge 2005).

Although sex work itself has never been illegal in Canada, the contradictory laws governing prostitution mean that sex work operates within a largely prohibitive environment. In particular, the “communicating” provision passed by the Federal Government in 1985 and designed to reduce the visible presence of street prostitution prohibits the communication or solicitation for the purposes of sexual transaction in public spaces (Lowman 2004; 2000; Goodyear 2005). As well, the "bawdy-house" provisions (s.210 & 211) and “procuring” provision (s. 212) prohibit living off the avails of prostitution, or operating a brothel, thus limiting survival sex worker’s ability to work indoors in safer and quasi-supervised settings.

In Vancouver’s Downtown Eastside, a community known for the largest and most heavily concentrated open illicit drug use scene in North America (Strathdee 1997; Wood 2002), female injection drug users, and in particular, Aboriginal women and youth, account for an overwhelming burden of new HIV infections (Miller 2005; Craib 2003). As well, women of Aboriginal ancestry are highly overrepresented among women in visible sex work across Canada (Amnesty International 2004), with estimates in 2000 suggesting that close to 70%
of women working in the lowest paying tracks in Vancouver were young, Aboriginal women (Culhane 2003). The complex vulnerabilities of Aboriginal women stem from a legacy of oppression and colonization and the multigenerational effects of social isolation, discrimination, entrenched poverty, and the residential school system (Farley 2005; Culhane 2003). Although several harm reduction and HIV prevention interventions have been adopted as part of the city’s drug policy response, including fixed site and mobile syringe exchange programs, a heroin maintenance trial and a medically supervised injection facility (City of Vancouver 2005), gender-focused harm reduction and violence prevention targeting sex workers are largely absent (Cler-Cunningham 2001).

While several individual level factors have been shown to elevate HIV and sexually transmitted infections (STI) risk among female substance users, such as, requiring assistance to inject and unprotected sex with intimate partners (O’Connell 2005; Spittal 2002), a focus on individuals fails to elucidate the social, environmental and structural factors that mitigate HIV risk (Amaro 2000; Zierler 1997; Quina 1997). In particular, research on substance use and violence suggest women are particularly vulnerable to transmission of HIV through gendered violence and power relations with their drug-using intimate partners that directly impact their ability to negotiate sexual and drug risk reduction. Despite extensive documentation of violence among substance-using women in their
relations with intimate partners, there is limited contextual understanding of how gendered violence and power relations facilitate HIV risk among women in commercial sex work transactions. Of particular importance are ethnographic works that have examined the lives of sex workers and experiences of violence (Maher 1997; Nencel 2001), and yet the link to HIV prevention efforts has not been clearly delineated. In order to re-conceptualise a public health response beyond individual level approaches, we need to consider the ways in which the 'lived experiences' of sex workers are mediated by and respond to structural and social level violence and power relations in the negotiation of commercial sex work transactions.

Drawing on theoretical frameworks of HIV risk that move beyond an individual-level focus, a risk environment framework outlined by Rhodes (2002) is particularly useful for understanding the broader risk environment and re-conceptualising public health responses (Moore 2004; Latkin 2005; Parker 2000). Rhodes (2002) defines the risk environment as 'factors exogenous to the individual that interact to increase vulnerability to HIV infection', referring to space – both physical and social – in which risk is produced and reproduced. Environmental factors exogenous to the individual that interact to increase vulnerability to HIV are said to be operating at three levels; the micro or interpersonal level, such as social norms; the meso level of institutional or
organizational responses; and the macro level of core or distal causes such as laws, policies and social inequalities that may interplay with micro and meso-level factors to produce HIV risk.

Given the pervasive and escalating levels of violence faced by sex workers over the last decade (Cler-Cunningham 2001; Amnesty International 2004), and the extensive harm reduction and HIV prevention efforts operating in this community (City of Vancouver 2005), this research aimed to explore the role of social and structural violence and power relations in shaping the HIV risk environment and prevention practices of women in survival sex work through a participatory-action research (PAR) project. Through the co-construction of knowledge between sex workers, community and research partners, guided by feminist-driven PAR, we consider the way in which the narratives of the ‘lived experiences’ of sex workers can inform a renewed HIV prevention and policy strategy with this population.

3.2 Methods

The Maka Project is a community-based HIV prevention research partnership between the BC Centre for Excellence in HIV/AIDS and WISH Drop-In Centre Society. A detailed discussion of the development, process and methodologies of this partnership has been published elsewhere (Shannon 2007).
Adhering to the principles of PAR (O’Neil 2005; Park 1993), a team of survival sex workers have been hired, trained and supported to play a key role in the project, from conceptualization to implementation and dissemination. Discussion group topic guides were developed through a collaborative process between sex workers and researchers, and all groups were co-facilitated by a sex worker.

A total of 46 participants participated in focus groups between December 2005 and March 2006. The mean age of women was 34 years and 57% self-identified as being of Aboriginal ancestry. In order to concerns of anonymity and sensitivities surrounding the issues expressed by sex workers, further demographic information was not collected. Based on social mapping sessions facilitated by and with sex workers, strolls (working areas) were identified for recruitment and purposive sampling was used to invite women through experiential-led outreach (women with a lived experience of sex work). Sampling aimed to attain variation in sex, ethnicity, age, and sex work strolls. Although significant variation exists in both sex and gender of sex workers, in keeping with the mandate of the community partner, the project works explicitly with self-identified women who engage in survival sex work and therefore only female and transgender women (male to female) were invited to participate. The topic guide was used to ensure all relevant areas of experience were explored, including: definitions of sex work and boundaries of intimate and client
relationships; how women define a "bad date"; what a safer environment for a
date looks like; what circumstances most affect women's power and control with
commercial partners; strategies women use to protect themselves; and the
effectiveness of current HIV prevention and harm reduction programs. This
research received ethical approval under UBC/ Providence Health Research
Ethics Review Board. Discussion groups lasted approximately two hours and all
participants received Can$25 for their expertise and time.

3.2.1 Participatory-action research (PAR) in public health and the co-
construction of knowledge

Similar to recent literature of public health partnerships, this work was
developed through a process of co-construction of knowledge in the negotiated
space of sex workers, community and the academic partners. This negotiated
space, the "sociosanitary space", is a process inherent in participatory-action
research and public health partnerships with marginalized populations as it
seeks to confront and reduce power imbalances (Bernier 2006). This work is both
guided and theoretically influenced by feminist-driven PAR, confronting
conventional understanding of power and power relations through
empowerment, knowledge co-construction, and the validation of 'lived
that this transdisciplinary dialogue can propose new ends to public health, rather than applying standardized solutions to health disparities by outside experts.

3.2.2 Analysis of qualitative data

Discussion groups were audio-taped, transcribed verbatim and checked for accuracy. All data collected were analyzed to identify thematic content and patterns as they emerged and the co-construction of women’s narratives were validated by sex workers throughout the data collection phase, with initial findings from earlier interviews further explored in subsequent data collection/analysis. Discussion group data were initially coded based on key constructs and a codebook was used to keep track of the coding scheme. Substantive codes were then applied for categories/themes based on the initial codes. Transcripts were read through several times by sex workers, community, and research partners to ensure that codes and subsequent categories reflected the data accurately, as well as to examine any negative evidence.

To advance beyond thematic and content analysis and interpret our findings, we subsequently drew on the risk environment framework (Rhodes 2002) and additional theoretical constructs of violence and power relations that emphasize the interconnectedness of various forms of violence – interpersonal, structural and symbolic. Interpersonal violence is also described as ‘everyday
violence’ to describe the normalization of violence that renders it invisible due to its routine pervasiveness (Schepet-Hughes 1996), such as the ongoing sexual and physical abuse faced by street-entrenched women (Bourgois 2004). Structural violence refers to political and economic inequality (Farmer 1997), while symbolic violence refers to more silent female subordination imposed by male-centered street ideology (Epele, 2002). In addition, against the dominant discourse of powerlessness and more traditional concepts of power, we subscribe to a broad understanding of power that considers micro-level decision making and individual agency, similar to that used in recent sex work studies (Kempadoo 1998; Wojcicki 2001; Nencel 2001). We explore the ways in which women’s micro-decision making practices are rational economic and coping strategies adopted in the face of social and structural level violence, and implications for policy and prevention efforts. As illustrated by Wojcicki (2001) ethnographic account of sex workers’ bargain for survival in Johannesburg, South Africa, this re-thinking of power does not discount structural inequities and disempowerment, but instead accords agency where it has been assumed to be absent. In doing so, we indirectly draw on a broad understanding of power described by Foucault as the ‘distribution of resources, the exercise of agency, and the institutionalization of social control in the production of social inequality’ (Focault 1981, p. 91), as in Bourgois’ (1998) discussion of HIV risk
among homeless heroin users in San Francisco. This relational understanding of power is developed in post-structural feminist critiques of institutionalized forms of social control that discipline bodies and govern individuals and the discursive production and control of sexuality (Foucault 1981; Weedon 1987; Nencel 2001). This analysis is also well situated within post-structural critiques of public health and drug policy that consider the ways in which individuals are governed through messages of self-regulation and risk-avoidance as a form of neoliberal governmentality (Moore 2004; Peterson 1996).

### 3.3 Results

The following five key themes emerged from the narratives of sex workers and were seen to both directly and indirectly compromise women’s agency and control with dates and ability to practice HIV prevention and harm reduction: at the micro level, boyfriends as pimps and the ‘everyday violence’ of bad dates; at the meso, a lack of safe places to take dates, and adverse impacts of local policing and; at the macro level, ‘dopesickness’, poverty, and the need to sell sex for drugs,
3.3.1 Micro Level

'Boyfriends as pimps'

At the interpersonal level, women’s narratives documented gendered power relations of intimate partners in mitigating women’s working environment and self-protection with clients. Several women described their intimate partners as “glorified pimps”. While women described these relationships as intimate, attached to comfort, emotions and a sense of trust, these men also were seen to hold significant power over women’s sex work environment and transactions with clients. These relationships were all with drug-involved partners, particularly crack-using partnerships, with the male partner supplying the drugs and controlling supply and the women working to sustain the drug habit of both herself and her partner.

I would classify it as there are just three steps to going that way. First they [male partners] invite you in, they feed you...start giving you drugs and slowly, pretty soon you’re out there making drugs. And you have nowhere else to go because this person...comforts you. And, next thing you know, you’re working on the street for them. You know they’re there for you, you can sleep, there’s food in the fridge. And then, you’re sick [drugsick], [they] bring you some dope. And you
know it just leads on...and the [next] thing you know you’re owned...No matter where you go they’ll be right there to find you.

For other women, these partners were initially more traditional boyfriends who transitioned to taking on more of a role of a pimp in their lives, either putting women on the streets or controlling their working behaviours.

A pimp will be somebody that takes your money away from you after you get it. But then you know, my boyfriend, I consider him a pimp now. Because I don’t consider him a boyfriend anymore. It’s past that... Because you know he’s just there, waiting, pipe in hand, and then if you want to go home because you’re tired. He’s like, well maybe we should [wait for] the ugly blue van, he’ll be by real quick, we can get another fifty bucks and we can go home... But then, I’m standing out there in the cold on the corner. While he’s sitting, comfy [and] cozy in the bank machine watching me. And... it’s like he’s not a boyfriend any more. It’s like a pimp.

While some women’s drug-using intimate partners control the drug supply and related equipment, including when and how often women access and use drug use paraphernalia (pipes, cookers, syringes), there are also example of how the
partners would try to control aspects of their working environment and thereby limit women’s agency, from waiting on the street for a woman, trying to keep track of a woman’s income, through to controlling HIV prevention practices by limiting the number of condoms available to a woman while working.

Yeah, it’s like, he said he’s in control of the condoms now. It was like, “Oh I got lots of condoms now you don’t have to take any”. It’s like, “No I got some in my pocket.” He said, “No, I’ll take them here. You don’t want to carry too many in your pocket.” So he knows how many condoms I’ve got in my pocket. And, I’ll come back and say, “Oh I’m out of condoms.” “No, but you had two extra ones. What happened to the other ones?” You know, it’s like “Well, what did you do between, or, where’s the money?” It’s like, “Come on man, give me a break, just”. So it’s like, you know, he’s in control of the condoms.

While these narratives illustrate the role of boyfriends as pimps in reducing women’s autonomy over their risk reduction practices and working environment with clients, these relationships are also emotional and economic coping strategies adopted by women for companionship and acquiring resources in the face of structural inequities.
'Everyday violence' of bad dates

The pervasiveness and commonplace sense of violence and victimization of women by clients, referred to as 'bad dates', and the feeling of a lack of response to, or criminalization of the abusive johns (unknown/ one time clients) was seen to compromise women's sense of control with a date and ability to practice HIV prevention. While bad dates may involve emotional harassment, fear and/or experience of physical or sexual violence, for many women in this community, bad dates are frequent and go largely unreported (Cler-Cunningham 2001).

The goal is the same [working on high track versus skid row]. So whether you get out of there alive, the violence doesn't matter.

I hear about so many women who have been infected with HIV during a bad date or been raped or molested...And these people, they get away with it.

I was raped five years ago. And he [a john] didn't use a condom...The trial took eighteen months. He was picked up immediately, so he stayed behind bars...He'd caught HIV, and he was trying to blame me. And his lawyer was trying to say I gave it to him. Yeah, he raped me and, yeah, it was my fault [sarcastic]. Sexist. It was just senseless. Because it wasn't a trial of rape, it was a trial of me being a
heroin addict, me being on methadone... It got thrown out of court... they begged me to stay through with the trial and I couldn’t do it anymore. I was just, being looked at by everybody.

Women spoke of the inaction and delayed response taken in reference to the over 60 women from Vancouver’s Downtown Eastside who have gone missing during the last decade. This is in addition to the alarming number of women, primarily of First Nations’ ancestry, who have gone missing in Northern region of the province, along a highway that runs between Prince George and Prince Rupert and has become known as the Highway of Tears. A symbolic violence of women as ‘disposable’ was particularly illustrated in the narratives of First Nations’ women, and is reflective of the ‘discourse of disposal’ surrounding the missing women described by Lowman (2000).

There are so many girls going missing. Yeah, they’re getting away with it.

We’re the bottom of the barrel. Nobody will miss us.

Look at what happened to all the girls from the Pickton farm [the local farm where it is suspected that over 30 missing women were murdered]. Like you know that
shouldn't have happened and, maybe if some of the resources would have been out there... I think these guys are way behind.

The everyday violence and ongoing fear of violence, feelings that abusive johns were frequently not criminalized, and lack of protections offered by current policing, meant that women's ability to insist on condom use was severely compromised.

I think just going out there [working] takes a big risk whether you use a condom or not, I mean, gambling every, every time you go out.

If he don't want to use a condom, we're in extreme danger. I want to try to use one [condom], but the violence might ensue.

Within this intersection of everyday violence and HIV prevention practices, some women report prioritizing harm reduction practices by types of clients, asserting agency and control of resources on the one hand, and resulting in a trade-off of harms on the other. Other women described a sense of trust and comfort that was associated with a decreased fear of violence in their relations with regulars compared to johns. At the same time, this sense of trust, even intimacy, with
regular clients, often men they have seen for several years was associated with decreased condom use. Other women reported not getting high with johns, while only using drugs with regular clients in attempts to maintain control and decrease the risk of violence by johns.

Interviewer: And is there any difference in sexual exchanges between a regular client and john?

Yeah. You’re more open, trust them [regulars] more right?... You know what your regular wants, right? You know what he likes. You know what turns him on. That’s a regular, but a john. Just a stranger that picks you up and you just want to get it over and done with. But a regular you’re comfortable with...

Interviewer: Is there a difference in condom use between a regular client and a john?

Yeah, you just use [condoms] with johns.

Yeah, they [regulars] figure you’ve already known them for years.

Interviewer: So you won’t get high with johns?

No. Regulars I could, but somebody I don’t know. Fuck that. I wouldn’t allow them to give me a drink.
3.3.2 Meso Level

A Lack of Safe Places to Take Dates

A lack of safe places to take dates due to the current legal framework was described by several women as a direct structural barrier to HIV prevention by limiting their control with dates, increasing the risk of violence and reducing their ability to negotiate condom use. The most consistent theme documented in discussion groups was that once women enter a car, their ability to control their situation was severely compromised.

Well a good date is someone that you can get out of the car with after. We don't know how lucky we are. When they drive us back. You know and we take it for granted a little bit I think.

It just seems that once you're taken away in a car, your power and control are gone.

Some sex workers attempt to manage their risk environment through both, informally and formally, working in pairs or using another worker to 'spot' for them. Recent sex worker-led efforts in this community have advocated the practice of 'spotting' as a safety initiative, in which a 'spotter' takes down
information about the john, description of the car and license plate number, as well as having their presence act as a deterrent for violence.

And you know how sometimes you can go in pairs. Right? Like the two of you, and like you have one keeping six [watching for cops]...And then you write the license [plate number]. And whoever breaks first, right, you know they'll be gone and they'll do theirs, and then you can switch.

Despite the positive aspects of spotting described by some women, another woman described the limitations of using a spotter within the current working environment, as once a woman enters a car her means of self-protection is severely limited.

They [spotters] can take the license plate down and the car make, but once buddy gets you two blocks away, how are they going to stop the guy from shooting or stabbing you? They might prevent it from happening to the next girl, cause they got his plate number, but for you, there's no protection. None at all.
Local Policing and Displacement

Frequent police crackdowns and enforcement-based policies on drug use have been documented in this setting and shown to have adverse effects on syringe acquisition and safer drug use practices (Wood 2003; Small 2005; Amnesty International 2000), including rights violations and unlawful harassment by police, particularly women. The narratives of sex workers document the adverse impacts of local policing strategies and enforcement of the “communicating” provision; pushing women to work in dark and deserted areas, alleys and industrial settings, severely limiting women’s means of self-protection with clients and acting as a direct structural barrier to HIV prevention practices.

You know, you get all these asshole cops and security kicking us off... pushing us into darker and darker areas, you know. That has got to stop.

Well industrial areas are kind of scary, because no one's really around and you've got to go there with dates that were like, [let's go] into a residential neighbourhood, and I'm like, 'No, I don't want to go into the neighbourhood, where you're gonna park in front of someone's house and they got kids. It just don't feel right, So I'm like 'Come down to the dock'.

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In this instance, the industrial areas are part of the loading docks along the waterfront in Vancouver. In addition to displacement, women describe three sets of distinct experiences with police that spoke to a heterogeneity in women's experiences with police. While some women reported direct harms and power imbalances in relations with police, others reported indirect harm through displacement of working areas, and a dispassion or apathy for sex worker's experiences, and in a third instance, women described attempts by police to help through a safety initiative.

*And down here...believe me the cops are assholes too, man. They'll pick [you] up... and then they'll make you do something for them just so you can stay there to work. And that's more or less their turf... And if girls complain to the cops...they'll pick you up and take you somewhere else and fucking leave you there.*

*And certain women will have a line with the police that they worked on over the years.*

*Yeah. It's...never mentioned in the paper, never mentioned in the bad date sheets or nothing, you know, it's just all through mouth. And a lot of these girls are just*
scared to speak up. So it's, like. The cops got a lot of power...Early mornings, that's when they really get out there.

For some women the interactions with police, and in particular the gendered power dynamics that characterized these interactions, were a direct threat to women’s safety, while other women spoke of a lack of concern for women. As well, the practice of “being jacked up” by police and having equipment confiscated was reported by some women as a deterrent to carrying condoms, pepper spray, syringes, or other drug use paraphernalia.

The police never do anything. They don’t really give a shit. They’re not out to get us, but they don’t really have any compassion or concern about us. A lot of us girls start carrying pepper spray or bear spray. But you have to be careful too, because as soon as the cops search you, jack you up, they take away what you can to protect yourself with, even rigs.

In reference to a safety initiative piloted in the community in 2005, mobile phones were distributed (by the police) to women with a direct line to emergency services. This safety initiative followed widespread concern and
scrutiny surrounding the delayed response to the missing women of Vancouver and the inception of a missing women's task force.

Like the cops are handing out those phones that, they only had one number and it was 911 [emergency services]. Just one button. And it had a homing device or something like that, but that didn’t really work that good either. Cause once buddy’s got you in the car, you’re fucked.

3.3.3 Macro Level

Dopesickness, poverty, and the need to sell sex to obtain drugs

Women spoke of sex work as a means of daily survival and in particular, the role of dopesickness and the need to alleviate withdrawal symptoms that severely compromised women’s ability to control the situation and ensure the practice of HIV prevention behaviours. As described in the narratives, sex work in this population is a rational, economic strategy adopted by women to meet basic subsistent needs in the face of large scale social and structural inequities. Recent welfare cuts, and loss of low cost housing through demolition, urban renewal and gentrification, have led to increased rates of homelessness in this city. In addition, current welfare regulations only allow a person to legally earn up to $500 a month before they are cut-off social assistance.
And, like I said, we put ourselves in shitty situations when we’re sick, or we’re hungry, or we’re homeless.

Some of us women end up with diseases, ‘cause we’ve gotta do what we do, to survive. I mean there’s women out there who don’t even do drugs and they’re out there, you know, turning tricks, ‘cause they can’t afford to live… and they’re collecting DBII [Disability Benefits]… It’s pretty obvious there’s not enough money, on social assistance. But if you have an addiction … it’s just way worse, I mean, you got to put up with a lot of shit you wouldn’t normally to support your habit. You know, especially if you’re down sick or something, and you know what’s gonna make you better. You’ll do, just about anything to get better… With heroin it’s way worse, when you’re dopesick.

In addition to dopesickness among women who were opiate dependent, drug-induced vulnerability was also described within the context of disorientation and lack of control due to intensive cocaine use that impeded women’s self-protection and ability to insist on condom use.

You’re working and you don’t have HIV. And a date goes, I don’t want to use a condom. I’ll pay you more money. The girl’s at risk. And she doesn’t know what
he has. He could have gonorrhea or anything like that. And often they'll [johns] ask the ones [women] that are vulnerable. The ones that are out there, that are on coke. And that are obviously discombobulated, you know they can't control their bodies. Or you know, they're just scared...you can feel the fear. So, they usually prey, on those girls...’Cause they’re ruining somebody’s body just to have sex without a condom. Just for one time.

Dopesickness and the need to sell sex for drugs were also seen to mediate the negotiation process of fees for dates, resulting in a decreased ability to practice HIV prevention. Fees for dates were largely driven by shifts in drug markets and in particular the introduction and widespread availability of smokeable crack cocaine (sold in smallest quantities of one rock or approximately $5-10) over the last decade that had significantly decreased the price women could charge for dates and increased competition between workers. The attempt to assert a minimum for sexual services or safer sex practices and maintain control of the negotiation process with clients was an important assertion of individual agency by one woman, while at the same time, described by others as mediated by macro level factors of drug market prices and laws.

If I stick to my price, I am in control, but if I drop my price, he’s in control.
Interviewer: How have prices of dates changed over the years then?

[It used to be] Ninety bucks of coke right? Now it’s ten dollars [a rock] so girls do [dates] for ten bucks... So shifts in the drug market.

From when I started, five years, it’s [prices] gone down big time, you know, and, and if you ask, you won’t get more, right? Because they [clients] know they can get it down there, right? And sometimes I would be out for four or five hours and you’ll take that twenty dollar date. Tell me you won’t. You have to.

This shift in drug market prices and resulting decrease in fees for dates was also tied to a reduced ability among sex workers to regulate each other around prices and safe sex negotiation. This was particularly manifested in the growing numbers of women working, and in particular younger women and those new to the community who were often seen to be “undercutting” prices of dates. A more experienced worker described a sex worker protocol and regulation between workers that was no longer enforced due to drug market prices driving up competition for dates.

Years back now, workers used to keep each other in check, in line, especially people who were new....They used to send them [new girls] regulars to make sure they didn’t undercut or do dates without condoms, but the money was way better then.
Interviewer: How does being new to the community affect a woman’s working environment?

You really don’t know the protocol. You don’t know the territory. You don’t know who’s who.

And nobody knows you right? And, whatever the johns says you do it, what he tells you to do, cause you don’t know the ins and out of it.

And it’s getting cheaper and cheaper throughout the years...I think if the girls started charging more then the guys wouldn’t be asking, you know.

Well actually I am on one side and then there’s this girl like less than ten feet away from me and she’s saying two bucks. You know, right almost beside me.

Within the synergistic dynamic between sex work and addiction, and the immediacy of dopesickness, women highlighted the need for violence-prevention and harm reduction initiatives specifically tailored to sex workers, as well as the need to consider alternative regulatory frameworks for illicit drugs.

Interviewer: What does a safe environment look like for a date?

If there was more safety set up and a controlled area, the girls would be safe.
And also, you have to realize that most of the girls are not going to quit drugs.

They're going to be drug-addicted. If something is set up, you have to accommodate drug use, also. Like I said, in Amsterdam.

If heroin is legalized, it's like dirt cheap. The only reason it's so expensive is cause it's illegal. Right, you know, and it's very unfortunate that if somebody has to go sell their body just to support their drugs, right?

3.4 Discussion

HIV prevention among substance-using sex workers in Canada has focused almost exclusively on individual level strategies, including syringe exchange, condom distribution, and scaling up of HIV testing. However, this solely individualized prevention strategy assumes an autonomous agent is 'free' to choose to change a risky behaviour, described in post-structuralist critiques as a form of neo-liberal governmentality (Moore 2004; Weedon 1987). Instead, the present study documents how pervasive, everyday violence and structural power relations experienced by women engaged in survival sex work mediates the negotiation process of risk reduction strategies, resulting in a heightened risk of HIV transmission. At the same time, the lived experiences and narratives of sex workers articulate how certain risky sexual and drug use practices are rational coping strategies in the face of large scale social and structural violence.
and as such, highlight the importance of active inclusion of sex workers experiences in redefining prevention policies and programs.

Adopting the risk environment framework helps us to understand how the daily lived experiences of sex workers can inform a re-conceptualized HIV prevention response that moves beyond individual level strategies. Similar to a renewed drug policy (Moore 2004; Rhodes 2002), sex work policy needs to facilitate ‘enabling environments’ for HIV prevention through the removal of micro (eg. ‘everyday violence’ of bad dates), meso (eg. local policing strategies) and macro (eg. structural and economic inequities such as the need to sell sex for drugs) level barriers.

At the micro-level, the lived experiences of sex workers document several important attempts to assert individual agency in the face of meso and macro level inequities and pervasive social and structural violence. In one important example, a younger worker spoke of the vulnerability of being new to the community and unaware of worker protocols, and thus agreeing to whatever a john would request, while at the same time, other women discussed the importance of informal peer networks in managing their risk environment through regulating each other on prices charged for dates and safer sex practices, as well as working in pairs and spotting other workers. Women are inherently aware of the competition for prices, and the impact of other workers agreeing to
provide sexual services at a lower price or condom-less sex. As such, the importance of public health policy that advocates and supports peer networks in regulating sex worker protocol and safe sex practices cannot be understated. Environmental-structural support for sex worker networks (including sex worker unions and cooperatives) have been shown to play a key role in increasing condom use and reducing incidence of STI/ HIV among commercial sex work populations in several developing countries through enhance social capital and access to resources (Kerrigan 2006; Parker 2000).

At the meso level, the lack of safe places to take dates and local policing resulted in displacement of sex workers to outlying areas increasing the risk of violence and reducing women’s ability to practice risk reduction. As articulated by one sex worker, controlled areas should be set up and need to accommodate drug use. Regulated or managed sex work zones in Germany and the Netherlands have been shown to reduce rates of violence, increased access to health services, and support police targeting exploitation and violence (Van Doorninck 2006; Sanders 2007), though the role of zero tolerance drug policies in these zones have not been investigated to date. Given significant evidence of the adverse impacts of zero tolerance drug policies in increasing concealment of drug use, risk practices, and redistribution of harm (Best 2001; Aitken, 2002; Small 2005; Maher 1999), consideration of managed zones in this setting would
need to build in support for reducing drug-related harms, rather than enforcement, and bridge communication between sex workers and police to ensure effective HIV prevention.

At the macro level, the findings support the urgent need for legal policy reforms to Canada’s prostitution laws and consider the negative impacts of continued neglect (Lowman 2000; Goodyear 2005). Several countries have variations of decriminalized sex work environments that place the safety of sex workers first and have shown positive impacts in reducing the harms faced by sex workers (Doorninck 1998; Jordan 2005). Given the Canadian government’s investment in the parliamentary sub-committee on prostitution laws, and a recent legal report released in this community outlining a legal framework for a decriminalized prostitution environment, decriminalization of sex work deserves greater attention and consideration (PIVOT 2006). The striking overrepresentation of women of Aboriginal ancestry among those engaged in survival sex work in Canada, and the historical oppression and ongoing violence faced by this population, including symbolic violence of First Nations’ women as ‘disposable’, highlights the need for Aboriginal-led interventions that mitigate trauma and support indigenous health strategies (Walters 2002; Culhane 2003). Finally, as documented by women in this study, sex work in this population is a direct result and economic response to entrenched poverty, homelessness and
addiction, and for many women, sex work serves as the only viable means to daily survival. Interventions need to address the paramount role of adequate and supportive housing, and access to detoxification and other drug treatment services. Interventions should also consider offering long-term, alternative economic opportunities to support transition out of survival sex work to sustain one's drug habit, as well as the potential benefits of expanded drug-maintenance therapy for this population.

There are several limitations of this study that should be taken into consideration when interpreting these findings. First, we recruited women who self-identified as having engaged in survival sex work and therefore, the experiences of women who exchange sex for money, drugs, shelter or other commodities, but do not identify as sex workers are not represented here. Second, although purposive sampling was used to attain a variation in background and demographics, the experiences of some women, in particular youth less than 19 years of age and transgendered women were not adequately represented in the discussion groups.

This account of the daily lived experiences of survival sex workers highlights the intersections of micro, meso and macro levels in producing and reproducing HIV risk among women. The findings suggest that public health strategies that fail to address social and structural violence and gendered power
relations will continue to fall short in stemming the multiple harms, including a heavy HIV burden, faced by women. Environmental and structural approaches are urgently needed supported by legal reforms to Canada’s prostitution laws that put the safety of sex workers first and facilitate ‘enabling environments’ for HIV prevention.
3.5 References


CHAPTER 4
DRUG SHARING WITH CLIENTS AND SEXUAL AND DRUG TRANSMISSION RISK

4.1 Introduction

Indirect sharing practices among drug users, including the preparation and apportioning of jointly obtained drugs, have been hypothesized to increase the risk of infectious disease transmission (Finlinson 2005; Koester 2005; 2003; Bourgois 1999; Inciardi 1991). The pooling of resources among drug users commonly leads to the process of drug sharing, and is often highly gendered. Among intimate partners, couple drug-involvement has been found to be directly associated with male psychological dominance, increased physical and sexual violence, and concomitant sexual HIV risks (El-Bassel 2004). An increased risk of HIV and HCV transmission among both male and female injection drug users (IDUs) who share drugs has been shown to be facilitated through multiple pathways including direct syringe borrowing, syringe-mediated sharing practices, such as frontloading (a method of distributing shared drugs through needles) or sharing of other injection paraphernalia, having a recent casual sex partner, smoking crack cocaine, and exchanging of sex for drugs or money.

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3 This chapter was published in AIDS Care in 2007 as: Shannon K, Kerr T, Bright V, Gibson K, Tyndall MW. Drug sharing with clients as a risk marker for increased violence and sexual and drug related harms among survival sex workers. AIDS Care 2007; 20(2): 235-241.
Despite significant evidence of increased sexual and drug-related HIV risks among intimate, IDU partners who share drugs, to our knowledge there has been no research to date exploring the correlates of drug sharing among female sex workers and their clients. The well established association between exchanging sex and smoking crack cocaine both in this setting and elsewhere (Spittal 2003; Wechsberg 2003; Booth et al. 2000; Ward 2000; Edlin 1994) suggests a significant potential for sharing of drugs through the sex for drugs or money transaction that may have important implications for HIV prevention efforts. Epidemiological literature on sexual and drug-related risks among sex workers often ignores the complex gendered nature of condom negotiation, drug use practices, and the sex for drugs exchange. As described elsewhere, a discussion of risk behaviours must move beyond outcomes of "individual choices" to consider behaviours as "negotiated interactions" (Rhodes 2000; Amaro 1995). Survival sex and addiction are highly gendered constructs, as evidenced by the disproportionately high number of women needing assisted injection (O’Connell 2005), the role of control in exchange of sex for drugs, and the overwhelming burden of new HIV infections faced by women (Spittal 2002; El-Bassel 2000). As well, substance-using women engaged in sex work have been consistently shown
to experience high rates of violence and a fear of future victimization has been associated with decreased likelihood of insisting on condom use (Wechsberg 2005).

In Vancouver, Canada, women engaged in survival sex work have remained largely at the periphery of HIV prevention and harm reduction policies and services despite compelling evidence of greatly enhanced vulnerabilities to HIV transmission among women and Aboriginal women who inject drugs (Craib 2003; Spittal 2003). Survival sex work may include the exchange of sex for money, drugs, shelter or other commodities. The multiplicity of vulnerabilities faced by this population including entrenched poverty, substance abuse, repeated violence and sexual assault, stigma, and mental illness directly enhance a woman’s risk of HIV infection (Spittal 2003; El-Bassel 2001; Booth 2000; Baseman 1999). In addition, the criminalisation of sex work, and in particular the communication provision designed to reduce the visible presence of street prostitution, has had the direct impact of displacing street prostitution to less visible areas, increases vulnerability to violence and assault (Goodyear 2005; Brannigan 1989; Lowman 2004).

Despite intersections of violence, sexual and drug related harms among substance-using women in sex work, there is surprisingly little research to date aimed at elucidating the correlates of drug sharing in the sex for money or drugs
The following analysis therefore explores the association between sharing illicit drugs with clients and sexual and drug-related harms among survival sex workers. Given previous literature on drug sharing among IDU partners, it is hypothesized that the process of drug sharing in the sexual transaction may play a key role in mediating infectious disease risk through both sexual and drug-related risk practices.

4.2 Methods

The Maka Project is a community-based HIV prevention research project that was created to explore the harms and barriers faced by women survival sex workers in an effort to inform evidence-based policy and practice tailored to this population. Maka represents a community-academic partnership between the WISH Drop-In Centre Society and the British Columbia Centre for Excellence in HIV/AIDS.

The present analysis is restricted to interviews and HIV diagnostic testing conducted between September and November 2004. Participants were recruited through targeted sampling at a low-threshold drop-in centre for street-entrenched women engaged in survival sex work. All substance-using women who had exchanged sex for drugs, money, or shelter within the last month were eligible to participate. Injection drug use was not considered an eligibility criteria.
to participate, with only approximately half injecting drugs in this population, while smokeable crack cocaine is the primary drug of choice (88%) (Shannon, et al. 2005). Participants were allocated referral cards with appointment times and all interviews and HIV testing were conducted off-site by peer-interviewers during evening hours. Participants received $20 remuneration for their participation and time. The University of British Columbia/ Providence Health Research Ethics Board provided approval for this study.

The dependent variable of interest in this analysis was drug sharing. Based on the available theoretical and evidence-based literature on drug sharing among IDUs, we were interested in the drug sharing process, rather than specific micro-sharing practices (Koester et al. 2003). Drug sharing was therefore defined as use of illicit drugs with regular clients/johns (unknown/one time clients) in the last six months at the time of interview and types of injection or non-injection drugs shared.

Key explanatory variables of interest included condom use by clients, drug use patterns, sharing of injection and non-injection paraphernalia, violence with clients, and HIV/HCV/STI infections. Inconsistent condom use by clients was based on self-reported frequency of condom use over the last six months for vaginal or anal sex and included any unprotected sex. In addition, two other variables were considered as proxies for condom use negotiation: having been
offered more money to not use a condom by a client, and if yes, having agreed to not using a condom. Drug use behaviours included frequency of cocaine injection, heroin injection, crystal methamphetamine injection, and crack cocaine smoking over the last six months (daily versus less than daily use). Given the high levels of crack cocaine use, intensive crack use was defined as smoking greater than ten rocks per day. Drug-related harms included injection bingeing (defined as more than 10 injections in a 24 hour period), requiring assistance to inject, and borrowing used injection and non-injection drug use paraphernalia. A recent bad date was defined as having experienced verbal harassment, physical and/or sexual abuse by a client in the six months. HIV status was based on diagnostic testing conducted at the time of interview by the project nurse using the standard ELISA test and confirmatory western blot. HCV and STI infection were based on self-report.

Demographic variables considered included age (continuous), ethnicity, housing status, living status of both worker and client, and education level (high school completed versus less than high school). As previously (Shannon et al. 2005), ethnicity was defined as self-identifying as being of Aboriginal ancestry (inclusive of First Nations, Metis, Inuit and non-status Aboriginal), versus non-aboriginal, and unstable housing was defined as living arrangements that included single room occupancy (SRO) hotels, transitional housing, and no fixed
address/ homeless. Living status was defined as living in the Downtown Eastside (DTES) core versus outside the DTES.

Descriptive and univariate analyses were used to explore associations between drug sharing and sociodemographic characteristics, health status, violence, and sexual and drug-related harms. Means were used to describe normally distributed variables, and medians were used to describe skewed variables. Categorical and explanatory variables were analyzed using Pearson $X^2$, normally distributed continuous variables were analyzed using $t$-tests for independent variables, and skewed continuous variables were analyzed using Mann-Whitney U tests. A logistic regression model was fitted using forward conditional regression procedures, the likelihood ratio test, and variables associated with drug sharing at $p<0.05$ at the univariate level. The model was adjusted for age and ethnicity. All reported $p$-values are two-sided and odds ratios reported at 95% confidence intervals.

4.3 Results

In total, 198 women participated in interview-administered questionnaires and confidential HIV testing, of which 111 (57%) self-identified as being of First Nations, Metis, or Inuit ancestry, 38% as white, and 5% as other visible minority populations. The median age at the time of interview was 39 years (interquartile
range [IQR] = 34-44). Eighty-seven percent reported living in the Downtown Eastside community and 90% reported having some or all clients from the DTES. The vast majority of women (82%) lived in unstable living situations, of which 22% had no fixed address or were living on the street. Based on diagnostic testing, the overall HIV prevalence was 26%. Self-reported HCV prevalence was 59% and 11% reported a recent STI diagnosis (gonorrhoea, chlamydia, syphilis).

Of the total, 117 (59%) reported sharing drugs with clients in the last six months. In terms of specific drugs shared, crack cocaine was the primary drug shared among 108 (54%) of women, while only 13% shared injection drugs (9% cocaine injection, 8% heroin injection, 6% speedball injection), 13% alcohol, and 9% marijuana.

The univariate analyses of associations between sharing drugs with clients and sociodemographic characteristics, health status and sexual and drug-related harms are shown in Tables 4.1 and 4.2. As indicated, sharing drugs with clients was associated with living in the Downtown Eastside core (OR=1.41, 95% CI: 1.02-2.00), daily alcohol consumption (OR=1.60, 95% CI: 1.03-2.48), public injecting (OR=1.62, 95% CI: 1.00-2.61), daily crack cocaine smoking (OR=2.09, 95% CI: 1.54-2.83), intensive daily crack cocaine smoking (OR=2.50, 95% CI: 1.45-4.26), inconsistent condom use by client/john (2.95, 95%CI: 1.38-4.68), having a recent bad date (OR=3.18, 95%CI: 1.51-6.69), client insisting on more money to not use a
condom (OR=5.62, 95% CI: 3.02-10.55), borrowing a used crack pipe (OR=6.18, 95% CI: 3.29-11.62) and having agreed to not using a condom (OR=8.64, 95% CI: 2.00-37.98).

As indicated in Table 4.3, in logistic regression analysis, sharing drugs with clients/johns was independently associated with borrowing a used crack pipe (aOR=5.63, 95% CI: 2.71-9.44, p<0.001), intensive/daily crack cocaine smoking (aOR=3.78, 95% CI: 1.60-8.92, p=0.002), inconsistent condom use by a client/john (aOR=3.17, 95% CI: 1.48-6.77, p=0.003), and having a recent bad date (aOR=2.71, 95% CI: 1.17-6.32, p=0.021).

4.4 Discussion

Sharing illicit drugs with clients/johns may be a crucial risk marker for heightened vulnerability to violence and sexual and drug-related harms among survival sex workers. In this study, over half of survival sex workers reported drug sharing with clients and sharing drugs was associated with several factors previously linked to increased likelihood of infectious disease transmission, including multiple unprotected sexual encounters and intensive crack cocaine smoking.

Among drug related harms, sharing drugs with clients was associated with intensive daily crack use and borrowing a used crack pipe. While approximately
half the women in this study were injection drug users in addition to non-injection drug users, only risky crack related harms were independently associated with using drugs with clients. Despite a plethora of evidence of the association between crack cocaine smoking and heightened rates of infectious disease transmission (Tortu 2004; Ward 2000; Edlin 1994), the exact mechanism for this risk is still not well understood. Crack cocaine smokers have a high prevalence of oral sores, cuts and burns to lips and mouth that likely facilitate blood-borne infections, particularly HCV, through risky sexual practices such as unprotected sexual encounters, and sharing of non-injection drug use paraphernalia (Tortu 2004; Ward 2000; Edlin 1994). Although the risk of blood-borne transmission is likely heightened through the sharing of crack pipes between infected and uninfected partners, the lack of association between sharing of drugs and HIV or HCV status of women should be interpreted with caution. Given the observed associations with known HIV risk factors, it is likely that drug sharing is an intermediary-step in facilitating enhanced HIV risk among both sex workers and their clients.

The association between intensive daily crack use and sharing drugs with clients may further highlight the intrinsic nature of crack use and survival sex, as well as the gendered nature of addiction in this community. While the vast majority of women were crack cocaine users (88%), the intensity of daily crack
smoking and borrowing of crack pipes may point to a specific sub-population of women and clients at increased risk for HIV infection. Crack cocaine use has been historically associated with increased exploitation of women, enhanced violence and crime, and greater likelihood of engaging in risky sexual practices (Booth 2000; Edlin 1994). While this study is unable to adequately account for the client's sexual risk taking, sharing of drug use with clients represents an exchange in which both the worker and the client were smoking crack through shared use, and in many cases with shared use of crack pipes and related paraphernalia. The overlapping networks of sex and drug related partners may elucidate a key target for HIV prevention and harm reduction efforts (Strathdee 2003).

Among sexual related harms, sharing drugs with clients was associated with inconsistent condom use by a client/john. It is worth noting the unadjusted associations between drug sharing and increased likelihood of clients insisting on more money to not use a condom and women agreeing to not use a condom suggest another mechanism for this association may be at play. The observed collinearity between clients insisting on more money to not use a condom and a recent bad date is particularly noteworthy. Given the immense literature of increased violence and exploitation of women who use crack (Booth et al, 2000; Baseman, 1999), as well as the observed associations between drug sharing and a
recent bad date (defined as recent harassment, physical and/or sexual assault by a client), it appears that the increased sexual risk represents a power dynamic in the ability of women to insist on condom use, and the likelihood of clients demanding sex without a condom. The role of violence and assault in enhancing sexual transmission of HIV among women has been previously reported (El-Bassel 2004), and among those with a history of victimization, a fear of violence has been linked to decreased likelihood of insisting on condom use (Wechsberg 2005). As mentioned previously, research on drug sharing among intimate partners suggests that couple drug-involvement was associated with increased male dominance, increased risk of physical and sexual violence, and decreased likelihood of insisting on condom use (El-Bassel 2004). The power dynamics in drug dependency when paired with the sex for drugs exchange may represent a crucial mechanism for increased risk of violence and assault by male clients. HIV prevention and harm reduction efforts, along with community safety initiatives, should focus support on removing the structural barriers to safety inherent in existing policies surrounding sex work and look at more anonymous methods for reporting bad dates and related assault.

Although survival sex may include the exchange of sex for money, shelter, or other commodities, the exchanging of sex for drugs, and in particular the sharing of drugs with clients may represent a crucial mechanism for increased
vulnerability to HIV infection. The multiplicity of factors that may facilitate risk for HIV transmission are likely embedded in the power dynamics of shared crack use and condom negotiation with clients not adequately captured in the present analysis (Wechsberg 2005; El-Bassel 2000). However the findings suggest that drug sharing with clients increases the risk both of violence and assault and the likelihood that clients will insist on sex without a condom, and decreases the likelihood that women will insist on condom use. Harm reduction and prevention efforts are urgently need that incorporate a gendered approach to sex for drugs exchange and consider the place of the worker, that of the client or john and the contextual/ environmental factors that contribute to increased vulnerability for HIV transmission. Several recent environmental-structural interventions among female sex workers aimed at promoting community solidarity and shifting government policy have been shown to have positive impacts on HIV and STI risk reduction (Kerrigan 2006; 2003; Parker 2000). Environmental-structural prevention/ risk-reduction approaches move beyond individual-level interventions, such as condom promotion and management of STIs, to examining the physical, social and policy environment that facilitates HIV risk (Latkin 2005; Parker 2000). Within an IDU context, the HIV risk environment has been defined as ‘factors exogenous to the individual that interact to increase vulnerability to HIV’ (Rhodes 2005). This approach broadly
encompasses social norms and networks, poverty, mobility, social dislocation, gender inequalities and ‘social capital’ at the level of networks and communities (Rhodes 2005). In addition, further qualitative and ethnographic research in this setting will help to better identify the specific networks and subpopulations of women and clients at increased vulnerability for HIV infection and help to examine the environmental-structural facilitators and barriers to prevention efforts.

Several limitations should be noted. The research presented here is cross-sectional in nature, and thus causal relationships cannot be drawn between explanatory variables and outcome measures. Ongoing follow-up will allow for longitudinal analysis of observed associations. Second, commercial sex work extends to multiple facets from massage parlours and escort agencies to street-based sex work, and this study focuses solely on one segment of this population, street-entrenched women engaged in survival sex work. Thus results may not be generalised to other levels of commercial sex work in this setting or others. Third, the inherent difficulties in attaining a representative sample of a sex work population have been noted elsewhere (Shaver 2005; Benoit 2005). Targeted recruitment through a community partnership with a low threshold drop-in centre is likely to have reached many high-risk women. As well, current mapping of the community and time-space sampling with experiential workers
will help to identify some of the hidden populations not adequately captured in the present analysis. Fourth, it should also be noted that due to the small sample size there was a wide range around some estimates. Nevertheless, there was sufficient statistical power to demonstrate large differences across several factors considered. Finally, the findings relied on individual self-reports and thus may be subject to socially desirable reporting. However previous research has provided validation for self-reporting about high-risk populations.

HIV prevention and harm reduction initiatives targeting both women and clients are urgently needed in this community and must recognize the overlapping boundaries of sex and drug use partners in survival sex work. The process of drug sharing with clients highlights the gendered nature of HIV vulnerability and some of structural barriers to HIV prevention efforts among women. Harm reduction and HIV prevention efforts should encourage women's own means of policing and self-protection, including support for peer driven initiatives, and work with community and government on socio-legal policy reforms that better protect women and remove some of the structural facilitators for HIV infection in the sex for drugs or money exchange.
Table 4.1. Univariate Associations Between Sharing Drugs with Clients and Socio-demographic Characteristics and Health Status Among Survival Sex Workers

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Yes (n=117)</th>
<th>No (n=81)</th>
<th>OR (95% CI)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median Age [IQ Range]</td>
<td>38 (34-44)</td>
<td>40 (36-44)</td>
<td>0.74 (0.41-1.31)</td>
<td>0.273</td>
</tr>
<tr>
<td>Aboriginal Ethnicity</td>
<td>62 (53)</td>
<td>49 (61)</td>
<td>1.41 (1.02-2.00)</td>
<td>0.044</td>
</tr>
<tr>
<td>Live in the DTES core</td>
<td>84 (72)</td>
<td>47 (58)</td>
<td>1.55 (0.04-2.32)</td>
<td>0.067</td>
</tr>
<tr>
<td>Some or all clients from the DTES</td>
<td>109 (93)</td>
<td>69 (85)</td>
<td>1.24 (0.84-1.83)</td>
<td>0.310</td>
</tr>
<tr>
<td>Homeless/ No fixed address</td>
<td>99 (85)</td>
<td>64 (79)</td>
<td>1.26 (0.80-1.97)</td>
<td>0.297</td>
</tr>
<tr>
<td>High School Completed</td>
<td>53 (45)</td>
<td>26 (32)</td>
<td>1.40 (0.97-2.03)</td>
<td>0.062</td>
</tr>
<tr>
<td>Recent incarceration</td>
<td>22 (19)</td>
<td>13 (16)</td>
<td>1.12 (0.70-1.79)</td>
<td>0.617</td>
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<tr>
<td>HIV Infection</td>
<td>30 (26)</td>
<td>22 (27)</td>
<td>0.96 (0.66-1.39)</td>
<td>0.811</td>
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<tr>
<td>HCV Infection</td>
<td>80 (68)</td>
<td>53 (65)</td>
<td>1.08 (0.76-1.53)</td>
<td>0.664</td>
</tr>
<tr>
<td>Other Recent STI Infections</td>
<td>12 (10)</td>
<td>8 (10)</td>
<td>1.03 (0.58-1.80)</td>
<td>0.931</td>
</tr>
</tbody>
</table>

(Gonorrhoea, Syphilis, Clamydia)
Table 4.2. Univariate Associations Between Sharing Drugs With Clients and Violence and Sexual and Drug-Related Harms Among Survival Sex Workers

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Yes (n=117)</th>
<th>No (n=81)</th>
<th>OR (95% CI)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>History of Injection Drug Use</td>
<td>67 (58)</td>
<td>43 (53)</td>
<td>1.11 (0.79-1.54)</td>
<td>0.561</td>
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<tr>
<td>Daily Cocaine Injection*</td>
<td>30 (26)</td>
<td>19 (24)</td>
<td>1.07 (0.72-1.60)</td>
<td>0.726</td>
</tr>
<tr>
<td>Daily Heroin Injection*</td>
<td>35 (30)</td>
<td>19 (24)</td>
<td>1.22 (0.81-1.84)</td>
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</tr>
<tr>
<td>Daily Alcohol Consumption*</td>
<td>42 (36)</td>
<td>17 (21)</td>
<td>2.11 (1.10-4.10)</td>
<td>0.024</td>
</tr>
<tr>
<td>Daily Crack Cocaine Smoking*</td>
<td>101 (86)</td>
<td>48 (59)</td>
<td>2.09 (1.54-2.83)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Intensive, Daily Crack Cocaine Smoking* (&gt;10rocks/day)</td>
<td>48 (41)</td>
<td>12 (15)</td>
<td>4.00 (2.00-8.18)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Borrowing a Used Crack Pipe*</td>
<td>80 (68)</td>
<td>21 (26)</td>
<td>6.18 (3.29-11.62)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Borrowing a Used Syringe*</td>
<td>6 (5)</td>
<td>2 (3)</td>
<td>2.14 (0.42-10.86)</td>
<td>0.350</td>
</tr>
<tr>
<td>Public Injecting*</td>
<td>36 (31)</td>
<td>14 (17)</td>
<td>1.62 (1.00-2.61)</td>
<td>0.032</td>
</tr>
<tr>
<td>Requiring assistance to inject*</td>
<td>29 (25)</td>
<td>16 (20)</td>
<td>1.20 (0.78-1.85)</td>
<td>0.406</td>
</tr>
<tr>
<td>Inconsistent Condom Use by Clients*</td>
<td>89 (76)</td>
<td>45 (56)</td>
<td>2.95 (1.38-6.68)</td>
<td>0.002</td>
</tr>
<tr>
<td>Client insisting on more money to not use a condom*</td>
<td>91 (78)</td>
<td>31 (38)</td>
<td>5.65 (3.02-10.55)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Agreed to more money to not use a condom*</td>
<td>21 (18)</td>
<td>2 (3)</td>
<td>8.64 (2.00-37.98)</td>
<td>0.001</td>
</tr>
<tr>
<td>Recent Bad Date (harassment, physical and/or sexual assault)*</td>
<td>39 (33)</td>
<td>11 (14)</td>
<td>3.18 (1.51-6.69)</td>
<td>0.002</td>
</tr>
</tbody>
</table>

* Refer to self-reported behaviours and harms in the last six months at the time of interview

Table 4.3. Logistic Regression Model of Factors Independently Associated with Sharing Drugs With Clients Among Survival Sex Workers

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>AOR (95% CI)</th>
<th>95% CI</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Borrowing a used crack pipe</td>
<td>5.73 (2.71-9.44)</td>
<td>&lt;0.001</td>
<td></td>
</tr>
<tr>
<td>Intensive/ daily crack cocaine smoking</td>
<td>3.78 (1.60-8.92)</td>
<td>0.002</td>
<td></td>
</tr>
<tr>
<td>Inconsistent condom use by client/john</td>
<td>3.17 (1.48-6.77)</td>
<td>0.003</td>
<td></td>
</tr>
<tr>
<td>Recent bad date (harassment, physical, and/or sexual assault)</td>
<td>2.71 (1.17-6.32)</td>
<td>0.020</td>
<td></td>
</tr>
</tbody>
</table>
4.5 References


*AIDS Education & Prevention*, 12(2), 154-70.


CHAPTER 5
MODELLING THE IMPACT OF CHILDHOOD AND ADOLESCENT SEXUAL ABUSE ON HIV INFECTION AMONG FSWs

5.1 Introduction

The prevalence of childhood sexual abuse (CSA) among HIV infected and at risk populations has been estimated to be between 20 and 40% (Braitstein 2003; Cohen 2000; Young 1998; Zierler 1991), an estimated prevalence several times that of the general population. Women have been shown to experience particularly elevated rates of early sexual abuse, ranging from 30% to 40% among drug involved populations to as high as 50 to 80% among sex work populations (Farley 2005; Gilchrist 2005; Surratt 2004; Vaddiparti 2006). The long term impacts of childhood abuse on the lives of women include increased likelihood of adulthood re-victimization, substance use, depression, social isolation, and incarceration (Chiang 2006; Coid 2001; Gladstone 2004; Mezzich 1997; Parillo 2003). Among both male and female substance-using populations, early sexual abuse has been shown to predict both the likelihood of initiation into injection drugs and an earlier age of injection initiation (Mezzich 1997; Nelson 2006; Ompad 2005). There is also significant research to suggest increased sexual

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4 This chapter is currently under review for peer reviewed publication as: Shannon K, Kerr T, Housden L, Gibson K, Tyndall MW. High rates of un-addressed childhood and adolescent sexual abuse and increased risk for HIV infection among drug-using women in sex work. American Journal of Public Health.
risk among those experiencing childhood sexual abuse, including greater number of sexual partners and unprotected sexual encounters, and among women, a reduced ability to negotiate safer sex practices (Arata 2000; Bailey 1998; Ferguson 1997; Whetten 2006).

Of particular concern, considerable research over the last decade has identified a relationship between childhood sexual abuse and subsequent initiation into sex work among marginalized populations, including drug users, street-involved youth, incarcerated individuals, and HIV positive populations (Brannigan 1997; McClanahan 1999; Medrano 2003; Mezzich 1997; West 2000; Zierler 1991). While several factors, such as runaway behaviour, engagement in street economies and addition (Brannigan 1997; Weber 2004), are believed to mediate this relationship, research aimed at examining different pathways of entry into sex work found early sexual abuse to be the strongest predictor of entry into sex work, nearly doubling the odds throughout a woman’s life (McClanahan 1999). There has also been significant research to suggest that post-traumatic stress disorder (PTSD) is a key mediator of the relationship between CSA and subsequent initiation into sex work (Farley 1998; Rissler 2006), with an elevated prevalence of PTSD increasingly documented among sex work populations (Farley 1998, 2005; Roxburgh 2006). Similarly, among female crack cocaine users, psychological distress was thought to explain at least in part the
relationship between childhood physical or sexual abuse and exchanging sex for drugs or money (Edwards 2006).

Yet despite the established link between childhood sexual abuse and subsequent entry into sex work, there is surprisingly little research to date aimed at characterizing the impact of early sexual abuse and age of first abuse on the lives and HIV risks of women in sex work and substance-using populations. Although the mechanism remains unclear, there is some research to suggest that timing of early sexual abuse may impact the relative HIV risk strategies adopted by substance-using populations (Braitstein 2003; Parillo 2003). For example, an increasing trend in HIV risk factors by age of first CSA was observed among participants experiencing sexual abuse during childhood (before 13 years of age), adolescence (13-17 years), and adulthood (18 years of age and older) among injection drug users in this setting (Braitstein et al 2003). The characterizing of age of first sexual abuse on HIV related risks among women in survival sex work may play an important role in identifying targeted policy and intervention strategies for this population.

In an effort to characterize the impact of early sexual abuse on the lives and HIV risk of women in sex work, we sought to examine the overall prevalence of childhood and adolescent sexual abuse and to estimate
associations with HIV infection and related risks among a population of women in survival sex work in Vancouver, Canada.

5.2 Methods

The Maka Project is a community-based HIV research partnership between the WISH Drop-In Centre Society and BC Centre for Excellence in HIV/AIDS that aims to examine the health-related harms and impact of current HIV prevention and harm reduction efforts among women in survival sex work. The term "survival sex work" is used to refer to the exchange of sex for money, drugs, or shelter as a means of daily survival. A detailed description of the methodology has been published elsewhere (Shannon 2007). Briefly, in 2006, approximately 200 women were recruited for a prospective cohort, including an interview questionnaire and voluntary HIV screening, through time-spacing sampling, extensive social mapping and targeted outreach to sex work strolls. Eligibility criteria included being a woman 18 years of age and older who used substances and was actively engaged in street-level sex work in Vancouver. At baseline, a detailed semi-structured questionnaire administered by trained experiential women (women with a lived experience of survival sex work) elicited responses related to demographics, mobility, drug use patterns, health and addiction service use, violence and safety, and sexual and drug-related
harm. In addition, voluntary HIV screening using the new point of care rapid
INSTI test was conducted by the project nurse, supported by extensive pre-test
and post-test counseling. Follow-up testing, including confirmatory western blot,
was performed for new reactive results. Detailed health and HIV related
questions, as well as both current and past abuse experiences, were asked by the
project nurse in order to facilitate counseling and referral to support services.
The following analysis is restricted to baseline interview questionnaires and HIV
screening conducted between April and September 2006.

The outcome for all analyses was sexual abuse. Women who responded
"yes" to the question, "Were you ever sexually abused in childhood or/
adolescence (inclusive of rape, forced sex against your will, and not including sex
work)?" were asked to report the age of their first sexual abuse experience. Two
dependent variables were derived based on the literature of timing of sexual
abuse: abuse in early childhood (before 13 years of age) and abuse in childhood/
adolescence (before 18 years of age). Given that we were interested in the
cumulative impacts of sexual abuse during childhood and adolescence on HIV-
related risks, we choose to use a binary response of any sexual abuse before 18
years of age, rather than separating out adolescent years.

Explanatory variables of interest and considered in both analyses included
age, ethnicity (coded as Aboriginal and non-aboriginal), ever homeless, ever
injected drugs, and age of first experiences (dropping out of school, living on the street, injection and sex work initiation). Similar to previous analyses, drug use patterns included any of cocaine injection, heroin injection, crystal methamphetamine use, and crack cocaine smoking in the last 6 months. Unprotected sex was defined as any unprotected vaginal and/or anal sex in the last six months and was reported separately for regular clients and johns (unknown/one-time clients). A bad date was defined as having experienced any verbal harassment, physical and/or sexual abuse by a client in the last six months. In order to ensure sufficient power to detect effect size given low event numbers, the variable forced sex against your will/rape in the last six months represents a combined variable for any of forced sex/rape by an intimate partner, regular client, john or other. Similarly, suicidal ideations and/or attempts included a combined response of “yes” to either or both of “Have you seriously considered taking your on life in the last six months?” and the follow-up question, “If yes, have you attempted suicide in the last six months?”. Physical abuse in adulthood was reported separately for clients and non-sex trade partners.

Two logistic models were constructed to examine associations between covariates and childhood sexual abuse before 18 and 13 years of age respectively. Descriptive and univariate analysis were used to estimate associations between
the outcome of interest and explanatory variables. Means were used to describe normally distributed variables, and medians were used to describe skewed variables. Categorical and explanatory variables were analyzed using Pearson $X^2$, normally distributed continuous variables were analyzed using t-tests for independent variables, and skewed continuous variables were analyzed using Mann-Whitney U tests. Bivariate analysis was used to examine associations between each of the explanatory variables and to test for collinearity and effect modification. Given a strong association between Aboriginal ethnicity and having a family member in the sex trade, a model was constructed that included an interaction term of Aboriginal ethnicity and family in sex trade to test for effect modification (results not shown). The Pearson's chi-square test was used to verify associations between each independent variable and the outcome measures. Logistic regression models were then fitted to obtain adjusted odds ratios for factors associated with childhood sexual abuse before 18 and 13 years of age respectively. Variables found to be associated with childhood sexual abuse at the univariate level ($p < 0.05$) were entered into the logistic regression model using forward conditional procedures and the likelihood ratio test. All models were adjusted for age, ethnicity, and childhood physical abuse. All reported p-values are two-sided and odds ratios reported at 95% confidence intervals.
5.3 Results

As indicated in Table 5.1, of the 198 women eligible for analysis, 81 (40%) self-identified as Aboriginal (inclusive of First Nations, Metis, and Inuit ancestry, and non-status First Nations). The median age at the time of interview was 37 years (interquartile range, IQR: 27-42 years) and the median age of sex work initiation was 16 years (IQR: 14-22 years). The vast majority have been homeless at least once (87%), with a median age of first living on the street of 17 years (IQR: 14-28 years). One hundred and fifty-two women (77%) reported ever having injected drugs, with median age of initiation into injecting of 18 years (15-23 years). Of the total, 36 (18%) women had a family member in the sex trade, with Aboriginal women significantly more likely than non-aboriginal women to report having a family member in the sex trade (30% vs. 10%, unadjusted OR=4.04, 95%CI: 1.88-8.66)

In terms of historical abuse, 153 (77%) women had experienced childhood/adolescent sexual abuse (before 18 years of age), with a median age of first sexual abuse experience of 11 years (IQR: 6-16 years). Of those, 80 (52%) had experienced sexual abuse before 13 years of age. In terms of counseling, only 64 (32%) had ever experienced counseling for sexual abuse, with a further 13 (9%) having tried but been unable to access counseling. At the time of interview, 20 (30%) identified being interested in receiving counseling for past sexual abuse,
but were unaware of where to access services. As well, 172 (84%) women reported experiencing physical abuse in childhood and/or adolescence, with a median age of 12 years (7-16 years).

In univariate analyses that examined childhood abuse before 13 years of age (Table 5.2), unadjusted associations with sexual abuse included HIV infection (OR=2.90, 95%CI: 1.46-5.74), HCV infection (OR=2.27, 95%CI: 1.27-4.07), recent bad date (OR=2.74, 95%CI: 1.31-5.71), unprotected sex with a john (OR=2.13, 95%CI: 1.12-4.06), and cocaine injection (OR=1.94, 95%CI: 1.07-3.53). Childhood sexual abuse before 13 years of age was also associated with increasing trends towards younger age of first risk experiences, including age of initiation into sex work (16 vs. 18 years, p=0.012), age of first living on the street (16 vs. 18 years, p=0.005), and age of first dropping-out of school (14 vs. 15 years, p=0.011).

In a final multivariate logistic model, adjusted for age, ethnicity and HIV risk factors, childhood sexual abuse before 13 years of age was independently associated with HIV infection (OR=2.29, 95%CI: 1.09-4.82), having had a recent bad date (OR=2.37, 95%CI: 1.06-5.32), and unprotected sex with a john (OR=2.20, 95% CI: 1.08-4.50).

In a second set of univariate analyses (Table 5.3), factors associated with sexual abuse before 18 years of age included recent bad date (OR=6.38, 95% CI: 1.47-27.68), physical assault by a non-sex trade partner (OR=3.55, 95% CI: 1.32-
9.56), forced sex against one's will (OR=4.61, 1.05-20.18), recent suicidal ideations/
attempts (OR=2.70, 95% CI: 1.07-6.85) and having a family member who worked in the sex trade (OR=3.85, 95% CI: 1.12-13.21). No differences in rates of homelessness, age of first living on the street, ever injecting drugs, age of initiation of injection drugs, type or frequency of drug use, or recent unprotected sex were observed when stratified by sexual abuse before 18 years of age. HCV was associated with elevated rates of childhood abuse, though the association was non-significant (OR=2.19, 95% CI: 0.91-5.25).

In multivariate logistic regression analysis, adjusted for potential confounders including age, ethnicity and HIV risk factors, childhood/adolescent sexual abuse before 18 years of age was independently associated with rape in last 6months (OR=5.10, 95%CI:1.15-21.93), having a family member in sex trade (OR=4.26, 95%CI: 1.24-14.72), physical assault by a non-sex trade partner (OR=3.01, 1.01-8.94), and recent suicidal ideations and/or attempts (OR=2.43, 95%CI:1.28-6.32).

5.4 Discussion

The findings elucidate an extremely high prevalence of early sexual abuse among women in survival sex work, with sexual abuse before 13 years of age associated with a two fold increased odds of HIV infection, even after adjustment
for all other known HIV risk factors. Early sexual abuse before 13 years of age was associated with two-fold increase in recent unprotected sex with a john and having recently experienced a bad date. Furthermore sexual abuse in childhood/adolescence (before 18 years of age) significantly predicted the likelihood of violence and rape in both intimate and client relationships in adulthood. In addition, early sexual abuse was associated with a two fold increased odds in recent suicidal ideations and/or attempts and a four fold increased odds of having a family member who had worked in survival sex work.

Within the context of limited and low uptake of counseling and treatment for past trauma, the extremely high rates of childhood sexual abuse among women in survival sex work in this setting is of grave concern. Although previous research has focused on the link between early childhood trauma and HIV infection through substance use and sexual risk pathways (Bailey 1998; Braitstein 2003; Ferguson 1997; Mezzich 1997; Nelson 2006; Ompad 2005; Whetten 2006), this study suggests that even after adjustment for all known HIV risk factors, women who experienced sexual abuse before 13 years of age were twice as likely to be HIV positive. This finding is similar to an early study showing a two-fold increase in HIV infection observed among male adult sexual-abuse survivors (Zierler 1991). As well, an increased odds of sexually transmitted infections has been reported among an inner-city sample of women who
experienced CSA in the UK (Petrack 2000). It is likely that several factors not measured in our current analysis, such as family environment and post-traumatic stress disorder (PTSD), may mediate at least in part the observed relationship between early sexual abuse and HIV-related risks among this population. From a prevention perspective, the study points to an urgent need for population-specific HIV prevention and substance use treatment programs, along with suicide prevention, that aim to increase ongoing counseling and support for sex workers contending with historical sexual abuse. Given the known impacts of past trauma, including increased susceptibilities to addictions, homelessness, incarceration and social isolation (Chiang 2006; Coid 2001; Gladstone 2004; Mezzich 1997; Parillo 2003), coupled with recent evidence of lower uptake of HAART among HIV positive women with a history of CSA (Cohen 2004), HIV treatment and care programs need to consider the adverse role of high rates of un-addressed childhood trauma among women living with HIV in an effort to engage this population in sustained and effective treatment options.

In addition, the fact that women who experienced early sexual abuse were five times more likely to have been raped in the last 6 months further indicates a crucial need for interventions that address historical trauma, supported by policy and legal reforms that actively criminalize abuse by commercial partners and put
the safety of sex workers first. While earlier research suggests that women who experienced sexual abuse in childhood are more likely to experience sexual re-victimization in adulthood (Coid 2001; Desai 2002; Parillo 2003), the five-fold increased odds of recent rape in this study suggests a particularly high vulnerability to adult re-victimization among sex workers with early history of sexual abuse that deserves urgent attention. Among sexual abuse survivors, the severity of sexual abuse and use of physical force have been associated with increased odds of sexual re-victimization in adulthood (Arata 2000; West 2000). Thus the high prevalence of childhood physical abuse among those women who experienced early sexual abuse may contribute in part to the elevated rate of recent forced sex among women.

Of particular concern, the fact that over a quarter of women reported suicidal ideations/ and or attempts in the last six months, with sexual abuse before 18 years of age doubling the likelihood of recent suicidal ideations/ attempts, highlights a desperate need to increase access to emergency social and mental health support, including suicide prevention programs. As well, interventions need to respond to the ongoing and generational impacts of unaddressed trauma among women in survival sex work. Although the mechanism for this relationship is not clear, the four-fold increase in having a family member in the sex trade among women who were sexually abused before 18 years of age
does reveal a significant generational vulnerability that has not received much attention. It is important to mention that although not factored in our analysis through association with sexual abuse or effect modification, women of Aboriginal ancestry were four times as likely to have a family member in the sex trade suggesting increased generational vulnerability to survival sex work among Aboriginal women. Aboriginal women account for only 2% of the Canadian population, and 4-5% of the population of British Columbia (BC Aboriginal HIV/AIDS Task Force 1999), and yet make up close to half of women in survival sex work in this setting. The significant overrepresentation of First Nations women in street-level sex work across Canadian cities warrants immediate attention given the multigenerational effects of historical trauma documented among Indigenous populations both in Canada and internationally (BC Aboriginal HIV/AIDS Task Force 1999; Simoni 2004; Walters 2002). Our findings support increasing public health calls for Aboriginal-specific HIV prevention and substance use programming that document historical trauma, mistrust, and responses to trauma, in an effort to help mitigate the matrix of lifetime trauma, substance use, and sexual risk (BC Aboriginal HIV/AIDS Task Force 1999).

There are several limitations that should be considered when interpreting these findings. First, the analyses are based on cross-sectional data and therefore
we are unable to determine causality. However given that we are interested in childhood events that preceded other HIV risk factors, the direction of the association appears to be clear. Second, this data is based on self-reported risk patterns and therefore may be subject to social desirability and response bias. However the validity of self-report among substance-using populations has been reported. However any bias would only serve to underestimate the observed associations and attenuate towards the null. Thirdly, this sample may not be representative of sex workers in other settings, or other venues of commercial sex work such as indoor massage parlors and escort agencies with lower rates of substance use. However our findings offer important exploratory findings on the impact of childhood sexual abuse and timing of first abuse on HIV risk among a highly vulnerable population of women.

There exists an extremely high prevalence of early sexual abuse among substance-using women in survival sex work. These findings indicate the need for immediate address in targeted public health and HIV prevention efforts for this population. Of particular concern, childhood abuse before 13 years of age was associated with a two-fold increased risk of HIV infection among women in survival sex work. This finding, coupled with the significantly elevated rates of rape, physical abuse, and suicidal ideation/ attempts highlight a desperate need for HIV prevention, substance use, and mental health interventions that address
historical trauma, supported by socio-legal reforms to current sex work environment. Finally, the generational vulnerability of survival sex work among those women who were sexually abused before 18 years of age suggests a need for greater resources aimed at early interventions that mitigate the long-term impacts of historical abuse on the daily lives of these women.
Table 5.1. Characteristics of substance-using women in survival sex work, stratified by experience of childhood and adolescent sexual abuse before 18 years and 13 years of age.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Sexual Abuse Before 18 years*</th>
<th></th>
<th>Sexual Abuse Before 13 years*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes (n=153)</td>
<td>No</td>
<td>p-value</td>
</tr>
<tr>
<td></td>
<td>n(%)</td>
<td>n(%)</td>
<td>p-value</td>
</tr>
<tr>
<td>Median age first exchanged sex for money or drugs **</td>
<td>16 (14-23)</td>
<td>18 (15-22)</td>
<td>0.836</td>
</tr>
<tr>
<td>Self-identify as Aboriginal</td>
<td>68 (44)</td>
<td>23 (51)</td>
<td>0.430</td>
</tr>
<tr>
<td>Median age first dropped out of school **</td>
<td>14 (13-16)</td>
<td>15 (13-16)</td>
<td>0.882</td>
</tr>
<tr>
<td>Ever homeless</td>
<td>133 (87)</td>
<td>39 (87)</td>
<td>0.883</td>
</tr>
<tr>
<td>Median age first live on street</td>
<td>17 (13-30)</td>
<td>16 (14-24)</td>
<td>0.935</td>
</tr>
<tr>
<td>Ever inject drugs</td>
<td>117 (76)</td>
<td>35 (78)</td>
<td>0.827</td>
</tr>
<tr>
<td>Median age first inject drugs **</td>
<td>17 (15-25)</td>
<td>17 (14-21)</td>
<td>0.349</td>
</tr>
</tbody>
</table>

* Reference category = no sexual abuse before this age
** Medians (interquartile range)
Table 5.2. Unadjusted and adjusted odds ratios for associations of childhood sexual assault before 13 years of age and recent sexual and drug use harms among women in survival sex work

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Yes n(%)</th>
<th>No n(%)</th>
<th>Unadjusted OR (95% CI)</th>
<th>Adjusted OR* (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIV positive</td>
<td>28 (33)</td>
<td>17 (14)</td>
<td>2.90 (1.46-5.74)</td>
<td>2.29 (1.09-4.82)</td>
</tr>
<tr>
<td>HCV positive</td>
<td>60 (70)</td>
<td>60 (50)</td>
<td>2.27 (1.27-4.07)</td>
<td>1.55 (0.79-3.05)</td>
</tr>
<tr>
<td>Recent bad date</td>
<td>23 (27)</td>
<td>14 (12)</td>
<td>2.74 (1.31-5.71)</td>
<td>2.37</td>
</tr>
<tr>
<td>Physical abuse by non-sex trade partner</td>
<td>21 (24)</td>
<td>31 (26)</td>
<td>0.92 (0.48-1.74)</td>
<td>——</td>
</tr>
<tr>
<td>Forced sex against one’s will last 6mo</td>
<td>14 (16)</td>
<td>15 (13)</td>
<td>1.26 (0.57-2.77)</td>
<td>——</td>
</tr>
<tr>
<td>Suicidal ideations/ attempts last 6mo</td>
<td>27 (31)</td>
<td>24 (21)</td>
<td>1.68 (0.89-3.19)</td>
<td>——</td>
</tr>
<tr>
<td>Require Assistance to Inject</td>
<td>17 (20)</td>
<td>16 (13)</td>
<td>1.59 (0.75-3.35)</td>
<td>——</td>
</tr>
<tr>
<td>Borrowed used syringe</td>
<td>7 (8)</td>
<td>7 (7)</td>
<td>1.42 (0.48-4.20)</td>
<td>——</td>
</tr>
<tr>
<td>Cocaine Injection</td>
<td>34 (40)</td>
<td>30 (25)</td>
<td>1.94 (1.07-3.53)</td>
<td>1.61 (0.81-3.19)</td>
</tr>
<tr>
<td>Heroin Injection</td>
<td>40 (47)</td>
<td>51 (43)</td>
<td>1.16 (0.66-2.03)</td>
<td>——</td>
</tr>
<tr>
<td>Crystal Meth Injection</td>
<td>12 (14)</td>
<td>14 (12)</td>
<td>1.22 (0.53-2.80)</td>
<td>——</td>
</tr>
<tr>
<td>Crack Cocaine Smoking</td>
<td>74 (86)</td>
<td>92 (82)</td>
<td>1.34 (0.62-2.92)</td>
<td>——</td>
</tr>
<tr>
<td>Family member in sex trade</td>
<td>15 (17)</td>
<td>21 (18)</td>
<td>0.90 (0.48-2.05)</td>
<td>——</td>
</tr>
<tr>
<td>Unprotected sex with a regular client</td>
<td>22 (26)</td>
<td>20 (17)</td>
<td>1.70 (0.86-3.37)</td>
<td>——</td>
</tr>
<tr>
<td>Unprotected sex with a john</td>
<td>28 (33)</td>
<td>22 (19)</td>
<td>2.13 (1.12-4.06)</td>
<td>2.20 (1.08-4.50)</td>
</tr>
</tbody>
</table>

* Final model adjusted for age, ethnicity, HIV risk factors
### Table 5.3. Unadjusted and adjusted odds ratios for correlates of childhood sexual abuse before 18 years of age among women in survival sex work

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Yes</th>
<th>No</th>
<th>Unadjusted OR (95% CI)</th>
<th>Adjusted OR* (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIV positive</td>
<td>36  (24%)</td>
<td>9  (20%)</td>
<td>1.23 (0.54-2.70)</td>
<td></td>
</tr>
<tr>
<td>HCV positive</td>
<td>44  (29%)</td>
<td>7  (16%)</td>
<td>2.19 (0.91-5.25)</td>
<td></td>
</tr>
<tr>
<td>Recent bad date</td>
<td>35  (23%)</td>
<td>2  (4%)</td>
<td>6.38 (1.47-27.68)</td>
<td></td>
</tr>
<tr>
<td>Physical abuse by non-sex trade partner</td>
<td>47  (31%)</td>
<td>5  (11%)</td>
<td>3.55 (1.32-9.56)</td>
<td>3.01 (1.01-8.94)</td>
</tr>
<tr>
<td>Forced sex against one's will last 6mo</td>
<td>27  (18%)</td>
<td>2  (4%)</td>
<td>4.61 (1.05-20.18)</td>
<td>5.10 (1.50-21.90)</td>
</tr>
<tr>
<td>Suicidal ideations/ attempts last 6mo</td>
<td>45  (29%)</td>
<td>6  (13%)</td>
<td>2.70 (1.07-6.85)</td>
<td>2.43 (1.28-6.32)</td>
</tr>
<tr>
<td>Requiring Assistance to Inject</td>
<td>27  (18%)</td>
<td>6  (13%)</td>
<td>1.39 (0.54-3.62)</td>
<td></td>
</tr>
<tr>
<td>Borrowed used syringe</td>
<td>11  (7%)</td>
<td>3  (7%)</td>
<td>1.08 (0.29-4.07)</td>
<td></td>
</tr>
<tr>
<td>Cocaine Injection</td>
<td>51  (33%)</td>
<td>13 (29%)</td>
<td>1.23 (0.60-2.55)</td>
<td></td>
</tr>
<tr>
<td>Heroin Injection</td>
<td>66  (43%)</td>
<td>25 (56%)</td>
<td>0.61 (0.31-1.19)</td>
<td></td>
</tr>
<tr>
<td>Crystal Meth Injection</td>
<td>18  (12%)</td>
<td>8  (18%)</td>
<td>0.62 (0.25-1.53)</td>
<td></td>
</tr>
<tr>
<td>Crack Cocaine Smoking</td>
<td>128 (84%)</td>
<td>38 (84%)</td>
<td>0.94 (0.38-2.35)</td>
<td></td>
</tr>
<tr>
<td>Family member in sex trade</td>
<td>33  (22%)</td>
<td>3  (7%)</td>
<td>3.85 (1.12-13.21)</td>
<td>4.26 (1.24-14.72)</td>
</tr>
<tr>
<td>Unprotected sex with a regular client</td>
<td>33  (22%)</td>
<td>9  (20%)</td>
<td>1.10 (0.48-2.51)</td>
<td></td>
</tr>
<tr>
<td>Unprotected sex with a john</td>
<td>39  (26%)</td>
<td>11 (24%)</td>
<td>1.06 (0.48-2.29)</td>
<td></td>
</tr>
</tbody>
</table>

* *Final model adjusted for age, ethnicity, HIV risk factors*
5.5 References


Cohen, M., Deamant, C., Barkan, S., Richardson, J., Young, M., Holman, S.,
Anastos, K., Cohen, J., Melnick, S. (2000). Domestic violence and
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Cohen, M. H., Cook, J.A., Grey, D., Young, M., Hanau, L.H., Tien, P., Levine,
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Coid, J., Petruckevitch, A., Feder, G., Chung, W., Richardson, J., Moorey, S.
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and subsequent adult revictimization assessed in a nationally


6.1 Introduction

Women account for an increasingly disproportionate number of HIV infections worldwide (UNAIDS 2004). UN agencies use the term the "feminization" of the HIV pandemic referring both to the highly gendered nature of the vulnerability to HIV infection and the increased biological susceptibility through sexual transmission. Women’s risk of HIV infection is hypothesized to be mediated by macro and micro factors exogenous to the individual that interact to increase vulnerability to HIV infection, including gender, cultural and economic inequities, prohibitive government policies, and institutionalized racism and poverty (Aggleton 1994; Farmer 1996; Kerr 2005; Parker 2000). Recent public health calls highlight the need to move beyond a sole focus on individual level risk to understanding of risk as negotiated interactions (Amaro 2000), embedded in contextual factors and gendered power dynamics, agency and access to resources (Farmer 1996; Zierler 1997). As such, a conceptual shift from solely individual level focused HIV prevention, such as condom

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distribution and HIV testing, to environmental-structural HIV prevention interventions emerged in the 1990's, particularly among female sex workers (FSWs) and their male clients (Parker 2000, Kerrigan 2006; Blanchard 2005).

Environmental-structural interventions aim to mediate macro and micro level factors that facilitate 'enabling-environments' for individual HIV risk reduction (Parker 2000; Rhodes 2002). Although several environmental-structural interventions among FSWs and clients have shown significant promise in improving condom use in sex work establishments (Kerrigan 2006; Parker 2000, 2000; Withers 2007), most notably the Songachi model in West Bengal, India (Basu, 2004), these interventions have proven difficult to translate to other settings (Kerrigan 2007). Furthermore, while some interventions, such as the 100% condom campaign were initially heralded as model HIV prevention programs in Thailand (Rojanapithayakorn 1996), subsequent evidence suggests not all sex workers may have experienced the same reductions in HIV prevalence (Kilmarx 1999) and the policy may have adversely impacted more marginalized sex workers through increased corruption, police raids, and mandatory HIV testing. These challenges and limitations may reflect the inability of interventions to adequately address the dynamic ways in which environmental and structural factors interact with micro-level factors in producing individual HIV risk (Miller 2002).
Among street-level sex work markets both in Canada and across the globe, women have been subject to alarming rates of violence and victimization over the last decade (Day 2007; Goodyear 2007; UNAIDS 2002), and enhanced rates of health and drug-related harms, including increased rates of HIV infection among women who smoke crack cocaine and/or inject drugs (Edlin 1994; Ward, 2000). A significant amount of research has identified individual level factors that predict consistent condom use, however there remains a paucity of evidence surrounding the role of prostitution policies and working environment on sexual HIV risk in street-level sex work. Prohibitive government policies that prohibit solicitation in public spaces, including those in North America, the United Kingdom, and parts of Australia, have been shown to increase police presence and crackdowns and displace street-based sex work markets to outlying areas workers (Blankenship 2002; Day 2007; UNAIDS 2002). As a direct result of displacement and legal restrictions on taking clients indoors or working in cooperative sex work settings, more marginalized sex workers are pushed to work in prostitution strolls, dark and deserted alleys and industrial settings, with limited lighting, poor sanitation, lack of protections from violence and exploitation, and reduced access to health and social support services.

Giving growing human rights and public health calls globally to address the failings of criminalised prostitution laws on the health and safety of sex
workers (Day 2007; Goodyear 2007; Lowman 2004; Ramaiah 2006; UNAIDS 2002), and recent charter challenges to Canada’s federal prostitution laws, this study aims to examine the association between environmental and structural factors and negotiation of condom use with clients among street-level sex workers in Vancouver, Canada.

6.2 Methods

The Maka Project was developed as a community-based HIV prevention research partnership between the WISH Drop-In Centre Society and British Columbia Centre for Excellence in HIV/AIDS that aims to examine the impact of current programs and policies on the health and safety of survival sex workers in Vancouver, Canada. The term “survival sex work” is used to refer to the exchange of sex for money, drugs, or shelter as a means of basic subsistence. A detailed description of the methodology has been published elsewhere (Shannon 2007). Briefly, between April and September 2006, 205 women were recruited and consented to participate in a prospective cohort (response rate of 93%), including an interview questionnaire and voluntary HIV screening, through time-spacing sampling, social mapping and targeted outreach to sex work strolls. Time-space sampling (Stueve 2001) was used to systematically sample women (inclusive of transgender women) at staggered times and locations based on sex work strolls identified through mapping. Eligibility criteria included being a
woman 18 years of age and older who smoked or injected illicit drugs (not including marijuana) in the last month and was actively engaged in street-level sex work in Vancouver.

At baseline, a detailed semi-structured questionnaire administered by trained experiential women (women with a lived experience of survival sex work) elicited responses related to demographics, health and addiction service use, working conditions, violence and safety, and sexual and drug-related harms. In addition, voluntary HIV screening using the new point of care rapid INSTI test (Biolytical, Vancouver, BC, specificity 99.3%, sensitivity 99.6%) was conducted by the project nurse, supported by extensive pre-test and post-test counselling. Detailed health and HIV related questions, as well as emotional, sexual, and physical abuse experiences, were asked by the project nurse in order to facilitate counselling and referral to support services. Finally, at the time of the baseline visit, women were provided with a map of Vancouver and asked to indicate (using the last six months as a reference point) 1) where they worked and lived; 2) considered high and low risk to their personal safety; 3) avoided due to recent violence, police presence and harassment; 4) accessed syringes, health services. Results were compiled used ArcGIS (ESRI) software and GIS street maps provided by the City of Vancouver.
The dependent variable for all analyses was reporting being pressured into unprotected vaginal/anal sex by a client in the last six months. Women who responded affirmatively to this question were asked the frequency of sex work transactions (always, usually, sometimes, occasionally, never) for each type of unprotected sex (vaginal, anal, oral) and commercial partner (regular versus "johns"/non-regular clients). Given evidence in other settings of enhanced HIV risk among women in transactions with regular clients, two separate models were constructed to test differences in predictors of sexual HIV risk by type of client. Both models yielded similar associations and therefore results are only shown for associations among non-regular clients.

Demographic and individual variables of interest considered in all analyses included age, ethnicity (coded as Aboriginal and non-aboriginal), type and frequency of drug use. Similar to previous analyses (Shannon, 2007), Aboriginal was defined as self-identifying as being of First Nations, Metis, or Inuit ancestry, or non-status First Nations. Drug use patterns included any use of cocaine injection, heroin injection, and crystal methamphetamine injection in the last months. Given the high rate of crack cocaine smoking in this population, daily versus less than smoking was considered. Drug bingeing was defined as smoking/injecting more than 10 times a day in the last six months. Micro-level factors considered included having an intimate male partner, having a male
intimate partner who scores drugs for them, working with other FSWs/ having a
“spotter” (another worker taking down client’s information/ license plate),
borrowing a used crack pipe, exchanging sex while high, and having experienced
a bad date (emotional, physical, sexual violence by a client) in the last six months. Respondents who answered yes to having experienced a ‘bad date’ in
the last six months were asked which of the following they had experienced by a
client: verbal harassment, abduction/ kidnapping, sexually assaulted, raped,
strangled, physically assaulted/ beaten, assaulted with a weapon, thrown out of
moving car, or other.

Environmental-structural level factors derived from interview
questionnaires included experiencing harassment by security guards when
working and place of servicing client: car date, outdoor public space (park/
alley), and indoor settings (hourly room, sauna, hotel). In addition,
environmental-structural factors derived from individual mapping variables for
each woman included: 1) type of working area or sex work stroll (main street,
residential setting, alley/ side street, industrial setting); 2) having a ‘red zone
restriction’ (individual zoning restriction) on the Downtown Eastside (DTES)
core due to previous solicitation and/or drug charges; 3) having moved working
areas away from DTES core/or main street due to policing. The DTES core,
considered among the poorest postal codes in North America, has become
notorious for a highly concentrated open drug market, socio-economic disadvantage, and health inequities, as well as extensive community and health resources. Importantly, the DTES core is bordered to the east by industrial areas and to the north by loading docks along waterfront that have become synonymous with 'skid row'. Displacement away from the DTES or main streets was based on a 'yes' response to mapping questions: “Have you moved working areas due to policing or police harassment in the last six months?” and “If yes, mark areas you moved to due to policing or police harassment in the last six months”.

Logistic regression models were constructed to examine associations between variables of interest and being pressured into sex without a condom by a client. Descriptive and univariate analysis were used to estimate associations between the outcome of interest and explanatory variables. Means were used to describe normally distributed variables, and medians were used to describe skewed variables. Categorical and explanatory variables were analyzed using Pearson $X^2$, normally distributed continuous variables were analyzed using t-tests for independent variables, and skewed continuous variables were analyzed using Mann-Whitney U tests. Bivariate analysis was used to examine associations between each of the explanatory variables and to test for collinearity and effect modification. Given significant collinearity between displacement due to policing
and working in industrial areas, only displacement due to policing was entered into the multivariate model. Similarly, exchanging sex while high on crack and borrowing a used crack pipe were highly collinear, and thus only borrowing a used crack pipe was entered into the model based on significance at $p<0.05$ and likelihood ratio test. The Pearson's chi-square test was used to verify associations between each independent variable and the outcome measures. Variables found to be associated with being pressured into sex without a condom by a client at the univariate level ($p<0.01$) were entered into the logistic regression model to obtain adjusted effects using forward conditional procedures and the likelihood ratio test. A significance of $p<0.01$ was used due to the relatively small sample size. All models were adjusted for age. All reported $p$-values are two-sided and odds ratios reported at 95% confidence intervals. Finally, mapping data were inputted into ArcGIS to provide a geographic representation of women's working areas by clustering of 'hot spots' for being pressured into unprotected sex by clients. Hot spots were calculated using the Getis-Ord $G^*$ analysis and $z$-scores (standard deviations from the mean).
6.3 Results

As indicated in Table 6.1, of the 205 women eligible for analysis, 81 (40%) self-identified as Aboriginal. The median age at the time of interview was 37 years (interquartile range, IQR: 27-42 years) and the median age of sex work initiation was 16 years (IQR: 14-22 years). A total of 68% of women have been pregnant in their lifetime with a median of 4 pregnancies (IQR: 2-5) and 31 (22%) have at least once child living with them. Seventy-four women (36%) had been homeless in the last six months. One hundred and fifty-two women (77%) reported ever having injected drugs, with 57% reporting active injection drug use. The primary drug of choice among women was crack cocaine (81%).

Among 205 women reporting sexual transactions with non-regular clients, 25% women reported being pressured into not using a condom by a client in the last six months. In univariate analysis (Table 6.2), unadjusted associations with being pressured into sex without a condom by a client were having a zoning restriction due to previous solicitation or drug charges (OR=3.45, 95%CI:1.42-7.63), moving working areas away from the DTES/main streets due to policing (OR=3.29, 95%CI:1.42-7.63), borrowing a used crack pipe (OR=2.65, 95%CI:1.38-5.10), working in an industrial area (OR=2.25, 95%CI:1.10-4.63), having experienced a recent bad date (OR=2.16, 95%CI:1.31-4.60), servicing clients in cars
or public spaces (OR=2.02, 95%CI:1.65-5.73), and exchanging sex while high on crack (OR=2.02, 95%CI:1.04-4.00).

In the final multivariate logistic model (Table 6.2), adjusted for age, being pressured into sex without a condom by a client was associated with having a zoning restriction due to previous solicitation or drug charges (OR=3.39, 95%CI:1.0-9.36), moving working areas away from the DTES/main streets due to policing (OR=3.01, 95%CI:1.39-7.44), borrowing a used crack pipe (OR=2.51, 95%CI:1.06-2.49), having recently experienced a bad date (OR=2.08, 95%CI:1.06-4.49), and servicing clients in cars or public spaces (OR=2.00, 95%CI:1.65-5.73).

Figure 6.1 provides a map of women's working areas by clustering of 'hot spots' for being pressured into unprotected sex. The positive z-scores show an increased probability (or 'hot spots') of being pressured into unprotected sex by a client among women working in areas away from the DTES and in industrial public spaces.

6.4 Discussion

This study demonstrates several structural and environmental barriers that significantly elevate women's sexual HIV risk through being pressured into unprotected sex by a client. In particular, women who moved working areas away from the DTES/main streets due to local policing and those with zoning
restrictions (due to previous solicitation or drug charges) experienced a three-fold increased odds of being pressured into unprotected sex, while those servicing clients in cars or public spaces (alleys, parks) were at a two-fold increased odds. Among micro level practices, borrowing a used crack pipe and having a recent bad date (emotional, sexual, physical violence by a client) both doubled the odds of being pressured into unprotected sex by a client.

The findings support the urgent need for structural and environmental level HIV prevention efforts in street-level sex work markets, particularly legal and policy reforms that facilitate sex workers' abilities to negotiate condom use in safer sex environments. Adverse impact of enforcement-based drug policies in facilitating drug-related HIV risk in open drug scenes have been well documented, including increased likelihood of risky injection practices (such as syringe sharing, rushed injections), confiscation of drug use paraphernalia without arrest, and disruption of social networks (Aitken 2002; Maher 1999; Wood 2003). Our findings further suggest that enforcement of prohibitive sex work policies, alongside drug policies, directly promote sexual risk of HIV infection in open street-level sex work markets. These findings offer empirical evidence to support qualitative and ethnographic work, as well as legal policy analyses (Day 2007; Goodyear 2007; Lowman 2004), in both Vancouver and other criminalized prostitution settings that document increased harms, including
violence, exploitation, and drug-related HIV risk, in street level sex work as a result of enforcement and resultant displacement of working areas.

Although sex work itself has never been illegal in Canada, the contradictory laws governing prostitution mean that sex work continues to operate in highly prohibitive environment. In an effort to remove the visible presence of street prostitution, the Federal Government enacted the 'communicating' provision in 1985 making it illegal to communicate in public spaces for the purposes of sexual transaction. In light of current legal challenges to the 'communicating code' (s.13) in Canada, it is noteworthy that our findings suggest that enforcement of this provision may be directly increasing women's sexual risk of HIV infection.

The significant public health implications of enforced displacement of sex work to outlying areas and individual red zone restrictions on HIV transmission risk should also be considered in the context of current policy discussions surrounding "no-go zones" or "prostitution free zones" in several urban settings (Sanchez 2004; Sanders 2007), including Vancouver. Prostitution free zones operate under a similar premise at the municipal level of removing the 'visibility' of sex work (often advocated by business owners and residential communities) by making it illegal for sex workers to work in specific zones of public space and have been previously shown to lead to increased enforcement and displacement.
of sex work to hidden and underground settings. In contrast, it has been suggested that managed sex work zones in several European settings (Sanders 2007), have been suggested to facilitate enabling environments for risk reduction and protection against violence and exploitation, though further research is needed both at the individual and ecological level of policies governing these zones. Unlike managed sex work zones operating elsewhere that adopt a zero-tolerance drug policy, the significant overlap of sexual exchange and drug use partners in street level sex work in this setting highlights the need for zones to be supported by harm reduction policies, similarly documented in recent consultations of managed sex work zones in the United Kingdom (Bellis 2007). As well, in order to ensure that policing in managed sex work zones support criminalizing exploitation by clients and third parties rather than further harming sex workers, evidence indicates that policies are best developed with the direct involvement of sex workers.

Furthermore, the increased risk of being pressured into unprotected sex among women servicing clients in public spaces and cars as compared to indoor settings highlights the public health imperative of reversing laws that restrict sex workers ability to legally work indoors in managed or cooperative settings. The current ‘bawdy house’ provisions (s.210 & 211) in Canada broadly prohibit keeping or transporting a person to a common bawdy-house, while section 212
prohibits ‘procuring’ or ‘living off the avails of prostitution’ making it illegal for sex workers to work together in cooperative settings, and extends to ‘living off of the avails’ of sex work to partners, family members, friends, and co-workers.

UNAIDS supports the decriminalization of sex work, where there is no exploitation, as necessary to effective HIV prevention (UNAIDS 2002). In several countries in Western and Eastern Europe, as well as more recently New Zealand, and parts of Australia, sex work is decriminalised with evidence suggesting such policy efforts increase access to health services, greater autonomy and personal safety and reduced violence and exploitation. Health and safety strategies adopted in indoor sex work establishments in decriminalized or regulated settings, such as house rules, video cameras, call buttons, and occupational health and safety standards, have been suggested to facilitate sex workers’ ability to manage their environment and risk reduction strategies including negotiation of positive sexual health practices (Harcourt, 2001; Sanders, 2007).

In addition, gender-specific harm reduction interventions are needed that consider power dynamics in the negotiation of HIV risk and the intersection of sexual and drug transmission risk in settings where open drug use and sex work markets coexist (Cusick 2006; Strathdee 2003; 2007). This study suggests that the process of female sex workers borrowing used drug use paraphernalia from clients is directly associated with elevated odds of sexual HIV risk through being
pressed into unprotected sex. The synergistic relationship between crack cocaine and survival sex work has been extensively documented and shown to elevate the likelihood of exploitation and violence among sex workers (Edlin 1994). While surveillance data suggests injection drug use remains the primary route of HIV transmission in Canada, a quarter of women in survival sex work in this setting were pressured into unprotected sex within the last six months suggesting increased potential for sexual transmission of HIV that deserves attention. The importance of elucidating micro-level negotiation of sexual HIV risk in epidemiological analysis, rather than individual level practice of unprotected sex, was further evidenced by an event analysis of female substance users’ most recent sexual exchange transaction in which male client’s motivation to use condoms and worker-client discussions were key predictors of consistent condom use (McMahon 2006). Similarly, the practice of clients offering more money to not use a condom and sex workers charging more money for unprotected sex has been documented in several settings with evidence suggesting that both drug use and poverty are driving this practice (Ntumbanzonda 2006; Shannon 2007).

There are several limitations that should be considered when interpreting these findings. First, this study is cross-sectional in nature and therefore causal relationships cannot be drawn. However, the direction of the association
between enforcement of prohibitive sex work policies and women’s sexual HIV risk is supported by extensive legal policy analyses of increased harm due to prohibitive sex work policies as well as extensive qualitative and ethnographic work both in this setting and elsewhere (Day, 2007; Goodyear, 2007; Lowman, 2004). Secondly, the relatively small sample size may have compromised power. Thirdly, self-reported practices may be subject to social desirability bias, though it is likely that this would have served to underestimate associations towards the null. Fourthly, given that sex work exists across a wide-range of venues from massage parlours and brothels to street level sex work, our findings may not be generalizable to other sex work venues or other outdoor sex work markets that do not operate under a similar legal framework.

Given high rates of violence, murder, and harms among women in street-level sex work in Canadian cities over the last decade, and global calls to address the failings of criminalized prostitution laws on the health and safety of sex workers, this study offers important empirical evidence to suggest that the current sex work laws and enforcement-based policies may be directly increasing women’s sexual HIV risk. In particular, our findings support the urgent need to move beyond a solely individual level HIV prevention approach, such as condom distribution, to structural-environmental HIV prevention that facilitates sex workers ability to negotiate their risk environment in safer sex work settings.
and more actively criminalizes abuse and harassment by clients and third parties.
<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Yes (n=51) n(%)</th>
<th>No (n=154) n(%)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Median age</strong></td>
<td>35 (28-41)</td>
<td>37 (27-42)</td>
<td>0.759</td>
</tr>
<tr>
<td>Median age first exchanged sex for money or drugs *</td>
<td>16 (15-22)</td>
<td>17 (14-23)</td>
<td>0.592</td>
</tr>
<tr>
<td>Self-identify as Aboriginal</td>
<td>21 (41)</td>
<td>59 (38)</td>
<td>0.716</td>
</tr>
<tr>
<td>Ever pregnant</td>
<td>39 (77)</td>
<td>100 (65)</td>
<td>0.126</td>
</tr>
<tr>
<td>Median number of pregnancies</td>
<td>4 (2-7)</td>
<td>3 (2-5)</td>
<td>0.131</td>
</tr>
<tr>
<td>Currently have at least one child living with them</td>
<td>11 (22)</td>
<td>20 (13)</td>
<td>0.138</td>
</tr>
<tr>
<td>Homeless (last 6mo)</td>
<td>22 (43)</td>
<td>52 (34)</td>
<td>0.227</td>
</tr>
<tr>
<td>Incarcerated (last 6mo)</td>
<td>10 (30)</td>
<td>24 (16)</td>
<td>0.503</td>
</tr>
<tr>
<td>HIV positive (HIV screening)</td>
<td>15 (29)</td>
<td>30 (20)</td>
<td>0.138</td>
</tr>
<tr>
<td>HCV positive (self-reported status)</td>
<td>29 (57)</td>
<td>91 (59)</td>
<td>0.780</td>
</tr>
<tr>
<td>Ever injected drugs</td>
<td>34 (67)</td>
<td>118 (77)</td>
<td>0.159</td>
</tr>
<tr>
<td>Childhood/ Adolescent Sexual Abuse (&lt;18yrs) **</td>
<td>41 (80)</td>
<td>112 (76)</td>
<td>0.537</td>
</tr>
<tr>
<td>Childhood/ Adolescent Physical Abuse (&lt;18 yrs)**</td>
<td>44 (86)</td>
<td>128 (83)</td>
<td>0.595</td>
</tr>
</tbody>
</table>

Total number of women reporting transactions with non-regular clients was n=205

* Medians (interquartile range), **Self-reported abuse before 18 years of age, excluding sex work
Table 6.2. Unadjusted and adjusted odds ratios for associations between being pressured into unprotected sex by a non-regular client and individual and contextual factors among survival sex workers (n=205)

**Pressured into unprotected sex by a non-regular client**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Yes (n=51)</th>
<th>No (n=154)</th>
<th>Unadjusted OR (95% CI)</th>
<th>Adjusted OR* (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>INDIVIDUAL FACTORS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cocaine injection</td>
<td>16 (31)</td>
<td>48 (31)</td>
<td>1.01 (0.51-2.00)</td>
<td></td>
</tr>
<tr>
<td>Heroin injection</td>
<td>5 (49)</td>
<td>66 (43)</td>
<td>1.28 (0.70-2.42)</td>
<td></td>
</tr>
<tr>
<td>Crystal methamphetamine injection</td>
<td>9 (18)</td>
<td>17 (11)</td>
<td>1.73 (0.72-4.20)</td>
<td></td>
</tr>
<tr>
<td>Daily crack cocaine smoking</td>
<td>28 (55)</td>
<td>93 (63)</td>
<td>0.71 (0.37-1.35)</td>
<td></td>
</tr>
<tr>
<td>Drug bingeing</td>
<td>18 (35)</td>
<td>43 (28)</td>
<td>1.41 (0.72-2.76)</td>
<td></td>
</tr>
<tr>
<td><strong>MICRO FACTORS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Have an intimate male partner</td>
<td>17 (33)</td>
<td>54 (35)</td>
<td>0.93 (0.47-1.81)</td>
<td></td>
</tr>
<tr>
<td>Intimate partner scores drugs for you</td>
<td>12 (24)</td>
<td>33 (21)</td>
<td>1.13 (0.53-2.40)</td>
<td></td>
</tr>
<tr>
<td>Exchange sex while high</td>
<td>35 (69)</td>
<td>80 (52)</td>
<td>2.02 (1.04-4.00)**</td>
<td></td>
</tr>
<tr>
<td>Borrowing a used crack pipe from a client</td>
<td>25 (49)</td>
<td>41 (27)</td>
<td>2.65 (1.38-5.10)</td>
<td>2.51 (1.20-4.98)</td>
</tr>
<tr>
<td>Work with other women/ use a &quot;spotter&quot;</td>
<td>10 (20)</td>
<td>21 (14)</td>
<td>1.55 (0.67-3.55)</td>
<td></td>
</tr>
<tr>
<td>Bad date (Emotional, physical, sexual abuse by a client)</td>
<td>14 (28)</td>
<td>23 (15)</td>
<td>2.16 (1.01-4.60)</td>
<td>2.08 (1.06-4.49)</td>
</tr>
<tr>
<td><strong>ENVIRONMENTAL-STRUCTURAL FACTORS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zoning restriction due to previous solicitation or drug charges</td>
<td>9 (18)</td>
<td>9 (6)</td>
<td>3.45 (1.29-9.25)</td>
<td>3.39 (1.20-9.36)</td>
</tr>
<tr>
<td>Moved working areas away from DTES/ main streets due to policing</td>
<td>35 (69)</td>
<td>56 (36)</td>
<td>3.29 (1.42-7.63)</td>
<td>3.10 (1.39-7.44)</td>
</tr>
<tr>
<td>Harassment by security guards</td>
<td>21 (41)</td>
<td>44 (29)</td>
<td>1.75 (0.91-3.38)</td>
<td>1.56 (0.85-3.10)</td>
</tr>
<tr>
<td>Work on main, well lit streets</td>
<td>15 (29)</td>
<td>48 (31)</td>
<td>0.90 (0.46-1.84)</td>
<td></td>
</tr>
<tr>
<td>Working in industrial areas</td>
<td>36 (77)</td>
<td>91 (59)</td>
<td>2.25 (1.10-4.63)**</td>
<td></td>
</tr>
<tr>
<td>Service clients in cars and public spaces (alleys, parks)</td>
<td>39 (76)</td>
<td>91 (59)</td>
<td>3.03 (1.67-6.14)</td>
<td>2.98(1.59-5.93)</td>
</tr>
<tr>
<td>Service clients in indoor settings (Saunas, hourly rooms, hotels)</td>
<td>11 (21)</td>
<td>50 (32)</td>
<td>0.59 (0.23-2.64)</td>
<td></td>
</tr>
</tbody>
</table>

* Variables significant at p<0.01 entered into multivariate model, adjusted for age
** Variable not entered into logistic model due to high collinearity with another variable
Figure 6.1 Working areas of female survival sex workers by geographic clustering of being pressured into unprotected sex by a client.
6.5 References


7.1 Summary of Findings

In beginning this research project, a review paper was conducted of the available literature of the potential and known impacts of social, structural and environmental factors in mediating HIV prevention efforts among female sex workers and their male clients. Despite extensive research on the individual and micro factors driving HIV transmission in this setting and more environmental and structural HIV prevention efforts among sex workers and clients in developing country settings, this review highlighted the paucity of information surrounding the contextual factors shaping the HIV risk environment of women engaged in survival sex work in a resource rich setting. Drawing on the risk environment framework and my proposed conceptual model, the subsequent research papers aim to fill this research gap by examining the relationship between contextual factors at the macro and meso levels, negotiation of HIV transmission risk at the micro level, and individual vulnerability to HIV infection among women in survival sex work. Chapter 2, currently under review, offers a conceptual model (Fig 2.1) to guide future research, policy and prevention efforts in sex work and HIV prevention. In particular, the conceptual model demonstrates the pathways through which structural, environmental, economic,
and social factors mediate experiences of violence and reduce women's ability to safely negotiate HIV risk reduction practices. Chapters 3-6 examine the relationships between the negotiation of sexual and drug transmission risk among FSWs and several key contextual factors outlined in the conceptual model: gender and political inequities, laws and policies, and enforcement-based strategies (structural); working conditions, displacement, social isolation, and intersections with open drug use market (environmental); lack of access to material resources, survival sex, and entrenched poverty (economic); and gender-based violence, gendered social norms, and lack of women controlled prevention (social).

In Chapter 3, the risk environment framework was used to conduct content, thematic and further theoretical analyses of qualitative research exploring the role of social, structural and symbolic violence and gendered power relations in mitigating HIV infection risk among women in survival sex work. Consistent with the conceptual model in Chapter 2, the following five themes were seen to mediate women's individual agency and access to resources, thereby reducing sex workers' ability to safely practice HIV prevention: at the micro level, everyday violence and the role of boyfriends as pimps; at the meso level, a lack of safe places to take dates and adverse impacts of local policing strategies; and at the macro level, dopesickness, poverty, and the need to sell sex to sustain
one's drug habit. At the same time, the analyses highlighted how certain micro-level decision making and sexual and drug use practices are rational and economic coping strategies adopted in the face of large scale social and structural violence. This paper provides crucial evidence of how the 'lived experiences' of sex workers can be used to inform renewed policies and programs that facilitates 'enabling environments' for HIV prevention. Importantly, the context of sex workers' HIV risk environment elucidated through this paper was used to guide subsequent data collection and variable selection for social epidemiological analyses in Chapters 4, 5 and 6. For example, the qualitative work highlighted the importance of conceptualizing different types of gender-based violence, from sexual and physical abuse to client-perpetrated violence ('bad dates') and the heterogeneity in experiences of policing (from enforced displacement of sex work to outlying and industrial settings through to direct police harassment) that were considered in each of the subsequent analyses. As well, the sex work narratives of social, structural and symbolic violence in the qualitative paper highlighted the importance of exploring the relationship between historical trauma, generational vulnerability and HIV transmission risk among sex workers (Chapter 5). Similarly, the role of 'boyfriends as pimps' was explored through such experiences as having an intimate partner purchasing drugs, while a lack of
safe places to take dates was operationalized as servicing dates in cars or public spaces as compared to indoor settings (hotel rooms, saunas) in Chapter 6.

The analyses in Chapter 4 demonstrated the intersection of drug and sexual transmission risk in sex work transactions through the micro negotiation process of drug sharing with clients among women in survival sex work. Over half of survival sex workers reported drug sharing with clients and sharing drugs was associated with several factors previously linked to increased likelihood of infectious disease transmission, including multiple unprotected sexual encounters and intensive crack cocaine smoking. Of particular importance, unadjusted associations between drug sharing and clients offering more money for condom-less sex and sex workers agreeing to receive more money for condom-less sex, combined with adjusted associations with increased unprotected sex and client-perpetrated violence suggest the importance of economic necessity, violence, and drug use in driving sexual transmission risk.

As highlighted in the qualitative work in Chapter 3, sex work for many women in this setting is a direct and rational economic coping strategy in face of larger scale economic and structural inequities. The findings add to the body of literature that points to the limitations of focusing solely on individual level prevention efforts, such as condom distribution, in reducing vulnerability to HIV transmission. HIV prevention and harm reduction interventions need to address
the overlapping sexual and drug use networks, and the gendered social and structural inequities that shape HIV risk negotiation in sex work transactions in this setting. Furthermore, the significant overlap of sexual and drug use partners in street-based sex markets suggests that early estimates of low sexual transmission rates for HIV infection among substance-users may in fact underestimate the prevention resources needed to target sexual transmission risk.

In Chapter 5, I explored the relationship between historical sexual abuse and the social and structural factors shaping sex workers' HIV risk environment at both micro and macro levels, including rape, suicidal ideation and generational vulnerability to survival sex work. Of particular concern, more than three-quarters of women had experienced childhood/adolescent sexual abuse (before 18 years of age; excluding sex work), of whom over half had experienced sexual abuse before 13 years of age. The median age of first sexual abuse experience was 11 years (IQR: 6-16 years). Despite this alarming prevalence of early sexual abuse experiences, only one third had ever experienced counselling for sexual abuse suggesting a major gap in counselling and treatment of historical trauma among this highly marginalized population. Although previous research has identified a strong relationship between sexual abuse and initiation into sex work, this was the first study to find a direct association between early sexual abuse (<13 years)
and a two-fold increased likelihood of HIV infection among sex workers in adulthood that has important implications for HIV prevention efforts. The findings highlight the public health importance of interventions that address the long-term impacts of unaddressed historical sexual abuse on the context of HIV risk in adulthood. Only one other paper among a population-based sample of male sexual abuse survivors has documented a direct relationship between childhood sexual abuse and HIV risk (Zierler, 1991). Further in light of evidence of lower uptake of HAART among HIV positive women with a history of childhood sexual abuse (Cohen, 2004), the high rates of unaddressed childhood and adolescent sexual abuse among HIV positive women in this study highlight the need to address historical sexual abuse in order to engage this population in effective and sustained treatment options.

Of additional concern, any sexual abuse before 18 years of age was associated with a two fold increased odds of recent suicidal ideation and/or attempts, as well both rape and physical violence in adulthood, underscoring the need for immediate crisis support and violence prevention for this population. As well, there was a four fold increased odds of having a family member in survival sex work among those who experienced sexual abuse in childhood/adolescence, with Aboriginal women at increased likelihood of multigenerational vulnerability to survival sex work. Our findings support increasing calls for Aboriginal-led
interventions that help mitigate the multigenerational impacts of trauma, substance use, poverty, and survival sex (BCAboriginal HIV/AIDS Task Force 1999; Simoni 2004; Walters 2002).

Chapter 6 illuminates the environmental and structural barriers to sexual HIV risk negotiation with clients. This study offers empirical evidence to suggest that the enforcement of current sex work laws, alongside prohibitive drug policies, may be directly increasing sexual HIV risk through a reduced ability of sex workers to negotiate condom use for sexual services. In particular, the findings support the public health and HIV prevention imperative of reforming the legal restrictions on communicating in public spaces or working indoors in managed or cooperative settings. The mapping of women’s working areas (Fig 6.1) supports the multivariate regression analyses by demonstrating increased ‘hot spots’ or probability of being pressured into unprotected sex in outlying areas and industrial settings. Of particular importance, given recent discussions of no-go zones as part of the Vancouver Agreement Steering Community on Sex Work (Vancouver Agreement Sex Work Steering Committee 2007), this research suggests that such zones may further push women to outlying areas and reduce their ability to negotiate condom use for sexual services.

Together, the research findings demonstrate the limitations of current individualized prevention strategies targeting sex workers and clients and the
desperate need for social and environmental-structural interventions, including policy reforms, that facilitate 'enabling environments' for HIV prevention in a resource rich setting. Of particular importance, given the highly gendered nature of the HIV epidemic and the paramount role of gender-based violence in the negotiation of sexual and drug transmission risk, there is a desperate need for gender-specific prevention and policy strategies targeting women who engage in sex work as a means of basic subsistence, including counseling and treatment for historical trauma, ongoing abuse and crisis intervention support.

7.2 Unique Contributions

The strengths and limitations of this research have been presented in detail in each of the study chapters (3-6). In addition, the research papers collectively highlight the unique contribution of multiple methodologies of social epidemiology, qualitative research, mapping, and participatory research.

Social epidemiology has increasingly emerged as its own discipline within epidemiology, focused on the relationship of social and contextual factors and individual disease risk. Building on a social determinant framework and more socio-ecological frameworks, social epidemiology and its focus on social and contextual factors, including gender, race and class, have the ability to enrich our understanding of HIV risk and similarly develop interventions at both social and
structural levels that reduce disease transmission (Krieger 1999). Importantly, this research supports evidence of the successful use of GIS participatory mapping within social epidemiology to document the relationship of context, place and women’s individual infection risk. The application of GIS mapping to HIV prevention research is relatively new and this study highlights the significant possibilities for expansion of its use in further elucidating the relationship between people, place and context in shaping the HIV risk environment. Further, this study highlights the unique ability to strengthen our theoretical and conceptual underpinnings in developing quantitative questions and guiding social epidemiological analysis through the complementary use of qualitative research.

Additionally, this research demonstrates the value of a participatory research approach in ensuring the direct relevance of research to public health policy and practice and informing renewed prevention strategies that move beyond standard solutions developed by outside experts. Several key public health outcomes to date would not have been possible without the continual support and collaboration of the community research partners in our larger research project within which my thesis is nested. For example, a program grant is currently being prepared that brings together provincial and community level organizations, including Women’s Information Safe Haven (WISH) Drop-In
Centre Society and Sex Workers United Against Violence (SWUAV) to implement these findings through renewed violence prevention strategies and the use of GIS mapping to more closely monitor client-perpetrated violence ('bad dates'). In recognition of the public health importance of this work, in the fall of 2007 I successful secured a CIHR Knowledge Translation Grant Supplement to further work towards translating my thesis findings, along with 5 other first-author manuscripts (not part of this thesis), into policy and practice over the upcoming year. Through the use of a novel 'linkage and exchange' model, this KT grant aims to help support dialogue between key stakeholders, including government, health authorities, community organizations and sex workers, in addressing structural barriers to HIV prevention among survival sex workers, including safer environment interventions, gender-specific harm reduction, structural interventions that reduce economic and gender inequities, and legal policy reforms both at municipal (ie: zoning) and federal levels (ie: sex work laws).

7.3 Recommendations

While each of the study chapters (3-6) provide recommendations for policy and prevention targeted to sex workers that are specific to each of study findings, there are several recommendations that are worth highlighting due to the
cumulative evidence across all of the studies. Our findings, coupled with continual evidence from developing countries of social and environmental-structural interventions in reducing HIV transmission risk among sex workers and clients, highlight the need for social and environmental-structural interventions that facilitate ‘enabling environments’ for HIV prevention among FSWs in the Vancouver setting.

Of particular importance at the policy level, in light of current legal challenges to the Canadian criminal prostitution codes, this research provides empirical evidence to support the adverse impacts of enforcement of the current provisions, namely the prohibition of communicating in public spaces and legal restrictions on working indoors in cooperative or managed settings, on the ability of sex workers to manage their risk environment and negotiate safe sexual services with clients. Both WHO and UNAIDS support decriminalization of sex work, where there is no exploitation, as necessary to HIV prevention efforts (UNAIDS 2002). At a municipal level, the findings support the need for managed sex work zones that adopt harm reduction rather than enforcement based policies and aim to improve the relationships between police, judicial system and sex workers. Several important examples of managed sex work zones are operating internationally, including many European settings (Bellis 2007; Sanders 2007), that could be adapted to the Canadian context.
Second, while there is increasing recognition of the intersection of gender-based violence and HIV transmission risk, the experiences of gender-based violence among female sex workers and substance users have been largely absent from public health and HIV prevention policy and practice. Given global recognition of the need to integrate violence prevention strategies within HIV prevention and treatment efforts, it is crucial to consider the evidence of the paramount role of violence in shaping sex worker’s risk environment across all four of my manuscripts (Chapters 3-6). While structural support, including policy reforms, will be instrumental in reducing violence, there is a desperate need for policy reforms to be supported by societal and program level change that better monitor and respond to violence against sex workers. The continued lack of accountability by police, the justice system and society to the ongoing assault, victimization and murder of sex workers across Canadian cities requires a systematic response by both society and government.

Furthermore, the study findings (Chapters 3-6) underscore the desperate need for gender-specific interventions that address the systematic structural inequities of poverty and addiction in driving the reduced ability of sex workers to negotiate HIV risk reduction practices and safer sexual services in this setting. The continued lack of availability of drug treatment and high rates of homelessness among women need to be addressed in order to effectively reduce
vulnerability of FSWs to both violence and HIV infection. In addition, comprehensive transitioning and ‘exiting’ strategies are needed that address the contextual factors shaping women’s risk environment, such as supportive housing, access to drug treatment, and skills training.

Fourth, the qualitative work conducted in Chapter 3 articulated the importance of the ‘lived experiences of sex workers in guiding policy and program reforms and the paramount role of sex worker-led networks and unions in regulating sex worker protocols and safer sexual services. As highlighted in UNAIDS and WHO best practices for HIV prevention in sex work, grassroots community and sex worker-led change have been instrumental in the success of HIV prevention strategies in several low resource (Basu 2004; Halli 2006; Kerrigan 2006; Overs 2002; Parker 2000; SynergyAIDS 2002; UNAIDS 2000; Withers 2007)

Fifth, as outlined in my recent paper (Shannon 2008), the collective findings across Chapters 3-6 offer evidence to support increasing calls for ‘safer environment interventions’ embedded within existing spatial relations (Rhodes 2006). Of particular importance, in settings such as Vancouver where open sex work and drug use markets coexist, ‘safer environment interventions’ are desperately needed that aim to facilitate safer sex work settings within existing spatial relations, including peer-based prevention efforts, outreach and mobile
resources and policy reforms to support peer-supervised safer sex work environments (such as sex work cooperatives or brothels). A key example of a level sex workers is the mobile access project (MAP), a mobile outreach van that connects with sex workers in both the DTES and outlying areas and has been in operation for 3 years. While the MAP van has shown positive impacts in reducing harm and violence among women through provision of harm reduction and prevention resources (Gibson 2006), the findings suggest the need for long-term resources to help to sustain the capacity of MAP and expand mobile resources for sex workers, including mobile health services, to outlying areas. Of particular importance, evidence suggests a desperate need for mobile resources that include crisis intervention and violence prevention for sex workers, as well as flexible prevention and treatment that support sex workers contending with historical abuse.

Finally, the high overrepresentation of women of Aboriginal ancestry in survival sex work across Canada is alarming, particularly in light of recent evidence of a two-fold elevated HIV incidence among urban Aboriginal IDUs compared to non-aboriginal IDUs in this setting (Wood 2008). The evidence of enhanced generational vulnerabilities among Aboriginal women to survival sex work (Chapter 5), coupled with more qualitative work documenting the
symbolic violence and ‘discourse of disposal’ among Aboriginal women (Chapter 3), highlight the desperate need to develop and respond with Aboriginal-led policy and prevention strategies.

7.4 Future Research

It would be remiss to not identify the key areas of future research based on my findings to date. First, there is clear evidence of the public health importance of interventional research that develop, pilot, and evaluate social and environmental-structural prevention strategies in this setting.

Second, my study findings to date as part of a CBR project highlight the public health importance of longitudinal data to monitor the ongoing impact of policy and program changes on the health and risk reduction practices of sex workers and clients. The need for a large, ongoing observational cohort that adopts an open recruitment strategy will be crucial in its ability to be responsive to fluctuations in government policies and prevention efforts on the initiation, frequency and intensity of sex work, as well as changes in client demand. An ongoing open cohort strategy will be particularly important in the lead up to the 2010 Olympics in documenting changes in sexual trafficking and youth exploitation, and ensure the development of evidence-based prevention strategies targeting street-based sex workers. Within this longitudinal cohort,
further development of GIS mapping will be crucial in elucidating the impact of place and environment on HIV prevention and policy efforts.

Third, my research has focused on women in survival sex work, and thus does not include research among clients or third parties (law enforcement). While it is hypothesized that the population of clients accessing sexual services in street-based sex work markets are extremely elusive, research among clients and police need to be conducted in order to ensure the effectiveness of new policy and programs efforts targeting street-based sex work markets. For example, it is not currently known to what extent managed sex work zones would deter some clients, particularly those more violent, to further out areas, thus increasing demand for sexual services outside the zones. Further the need for improved communication between police and sex workers requires coordinated discussions and inclusion of both parties in developing responses.

7.5 Conclusions

This thesis offers an important body of evidence surrounding social and contextual factors that shape the HIV risk environment of women exchanging sex for drugs, money or shelter as a means of daily subsistence across the streets of Vancouver. Despite extensive efforts locally and federally to curtail HIV epidemic among substance using populations, the studies collectively
demonstrate that major steps need to be taken to reduce the HIV vulnerability among survival sex workers through social and environmental-structural interventions. In particular, the findings suggest that individual-level prevention strategies will do little towards reversing the extreme health disparities of survival sex workers or improving the ability of women to manage their risk environment unless supported by social and environmental-structural interventions. In light of current legal challenges to the Canadian sex work legislation as a violation of the Charter of Rights and Freedom, this study demonstrates the public health and HIV imperative of legal reforms, concomitantly with gender-specific interventions, that mediate macro and meso level factors, and their intersection with women’s negotiation of HIV risk at the micro level.
7.6 References


