

RISK AND RESILIENCY FACTORS ASSOCIATED WITH
INJECTION DRUG USE AMONG AT-RISK YOUTH IN
VANCOUVER, BRITISH COLUMBIA

by

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ABSTRACT

Background: Street-involved youth are a vulnerable population with respect to injection drug use (IDU) initiation; however, despite being considered an “at-risk” population, many street-involved youth do not use drugs intravenously. The objective of this thesis was to explore risk and resiliency factors associated with IDU among at-risk youth in Metro Vancouver, British Columbia and to determine if these factors differ by gender.

Methods: Data were obtained from the Vancouver-subset of the Enhanced Surveillance of Canadian Street Youth Survey (E-SYS), which collected data from January to November 2006. Logistic regression was performed overall and by gender to identify factors associated with IDU among street-involved youth aged 15 to 25. Results of the E-SYS study were used to inform 16 in-depth, semi-structured interviews with service providers who work with at-risk youth populations in Metro Vancouver. Domain analysis was performed to identify risk and resiliency factors.

Results: Among the 195 E-SYS participants, 55 (28.2%) youth reported injecting drugs more than once in their lifetimes. Youth who use injection drugs are entrenched within the street culture and engage in high-risk sexual activities. Males who use injection drugs reported more intense street involvement, while females who use injection drugs reported engaging in sex for trade. Six themes emerged from the service provider interviews: (i) interpersonal relationships for example with family members or peer groups; (ii) social influences such as the normalization and social acceptability of IDU; (iii) structural influences such as the lack of safe,

affordable housing; (iv) family history factors including violence, abuse, and neglect as well as parental drug use; (v) individual-level factors such as the development of tolerance to non-injection drugs; and (vi) gender differences related to the youths' social influences and vulnerabilities on the street.

Conclusions: Youth who use injection drugs are more involved with the street culture and engage in sexual behaviours that may increase the risk for HIV, hepatitis C and other sexually-transmitted infections. The results of this study will inform evidence-based, youth-driven intervention strategies in the community. These findings suggest that intervention strategies should focus on the social structural influences around IDU in conjunction with individual-level risk factors.

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LIST OF ABBREVIATIONS

AIDS	Acquire Immunodeficiency Syndrome
AOR	Adjusted Odds Ratio
ARYS	At-Risk Youth Study
CI	Confidence Interval
DTES	Downtown Eastside
E-SYS	Enhanced Surveillance of Canadian Street Youth Survey
HIV	Human Immunodeficiency Virus
IDU	Injection Drug Use
IV	Intravenous
MSM	Men who have Sex with Men
OR	Odds Ratio
PHAC	Public Health Agency of Canada
STI	Sexually-Transmitted Infection
VIDUS	Vancouver Injection Drug Users Survey

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CO-AUTHORSHIP STATEMENT

This statement certifies that Catharine Chambers was responsible for the research design and execution, literature review, data analysis, and manuscript preparation and revisions for this thesis document.

Co-authors on the E-SYS analysis manuscript (Chapter 3) include Drs. Jane Buxton and Gina Ogilvie and Ms. Darlene Taylor. Dr. Ogilvie is a Principal Investigator on the E-SYS study and Ms. Taylor is the data steward of the Vancouver subset of the E-SYS data at the British Columbia Centre for Disease Control. I managed the literature searches and summaries of previous related work and undertook the statistical analysis and interpretation, under the supervision of Dr. Buxton and Ms. Taylor. I prepared the manuscript and made revisions in accordance with recommendations from the co-authors and my thesis committee members.

Co-authors on the key informant interview manuscript (Chapter 4) include Drs. Jane Buxton and Elizabeth Saewyc, Ms. Natasha Van Borek, and Ms. Darlene Taylor. I conducted all 16 key informant interviews included in this document. Ms. Van Borek and I developed the coding scheme and coded all 16 transcripts. The coding scheme was prepared in consultation with the other co-authors. I managed the literature searches and summaries of previous related work and undertook the domain analysis and interpretation, under the supervision of Dr. Buxton. I prepared the manuscript and made revisions in accordance with the recommendations from the co-authors and my thesis committee members.

CHAPTER 1: Background and Research Objectives

1.1 BACKGROUND

Street-involved youth are a vulnerable population with respect to negative health and developmental outcomes. Youth who are involved with the street culture or economy are rarely in contact with their parents or caregivers. They often have no permanent residence, may be intermittently living with friends, acquaintances, or family members, or even actively living on the streets. The involvement in a street lifestyle can also include panhandling, being involved in the sex trade, selling or using drugs, or engaging in criminal activities (1), factors which may also contribute to poor health outcomes. One such health outcome is infection with blood-borne pathogens such as HIV and hepatitis C.

1.1.1 Street-Involved Youth and Injection Drug Use

Street-involved youth are at high risk for acquiring blood-borne infections due to participation in high risk drug behaviours such as injection drug use (IDU). Youth are strongly influenced by the street culture and represent a vulnerable population with regards to IDU initiation (2), with the majority of street-involved youth who use injection drugs initiating in their late teens (3-20). Often located in large city centres, the street culture creates an environment for the youth where drugs are widely available and drug use becomes a normalized and often socially-encouraged behaviour (2, 7).

Due to their relative inexperience with injection drugs, youth must rely on other individuals, typically friends or sexual partners, to initiate injecting (12, 21-26). Despite being older than the youth (14), these so-called “helpers” are often recent-onset injection drug users

themselves, and may be engaging in high-risk IDU practices. An Australian study, which explored the circumstances of first injection, found that two-thirds of initiates were first injected by someone else, while only 12% reported self-injecting (12). This practice of relying on others to perform the injection increases the likelihood of sharing needles and other drug equipment and decreases the control a youth has over their drug practices, especially among young, female injectors (3, 12-14, 24, 27). In a study of young (15-30 years) injection drug users in Baltimore, Maryland, recent receptive syringe sharing was associated with specific circumstances of the “first hit” (28). These circumstances included younger age, syringe sharing, and being injected by someone else and suggest that the circumstances of initiation predict subsequent high-risk injection behaviours among young initiates (28).

1.1.2 Reasons for Transitioning

Relationships, particularly sexual relationships, with other injection drug users strongly influence the transition into IDU (7). In a study of street-involved youth in Montreal, Quebec, youth who currently have friends that use injection drugs were more than three times as likely to initiate (29). Other risk factors associated with IDU include dropping out of school (30), being placed in a group home (2), being without stable housing (23, 29-31), engaging in illegal activities (23), having sex for trade (i.e. having sex in exchange for money, drugs, food, shelter, etc.) (30), having a history of abuse (2, 29), being exposed to physical violence (30), having parents who use injection drugs (17), and having suicidal ideations (30).

Most adolescents who use injection drugs transition into IDU within two or three years of initiating non-injection drug use (5, 6). The desire to experience the immediate effects or “rush” of the drug (5, 12, 32-36) and curiosity (2, 12, 14, 20, 36, 37) are often cited as the primary

reasons for transitioning among initiates. Cost-effectiveness also facilitates the transition from non-injection to injection routes of administration. As tolerance develops, greater quantities of drugs are required in order to achieve comparable highs (5, 7, 12, 20, 34-36). Injection is often viewed as a means to maintain an individual's drug habit and avoid withdrawal symptoms. Among crack cocaine users in five American cities, heroin injection was used to mediate the withdrawal symptoms associated with "coming down" from crack cocaine and prolong the effects of the drug (38). Some drug users also view injection as a less wasteful route of administration (12).

The youths' social structural environments also influence the transition into IDU. Sherman et al. found that interaction of youth with injection drug users, including family members, friends, or sexual partners, normalized the dangerous injection behaviour and served to facilitate the initiation (7). Others also suggest the normalization of drug use among street cultures, where drug use is indicative of belonging to the street milieu (2). In their study of street-involved youth in Montreal, Quebec, Roy et al. underscore the different trajectories of the youth, with those youth more connected to the street milieu at greatest risk for transiting (2). Homelessness also appears to be associated with IDU initiation among street-involved youth (23, 29-31). In a prospective study from Montreal, Quebec, youth who transitioned into IDU were more likely to be recently homeless (29). Drugs are often used as a coping mechanism to deal with the difficulties associated with their unstable, impoverished living conditions (39).

1.1.3 Gender Differences

Although both male and female youth experiment with injection drugs, some notable differences exist regarding the circumstances of the injection events. Women are more likely to

share or borrow needles and other injection equipment (14, 17, 40, 41) and are more dependent on others to provide the drugs and perform the injections (3, 14, 18, 40, 42). Some research suggests that, in comparison to men, women are more dependent on sexual partners to perform injections (3, 27, 40). However, others propose that social influences from friends and acquaintances play a more important role than sexual relationships and that females are active in their initiation (2, 14, 26). Among street-involved youth populations, friends are strong social influences for IDU initiation (14, 29). Street-involved youth in Montreal, Quebec who have friends who inject drugs were more than three times as likely to initiate injecting (29). This association was observed among both male and female youth; however, the association was slightly stronger among females (29).

Reasons for initiating IDU also differ by gender. Doherty et al. report that men were more likely to initiate injecting because non-injection routes of drug administration no longer provide satisfactory highs; whereas, females were more likely to initiate injecting because of curiosity (3). Few reported that they initiated injecting because of peer pressure or a desire to please a friend or sexual partner (3). Social influences also greatly impact the decision to initiate IDU, especially for women. Sherman et al. demonstrate that women who use injection drugs have larger social networks than men, with approximately 40% of their social network being composed of active drug users (41).

1.1.4 Resiliency and Protective Factors

Research that examines non-injection drug use among at-risk youth suggests that being involved in religion and the community, being involved in groups or sports, having good health practices (e.g. exercise and nutrition), having support from family, having a peer group that

abstains from drug and alcohol use, having positive social skills, and having a positive outlook on school may be protective against drug and alcohol use initiation (43-49). These identified factors rarely function independently and often have cumulative effects on preventing adolescent drug use, especially for youth considered to be at highest risk (46, 50). Risk and protective factors for drug use initiation typically function in combination, with the buffering effects of protective factors diminishing as the risk factors increase (51). The relationships between risk factors, resiliency, and substance use are moderated by gender; therefore, analyses are often performed separately for males and females (46, 52).

1.2 GOALS AND OBJECTIVES

1.2.1 Rationale

Adolescence represents a critical period with respect to the initiation of drug use, especially for vulnerable youth. Street-involved youth who have experienced severe trauma and problematic childhoods are considered most at risk for initiating IDU. Drugs function as a coping mechanism; they alleviate the difficulties associated with the youths' traumatic childhoods as well as their current living situations. Many street-involved youth have been physically, emotionally, and sexually abused (1, 53, 54). As a result of this abuse, they have often spent time in government care (1, 53). They often have parents who use illicit drugs and who have a history of incarceration; they frequently have underlying mental and learning disabilities; and they are often neglected and expelled or run away from their own homes (1, 53, 54). As a means to escape their living situations, youth turn to the street for acceptance, protection, and anonymity (2). Once on the street, these youth form social networks and associate with specific peer groups, the composition of which may vary depending on their personal circumstances (2, 55, 56). These

social influences are predominant factors in the transition into IDU. Injection drugs are first normalized through repeated exposure and then adopted by youth who are already heavily using drugs or who are otherwise susceptible (7). However, despite being considered an “at-risk” population, many street-involved youth do not use drugs intravenously and the transition into IDU is not inevitable for all youth. Those youth who abstain from IDU despite possessing well-identified risk factors are considered resilient – they are both exposed to adversity and able to positively adapt (49, 57-60). This thesis research aims to improve our understanding of how the combination of risk and resiliency factors present in the social structural environment influences IDU initiation among at-risk youth in Vancouver, British Columbia.

The social structural context within which street-involved youth make decisions regarding IDU initiation and implement harm reduction measures is not well understood. The intention of this research project is to improve our understanding of the influences surrounding IDU initiation among at-risk youth using complementary quantitative and qualitative research methodologies. An improved understanding of these influences is required for interventions to be effective within a given community (61-63). Individual-level behavioural changes in the absence of structural intervention will likely be insufficient to have any permanent impact on HIV transmission risks (61-63). Rather, intervention efforts should be used in conjunction with individual-level behavioural change and target factors present in the physical, social, economic, and political environments (61, 62). In order to promote healthy adolescent development, these intervention efforts should adopt a dual strategy of reducing risk factors in the youths’ environment, while at the same time enhancing protective factors (48, 49, 64).

Through identifying both risk and resiliency factors in the youths’ environment that potentially influence IDU initiation, this research aims to ultimately improve the health of

marginalized youth populations. The goal of this thesis work is to determine how the combinations of risk and resiliency factors in the youths' environment influence their decision making abilities with regard to IDU initiation. The findings from this thesis work will inform evidence-based, community-centred, youth-driven intervention strategies that target the prevention of IDU initiation among at-risk youth (Appendix I).

1.2.2 Research Questions

What factors influence the transition into IDU among at-risk youth? What factors prevent the transition into IDU among at-risk youth? Do these factors differ by gender?

1.2.3 Specific Objectives

Using complementary quantitative and qualitative research methodologies, this thesis will address the following objectives:

1. To explore elements of risk and resiliency associated with the transition into IDU as well as the continued use of injection drugs among street-involved youth aged 15 to 25 in Vancouver, British Columbia.
2. To compare results between male and female youth to determine if the identified factors differ by gender.

1.2.4 Hypotheses

Given that the social environment (e.g. influences from friends, family, sexual partners) strongly influences the transition into IDU (7, 12), I hypothesize that social factors will serve both as risk and resiliency factors for IDU initiation. Social influences serve both to normalize

drug use in the street environment (2) and to facilitate the transition (7). Conversely, social influences such as having support from family and having a peer group that abstains from drug use have also been shown to prevent drug use initiation (43-45). I anticipate these social influences to be stronger for females, who typically have larger, more interconnected social networks in comparison to their male counterparts (17, 41). I also hypothesize that social influences will determine the utilization of harm reductions measures, as friends and sexual partners often serve as “helpers” for injecting, especially among female initiates (3, 12).

1.3 OUTLINE

This thesis is divided into five chapters and is presented in manuscript format. Chapter 1 provides a background for the research project, describes the project goals and objectives, and gives a brief outline of the document. Chapter 2 provides a comprehensive review of the literature relevant to street-involved youth and IDU initiation. Chapter 3 presents the results of a quantitative analysis of the Public Health Agency of Canada’s Enhanced Surveillance of Canadian Street Youth Survey. The purpose of this exploratory analysis was to identify factors associated with IDU among a sample of street-involved youth aged 15 to 25 in Vancouver, British Columbia (Objective 1) and to determine if the identified factors differed by gender (Objective 2). The results of the quantitative analysis were used to inform the questionnaire for in-depth interviews with key informants (i.e. service providers who work with at-risk youth populations in Metro Vancouver). The results of the key informant interviews are presented in Chapter 4. The purpose of this chapter was to examine factors that either influence or prevent the transition into IDU among at-risk youth (Objective 1) using a socially-oriented research methodology. Chapter 4 will also highlight identified gender differences related to initiation of

IDU among at-risk youth (Objective 2). Chapter 5 of this thesis will summarize the findings presented in Chapters 3 and 4, provide a discussion of the results in the context of the reviewed literature, and offer insights for subsequent phases of the research project.

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CHAPTER 2: Literature Review¹

2.1 INTRODUCTION

Approximately 150,000 Canadian youth are considered street-involved (1). In other words, these youth have adopted the street environment as their home. They are rarely in contact with their parents or primary caregivers and often have no permanent residence. The United Nations defines a street youth as “any boy or girl...for whom the street in the widest sense of the word...has become his or her habitual abode and/or source of livelihood, and who is inadequately protected, supervised, or directed by responsible adults” (2). In the peer-reviewed literature, the term “street-involved” is often used broadly to describe not only youth who are homeless and actively living on the streets, but also youth who are intermittently living with their parents or caregivers and who are involved in a lifestyle affiliated with the street culture and/or economy. This involvement can include being homeless, panhandling, being involved in the sex trade, selling or using drugs, or engaging in criminal activities (3). Due to their participation in these activities, street-involved youth in comparison to their non-street peers are at high-risk for numerous negative health outcomes, including infection with HIV and/or hepatitis C, infection with other sexually-transmitted infections, addiction, overdose, and other adverse events (3-5). Mortality rates among Canadian street-involved youth are also considerably high. Roy et al. observed a mortality rate of 921 per 100,000 person-years among a cohort of street-involved youth in Montreal, Quebec, which is more than eleven times the rate observed among youth in the general population (6). Suicide and drug overdose were the leading causes of death (6).

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Among populations of street-involved youth, drug use is exceptionally common. In a recent survey of Canadian street youth, 95.3% report a lifetime history of drug use (7). Of particular concern to public health is youth who initiate intravenous (IV) drug use (i.e. drugs that are administered in the veins or under the skin), as these youth are at extremely high-risk for acquiring chronic, blood-borne infections such as HIV and hepatitis C. Transmission of these diseases occurs through sharing of needles and injection equipment with other injection drug users who are infected. Between 70% and 80% of all hepatitis C infections in Canada can be attributed to injection drug use (IDU) (8). In 2007, 20.9% (Males: 16.4%; Females: 36.0%) of all new positive HIV tests in Canada were detected among injection drug users (9). This proportion of IDU-attributable HIV cases is considerably higher among women, as men who have sex with men (MSM) transmission remains the predominant HIV mode of spread among men in Canada (9). Co-infection with HIV and hepatitis C is also common, with the prevalence of co-infection among Canadian injection drug users at 11.7% (10).

Among Canadian street-involved youth aged 15 to 24 years old, the Public Health Agency of Canada (PHAC) reports a prevalence of HIV and hepatitis C of 0.7% and 4.5%, respectively (4); however, higher proportions have been noted in the literature depending on the definition of “street-involved” used. The HIV prevalence observed among street-involved youth in Montreal, Quebec was 1.4% (11) and in Toronto, Ontario was 2.2% (1). The hepatitis C prevalence rates among cohorts of street-involved youth in Montreal, Quebec and Vancouver, British Columbia are approximately 13% (12, 13). Among youth who use injection drugs, the prevalence rates for HIV and hepatitis C are considerably higher. According to PHAC, the prevalence of hepatitis C among Canadian street-involved youth who use injection drugs is 19.4% (4). Historically the Downtown Eastside (DTES) area of Vancouver, British Columbia

has been an epicentre for the HIV epidemic in Canada (14, 15); consequently, prevalence rates for HIV and hepatitis C among injection drug users in Vancouver are considerably higher than the national average. In Vancouver, the prevalence of HIV and hepatitis C among young (≤ 29 years) injection drug users is 16% and 57%, respectively (16). Approximately 16% of young (≤ 29 years) injection drug users in Vancouver are co-infected with HIV and hepatitis C (17).

Given that the cumulative risk of HIV and hepatitis C infection increases with age and duration of drug use (17, 18), the prevalence noted among these populations may be more related to the duration of IDU rather than the absence of risk factors. Uninfected youth who are injecting drugs remain at high-risk for acquiring these diseases (19-21). The incidence of HIV infection observed among a cohort of street-involved youth aged 14 to 25 in Montreal, Quebec was 0.69 per 100 person-years (95% confidence interval: 0.39-1.11) (11). IDU was the only predictor of HIV seroconversion that remained significant in the multivariate regression model, suggesting that the transmission of HIV among street-involved youth populations is largely driven by IDU opposed to other forms of transmission such as MSM intercourse (11). When restricted to only youth who were using injection drugs, the incidence rate was considerably higher at 1.72 per 100 person-years (95% confidence interval: 0.89–2.99) (11). The HIV incidence rate among young (≤ 24 years) injection drug users in Vancouver, British Columbia was slightly higher than the Montreal cohort at 4.37 per 100 person-years (22). Not surprisingly, hepatitis C incidence rates are considerably higher than HIV incidence rates among young (≤ 24 years) injection drug users in Vancouver at 37.3 per 100 person-years (95% confidence interval: 26.2-51.4) (23), as the hepatitis C virus is transmitted more effectively than HIV through IDU. The incidence of co-infection among this same cohort was 5.2 per 100 person-years (95% confidence interval: 3.8-6.9) (17).

The proportion of Canadian street-involved youth who report engaging in IDU ranges from 20-50% (3, 7, 24, 25). Data from two prospective cohorts in Montreal, Quebec observed an incidence of IDU initiation of 6.8 per 100 person-years (95% confidence interval: 5.7-8.0) (26). This rate remained relatively constant over the 10 years of follow-up; age was a stronger predictor of initiation than calendar year (26). Significant predictors of injection initiation among this cohort included female gender, age less than 18 years, being homeless in the past 6 months, ever running away from home, being tattooed, and being body pierced (27). Of increasing concern among Canadian street-involved youth is the increasing use of crystal methamphetamine (a.k.a. meth) and its associated harms (13, 28, 29). Younger age appears to be associated with crystal meth initiation. A study that specifically examined the initiation of crystal meth use among injection drug users in Vancouver, British Columbia, found that individuals who were less than 24 years olds were almost five times as likely to inject crystal meth after adjustment for covariates (29). Due to their relative inexperience with injection drugs, young initiates in comparison to older injection drug users often engage in practices that increase the likelihood of sharing needles and other injection equipment, including requiring help to perform injections (30, 31) and injecting in shooting galleries (18). Consequently, young, recently-initiated injection drug users can be considered at extremely high risk for acquiring HIV and hepatitis C infections (19-21).

The purpose of this review is to summarize the literature pertaining to IDU among street-involved youth. An emphasis will be placed on reviewing studies that are conducted in Canada and that focus on street-involved youth populations; however, studies conducted in other westernized regions (such as North America, Europe, and Australia) and studies examining populations of injection drug users of all ages will also be presented. The first section will review

literature around IDU and street-involved youth, specifically comparing the IDU risk factors and high-risk injection practices between young or recently-initiated injection drug users and older, long-term injectors. I will review the circumstances of the initiation experience, highlighting high-risk injection practices such as sharing needles that are typically associated with the initiation event. I will discuss the transition from non-injection drug use to IDU including the time to transition, the types or patterns of transition, and the reasons for transitioning. I will then discuss the social structural environment in which youth initiate IDU. I will emphasize how factors such as street-involvement, homelessness, and social networks contribute to the initiation. Male and female youth often differ with respect to the circumstances and motivations for IDU. For this reason, I will highlight gender differences that pertain to the circumstances of initiation. The review will conclude with a discussion of resiliency in the context of IDU and a summary of factors that may prevent youth from initiating.

2.2 METHODS

Search terms were organized in four broad search categories:

1. Injection drug use among street involved youth

Search terms: (injection drug use) AND (street OR street involved OR hard-to-reach OR marginalized) AND (youth OR adolescent OR adolescence OR kids OR children)

2. Gender differences in injection drug use practices

Search terms: (injection drug use) AND (gender OR sex OR male OR female OR men OR women)

3. Transitions from non-injection to injection drug use

Search terms: (injection drug use) AND (transition OR initiation OR first injection)

4. Resiliency and protective factors associated with abstaining from drug use

Search terms: (drug use) AND (resiliency OR resilient OR coping OR protective OR promotive) AND (youth OR adolescent OR adolescence OR kids OR children OR young adult)

Each of the four search terms and Boolean operators were entered as keyword searches into the following electronic databases: Pubmed, MEDLINE, Academic Search Complete, BIOSIS Previews, CIHAHL, EMBASE, PsychInfo, and Web of Science (Appendix II). When searches produced greater than 200 results, the search field was limited to titles only. The literature search was limited to articles written in English. An emphasis was placed on reviewing studies conducted in Canada and other westernized countries (such as United States, England, The Netherlands, and Australia).

The titles and abstracts of the returned results were manually searched for relevance to the topic for each search category. Relevant references were exported from their respective database and entered into RefWorks online reference software. Duplicate references were removed within each search category folder, for a final total of 251 relevant references. Additional references were obtained from the reference lists of reviewed articles. The following websites were also searched for non-peer reviewed literature relating to street-involved youth: Health Canada (<http://www.hc-sc.gc.ca/index-eng.php>), Public Health Agency of Canada (<http://www.phac-aspc.gc.ca/index-eng.php>), The McCreary Centre Society (<http://www.mcs.bc.ca/>), and Canadian Centre on Substance Abuse (<http://www.ccsa.ca/ccsa/>).

2.3 DISCUSSION

Adolescence represents a critical developmental period where a youth transitions from childhood to adulthood. During this transition period, the development of identity and self-esteem occurs; youth define their personal values and outline their life goals (32). Youth who are considered street-involved often have experienced difficult and troubled childhoods. These youth often possess serious mental or physical health conditions (3, 5); they have parents or other family members with a history of drug or alcohol abuse, incarceration, or mental or physical health conditions (3, 33-37); they have often spent time in government care such as foster care and group homes (3, 7, 38); they often drop out or are expelled from the public school system (3, 7, 39); and they have often experienced sexual, physical and emotional abuse and have been exposed to other forms of violence (3, 5, 7, 27, 34, 39-41). As a direct result of their troubled upbringings, street-involved youth are often unable to transition from childhood to adulthood; they fail to properly develop the identities and gain the self-esteem required for healthy adolescent development. In order to cope with the difficulties of their life circumstances, these at-risk youth often initiate drug use. They become intertwined with the street milieu as a means to escape their troubled upbringings (42). Once involved in the street culture, drug use becomes a normalized, ubiquitous, and often socially-encouraged behaviour that is indicative of belonging to the street milieu (33, 42). Although the transition to IDU is not inevitable, those youth who experience troubled upbringings can be considered most at-risk for initiating (42).

2.3.1 Street-Involved Youth and Injection Drug Use

The majority of street-involved youth initiate IDU in their late teens, though some initiate as young as 10 or 12 years old (30, 31, 33, 35, 43-55). Due to their relative inexperience with

injection drugs, young initiates are often dependent on other individuals to perform injections and frequently engage in high-risk injection practices, such as sharing needles and other injection drug equipment. These risk behaviours are especially common during the initiation event. In comparison to individuals who initiate injecting as adults, young initiates are more likely to report requiring help injecting from others (18, 21, 37, 51, 56-58). Friends are the most commonly reported injection “helpers,” with sexual partners, acquaintances, strangers, and even family members representing smaller proportions (13, 33, 37, 51, 52, 59, 60). Despite being older than the youth (49, 51, 52), these helpers are typically recent-onset injection drug users themselves and often engage in high-risk drug practices that are then conveyed to the young injection recipients. In an Australian study, only 12% of youth reported that they injected themselves during the initiation event (51). Youth who reported self-injection were more than eight times as likely as youth who were injected by someone else to report that the first injection was their own idea (51). Similarly, approximately one-quarter of street-involved youth in Montreal, Quebec report injecting themselves at initiation, with females less likely to report injecting themselves for the first time than males (52). IDU initiation typically occurs in social environments with other individuals present (33, 37, 51). Young initiates in Montreal, Quebec report on average 2.5 people being present during the initiation event (52). In a study of young injection drug users in Los Angeles, California, 48% of youth report injecting with one other person, 18% report injecting with two other people, and 12% report injecting with three or more other people during the initiation event (37). One study conducted in Baltimore, Maryland reports that only 13% of youth were alone at first injection (61).

Youth who are injected by someone else often have less control over the injection environment, resulting in increased rates of syringe sharing both at the time of initiation and

during future injection events (20). Initiation events often occur in public places such as parks, streets, or parking lots (13, 52, 62), which may further increase the likelihood of hurried, unsafe injection practices (63). A study from Baltimore, Maryland found that the circumstances of first injection were independently associated with future syringe sharing (61). These circumstances included young age at first injection, being injected by someone else at first injection, and sharing syringes at first injection (61). Due to their reliance on other individuals to initiate IDU, young injectors not surprisingly report sharing needles and other injection equipment more often than older injectors (18, 21, 48, 61, 64). These high-risk practices are likely related to the observation that IDU initiation among street-involved youth tends to be a spontaneous event. Young initiates in Melbourne, Australia who reported that initiation was someone else's idea opposed to their own were more likely to report that the initiation event was spontaneous and the drugs were paid for by someone else (51). Almost two-thirds of the youth reported that IDU initiation "just happened" versus one-quarter who reported the event was planned (51). The type of drug injected is also related to the likelihood of syringe sharing, with drugs that require frequent injections such as cocaine and speedballs (a combination of heroin and stimulant drugs) associated with increased syringe sharing (57, 61, 65, 66). A cohort study of injection drug users in Vancouver, British Columbia found that crystal meth injection was associated with an increase in both distributive (i.e. sharing) and receptive (i.e. borrowing) syringe sharing (29).

In addition to sharing needles and other injection equipment, young injection drug users are also more likely than their older counterparts to report other high-risk drug activities such as frequent drug use (18, 58), binge drug use (44), shooting gallery attendance (18), and overdose (64). Young initiates also appear to transition more rapidly from non-injection to injection drugs in comparison to older drug users (31, 46). Most street-involved youth transition into IDU within

two or three years of initiating drug use (31, 46, 67). Even among individuals who initiate at a young age, differences are observed between older and younger initiates, with young age strongly associated with high-risk injection practices. An Australian study found that youth who initiate IDU in their early teens (12-16 years old) rather than in their late teens or early 20s (17-24 years old) are more likely to report relying on someone else to obtain the syringe and more likely to be injected for the first time by someone else (31). Of particular concern, young initiates also report initiating other youth into IDU (i.e. be a “street doc”), suggesting that the high-risk drug practices learned during the initiation event are easily perpetuated through street-involved youth populations (51, 64).

Given that young initiates typically exhibit higher injection risk activities and given that needle sharing activities are relatively stable over time (68), young injection drug users in comparison to older, more experienced injectors can be considered at high risk for acquiring blood-borne diseases HIV and hepatitis C both during the initiation event and throughout their injection careers (18-21, 44). A cohort study following injection drug users in Amsterdam, The Netherlands found that HIV incidence rates were highest among injectors who recently initiated IDU (less than 3 years injecting) and among injectors less than 23 years of age (21). A study in Vancouver, British Columbia found that individuals who initiated IDU during early adolescence (≤ 16 years) were more likely to enter into the study HIV and hepatitis C positive despite being on average younger at time of interview than individuals who initiated IDU at an older age (44). As shown above, young initiates in comparison to their older counterparts are considered at extremely high risk for acquiring HIV, hepatitis C, and other blood-borne infections. The use of IV drugs signifies the predominant source of risk for these infections among street-involved youth populations.

2.3.2 Transition into Injection Drug Use

Street-involved youth typically experiment with tobacco, alcohol, marijuana and other illicit drugs that are administered through non-injection routes such as ingesting, snorting, smoking, or “chasing the dragon” (i.e. the inhalation of smoke from drugs heated on foil) prior to initiating IDU (27). In a prospective study of street-involved youth in Montreal, Quebec, recent use of non-injection drug types (including heroin, hallucinogens, solvents/glue, tranquilizers/barbiturates/downers, cocaine/crack/freebase, and amphetamines) significantly predicted the transition into IDU (27). Polydrug use (using more than two types of drugs in the past month), frequent drug use (using a drug more than twice per week), and binge drug use also significantly predicted initiation (27). Once initiated, IDU often becomes the preferred and predominant route of drug administration (45, 69-71). Adolescence and young adulthood represents a critical time period for the transition into IDU, with the majority of street-involved youth initiating IDU in their late teens (30, 31, 33, 35, 37, 43-55). However, it should be noted that not all youth follow a sequential order; non-injection drug use is not a necessary prerequisite for IDU initiation in all instances and the initiation of IDU is not inevitable for all drug users (72). Many youth will experiment with alcohol, tobacco, marijuana, and other illicit drugs without ever transitioning into IDU.

Injection is typically considered the most stable form of drug administration; individuals who initiate IDU tend to continue injecting (73). However, many individuals transition between multiple routes of drug administration, often using more than one route concurrently (73). Strang et al. observed that different routes of drug administration among heroin users had different degrees of stability, ranging from snorting, which was found to be the least stable, to injecting,

which was considered the most robust means of heroin administration (73). The predominant transitions observed in this study were from either chasing or snorting to injecting; however, transitions from injecting to chasing were also observed (73). Similarly, Swift et al. noted that among heroin users in Sydney, Australia the predominant transition was from chasing to injecting, with a smaller proportion transitioning from smoking to injecting (45). Griffiths et al. also found that the primary transition occurred from chasing to injecting; however, they concluded that multiple transitions between chasing and injecting were uncommon (71). Once a predominant route was established, it remained relatively stable through the injecting career (71). The stability of the route of drug administration was associated with a longer duration of drug use (71).

The majority of youth who initiate IDU have often used the drug being injected previously through a different route of administration (13, 31, 37, 52, 67). Among street-involved youth in Vancouver, British Columbia, 96% report using crystal meth through a different route of administration (e.g. smoking, oral) prior to injecting (13). In a study of street-involved youth in Montreal, Quebec, almost 70% of youth had used the drug being injected previously through another route of administration (e.g. snorting for cocaine or smoking/chasing for heroin) (52). Many injection drug users administer drugs through multiple routes of administration and polydrug use is common (28, 37, 67, 70, 74). For example, in a study of crystal meth users in Vancouver, British Columbia, many youth report using marijuana as a means to “come down from jib [crystal meth]” (28). Similarly, a cross-sectional study conducted in five American cities found that drug users inject heroin to mediate the effects of crack cocaine withdrawal or to prolong the highs associated with crack cocaine use (67).

In the majority of studies that examine the subjective reasons for IDU initiation, the desire to feel the immediate “rush” associated with injecting is often cited (45, 51, 59, 75-78). As tolerance develops to non-injection drugs and addiction becomes stronger, injection becomes a means to mediate the effects of withdrawal and maintain the drug habit (33). Related to tolerance and addiction is the cost-effectiveness of injection drugs. As dependence intensifies, larger quantities of drugs are required to achieve comparable highs (33, 37, 45, 51, 59, 77, 78). In a qualitative study from Baltimore, Maryland, respondents commented that they could spend up to 80% less per day on drugs, while attaining highs that “held [them] that whole day” (33). IDU initiation is often perceived as a method to control an individual’s drug addiction. However, as greater tolerance develops and costs once again escalate, this misconception leads to further drug dependence and economic hardship and the drug user spirals further into their addiction (33, 45).

In contrast to the above cited literature that focuses primarily on adult drug users, studies that examine street-involved youth suggest that addiction is *not* a primary factor for the transition into IDU; rather, curiosity appears to be a stronger motivator (28, 37, 42, 51, 52, 78). Among young IDU initiates in Montreal, Quebec, the mean score on the severity of dependence scale was only 3.0 (out of a maximum of 15), suggesting that factors other than dependence and tolerance are mediating the transition into IDU (52). Similarly, few young crystal meth users in Vancouver, British Columbia perceived themselves as addicted (28). Other reasons cited in the literature for initiating IDU included peer pressure or a desire to conform (37, 51, 52) and depression (52). Of concern to public health, some drug users perceived injection to be a cleaner or safer route of administration because of the nasal ulcerations and mouth lacerations that often result from snorting or smoking drugs (51, 77, 78). Other studies suggested that drug injection is

“normal” among street-involved youth populations and that it represents a sense of belonging to the street culture (42).

In addition to the studies that examine why individuals initiate IDU, a few studies also cited reasons why individuals abstain from IDU. The fear of becoming heavily addicted appears to be a primary deterrent for IDU initiation (59, 77, 78). Among young drug users in Amsterdam, The Netherlands, the transition into IDU was viewed as “a way of no return” (78). The negative aspects of drug use including addiction, overdose, withdrawal, and poverty were seen to intensify with IDU initiation (78). Young crystal meth users in Vancouver, British Columbia cited a fear of addiction and dependence as reasons for decreasing their drug use (28). The pain associated with injecting and a fear of needles were also commonly mentioned reasons for not initiating (59, 78, 79). A few studies mentioned the negative health consequences associated with IDU including abscesses, disease transmission, and decreased personal hygiene (28, 59, 78). In a study that examined reasons why individuals transitioned from injection to non-injection as the predominant route of administration, HIV/AIDS and other health concerns, stigmatization and social acceptance, and a preference for other routes of administration were cited (50).

2.3.3 Social Structural Influences and Injection Drug Use

In addition to the individual-level motivational factors for initiating IDU that are cited above, structural factors also serve to contextualize the risk environment within which individuals initiate their drug use. The risk environment is defined as the “the space – whether social or physical – in which a variety of factors interact to increase the chances of drug-related harm” (80). Structural influences refer to the combination of social, physical, economic, organizational, and political factors exogenous to the individual that “structure” the context of

HIV risks and harms (80-83). Reminiscent of Bronfenbrenner's ecological systems theory of adolescent development (84), Rhodes' risk environment framework encompasses micro-level influences from interpersonal relationships (e.g. negotiations regarding sterile needle use between drug users), meso-level influences from social and group interactions (e.g. normalization of drug use among peer groups), and macro-level influences from institutional or organizational structures (e.g. criminalization of drug possession by government) (80-83).

One of the strongest structural influences for IDU initiation appears to be involvement in the street culture. Involvement in the street culture serves to both normalize drug use and facilitate IDU initiation among at-risk youth (33, 42, 60). In comparison to youth who abstain from IDU, youth who transition into IDU are more strongly connected to the street environment, both in terms of duration (number of years on the street) and intensity (hours per day on the street) (85). In terms of the temporal relationship between street involvement and IDU, studies that examine the life trajectories of youth suggest that street involvement precedes IDU initiation (28, 38, 42, 86). In a study of young crystal meth users in Vancouver, British Columbia, youth commented that they initiated crystal meth use once they become street involved (28). These youth perceived their drug use as a means of remaining entrenched in the street culture (28). Similarly, young injection drug users in Montreal, Quebec viewed IDU as a normalized behaviour that was indicative of belonging to the street milieu (42). For those youth who have difficult childhood experiences and who are most at-risk for transitioning, the street culture represents an environment where the youth can escape to find anonymity and protection (42). In their study of street-involved youth in Montreal, Quebec, Roy et al. underscore the different trajectories of the youth, with those youth more connected the street milieu at greatest risk for transiting into IDU (42).

Closely related to street-involvement is homelessness. In comparison to street-involved youth who abstain from IDU, current or recently-transitioned injection drug users are often more likely to be without stable housing (27, 38, 39, 56). Recent homelessness may also promote the continued use of injection drugs once initiated (86). Unstable housing is associated with HIV seroprevalence and seroconversion, likely due to engagement in more frequent HIV risk behaviours such as frequent drug use, public injecting, and syringe sharing among homeless injection drug users (14, 87-92). Drugs are often used to mediate the fears of the vulnerable living situations associated with homelessness (34). In a study of young MSM in New York, Clatts et al. show that youth who have experienced homelessness initiate both drug use and sex work at an earlier age than youth without a history of homelessness (38). Homelessness is exceptionally common among street-involved youth. Data from two cohort studies in Montreal, Quebec found that at recruitment 98% of youth had ever been homeless (26). In a study of street-involved youth in Vancouver, British Columbia, 57% of youth reported being currently homeless at recruitment (92).

Due to the circumstances of their unstable living situations and as a means to support their drug habits, many drug users turn to illegal activities for sources of income (93). Youth who are street-involved often engage in illegal activities including panhandling, theft, drug dealing, and sex work (3, 7, 30, 39, 44, 58, 64); consequently, rates of incarceration among these youth populations are considerably high (3, 7). PHAC's 2005 surveillance report on street-involved youth reports that almost two-thirds had ever been in custody (7). Of concern, youth who engage in illegal activities and who have a history of incarceration appear to be more likely to initiate IDU (38, 56, 94). A study of young MSM in New York demonstrated that age at placement in custody preceded age at initiation of drug use (38). These findings suggest that the structural

influences of youth homelessness, street-involvement, and economic hardships are strongly associated with initiation of IDU among at-risk youth.

Social influences also serve to facilitate the transition to IDU (33). Once involved with the street lifestyle, homeless youth become affiliated with specific subcultural peer groups (42, 95). These peer groups are heterogeneous with respect to drug use initiation, with certain affiliations more vulnerable to peer influences (42, 95). Youth who are involved with the street often interact with injection drug users prior to initiation (33, 61). Through repeated exposure, drug use becomes a normalized and socially-encouraged behaviour (33, 42). In a study of street-involved youth in Montreal, Quebec, youth who currently have friends that inject drugs were more than three times as likely to initiate IDU (27). This trend was especially true for female youth; girls who have friends who inject drugs were more than four times as likely to initiate IDU (27). Research examining IDU populations using the social network theory also suggests that social networks can facilitate drug use and that considerable overlap occurs between drug use and sexual networks (35, 96, 97). In a study of injection drug users in Baltimore, Maryland, 35% of men and 26% of women report sharing drugs daily with network members and 18% of men and 25% of women report sharing needles with their network members, again highlighting the interplay between social influences and drug use (96).

Family members may also influence the transition into IDU. In a qualitative study examining the influences for IDU initiation, respondents described childhood situations in which parents were using drugs, often as a coping mechanism for difficult life circumstances (33). Some respondents even attribute their drug use initiation directly to their parents' facilitation (33). Sexual partners can also influence the initiation of IDU and may contribute to increased rates of unsafe injection practices such as syringe sharing, especially among female injectors (33,

35, 43, 55, 98-100). Sherman et al. emphasize the importance of a sexual partners' influence on IDU initiation (33). Females in this study who were initiated into IDU by their sexual partners viewed IDU as a way to maintain and strengthen their relationships (33). The role of sexual partners and the influence on IDU initiation is debated in the peer-reviewed literature, with gender roles at the forefront of the discussion. The role of gender in relation to the circumstances of IDU initiation is discussed in more detail below.

2.3.4 Gender Differences

Males and females often differ with respect to the circumstances surrounding the transition into IDU. In comparison to males, females often engage in more high-risk injection practices, such as relying on other individuals to obtain the drugs and perform the injections, both during the initiation event and throughout their injection careers (43, 52, 55, 98, 101). Because of their greater dependence on other individuals, females are more likely to report sharing syringes and other injection equipment (35, 52, 96, 98) and less likely to report injecting on their own (43, 98).

These differences are largely derived from factors present in the social structural environment that define societal gender roles. Specifically, the social environment appears to influence risk taking behaviours, especially for females. Through repeated exposure to high-risk drug behaviours such as syringe sharing, injection drug users perceive these behaviours as widely prevalent and accept them as a perceived norm (102). In comparison to males, females have larger social networks (35, 96). Their social support networks are often composed of daily and active drug users, who provide emotional, material, and informational support (35, 96, 97). In a study of injection drug users' social networks in Baltimore, Maryland, 40% of men and 37%

of women report depending on network members to provide a fix when suffering from withdrawal (96). In their study of young injection drug users in Los Angeles, California, Montgomery et al. found that women were more likely than men to have current drug users in their social networks (35). They also found that women's networks were more likely to have overlap between the different types of social networks, which included "hanging out," drug use, and sexual networks (35). Because of their greater reliance on social networks, females may be more vulnerable to risks associated with IDU, such as HIV infection, as they are exposed not only to their own risk behaviours, but also the behaviours of their network members (35).

While friends, sexual partners, acquaintances, and family members influence the transition into IDU for both males and females, some evidence suggests that females are more dependent on their sexual partners for initiation (43, 98, 103). In general, females are more likely than males to have sexual partners who use IV drugs (43, 55, 98-101). Having sexual partners who are injection drug users also appears to increase the likelihood of sharing needles and other injection equipment, especially for females (57, 65, 98, 104, 105). Females are often "second on the needle" after the drug-sharing partner injects, which increases the risk of acquiring blood-borne diseases (54, 99). The dependence on sexual partners to perform the injection is indicative of intimate and trusting relationships with the drug sharing partner (54, 106). The gender differences associated with the circumstances of IDU are often attributed to gender roles, with females portrayed as passive in their drug use (43, 103).

In contrast to the notion of females as passive agents in their drug use, other research suggests that the traditional gender roles for females are changing, with females becoming active initiators (55, 60, 103). The greater reliance of females on their sexual partners does not necessarily suggest that females are persuaded into IDU by their sexual partners; rather, having a

sexual partner who uses IV drugs may simply facilitate the transition for females who are already interested in experimenting (55). Other researchers also suggest that females are active in their IDU initiation and that social influences from friends and acquaintances play a more important role than sexual relationships (42, 52). In a study from Baltimore, Maryland, most participants report that their helpers were friends (63% and 61% for females and males, respectively), rather than sexual partners (15% and 11% for females and males, respectively) (43). Women were more likely to report that their helpers at initiation were female, while men were more likely to report that their helpers were male, again highlighting the important role that same-sex friendships may play on IDU initiation (43). Similarly, among street-involved youth populations, friends appear to be more influential during the initiation event than sexual partners (27, 52). A cohort study following street-involved youth from 1995 to 2000 in Montreal, Quebec found that only 3% of females and 7% of males were initiated by sexual partners; whereas, 72% of females and 60% of males were initiated by a friend or acquaintance (27). Youth who had friends who inject drugs were more than three times as likely to initiate IDU (27). As shown in these data, sexual partners serve an important, yet perhaps secondary, role in IDU initiation among street-involved youth.

2.3.5 Resiliency

Due to their troubled and difficult childhoods, which are often characterized by violence, abuse, and neglect, street-involved youth are considered a vulnerable population with respect to the initiation of IDU. However, despite possessing well-known risk factors, as many as 50% to 80% of Canadian street youth do not use drugs intravenously (3, 7, 24, 25). The transition into IDU is not inevitable for all youth considered “at-risk” (72). Those youth who abstain from IDU are considered to be resilient; despite being exposed to adversity, these youth are able to

positively adapt, even thrive. The concept of resiliency within the context of adolescent development refers to both the capacity to cope with difficult circumstances as well as the ability to overcome stressful life events (107-110). These resiliency mechanisms are context specific; they will vary depending on the particular circumstances of the risk exposure (111). Rutter uses three examples from biomedical research to illustrate this point: (i) resilience is not the avoidance of risk experiences, but rather exposure to them (e.g. an immune reaction after exposure to a pathogenic agent); (ii) risk factors operate in different ways at different age periods (e.g. low birth weight increasing the risk for heart disease in adulthood); and (iii) risk factors in certain situations function as protective factors in other (e.g. heterozygote status as a risk factor for sickle cell anaemia, but a protective factor for malaria) (111).

An extension of the resiliency framework for adolescent development is often used within public health to promote positive health outcomes among adolescents (112, 113). Within the field of public health, research often aims to promote resiliency among vulnerable populations through intervention strategies that adopt a dual approach of reducing environmental risk factors, while at the same time promoting protective factors (i.e. factors that mediate negative health outcomes for vulnerable youth) (112-114). Researchers often emphasize the role of environmental factors rather than individual attributes for promoting resiliency; they argue that resiliency is embedded within the cultural, developmental, and historical contexts of the youths' lives (109, 112, 113). Given the importance of structural-level factors, community interventions should be implemented in conjunction with interventions targeting individual-level behavioural change (114-116).

The Kauai longitudinal studies represent some of the earliest research in the field of adolescent development and psychological resilience. Werner et al. monitored the social and

developmental outcomes of a cohort of high-risk infants exposed to chronic poverty, birth complications, parental psychopathology, and family discord (117, 118). The majority of the children, despite exposure to adversity at a young age, matured into socially-competent adults. The resiliency observed among these high-risk individuals was attributed to the quality of the childrearing environment and the emotional support provided by family members and individuals in the community (117, 118), a theme consistent with resiliency research in numerous disciplines (109, 110, 112).

Research examining alcohol and drug use among at-risk youth suggest that family support serves as a critical resiliency factor (113, 119-121). Parental support can help youth to overcome and understand traumatic experiences such as witnessing neighbourhood violence, especially among youth who are raised in impoverished neighbourhoods where violence is common (119). Connection to family may also prevent the initiation of drug and alcohol use. Family connectedness (e.g. feelings of warmth, love, and caring from parents) and parental presence in the home were protective against alcohol and marijuana use among high school students in the United States (113). Among homeless and runaway youth in Denver, Colorado, youth who were no longer living with their parents or caregivers reported using marijuana, cocaine, and hallucinogens more often than youth still living at home (122). Research suggests that despite being emancipated from their families, street-involved youth maintain connections with their parents and caregivers. In a study examining social networks of homeless and runaway youth, approximately one-third of youth mentioned their parents as members of their emotional support networks (123).

Related to family connectedness and parental support are child coping skills and parental stress. Research suggests that resilient children may be temperamentally predisposed to cope

with difficult life circumstances (124). Children with easy temperaments and adaptive coping skills elicit positive support from both parents and community members (e.g. teachers), which in turn leads to a reciprocal cycle of decreased parental stress levels and increased child resiliency (124, 125). Consistent with these findings, Simons et al. found that children with nurturing and supportive parents were less likely to associate with a deviant peer group, use avoidant coping strategies, and initiate drug use (126). Both having deviant peer groups and using avoidant coping strategies, in which youth directly avoid dealing with difficult situations, are linked to youth substance use (124, 126, 127). A significant source of parental distress and neglect often experienced by at-risk youth is having a parent or caregiver who uses illicit drugs (34-36, 128). Despite the negative influences of parental drug use, positive relationships can develop between youth and parents who use drugs; however, these relationships may depend on the absence of other negative influences, such as abuse and neglect, which are often affiliated with parental drug use (129).

Other sources of resiliency for at-risk youth can include school or community involvement, religious affiliation or involvement, extra-curricular activities, good health practices (e.g. exercise and nutrition), positive peer influences, positive social skills, and high purpose in life (113, 119-121, 126, 130, 131). These factors often have cumulative effects on preventing adolescent drug use, especially for youth considered to be at highest risk (120, 132), and they rarely function independent of the structural risk factors present in the youths' lives (132). Risk and protective factors for drug use initiation typically function in combination, with the buffering effects of protective factors diminishing as the risk factors increase (109, 133). The relationships between risk factors, resiliency, and substance use are often moderated by gender

(120, 134). In other words, distinct combinations of risk and resiliency factors influence males and females differently in their decision to initiate substance use (120, 134).

It should be noted that the majority of the studies described above focus on youth recruited from high schools; therefore, these findings may not accurately reflect the behaviours of street-involved youth who are often no longer engaging the public education system (7). As well, the majority of these studies focus on alcohol, marijuana, and other non-injection drug use; few examined IDU as an outcome. While most research concerned with IDU in street-involved youth populations examine the transition into IDU, few studies investigate factors that may prevent youth from initiating. However, studies that examine why street-involved youth abstain from IDU identified factors such as fear of needles, pain associated with injection, negative health consequences, and a preference of other routes of administration as deterrents for initiation (28, 59, 78, 79). The negative aspects of drug use including addiction, withdrawal, overdose, dependence, and poverty as well as the stigma of being labelled a “junkie” were also commonly mentioned (28, 59, 77, 78).

2.4 CONCLUSIONS

Street-involved youth in Canada and other westernized regions represent vulnerable populations with respect to IDU initiation. Many of these youth have experienced traumatic events during their childhoods and adolescence that may predispose them to initiate high-risk behaviours such as IDU. The transition into IDU among street-involved youth is concerning as these youth in comparison to older injectors often engage IDU practices, such as relying on other individuals to perform the injections and sharing used syringes, that increase the likelihood of acquiring blood-borne infections HIV and hepatitis C. Despite the vulnerabilities that these youth

experience – many of which are associated with the street environment and unstable housing that define the youths’ living situations – not all youth considered “at-risk” will transition into IDU. There are many street-involved youth who are not using intravenous drugs and who will never transition. Protective factors in the surrounding environment influence these resilient youth, prevent the transition into IDU, and allow the youth to positively adapt. In order to promote these factors in the youths’ environment and decrease the factors associated with facilitating IDU initiation, an improved understanding of the environment that structures the context of IDU initiation among street-involved youth is required (80-82). Although individual-level motivating factors contribute to the initiation of IDU and the practice of harm reduction measures, interventions that target these endogenous factors alone in the absence of structurally-based community interventions will be ineffective (80-82). Intervention strategies aimed at reducing disease transmission must consider the physical, social, economic, and political environments that structure the context of IDU initiation in order to improve the health of marginalized youth populations in Canada and elsewhere.

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CHAPTER 3: E-SYS Analysis¹

3.1 INTRODUCTION

Adolescence and young adulthood represents a critical period for initiation of injection drug use (IDU), with the majority of Canadian street-involved youth who use injection drugs initiating injecting during their late teens (1-5). Previous studies in Canada report the proportion of street-involved youth injecting in the range of 20% to 50% (6-9). Street-involved youth are at high risk for acquiring blood-borne infections due to high risk activities such as IDU. Recent estimates suggest that the prevalence of HIV and hepatitis C among young (≤ 29 years old) injection drug users in Vancouver is 16% and 57%, respectively (10).

Street-involved youth are a vulnerable population with regard to the cultural and social influences for IDU initiation (11). The street culture creates an environment where drugs are widely available and drug use becomes a normalized activity (11, 12). Social relationships, particularly sexual relationships, with other injection drug users strongly influence the transition into IDU, especially for young female initiates (12). Previous research suggests that females have larger social networks than males and have considerable overlap between their sexual and drug using networks (13). Consequently, females who are street-involved and who are engaging in IDU may be at greater risk for poor health outcomes, including sexually-transmitted infections and blood-borne infections such as HIV and hepatitis C.

The purpose of this analysis was to compare demographic and sexual behaviour characteristics between street-involved youth aged 15-25 in Vancouver, Canada who report using

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injection drugs and their non-injecting peers. We sought to determine the impact of gender on the association between street-involvement, sexual behaviours, and injection drug use.

3.2 METHODS

Data for this analysis were obtained from the Public Health Agency of Canada's Enhanced Surveillance of Canadian Street Youth Survey (E-SYS),¹ which collected data from January to November 2006 (Cycle 5), and was restricted to sites in Vancouver, Canada (8). Recruitment of street youth (n=195) was conducted at youth drop-in centres, by outreach workers and by snowball sampling, in which participating youth were asked to inform their friends of the study. Research nurses who have experience working with street-involved youth administered the questionnaire. The Behavioural Research Ethics Board at the University of British Columbia provided ethics approval. Youth were provided a \$10 honorarium for their participation.

Youth were considered eligible for the study if they were (i) 15-25 years of age, (ii) able to understand spoken English or French and (iii) able to understand and recognize the purpose of the study. In order to be considered "street-involved," youth must have, in the past 6 months, (i) not lived with their parents or caregivers for 3 consecutive days or more or (ii) been without a fixed address for 3 consecutive days or more.

Data were entered into EpiData 3.1 (EpiData Assoc., Odense, Denmark). All analyses were performed using SPSS 14.0 for Windows (SPSS Inc., Chicago, IL). Wherever possible, dependent variables were dichotomized according to yes versus no outcomes. Youth who

¹ E-SYS is a serial sentinel surveillance system at the Public Health Agency of Canada examining disease rates, risk factors and health determinants for street-involved youth in Canada. Beginning with a pilot phase in 1998, the E-SYS study conducted sampling of youth in multiple sites across Canada in 1999, 2001 and 2003. The data presented here are restricted to the Vancouver sentinel sites and represent the fifth cycle (2006) of the E-SYS study.

responded “don’t know” or “refused to answer question” or who had missing data were excluded.

Bivariate comparisons between youth who use injection drugs and youth who do not were performed using the chi-square test or Student’s t-test. The unadjusted odds ratios (OR) and their corresponding 95% confidence intervals comparing youth who report using injection drugs to youth who do not report using injection drugs (reference group) were calculated using logistic regression. The bivariate analyses were performed on the overall dataset as well as by gender in order to identify potential differences between males and females. Dependent variables were entered individually into separate multivariate regression models that were adjusted for covariates age and gender. Youth who had missing data for age or gender (n=6) were excluded from the regression analysis. Due to the small sample size, we were unable to perform multivariate regression separately for males and females.

3.3 RESULTS

Among the 195 Phase V participants, 71 (36.4%) report ever injecting or being injected, at least once. Youth (n=16; 8.2%) who responded that they had only tried injecting once were considered non-injectors, resulting in a total of 55 (28.2%) youth who reported injecting drugs more than once in their lifetimes. Youth who report using injection drugs were significantly older than their non-injection drug using peers [21.0 years vs. 19.8 years, $p<0.0001$] (Table 3.1).

After adjustment for age, youth who use injection drugs were marginally more likely to be female [AOR=2.13, 95%CI:1.01-4.48] (Table 3.1). Youth who use injection drugs were more than three times as likely to have participated in a previous phase of the study [AOR=3.68, 95%CI:1.32-10.26], more than twice as likely to report “hanging out” on the street more than 50

hours per week [AOR=2.43, 95%CI:1.13-5.20], and more than eleven times as likely to have ever lived on the street [AOR= 11.42, 95%CI:1.48-88.26] (Table 3.1). Having a sex partner who used injection drugs or who was a friend from the street and ever having a sexually-transmitted infection also remained significant after adjustment for age and gender (Table 3.1).

For both male and female populations, the strongest association with IDU appears to be having a sexual partner in the past three months who uses injection drugs [Males: OR=10.34, 95%CI:3.66-29.19; Females: OR=6.60, 95%CI:2.09-20.86] (Table 3.2). This association remained significant after adjustment for age and gender [AOR=9.56, 95%CI:4.17-21.89] (Table 3.1). Males who use injection drugs were also marginally more likely to report having a sexual partner in the past three months who was a friend from the street [OR=2.36, 95%CI:0.99-5.58] (Table 2). For females, ever having traded sex [OR=3.85, 95%CI:1.27-11.66] and ever having a sexually-transmitted infection [OR=5.08, 95%CI:1.67-15.43] significantly increased the odds of using injection drugs (Table 3.2).

3.4 DISCUSSION

The prevalence of ever injecting drugs in our population was 36.4%. This value is lower than the prevalence reported from the At-Risk Youth Study (ARYS) in Vancouver, British Columbia, of 41% (9). The higher prevalence of injecting among the ARYS cohort may be due in part to the youth being older (median age=22 years) than the youth in our study (median age=20 years) (9). In order to be eligible for the ARYS cohort, youth must have recently used illicit drugs other than marijuana (7, 9); whereas, in our study, street-involved youth may or may not have previously used illicit drugs. These prevalence estimates also compare to findings from

the McCreary Centre Society's report on marginalized youth populations in British Columbia, which reports 44% for Vancouver-based youth (6).

Youth who use injection drugs are more entrenched within the street culture; they spend more time on the streets, are more likely to have ever lived on the street, and have a longer duration of street involvement. The magnitudes of these associations were stronger among male youth; however, the direction of associations remained constant across gender. The small number of females included in our sample, and the resulting wide 95% confidence intervals, may explain why the associations among female youth failed to reach statistical significance. Qualitative research involving street-involved youth populations in Montreal, Quebec found that exposure to the street milieu strongly influences the transition into IDU for extremely high-risk youth (11). Youth who are without stable housing are more likely to use injection drugs (3, 14-16); drugs often function as a coping mechanism for the realities of their unstable and impoverished living conditions (17). Our results are consistent with these findings and highlight the need for safe, affordable housing options for at-risk youth.

Involvement in the street culture is likely confounded by the observation that youth who use injection drugs tended to be older than their non-injection peers; however, these variables remained significant after adjustment for age in the multivariate regression model. The average age of first injection in our study was 17.2 years (SD=2.8 years). Given the age distribution of our population (15-25 years), it is likely that some youth considered "at-risk" will transition into IDU at a future date. Classification of the youth as non-injectors in our analysis may be due to the youth's age at the time of interview rather than their resiliency against high-risk drug practices.

The strongest association for IDU found in our analysis was having a sexual partner in the past three months who used injection drugs. This finding was observed for both male and female youth, with a stronger association found among males. These results contradict previous literature that suggest females are more influenced by their sexual partners (18-21) and that social influences from friends play a more important role than sexual relationships (4, 11). Our findings support the notion that sexual relationships potentially influence risk behaviours for both male and female youth. Similar influences from sexual partners were observed regarding tobacco, alcohol and non-injection drug use (data not shown). The E-SYS questionnaire did not include variables related to characteristics of individuals other than sexual partners in the youth's social network; consequently, we were unable to examine the influences from friends or family on high risk activities.

Social influences have been shown to influence the transition into IDU, both through normalizing drug use as well as facilitating the injection process (12). Our findings support this hypothesis that injection drug users may initiate their sexual partners into IDU. An alternative explanation is that youth already using injection drugs may be more likely to engage in sexual relationships with other injection drug users due to their shared involvement in the street environment. However, based on qualitative findings from young, recent-onset injection drug users, I hypothesize that engagement in sexual activities with an IDU sex partner precedes injection initiation (12). The increased prevalence of sexually transmitted infections among female injection drug users in our sample underscores the important interaction between drug use and sexual behaviours and suggests that interventions should target both behaviours.

The inability to examine the temporal relationship between variables is a main limitation of our study. Given the cross-sectional nature of our data, we are unable to determine if street

involvement acts as a precursor to IDU initiation or rather functions as a consequence of IDU, where involvement in the street milieu is necessary to support the youth's drug habit. Because street youth self-reported their risk behaviours, the results may be prone to social desirability bias and inaccurate reporting. However, given that public health nurses who have experience working with street-involved youth conducted all of the interviews in settings that were familiar and comfortable for street-involved youth, I anticipate the effects of this bias to be minimal. As well, its effects are likely non-differential, as there is no evidence to suggest that youth who use injection drugs are more or less likely to self-report their risk behaviours in comparison to their non-injecting peers. In order to obtain data representative of the street youths' social network in Vancouver, outreach and mobile vans as well as snowball sampling were performed. Although this form of sampling potentially biased recruitment to youth who are engaging the health system, it is likely the most effective way to sample hard-to-reach populations (22, 23). Drop-in centres were located in the epicentres of Vancouver's street youth community; therefore, the sample is most likely representative of the active, at-risk youth population.

In conclusion, our findings suggest that youth who are entrenched with the street culture are extremely vulnerable with respect to high-risk behaviours such as IDU. Our findings highlight the need for intervention strategies that prevent at-risk youth from becoming street involved and that provide safe and affordable housing options for youth who are already street entrenched. Our findings also suggest an association between IDU and influences from sexual partners. In contrast to previous literature that highlights an association among primarily females, our results show that both males and females are engaging in sexual activities with IDU sexual partners. Future work to investigate the role of gender and improve our understanding of the

temporal and causal relationships between IDU and its associated factors will include in-depth interviews and focus groups with at-risk youth.

Table 3.1 Unadjusted and Adjusted Odds Ratios (OR) and 95% Confidence Intervals (CI) Comparing Youth Aged 15-25 in Vancouver, British Columbia who Report Never Using Injection Drugs and Youth who Report Using Injection Drugs

Characteristic	Overall %	No IDU %	IDU %	Unadjusted OR (95% CI)	Adjusted OR¹ (95% CI)
Age at interview, mean [SD]	20.2 [2.2]	19.8 [2.1]	21.0 [2.1]	1.32 (1.12-1.56)*	1.41 (1.18-1.69)* ²
Gender					
Male	64.9	66.4	61.1	1.00	1.00
Female	35.1	33.6	38.9	1.23 (0.64-2.37)	2.13 (1.01-4.48)* ³
Ethnic origin					
Non-Aboriginal	76.3	73.6	83.3	1.00	1.00
Aboriginal	23.7	26.4	16.7	0.56 (0.25-1.27)	0.48 (0.20-1.14)
Type of recruitment					
Outreach	28.0	26.1	32.7	1.00	1.00
Drop-in centre	72.0	73.9	67.3	0.71 (0.36-1.40)	0.77 (0.38-1.57)
Participated in a previous study phase	10.6	5.7	24.5	5.29 (2.01-13.93)*	3.68 (1.32-10.26)*

Characteristic	Overall	No IDU	IDU	Unadjusted OR	Adjusted OR¹
	%	%	%	(95% CI)	(95% CI)
Hang out on street more than 50 hours per week	64.2	59.4	76.4	2.32 (1.12-4.81)*	2.43 (1.13-5.20)*
Not living with parents/caregivers for more than a year	85.0	80.4	96.4	5.73 (1.30-25.14)*	3.72 (0.79-17.49)
Ever lived on the street	81.6	81.3	98.2	12.16 (1.60-92.15)*	11.42 (1.48-88.26)*
Ever been sexually abused	18.1	21.1	10.9	0.97 (0.96-1.08)	0.97 (0.86-1.09)
Ever had sexual activities	96.9	95.7	100.0	0.47 (0.18-1.22)	0.34 (0.12-0.99)
Age at first sexual experience, median [IQR]	14.0 [12.0-15.0]	14.0 [13.0-15.0]	14.0 [12.0-15.0]	0.97 (0.86-1.08)	0.97 (0.86-1.09)
Lifetime number of sexual partner, median [IQR]	11.0 [5.0-24.0]	10.0 [5.0-24.0]	13.5 [8.0-29.0]	1.01 (1.00-1.01)	1.01 (1.00-1.01)
Ever had obligatory sex	25.5	22.5	33.3	1.62 (0.80-3.28)	1.25 (0.57-2.78)
Ever traded sex	21.2	16.7	32.7	2.52 (1.22-5.22)*	1.98 (0.90-4.33)

Characteristic	Overall	No IDU	IDU	Unadjusted OR	Adjusted OR ¹
	%	%	%	(95% CI)	(95% CI)
Characteristics of sexual partners in past three months					
Use non-injection drugs	72.6	70.8	77.4	1.51 (0.70-3.24)	1.74 (0.78-3.91)
Use injection drugs	24.3	12.6	53.7	8.03 (3.82-16.89)*	9.56 (4.17-21.89)*
High on drugs while having sex	58.9	57.4	63.0	1.30 (0.67-2.51)	1.22 (0.60-2.46)
Friends that hang out on the street	63.1	57.5	77.4	2.48 (1.19-5.16)*	2.49 (1.13-5.46)*
Been told they have an STI	9.1	7.1	14.3	2.10 (0.68-6.48)	2.24 (0.68-7.32)
Use sex to make ends meet	14.0	13.9	14.3	0.98 (0.38-2.54)	0.95 (0.35-2.57)
Ever had an STI	27.3	20.9	43.6	3.03 (1.54-5.97)*	2.94 (1.42-6.08)*
Ever been pregnant or gotten someone pregnant	44.7	42.2	50.9	1.51 (0.80-2.85)	1.13 (0.57-2.26)

¹ Odds ratios adjusted for age and gender

² Odds ratio adjusted for gender

³ Odds ration adjusted for age

* Results are significant at the p=0.05 level

STI = sexually transmitted infection; IDU = injection drug use

Table 3.2 Unadjusted Odds Ratios (OR) and 95% Confidence Intervals (CI) Comparing Youth Aged 15-25 in Vancouver, British Columbia who Report Never Using Injection Drugs and Youth who Report Using Injection Drugs by Gender

	Males (n=122)	Females (n=67)
Characteristic	Unadjusted OR (95% CI)	Unadjusted OR (95% CI)
Age	1.58 (1.21-2.06)*	1.26 (0.99-1.61)
Ethnic origin		
Non-Aboriginal	1.00	1.00
Aboriginal	0.56 (0.18-1.81)	0.49 (0.15-1.56)
Type of recruitment		
Outreach	1.00	1.00
Drop-in centre	0.81 (0.34-1.97)	0.57 (0.19-1.72)
Participated in previous study phase	5.97 (1.33-26.80)*	4.78 (1.28-17.83)*
Hang out on street more than 50 hours per week	3.70 (1.30-10.49)*	1.33 (0.45-3.95)
Not living with parents/caregivers for more than a year	1.99 (0.41-9.59)	ns ¹
Ever lived on the street	6.05 (0.76-48.01)	ns ¹
Ever had sexual activities	ns ¹	1.02 (0.87-1.19)
Age at first sexual experience	0.92 (0.77-1.09)	1.02 (0.87-1.19)
Lifetime number of sexual partners	1.01 (1.00-1.02)	1.01 (0.99-1.02)
Ever been sexually abused	0.48 (0.10-2.31)	0.39 (0.11-1.35)

	Males (n=122)	Females (n=67)
Characteristic	Unadjusted OR	Unadjusted OR
	(95% CI)	(95% CI)
Ever had obligatory sex	1.75 (0.62-4.93)	1.41 (0.50-4.01)
Ever traded sex	1.71 (0.61-4.79)	3.85 (1.27-11.66)*
Characteristics of sexual partners in past three months		
Use non-injection drugs	1.28 (0.53-3.11)	2.25 (0.44-11.52)
Use injection drugs	10.08 (3.57-28.49)*	6.60 (2.09-20.86)*
High on drugs while having sex	1.32 (0.58-2.97)	1.07 (0.32-3.59)
Friends that hang out on the street	2.36 (1.00-5.61)	2.79 (0.55-14.10)
Been told they have an STI	1.75 (0.39-7.89)	2.62 (0.47-14.65)
Use sex to make ends meet	1.29 (0.40-4.13)	0.59 (0.11-3.17)
Ever had an STI	2.12 (0.84-5.35)	5.08 (1.67-15.43)*
Ever been pregnant or gotten someone pregnant	1.85 (0.82-4.18)	1.03 (0.36-2.91)

* Results are significant at the p=0.05 level

¹ Unable to calculate odds ratio due to small sample size; ns = non-significant

STI = sexually transmitted infection

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CHAPTER 4: Key Informant Interviews¹

4.1 BACKGROUND

Between 150,000 and 300,000 Canadians are currently homeless, living in shelters or on the streets, with certain populations, for example street youth, disproportionately represented (1). Street-involved youth often experience difficult and traumatic childhoods, characterized by physical, emotional, and sexual abuse (2-4). They may have parents or caregivers who use illicit drugs and who have a history of incarceration; they frequently have underlying mental and learning disabilities; and they are often neglected and expelled or run away from their own homes (2-4). As a result, almost 50% of Canadian street-involved youth have spent time in government care with certain groups, for example Aboriginal youth, overrepresented in the government care system (3). Because they lack a permanent residence, many street-involved youth reside with friends or relatives, at shelters or hostels, or even on the street itself (3).

Street-involved youth are a vulnerable population with respect to injection drug use (IDU) initiation. Recent estimates suggest that the prevalence of injection drug use among Canadian street youth is between 20-50% (2, 3, 5, 6). Youth who use intravenous (IV) drugs are considered at high-risk for acquiring blood-borne infections such as HIV and hepatitis C. In Vancouver, British Columbia, approximately 16% of young (≤ 29 years of age) injection drug users are infected with HIV, while 57% are infected with hepatitis C (7). Co-infection with HIV and hepatitis C in this population is also common at a prevalence of 16% (8). In addition to infection with blood-borne pathogens, other negative health outcomes include endocarditis, addiction, toxicity, overdose, and other adverse events.

¹ A version of this chapter will be submitted for publication. Chambers C, Van Borek N, Taylor D, Saewyc E, and Buxton J. Service Providers Perspectives: Risk and Resiliency Factors Associated with Injection Drug Use among At-Risk Youth.

Research examining the subjective reasons why street-involved youth initiate injecting suggest that the desire to experience the immediate effects or “rush” of the drug (9-15) and curiosity (11, 15-19) are strong motivating factors. Addiction may also contribute to the transition into IDU, especially for individuals who have used non-injection drugs for long durations. As tolerance develops, greater quantities of drugs are required in order to achieve comparable highs; injection becomes viewed as a more cost-effective means to obtain the fix and avoid withdrawal symptoms (9, 11, 13-15, 19, 20). Social influences from friends, family, and sexual relationships also serve to facilitate the transition to IDU and normalize the injection behaviours (20). In a study of street-involved youth in Montreal, Quebec, youth who currently have friends that inject drugs were more than three times as likely to initiate injecting (21). Other risk factors associated with the transition into IDU include dropping out of school (22), being placed in a group home (18), being without stable housing (21-23), engaging in illegal activities (23), having sex for trade (i.e. having sex in exchange for money, drugs, food, shelter, etc.) (22), having a history of abuse (18, 21), being exposed to physical violence (22), having parents who use injection drugs (24), and having suicidal ideations (22).

Despite possessing well-identified risk factors for initiating IDU, many street-involved youth do not use injection drugs and the transition into IDU is not inevitable for all “at-risk” youth (25). These youth are considered resilient; they are both exposed to adversity and are able to positively adapt (26, 27). While much of the research examining street-involved youth populations and IDU focuses on risk factors for initiation, few studies examine the factors that may prevent youth from initiating. Even fewer studies consider the social, political, economic, physical, and cultural factors that contextualize the youths’ experiences and structure their risk environments (28, 29). The purpose of this study was to examine how the combination of risk

and resiliency factors in the youths' social structural environment influences the transition into IDU among street-involved youth in Metro Vancouver, British Columbia. This paper discusses findings from in-depth interviews with service providers who work with at-risk youth.

4.2 METHODS

4.2.1 Theoretical Framework: Ecological Risk and Resiliency Models

Ecological theory views individuals and their behaviours as situated within a social structural context consisting of varying levels of influence that are systematically related to and affecting one another (30). Rhodes and colleagues adopt an ecological approach to reducing harms associated with drug use in their discussion of the risk environment, referring to the combination of social, physical, economic, organizational, and political factors exogenous to the individual that “structure” the context of HIV risks and harms (28, 29). The risk environment framework emphasizes the need for structural-level intervention in conjunction with public health approaches that target individual-level behavioural change (28, 29, 31). Consistent with Bronfenbrenner’s ecological systems theory of adolescent development (32), it encompasses micro-level influences from interpersonal relationships, meso-level influences from social and group interactions, and macro-level influences from institutional or organizational structures (28, 29).

The concept of resiliency in adolescent development refers to the ability of individuals considered “at-risk” for developmental outcomes to positively adapt despite exposure to adversity (26, 27, 33, 34). Within the field of public health, resiliency research often aims to promote positive health outcomes among vulnerable populations through a dual approach of reducing environmental risk factors, while at the same time promoting protective factors (i.e.

factors that mediate negative health outcomes for vulnerable youth) (35-37). Public health researchers in the field of resiliency also argue that resiliency is embedded within the cultural, developmental, and historical contexts of the youths' lives (33, 35, 36). Analogous to Rhodes' risk environment model, the resiliency framework emphasizes the importance of community-level structural interventions in conjunction with individual-level behavioural change (37-39).

4.2.2 The Interviews

Sixteen semi-structured, in-depth key informant interviews were conducted with service providers who work with at-risk youth populations in the Metro Vancouver area of British Columbia between January and May 2009. Each interview lasted approximately one hour. All interviews were conducted by the first author (CC). Participants were recruited through community partner organizations as well as through snowball sampling (40). At the conclusion of the interviews, participants were provided with recruitment materials and encouraged to inform their colleagues about the study. Participants were purposefully sampled in order to ensure recruitment from multiple community sites as well as in different service roles with youth (41). The Behavioural Research Ethics Board at the University of British Columbia provided approval for this study. Key informants received a \$30 honorarium for their participation.

A variety of youth services were represented in the sample including health care workers, outreach workers, counsellors, program staff, and program managers. Ten of the participants were female and 6 were male. Participants had a median of 5 years (range: 2-27 years) experience working with at-risk youth. All reported working with both male and female youth. Participants reported that the typical age range for their youth clients was 14-24 years; however,

participants commented that they often work with youth who are younger or older than these mandated ages.

According to positivist theory, an inherent source of bias during qualitative research is effects of the researcher's presence in and influence on the environment or individuals being studied (30). In order to maintain objectivity, the qualitative researcher must withhold their own biases and opinions regarding the research participants and attempt to control outside influences. In contrast, interpretive theory argues for an involved role of the researcher where the researcher's personal experience in interacting with participants informs the research findings (30). Recognizing that characteristics such as my age, gender, ethnicity, and research position may influence my interaction with participants during the key informant interviews, I undertook a series of steps to ensure the internal validity (i.e. the degree to which the interviews capture the reality of the participant's lived experiences) of my findings.

All interviews were conducted at the community organizations where the participants were employed, either in their personal offices or in a communal meeting room, ensuring a comfortable and familiar interview setting for all participants. In order to minimize my role as a researcher and develop a comfortable and trusting relationship with participants, at the beginning of each interview I positioned the participants as the expert in the field and emphasized that I was here to learn for their expertise and firsthand experiences. In my opinion, participants were comfortable during the interviews, often sitting in relaxed positions, and eager to share their thoughts and stories with me. The interview guide was piloted prior to beginning the series of key informant interviews to ensure that the questions were culturally appropriate, understandable, and unambiguous. Participants were also encouraged to seek clarification during the interviews if required. I took careful fieldnotes during and at the conclusion of each

interview. These notes described the research setting, my interactions with the participant, and the participant's responses to interview questions. Verbatim audio recordings of the interviews were also obtained.

4.2.3 Analysis

The questioning guide for the interviews was based on a quantitative analysis of a street youth survey as well as a comprehensive review of the literature. The audio recordings and field notes were reviewed following each key informant interview to identify consistent themes as well as additional topics for discussion. Issues that were unclear or not sufficiently explored were noted and used to guide subsequent questioning guides through an iterative process. Audio recordings and field notes were transcribed verbatim and analyzed using NVivo qualitative software (QSR International Inc., Cambridge, MA). Two members of the research team (CC and NV) coded each of the key informant interview transcripts in order to ensure interrater reliability (42). Any discrepancies between the coding were discussed among the research team until a consensus was reached.

Domain analysis was conducted in an effort to identify three main threads: (i) perceived risk and resiliency factors related to IDU initiation; (ii) perceived gender differences related to IDU initiation; and (iii) perceived risk behaviours surrounding IDU (43). After reviewing each transcript, the data were organized into broad categories in order to make the data more manageable (42, 44). Once the data was sorted, a hierarchical list of codes was established (42, 44). This hierarchical coding scheme served as the organizing system for the data and was discussed among members of the research team. Phrases or quotes that represented similar themes were grouped together in accordance with the coding scheme.

4.3 RESULTS

Participants provided their personal thoughts and narratives regarding numerous topics including: the prevalence of drug use among youth; circumstances of IDU initiation; patterns of transitioning into IDU; risk and resiliency factors associated with IDU; perceptions of risk and harm reduction; and recommendations for intervention strategies. The results presented here represent service providers' perspectives around risk and resiliency factors. Identified themes were classified into six interrelated domains: interpersonal relationships, social influences, structural influences, family history, individual-level factors, and gender differences.

4.3.1 Interpersonal Relationships

In all of the key informant interviews, interpersonal relationships, particularly with friends, were identified as predominant risk factors for initiating IDU. Participants described situations where youth are physically assisting their peers to inject for the first time: “you know I’ve heard stories about kids helping kids who’ve never smashed smash [inject drugs]. They tie their arm, they hold the needle, they find the vein, and they’re assisting them in doing that. And it’s just okay. It’s acceptable.” According to service providers, youth were typically unable to inject on their own, for example because of the fears associated with needles or the risk associated with injecting.

These direct influences for initiation often occur when the youth become affiliated with same-age peers, older peers, boyfriends or girlfriends who use injection drugs. Service providers described how drug use is “transmitted through relationships,” either directly by becoming associated with peers who use injection drugs, or indirectly through endorsement of drug use

within the relationship. As one participant described, “generally they’ll say it’s someone who isn’t injecting has a friend who is injecting, and they’re sitting there telling them how great it is and the high is so much better, so obviously that person wants to experience that.”

Often lacking supports from family, peer groups become the youths’ main source of support, safety, and companionship on the streets. As one male participant described:

It really depends on who’s the first nice people to them. And who, instead of throwing rocks at them and saying “get out of here, you stupid kid,” is the least judgmental... If the people that are nurturing down here and supportive and take you under [their] wing are using IV drugs and they seem okay and their value system and you see other people who aren’t using drugs who spit on you, walk down the street, I think there’s a potential of gravitating towards that.

This search for a community often led to an affiliation with peer groups who use IV drugs and the initiation of injecting. As one participant described, drug use is a “doorway to communities.”

Another participant offered this example of a young female: “she just wanted to belong, right. That’s all she wanted and who did she find? The people that wanted to sell her drugs.”

Interpersonal relationships can also play a key role in preventing the transition into IDU. Key informants identified social supports (from friends, family members, community, etc.) as predominant protective factors against IDU. They also identified instances where loss of the peer group, and resulting removal of the relationship, was associated with youth discontinuing their IV drug use:

I mean I’m sure in their own mind it’s a lot more complicated, but sit back and watch it and I mean it’s literally as simple as like one, two, three. It’s like, you omit that person’s influence from that individual and if that individual is resilient enough and strong enough they just won’t do it anymore.

4.3.2 Social Influences

Indirect influences from peers also function to facilitate the initiation of IDU. Key informants frequently commented that youth initiate IDU simply because all their friends are using. One participant described drug use as “surprisingly social.” Another participant stated that “[their] experience here is that a huge number of kids get involved in IV use socially, because it’s there.” The same participant had previously described a situation where a youth was hanging out with friends one night and initiated IV drug use. When questioned about her reasoning for initiating: “she didn’t have a reason. She said, ‘I don’t really know. It was just what everyone else was doing. It was what I was doing.’” Many participants emphasized the influence from peers during the initiation event:

I’m sure they started [as] a group. I’m sure almost always people wouldn’t just start injecting by themselves. It would be part of their group...the people they’re hanging out with...And I think there’s culture in that sense, you know? Who do you hang out with? I mean, I think you can look at groups and say what do they use? What do they use? How do they use it? And if you hang out with people who inject, you’re more likely to inject.

Closely related to social influences is the normalization of drug use on the street. One female participant described the social acceptability of IDU in the street community: “you know, it’s just so acceptable here. It’s not taboo to be an IV drug user in the downtown core.” However, participants also commented that among certain groups of street youth IDU is *not* considered socially acceptable:

And for them, in their circle, it is socially unacceptable to be an IV user. You’re termed “a junkie,” “a waste of life,” you know, et cetera. You know, so for them, it’s socially unacceptable to be involved in IV drug use. For some kids that come down here, they’re never had past addiction problems, so if they’re going to get into anything it’s usually they’ll smoke pot, they’ll do coke once in a while, and they’ll drink. And it just never gets introduced to them.

Despite possessing numerous negative connotations, stigma also emerged among service providers as being associated with resiliency. Stigma against IV drug users, although associated with numerous negative outcomes (such as violence, marginalization, etc.), appeared to prevent certain youth from initiating. As one male participant illustrated:

I mean certain people have peer groups that will either in a positive way or an extremely negative way by stigmatizing the drug and drug use will steer them or try to steer their friends or peers away from drug use...I don't know if you've heard of it, like junkie bashing and tweaker bashing. It's really, really common around here and I think that affects people. A lot of people will smoke drugs and not shoot [inject drugs].

For these youth, IDU was viewed as an extreme in drug use, often associated with homelessness and poverty. Key informants described how the youths' personal value system around IDU is based in part around what is considered acceptable within the street environment. One participant described how the youths' internalized stigma prevents them from initiating IDU:

I haven't heard it so much with crystal meth, but with heroin in particular, you hear it a lot. "I will never use heroin, ever. Ever, ever, ever. *Ever!*" Right? People have that firmly embedded into their mind. I can do *these* drugs, I just can't do that.

4.3.3 Structural Influences

In addition to social influences, structural influences served to facilitate the transition into IDU among at-risk youth. Participants commented how a lack of safe, affordable, and stable housing often contributed to the vulnerability of youth on the street. Participants described how homelessness and poverty are closely associated with sexual exploitation; youth exchanged sex for a place to stay and other basic necessities. One female participant described how homelessness contributes to risk among street-involved youth:

So anybody who doesn't have housing is at risk on a whole bunch of levels. You risk – more risk of violence, more risk of just being out in the damn cold and the

cops bothering you 'cause the cops are going to move you along in the middle of the night. And people are going to try to rob you 'cause you – they see you as small and vulnerable and sleeping somewhere.

The availability of housing also emerged as an important issue in promoting resiliency among at-risk youth. As one participant articulated, “the easiest way to sum it up is stability. It’s food, shelter, clothing equates the stability.”

According to service providers, youth turned to drugs as a safety mechanism for surviving on the streets and coping with the realities of their living situations. One male participant described how barriers to accessing housing and shelters contributed to drug use for youth who are living on the streets:

There’s not enough shelters, safe shelters. And if I’m outside on the streets, it’s better for me to catch a couple hours during the day inside of a drop-in centre, even if I end up getting kicked out...It’s safer for them to sleep during the day and stay awake at night. So a lot of these kids literally report using, crystal meth specifically, to help them stay awake during the night so that they don’t get beaten up, don’t have their stuff stolen in the middle of the night.

Another participant described how drugs allow youth to deal with the realities of sleeping outdoors: “you haven’t slept in four nights because you’re waking up freezing every night. Wouldn’t you just get high and go to sleep?”

Street entrenchment was perceived to be associated with an increased likelihood for injecting. Numerous participants described instances where service providers and community members actively tried to prevent youth from becoming street entrenched, specifically in the Downtown Eastside (DTES) area of Vancouver, which is considered the epicentre of Vancouver’s adult drug scene and HIV epidemic (45, 46). Consistent with these findings, service providers who worked with youth in the Fraser Valley region indicated that their youth clients may be less at risk for injecting. Key informants perceived youth who were not living with their parents or caregivers as more likely to use injection drugs; in contrast, they perceived less street

entrenched youth as predominantly using non-injection drugs such as alcohol, marijuana, and “party drugs” such as ecstasy.

Another key structural influence associated with the transition into IDU is the availability of IV drugs on the street. Drugs were “cheap;” they were “easy to get” and “all over the place.” One female participant commented that “the easiest way to get drugs sometimes is *in needles*, which is horrible, but that’s just the way it goes.” The prevalence of certain types of drugs was closely linked to economic influences from the illegal drug market. As one participant described, the youths’ preference for certain drugs was associated with economic factors: “what’s cheap is crystal meth, right, really cheap. Cocaine is way more expensive. So some of it is strangely economic in people’s figure in factoring what’s okay to use and what’s not.”

4.3.4 Family History

Drugs were used not only to mediate the realities of the youths’ current living situation, but also their difficult past experiences, for example trauma and abuse in their home environments. As one participant commented, “[youth] carry a lot of trauma in their lives” and drugs “offer an appealing escape.” Youth who become street-involved often lacked a supportive family environment. Many participants described instances of past sexual, physical, and emotional abuse among the youth and how these instances contributed to the youths’ street involvement. Participants emphasized family support and stability as a key resiliency factor. As one male participant described, “I think that’s where you can sort of directly tie in things like family support and things like that because when you have those kinds of constructive and healthier coping mechanisms then it becomes really easy to just refuse the others.”

Parental drug use also emerged during the interviews as a risk factor for IDU. One female participant described the realities of one youth who was raised by parents who use IV drugs: “One of the worst stories I ever heard was a women who, a mother, who sold to daughter to her drug dealer to pay a bill.” Participants also described situations where parents and other family members directly initiated youth into IDU through facilitating with the injection process: “mom was an addict, mom was a prostitute, mom pimped her out, gave her her first hit, and then mom kicked her out the door. And then that’s all she knows.” Parental drug use also functioned to normalize injecting behaviours. As one female participant commented: “they’ve been exposed to it at a early age and it may not seem like that big of a deal because they’re exposed to it. Their parents are doing it so how can it be that bad, right?”

Despite the extremely negative influences of parental drug use, participants also commented that parental drug use can function as a protective factor against IDU initiation: “I’ve seen plenty of people who are adamant about not using the drugs that their parents use [but who] will use just about anything else.” Often these opinions were based on witnessing the negative aspects of drug use that their parents or other family members experience. For example, “their mom overdosed dead in front of them when they were like six.”

4.3.5 Individual-Level Factors

In addition to the social structural influences associated with IDU, key informants identified individual-level factors that may influence youth to initiate drug use. One of the predominant themes that emerged was the physiological effects of the drugs when injecting in comparison to other routes of administration. Injecting provided a “rush [that] is so intense that it’s just, like, you know, that there’s nothing else like it.” Youth transition into IDU as their

tolerance to non-injection drugs developed; injection was viewed as a means to experience a better high. As one female participant described:

I think the thing about using needles is that it increases the tolerance, and then you can't just go – it's almost like you can't go back. Like if you want to continue in your drug use...if you want to keep getting high, you have to do it that way. If you're smoking it, you're not going to get high anymore. What's the point?

Another participant commented how quickly addiction formed:

What I heard a couple of times is how fast you are hooked. So I think you can, if you try three times in a row, you are like addicted and you need it...I guess they start when they're very...when they're influenced and they're weak and so they don't really think about what the consequences at that moment. They realize later that they're terribly addicted.

The lack of consideration for consequences was related to the youth's age at initiation, where adolescence was a time period for experimentation and risk taking; the long-term health outcomes were not a consideration for most youth. One female participant stated that: "I think a lot of youth believe they're invincible." Another commented that: "youth don't have...very much future thinking."

Many participants related the youths' drug use to lack of self-worth, often resulting from the rejection and marginalization experienced while on the street. As one participant described youth use drugs to cope with the trauma associated with their living situation: "you get to a place where you're like, who cares about this shit? I don't want to feel like this anymore. When I used that one particular drug I didn't feel anything, like, for 24 hours. That was lovely. See what I mean?" Key informants also highlighted high rates of learning disorders and mental health issues, which was often associated with self-medication, among street-involved youth. Many participants emphasized the need for extracurricular activities and other mechanisms to build self-esteem and self-worth. Involvement in extracurricular activities can promote a sense of accomplishment and prevent drug use. As one participant described:

They have something to look forward to. They have something that they're working for. And that sense of, like, accomplishment or, you know, feeling proud for what they accomplished was definitely – I think helped them, you know, be resilient towards, you know, drug use.

4.3.6 Gender Differences

In general, key informants identified few gender differences. Most suggested that male and female youth possessed more commonalities than differences with respect to the factors associated with IDU. In the few instances where gender differences were identified, social influences often emerged. One female participant described how males and females differ with respect to their drug use and how peer group influences may be stronger among female youth:

[Girls are] more on the fence about their use more often. So they're not really one extreme or the other. They're more likely to follow what their peers are doing and I guess that's how they would fall into it. I think with guys, they're much more extreme in their use so they're either, like, heavy users or they're not.

In terms of resiliency, social influences may also play a predominant role among females. One male participant described how females use their social networks during recovery: “women are much better at the social networking support, ideas, mutual aid than guys are. And maybe that's a gross generalization. I don't know, but I kind of suspect that.”

Another theme that did emerge on the topic of gender differences was vulnerability. Key informants who identified gender differences often referred to instances where females were more likely to be initiated by their older boyfriends or pimps. As one female participant illustrated:

You're letting that person control your drug use...you're becoming addicted to what that – to that person in a way. Especially with young women, young vulnerable women, and you know male people that are helping them shoot up. It becomes like a really – like a power hierarchy that's really dangerous.

Key informants related this vulnerability to traditional societal gender roles of women:

Traditional male gender roles are way more highly valued in our society...I propose that injection drug use and vulnerability to injection drug use is based upon a lack of confidence and self-worth, it makes sense that in a society where male gender qualities are highly – much higher values – that females would use more or be more vulnerable to being susceptible to it.

However, other participants challenged this notion stating that women's role in society were changing. They observed female youth as becoming more competitive and engaging in behaviours that society typically associates with male traits, for example aggression.

Despite the emphasis on women's vulnerabilities, the need for validation and lack of confidence appear to be common themes across gender. However, in comparison to females, males may not seem as vulnerable and may not access certain types of services as frequently, for example counselling. As one female participant described:

[Boys] don't need to talk about it. They don't feel like it's going to help anything. They don't feel like it's going to be therapeutic 'cause they're supposed to be, like, the tough guys that, you know, they're wanting to, you know...why do I need help from you? Like, they can get through it on their own, kind of thing.

4.4 DISCUSSION

The risk environment is a useful framework to understand the circumstances within which youth initiate IDU. It encompasses the ecological-level influences from social, cultural, physical, economic, organizational, and political factors that contextualize HIV risks and harms (28, 29, 31, 47). One of the most predominant structural influences that emerged during the key informant interviews was the impact of homelessness. Many participants highlighted the absence of safe, affordable, stable housing options that are youth-friendly and youth-specific. Participants often referred to the lack of housing options as the primary obstacle for youth who desire to transition out of the street environment. In addition to increasing the risk for initiating IDU, homelessness is associated with an increased risk for HIV and hepatitis C due engagement in

high-risk injection practices (45, 48-53). Our findings suggest that a spectrum of risk for IDU initiation exists, with those youth who are more entrenched within the street community and more likely to be homeless being most at-risk.

Social influences also appear to be a prevailing theme both in the transition into and the resiliency against IDU. Youth use injection drugs because it is considered accepted and normalized behaviour in certain neighbourhoods and peer groups. Similarly, youth may abstain from injecting because it is socially unacceptable within other peer groups. Interpersonal relationships with family members and peer groups function both as a direct influence by assisting with the initiation process (11, 14, 16, 19, 20, 54, 55), and as an indirect influence through normalizing drug use within the street community (18, 20). Many key informants describe situations in which youth are introduced to IV drugs directly from parents, siblings, older peers, and sexual partners. Adolescent development literature suggests that friends play an increasingly dominant role in youths' lives during adolescence (56). Consistent with this notion, many service providers commented that youth initiate IDU simply because their friends are using.

The affiliation with certain peer groups stems in part from the youths' unstable home environments. The street environment functions as a community for vulnerable youth who are separated from typical support networks, for example their families, and have nowhere else to go. Youth become entrenched within the street community and initiate drug use as a means to become affiliated with certain peer groups or accepted within the street community. For extremely vulnerable youth, the street represents protection, anonymity, and acceptance (18). Drugs alleviate the negative experiences of the youth's traumatic childhoods and mediate the harsh realities of their current living situations (57). Parental drug use and other sources of

instability during the youths' childhood can contribute an increased likelihood of becoming street entrenched and initiating IDU (20). Due to instability in the home environment, many street-involved youth fail to properly develop coping mechanisms and life skills (56); they turn to IV drugs as a means to alleviate their pain.

Street-involved youth appear to congregate in social cliques. Although these social networks may overlap, some participants perceive them to be relatively distinct groups. Participants often classified their youth clients into different social groups during the interviews; the likelihood of IDU initiation appears to be associated with these distinct social groups and the types of drugs preferred. For example, "train-hoppers" are transient youth who ride the trains across Canada and predominantly drink alcohol and smoke marijuana; whereas, "tweakers" are youth who predominantly use crystal meth and "junkies" are heroin injectors. These findings are consistent with results from a qualitative study of street-involved youth in Montreal, Quebec that classifies youths' experiences with the street into five mutually exclusive typologies, partially defined according to the youths' pattern of drug use and types of drugs consumed (18). For example, Roy et al. describe "tripper" youth who predominantly use hallucinogens and are judgemental of youth considered to be "druggies" or "junkies" (18). Similar social cliques and their related trajectories into injecting appear to also exist within the street-involved youth community in Metro Vancouver.

Stigma also emerged as a consistent theme in the discussions of both risk and resiliency. Many participants referred to the negative aspects of stigma; they described instances of physical and verbal abuse against youth who inject drugs and how these instances can contribute to marginalization of youth on the street. Within the peer groups, varying levels of social acceptability to IDU exist. These findings are again consistent with Roy et al.'s examination of

street-involved youth populations in Montreal, Quebec, where varying degrees of social acceptability to IV drugs exist among different peer groups. Surprisingly, despite its negative connotations, stigma appears to function as a protective factor against IDU. Although they experiment with various types of drugs, certain youth are adamant that they will never transition into IDU. For these “resilient” youth, injection drugs are viewed as an extreme in the hierarchy of drugs, symbolic of “hardcore junkies” in the DTES area. Consistent with these findings, Small et al. concluded that negative perceptions of injecting served to both prevent the transition into and continued use of injection drugs among street-involved youth in Vancouver (55).

In terms of resiliency, participants suggested that extremely vulnerable youth often lack factors that are typically associated with abstaining from drug use. These factors include family support, school or community involvement, religious affiliation or involvement, extra-curricular activities, good health practices (e.g. exercise and nutrition), positive peer influences, positive social skills, and future goals and direction (36, 58-63). Youth who are exposed to positive influences during their life course often do not become street entrenched; consequently, service providers who participated in our study have limited contact with these youth. Despite the absence of “typical” protective factors, key informants highlighted ways to promote resiliency among at-risk youth. Not surprisingly, these strategies included capacity building, developing skills and goals, developing self-worth and self-esteem, and having positive supports from peers, service providers, and family. Of concern, stigma and parental drug use emerged as potential protective factors for IDU initiation. Given the harmful and traumatic implications associated with these forms of “resiliency,” public health interventions should focus on promoting more constructive mechanisms (e.g. community involvement, peer support, etc.) to enhance resiliency among at-risk youth not only through providing upstream supports to low income, susceptible

families, but also through providing sustainable services and resources to vulnerable, street-entrenched youth.

Our research suggests that individual-level factors such as the development of tolerance to non-injection forms of drugs and the “rush” associated with injecting also contribute to a risk for transitioning. Participants describe how quickly youth transition into IDU; once an addiction begins to form, the transition back to non-injection routes of administration becomes increasingly difficult. These findings are consistent with previous literature, which suggest that individuals transition into IDU when they can no longer achieve satisfactory highs from inhaling, ingesting, or snorting (9-15). However, other research that specifically examines reasons for transitioning among at-risk youth populations suggests that tolerance is *not* a predominant factor; rather curiosity appears to be a stronger motivator (11, 15-19). Our findings suggest that curiosity, especially within relationships where IDU is socially sanctioned, in addition to tolerance and addiction appears to influence the transition into IDU. Again emphasizing the important role of peer influences, participants describe situations where youth share information about the drug effects with their peers, which may persuade youth who are curious to initiate. Drug effects, however, may also function to prevent youth from transitioning. Participants commented that youth who try injecting but do not continue typically do not enjoy the drug sensation and may become physically ill from its effects.

The main limitation of this study is the small number of participants included. Although the themes that emerged were consistent across interviews, additional interviews and/or focus groups would help ensure the validity of my findings. I aimed to recruit participants from multiple youth organizations in Metro Vancouver who work with at-risk youth in a variety of service roles. Because I am using a qualitative research design, my goal was not to obtain a

sample representative of all youth service providers in Metro Vancouver, but rather to obtain in-depth narratives from a diverse sample of participants. Participants in this study were purposefully sampled through community partner organizations as well as through snowball sampling. The sample included individuals in a variety of professions serving at-risk youth populations.

Service providers are often consulted during community-based research projects involving marginalized populations; however, rarely are their voices incorporated into the research study. This project provided service providers who work with at-risk the opportunity to participate as key informants and offer their personal narratives regarding the influences around street-involved youth and IDU initiation. Intervention strategies that prevent the transition into IDU and/or reduce the harms associated with IDU for those youth who have already transitioned are urgently needed. Given the service providers' emphasis on the social influences and the importance of peer groups, intervention strategies should incorporate youth-focused peer support and education programs. These programs should aim to promote healthy and supportive relationships and focus on developing a sense of accomplishment among marginalized youth. Structural level interventions that focus on providing safe, affordable, stable housing options specifically for at-risk, marginalized youth populations should also be considered.

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CHAPTER 5: Summary, Policy Implications, Future Directions, and Conclusions

5.1 SUMMARY OF FINDINGS

The purpose of my thesis research was to examine risk and resiliency factors associated with the transition into injection drug use (IDU) among at-risk youth aged 15 to 25 in the Metro Vancouver area of British Columbia. Through considering both the risk and resiliency environments that contextualize youths' lived experiences on the street, this research aimed to identify factors that increase the likelihood at-risk youth will transition into IDU, but more importantly identify factors that may prevent youth from initiating. In other words, factors that promote resiliency among at-risk youth. My findings suggest that social factors and interpersonal relationships, for example with friends and family members, are prominent both in terms of risk and resiliency for IDU initiation. Structural factors – i.e. the combination of social, physical, economic, organizational, and political factors exogenous to the individual that “structure” the context of HIV risks and harms (1-4) – also emerged as a predominant theme. These findings are discussed in the context of the peer-reviewed literature in more detail in Sections 5.1.1 and 5.1.2 below.

As depicted in Appendix I, this research functions as the initial phases of a larger research study that aims to design intervention strategies targeting at-risk youth. Chapter 3 of this thesis presents descriptive results from the Public Health Agency of Canada's Enhanced Surveillance of Canadian Street Youth Survey (E-SYS) dataset and represents Phase I of the larger research project. Chapter 4 presents the results of in-depth, semi-structured key informant interviews with service providers who work with at-risk youth and represents Phase II. Findings

from the initial two phases suggest that the intervention strategies should incorporate youth input and focus on the social structural influences around IDU initiation in conjunction with individual-level change (1-3). These strategies should adopt a dual approach of reducing risk factors for IDU initiation, while promoting resiliency among marginalized youth (5-7). Directions for subsequent phases of the project and implications for policy and programming in the context of the proposed intervention strategy are discussed in Sections 5.2 and 5.3 below.

5.1.1 Objective 1: To Explore Elements of Risk and Resiliency Associated with the Transition into IDU as well as the Continued Use of Injection Drugs among Street-Involved Youth Aged 15 to 25 in Metro Vancouver, British Columbia

Interpersonal relationships with friends, family, and sexual partners emerged as a predominant theme from both the E-SYS analysis and the key informant interviews. Findings from the E-SYS analysis suggest that after adjustment for covariates age and gender youth who had a sexual partner in the past three months who used injection drugs were more than nine times as likely to report injecting drugs. Consistent with these findings, key informants often remarked on the dominant influence that peer groups, sexual relationships, and family members have with respect to IDU initiation. Social influences function both directly through facilitating the initiation process, but also indirectly through normalizing injecting behaviours. Many key informants shared stories where youth were “doctored” (i.e. injected by someone else) during the injection event. Indirectly, peer groups appear to normalize the injection process; youth initiate IDU simply because their friends are using. Research using the social network theory suggests that social norms maintain behaviours (e.g. IDU) within the peer groups and present barriers to altering behaviours that are inconsistent with the peer group (8). Injection drug use, which one

key informant described as “surprisingly social,” is viewed as a means to remain affiliated with a given peer group and become entrenched within the street community (8, 9). Social influences, however, also function as a resiliency factor. Key informants describe instances where youth abstain from IDU simply because the practice is considered socially unacceptable within the peer group. As suggested by the key informant participants, positive role models and peer groups may minimize the likelihood of initiating IDU (6, 10).

Injection drug use is considered a socially acceptable behaviour among certain peer groups and more generally among the larger homeless population. Distinct cliques of youth, each with a differential likelihood of initiating IDU, appear to exist within the street-involved youth population. Among certain groups, IDU is considered a normal, often socially-encouraged behaviour (8, 9). In contrast, other groups of youth appear to be resilient against IDU initiation. These youth consider IDU to be a socially unacceptable behaviour that is symbolic of becoming entrenched within the adult drug-using community. Previous research also highlights these perceptions among street youth. In a qualitative study of street-involved youth in Montreal, Quebec, certain subgroups refer to injection drug users as “druggies” or “junkies,” terms used to describe individuals who are heavily dependent on drugs and who have no control over their drug use (9). Similarly, a qualitative study examining young drug users in Amsterdam, The Netherlands suggests the fear of becoming a “junkie” serves as a protective factor for injecting (11). These perceptions are often associated stigma against drug users, which further serves to marginalize street-involved youth who are using injection drugs. According to the key informants, this stigma functions both at a meso-level between the peer groups, but also at a macro-level from societal norms.

Structural influences also emerged as predominant risk and resiliency factors, with homelessness being a key factor. Findings from the E-SYS analysis suggest that after controlling for covariates age and gender youth who have ever lived on the streets were more than eleven times as likely to report using injection drugs. Consistent with the E-SYS findings, key informants suggested that youth who lack safe, affordable housing are most likely to initiate IDU. Similarly, key informants suggested that providing youth-appropriate housing is a primary mechanism to build resiliency. These findings are also in accordance with previous literature that demonstrates current or recently-transitioned injection drug users are often more likely to be without stable housing (12-15). Youth who use injection drugs were also more likely to participate in a previous phase of the E-SYS study and were more likely to report “hanging out” the street more than 50 hours per week, suggesting a longer duration and degree of street entrenchment. Key informants also emphasize street involvement as a primary risk factor. Youth who are less entrenched in the adult street community, for example in the Fraser region of British Columbia, are less likely to use injection drugs; whereas, youth who are more entrenched, for example in the Downtown Eastside (DTES) epicentre of Vancouver’s drug and HIV epidemic (16, 17), are more likely to use. Future research is required to determine if street entrenchment acts as a precursor to IDU initiation or if youth become street entrenched as a means to support their drug use.

Family also plays a predominant role both in terms of risk and resiliency for IDU initiation, with lack of parental support and stability emerging as the predominant themes. Many key informants supported the notion that youth who become street-involved often lack the parental support systems necessary for normal childhood and adolescent development; these youth fail to develop proper coping mechanisms and turn to drug use as a means to mediate their

problems (18). Key informants commented that street-involved youth often have a history of sexual, physical, and emotional abuse. This abuse originates from the home environment (e.g. immediate family members), in the government care system (e.g. foster caregivers), or once affiliated with the street culture (e.g. pimps and sexual partners). This early childhood trauma may also stem from inter-generational trauma, especially among Aboriginal youth in British Columbia (19), a topic that was not explored within the context of this study. The association between IDU and a history of sexual, emotional, and/or physical abuse failed to reach statistical significance in the E-SYS analysis (data not shown). Consistent with this notion, key informants often emphasized peer influences and structural-level factors (e.g. homelessness) as more prominent sources of risk in comparison to early childhood factors.

Parental drug use was also identified as a predominant risk factor for IDU initiation, based on both the previous literature and the key informant interview results (8). However, the association between using injection drugs and having a mother or father who uses failed to reach statistical significance in the E-SYS analysis (data not shown). Surprisingly, parental drug use appears to function to a certain degree as a protective factor. Key informants describe situations where youth directly experience the negative aspects of drug use from their parents, which may deter youth from initiating IDU. However, given the numerous detrimental outcomes associated with parental drug use, public health interventions should focus on providing alternative mechanisms to promote resiliency, for example having other supportive, positive resources outside of the immediate family unit (5, 20-22), as well as providing counselling and supports to children whose parents use drugs.

In addition to the social structural influences, individual-level factors serve to facilitate the transition into IDU. Previous research that examines the subjective reasons for initiating

suggests that the development of addiction and tolerance towards non-injection drugs are predominant factors. As dependence grows, greater quantities of drug are required to achieve comparable highs; consequently, injection becomes viewed as a more cost-effective means to maintain the addiction (8, 11, 23-27). However, other research that specifically examines youth populations suggest that curiosity is a more predominant factor (9, 11, 24, 27-29). Youth transition into IDU because they want to experience the immediate “rush” associated with injecting (11, 23-26, 30, 31). According to the key informants, *both* curiosity and addiction are functioning among street-involved youth. Key informants emphasize the important role of peer groups affecting these individual-level factors. Friends describe to the youth their experiences associated with IDU; youth initiate IDU to share in the experiences of their peers.

Another individual-level factor that was predominant in the discussion of resiliency factors with the key informants was self-esteem and self-worth. Often related to the youths’ problematic childhoods, youth fail to develop the coping mechanisms to avoid peer influences around IDU. Additionally, they commented that many street-involved youth have learning disabilities and mental health issues and may use drugs as a form of self-medication. When combined with poor support from parents or caregivers and a lack of resources, vulnerable youth struggle academically and often drop-out or become expelled from the public school system (32, 33). These youth affiliate with deviant peer groups in search of acceptance and companionship (9, 18). Although emotionally supportive, these peer groups are often engaging in high-risk behaviours, for example substance use (34). When questioned about mechanisms to promote resiliency among at-risk youth, many key informants proposed strategies for building self-esteem and confidence, especially among the most vulnerable youth. They emphasized the importance of programs such as outdoor recreation and skill building as alternatives to traditional academic-

based measures of success to promote feelings of accomplishment among the youth. They also emphasized exercises such as motivational interviewing (e.g. transitioning youth from pre-contemplative to action stages) and goal development to promote resiliency and provide the necessary tools to transition out of the street environment. Unfortunately, individual-level variables around self-esteem were not available from the E-SYS dataset for comparison.

5.1.2 Objective 2: To Compare Results between Male and Female Youth to Determine if the Identified Factors Differ by Gender

The results of both the E-SYS analysis and the key informant interviews suggest that males and females are influenced by similar factors with respect to IDU initiation. Participating in a previous phase of the study and having a sexual partner in the past three months who used injection drugs were significantly associated with IDU for both males and females in the E-SYS analysis. Those variables that were significant among male youth, but that failed to reach statistical significance among female youth were likely due to the small number of females included in our sample. The direction of the associations remained constant across gender. Although the factors associated with IDU were consistent across gender, in comparison to male youth who use injection drugs, female youth initiated injecting at a younger age, were significantly more likely to inject drugs in the past month, and were significantly less likely to use clean needles and other injection equipment all of the time (data not shown). Although based on a small number of youth, these findings suggest that females may be at greater risk for acquiring blood-borne infections. Key informants also highlighted the vulnerabilities of female youth, often describing how they are initiated into IDU by older peers and/or sexual partners more often than males. The participants directly linked these vulnerabilities to survival on the

street, for example females become associated with older males for protection. Again these findings emphasize the social structural context of IDU initiation and HIV related harms.

Prior research suggests that males and females differ with respect to the circumstances surrounding IDU initiation. Females are more likely to rely on other individuals to perform the injections (28, 35-38), more likely to report sharing syringes (28, 35, 39, 40), and less likely to report injecting on their own (35, 36), all behaviours which may lead to an increased likelihood of acquiring blood-borne pathogens. My finding that females are engaging in more high-risk injection behaviours, especially at the time of initiation, supports this literature. However, my research into the social structural context of IDU initiation suggests that few differences exist between males and females.

One possible explanation for the discrepancy is that the above reviewed literature presents findings from mainly adult drug users; whereas, my research focuses specifically on street-involved youth. My findings support a prevailing theory that women are active initiates and that traditional societal gender roles may not exist to the same degree among youth (38, 41). Although many key informants echoed the concept of females being active in their drug use, others highlighted women's vulnerabilities stemming from traditional gender roles and suggest that these gender roles are in fact more pronounced among street-involved youth populations. Another possible explanation is that, although women are more vulnerable to influences from others, the sources of the vulnerability (e.g. lack of support, homelessness, marginalization, etc.) are consistent for males and females; these vulnerabilities are perhaps more visible among female youth. Males present a tough exterior to hide their vulnerabilities, often manifesting in anger and aggression; whereas, females turn to social networks to alleviate their pain, often seeking protection from older, dominant males. Male youth are also less likely to access services

(42); consequently, although they may be equally vulnerable, their issues remain hidden. Further research with street-involved youth is required to explore these hypotheses in more detail.

5.2 DIRECTIONS FOR FUTURE RESEARCH

This thesis project will serve as preliminary work for a larger research project that aims to plan a community-based intervention strategy designed by the youth and informed by evidence-based research (Appendix I). The goal of the intervention strategy will be to prevent the transition of at-risk youth into IDU as well as reduce the harms associated with IDU for those youth who have already transitioned. The E-SYS analysis (Phase I) and the key informant interviews (Phase II) will inform subsequent phases of the project including interviews and focus groups (Phase III) and interactive workshops (Phase IV) with at-risk youth. Our research team will conduct a series of focus groups and in-depth interviews with at-risk youth in order to examine how youth perceive the environment surrounding IDU initiation and how their perceptions influence the use of harm reduction measures. Following the youth interviews, we will conduct a three-day interactive workshop to engage at-risk youth populations. The objectives of the workshops will be to: (i) validate the results from the previous study phases; (ii) prepare youth-appropriate knowledge translation materials; and (iii) identify community-based intervention strategies.

The questioning guides for these interviews and focus groups, first and foremost, should address our research objectives: what factors cause youth to initiate IDU and what factors prevent them from initiating. In my opinion, these sets of questions should be as direct as possible. Simply asking the youth “why do you think youth use IV drugs?” and “why do you think they don’t?” may provide us with the most candid and straightforward answers. One aspect

that should be explored in more detail is the temporal and causal association between street involvement and IDU initiation. Do youth transition into IDU subsequent to becoming street involved, or does IDU initiation precede street involvement, where affiliation with the street culture is necessary to maintain the youths' drug use? Future work should also explore the street involvement process. Given that the transition onto the street is closely related to the transition into drug use, preventing the transition into the street community and ensuring proper supports exist within the youths' home community is perhaps an optimal strategy for preventing IDU initiation.

In order to address the second objective around gender differences, future analyses will be performed separately for male and female youth participants. One aspect of gender that remains unclear from the previous research is the role of female youth as active initiates. To what degree do youth initiate their drug use? How much influence do other individuals (e.g. friends, family members, sexual partners, etc.) have on the initiation process? Do these influences differ for males and females? Related to this concept is the relative influence of friends versus sexual partners. Findings from this research as well as the prior literature suggest that sexual partners play a predominant role in the initiation process, especially among females (35, 36, 41); however, other research suggests that among street-involved youth friends are a stronger influence (9, 28). My research also supports this notion. Influences from interpersonal relationships with friends were among the most commonly listed factors associated with IDU initiation during the key informant interviews; however, sexual influences were also noted, especially among females. Future work with the youth should investigate the relative influence of friends, sexual partners, and even family members as well as the power dynamics associated with societal gender roles on the transition process.

The third objective of the larger research study, which was unable to be sufficiently explored during the initial two phases, is to improve our understanding of how youth perceive IDU and how their perceptions influence the use of harm reduction measures. These perceptions include perceptions of risk (e.g. HIV, hepatitis C, endocarditis, psychosis, etc.) as well as perceptions of injection in comparison to non-injection drug use. One theme that emerged during the key informant interviews was the concept of a hierarchy of drug use, where IDU was considered an extreme in terms of use and risk. Questioning guides for the youth should explore if similar perceptions exist among the youth population.

Findings from the key informant interviews suggests that patterns of drug use and perceptions of drug users are closely associated with the drug type, particularly with heroin and crystal methamphetamine (a.k.a. meth) use, and that trends in drug use occur over time. Certain drug types (e.g. powder cocaine and ecstasy) are perceived as being associated with use at parties; whereas, other drugs (e.g. crack cocaine and heroin) are associated with more street-based use. According to the key informant participants, crystal meth, which originally associated with these so-called “party” drugs, has recently become more stigmatized among certain groups of youth, largely attributed to the permanent psychosis associated with its use. Additionally, many participants commented about the purity of drugs, particularly noting that crystal meth is often added to ecstasy to increase its addictive properties. Future research should investigate how youth in different communities perceive the different drug types and whether they are aware of these drug purity issues.

Key informants also implied that distinct neighbourhoods exist within the downtown Vancouver core, namely the DTES where adult, “hardcore” drug users congregate and Vancouver South where young, street-entrenched populations predominate. Future research

should determine how youth perceive the DTES in comparison to other communities in Metro Vancouver. According to recent communication with the At-Risk Youth Study (ARYS) team, these issues of health and place and their effects on street-involved youth populations will be explored in more detail (D. Fast, personal communication). Another aspect to be explored is the perceived impact of the Vancouver 2010 Olympic Games on the youth and their communities. Finally, and most importantly, youth should provide insight into how service providers, public health officials, and university-based researchers can improve community resources and support services and how these services can ultimately prevent the transition of at-risk youth into IDU.

5.3 IMPLICATIONS FOR POLICY AND PROGRAMMING AND RECOMMENDATIONS FOR INTERVENTION STRATEGY

In accordance with Rhodes' risk environment framework, interventions that target individual-level behavioural change in the absence of structural-level modifications will likely be ineffective at reducing drug-related harms (1-3). Research examining resiliency within the field of public health emphasizes the importance of the cultural, developmental, and historical contexts when designing intervention strategies (5, 6, 21). Again, researchers promote implementing community-level interventions in conjunction with individual-level behavioural change programs (7, 43, 44). The Public Health Agency of Canada (PHAC) advocates for a multi-faceted approach to addressing the determinants of health to target the root causes (e.g. family problems and abuse) of risk behaviours rather than focusing on single issue public health interventions (33). These intervention strategies should adopt a dual approach of reducing environmental risk factors, while at the same time promoting resiliency among at-risk youth populations (5-7).

Given the emphasis on social influences and interpersonal relationships associated with the transition into IDU, interventions should focus on promoting positive social network ties. Examples of positive role models could include service providers, non-street-involved same-age peers, previously entrenched youth who have transitioned out of the street community, and potentially even family members. Consistent with these recommendations, key informants emphasize the importance of peer-based education; in other words, provision of services and support from individuals who were formerly street-involved. Although many youth are no longer in contact with their parents or caregivers, many maintain connection with family and often list family members as part of their instrumental and emotional networks (34, 45). Over 60% of youth in the Vancouver-subset of E-SYS study report being in contact with their parents or caregivers in the past three months (data not shown). These connections with family are associated with fewer problem behaviours (e.g. substance use, sexual risk behaviours, criminal involvement) among recently homeless youth (45). Key informants also identified strengthening family bonds and support as a means to promote resiliency. They advocated for early resources and supports for families that may be considered at-risk (e.g. households where one or both parents are using IV drugs), rather than immediate removal of vulnerable youth into government care. However, increased family connectedness may not be appropriate for all at-risk youth, especially if the home environment is a significant source of violence, abuse, and neglect.

Education also emerged as an important intervention strategy during the key informant interviews. Participants emphasized the need for early education beginning at elementary school age, as most youth who eventually transition into IDU in their late teens begin experimenting with other drugs such as tobacco, alcohol, and marijuana at much younger ages. They criticize public health messaging that employs an “all drugs are bad” slogan or that unnecessarily scares

youth regarding drug-related harms. Abstinence-based programs related to drug use, most notably the American Project D.A.R.E. (Drug Abuse Resistance Education), have been ineffective at reducing drug use among youth (46, 47). Recognizing the fact that adolescence represents a period of risk-taking and experimentation (18), intervention strategies should adopt a harm reduction approach to drug education. The strategies should be youth-informed, evidenced-based, culturally-relevant programs that employ youth-friendly dissemination methods (e.g. small groups, role playing, interactive learning techniques) (46). Key informants also emphasize the need for more funding and supports in the public school system for youth who possess mental health issues and/or learning disorders, especially for youth who may lack the necessary resources in the home environment.

In general, key informants praised the availability of resources and the quality of services for at-risk who are involved with the street community; however, they also emphasized the need for more of these resources and highlight issues with the current system. The available resources mentioned included, but were not limited to, employment programs, housing assistance, detoxification (a.k.a. detox) and treatment programs, harm reduction including education and needle exchange, outreach services, food and shower services, counselling, youth shelters and safe houses, drop-in centres, and referral services. Participants often made reference to the various community organizations that are available to the youth. During my visits to these community organizations, I often noticed pamphlets, brochures, and posters advertizing available youth services and promoting harm reduction messaging.

Although numerous services are available specifically for at-risk youth populations, participants often highlighted issues with existing programs and emphasized the need for more resources. They described that although services were available, many of these services were

overtaxed; these services operate on limited budgets, are difficult to schedule appointments, and are restricted to certain days and times. Other barriers to services included aging out of youth services such that youth are no longer eligible for care; geographic barriers to services, for example certain services being available only in the DTES, where most of the adult-based services are centralized; restrictions on hours of operation such that services are not available 24 hours a day, 7 days a week; other restrictions such as non-smoking or drug abstinence policies; and a paucity of youth-specific services, for example shelter beds. Participants discussed the difficulty of entering youth into detox and treatment programs because of a lack of beds and limited hours of operation. As well, limited services are available for youth to transition back into the community once they have completed a detox or treatment program. Most importantly, participants emphasized the need for safe, affordable, stable housing. They commented that social assistance is not enough to secure housing for most youth and that few youth-specific housing options were available.

In terms of resiliency, participants emphasized the need for youth-friendly and youth-specific services. They advocated for capacity building and skills-based training for youth in conjunction with a de-emphasis on academic-based achievement. Non-judgemental, ongoing, consistent support is required for effective relationships to be built between youth and service providers; however, in reality these relationships are rarely permanent due in part to the unavailability of resources and funding.

Youth input was also an important characteristic of intervention strategies according to the key informants. While some researchers consider youth engagement to be an ethical imperative in harm reduction involving at-risk youth, others emphasize potential problems including how to engage youth who are transient or under the influence of drugs and conclude

that youth engagement, although ideal in theory, is rarely implemented in practice (48). The larger research project intends to incorporate youths' voices through subsequent phases including youth focus groups and in-depth interviews (Phase III) as well as interactive knowledge translation workshops (Phase IV). The mode and degree of youth engagement will be decided upon in collaboration with our community partners and will be based upon pre-existing models for at-risk youth engagement, for example The McCreary Centre Society's Next Step workshops (49). Our research group also intends to hire and train a team of youth collaborators who will assist with the project and provide insight from the perspective of their youth peer group.

The goals of the intervention strategy will be to prevent the transition of at-risk youth into IDU as well as reduce the harms associated with injecting for those youth who have already transitioned. Most youth who become street-involved often lack typical resiliency factors. In order to prevent these youth from becoming street involved, they require supportive, stable environments both at home and in the community. The initiation of drug use, especially IDU, is closely related to street entrenchment (9, 15, 29, 50). For this reason, the intervention strategy should focus on not only preventing youth from becoming street-involved, but also promoting "real-time" resiliency for those youth already entrenched. In other words, in addition to promoting resiliency factors in the home and school environments, the intervention strategy should aim to implement policies targeting at-risk youth directly in the street community. These strategies could include providing youth-specific housing options, developing programs for capacity building and skills-based training, and designing peer-based education programs in addition to many others. Importantly, the final design of the intervention strategy will be decided upon in consultation with the target youth population.

5.4 STREET-INVOLVED YOUTH RESEARCH IN BRITISH COLUMBIA

This research project compliments other concurrent research studies being conducted with street-involved youth populations in Vancouver as well as more broadly in British Columbia and the rest of Canada. These projects include, but are not limited to, the ARYS cohort of street-involved youth, the Vancouver Injection Drug Users Study (VIDUS) cohort of injection drug users, the McCreary Centre Society's profile of marginalized and street-involved youth in British Columbia, and the Cedar Project cohort of Aboriginal street-involved youth in three cities in British Columbia, in addition to the E-SYS study whose results are presented here. To the best of my knowledge, the ARYS project is the only other study incorporating qualitative research methodologies in their design.

Although similar, our project encompasses a few key differences to ensure novel and unique contributions to the body of literature surrounding at-risk youth populations in Metro Vancouver. In comparison to the ARYS project that requires participants to have recently used illicit drugs other than marijuana, the youth population in our study may or may not have previously used illicit drugs. For this reason, the youth in the current study likely represent less entrenched street youth; they may be still intermittently living with their parents or caregivers and are likely still accessing youth-based services. In addition, we are targeting youth populations and community organizations in the Fraser region of Metro Vancouver (for example, Surrey and New Westminster) in addition to Vancouver South and the DTES areas, where the majority of research involving street-involved youth is typically conducted, in order to access youth who are potentially less street entrenched. Our project is taking a community-centred approach to research. We are working in close collaboration with our community partners and involving their perspectives into the research study. We also intend to hire a group of youth

collaborators and engage youth through the interactive workshops in order to provide insights into the research study from the perspective of their youth peer group.

In comparison to the other research-based studies being conducted, our project aims to design and implement a public health intervention in the community as a final outcome of our research. For this reason, our interview guides for both the service providers and the youth include questions pertaining to the provision of services in the community. We aim to obtain their perspectives regarding positive and negative aspects of the current youth service structure in Metro Vancouver as well as obtain their recommendations for an optimal intervention strategy. Our project as well as the above mentioned research groups strive towards to a mutual goal of improving the health of marginalized youth populations in Metro Vancouver. For this reason, we will work in close collaboration with our fellow researchers who have considerable expertise in this field to ensure the intervention is informed with the best available evidence.

5.5 CONCLUSIONS

The purpose of this thesis research was to determine how the combination of risk and resiliency factors in the social structural environment influence at-risk youth to initiate IDU. To the best of my knowledge, this thesis represents the first report regarding of the Vancouver-subset of the E-SYS data. The E-SYS results emphasized the close association between homelessness, street involvement, and IDU, a topic which was explored in more detail during the key informant interviews, as well as identified sexual partners as a key factor for IDU among both male and female youth, an association that has typically been found among primarily females.

This research study offered service providers who work with at-risk youth a unique opportunity to share their personal narratives regarding influences surrounding at-risk youth and IDU initiation. Although service providers and community organizations are often consulted during research studies involving at-risk youth, for example to assist with youth recruitment, rarely are their voices integrated into the research design. Given their considerable experience working with at-risk youth, key informants provided invaluable insights into the social structural context of IDU initiation. In my opinion, these insights could not be obtained through alternate methods to the same degree of discernment. They offered interdisciplinary, well-articulated perspectives from fields including, but not limited to, psychology, social work, counselling, public health, and nursing. Through engaging service providers in the early phases of the research study, I provided participants with an outlet to express their ideas and opinions, which allowed participants to develop a sense of ownership for the project.

My findings highlight the important interaction between individual-level motivations for IDU and the social structural influences that contextualize the youths' lived experiences. The study points to social influences functioning at the micro-level (e.g. direct introduction into IDU from friends and family members), at the meso-level (e.g. interactions between youth and their peer groups around IDU), as well as at the macro-level (e.g. the normalization of IDU in the street community). My findings highlight the importance of structural-level factors and how the unavailability of key resources, such as housing, contributes to the youths' vulnerability. I show that the risk and resiliency factors associated with IDU (e.g. lack of self-esteem, feelings of vulnerability, lack of future goals, addiction, and development of tolerance) are relatively constant across gender and are closely related to the social structural context of the youths' lives. Taken together, these results highlight the need for intervention strategies that seek to reduce

environmental risk factors, while at the same time promote resiliency among at-risk, marginalized youth.

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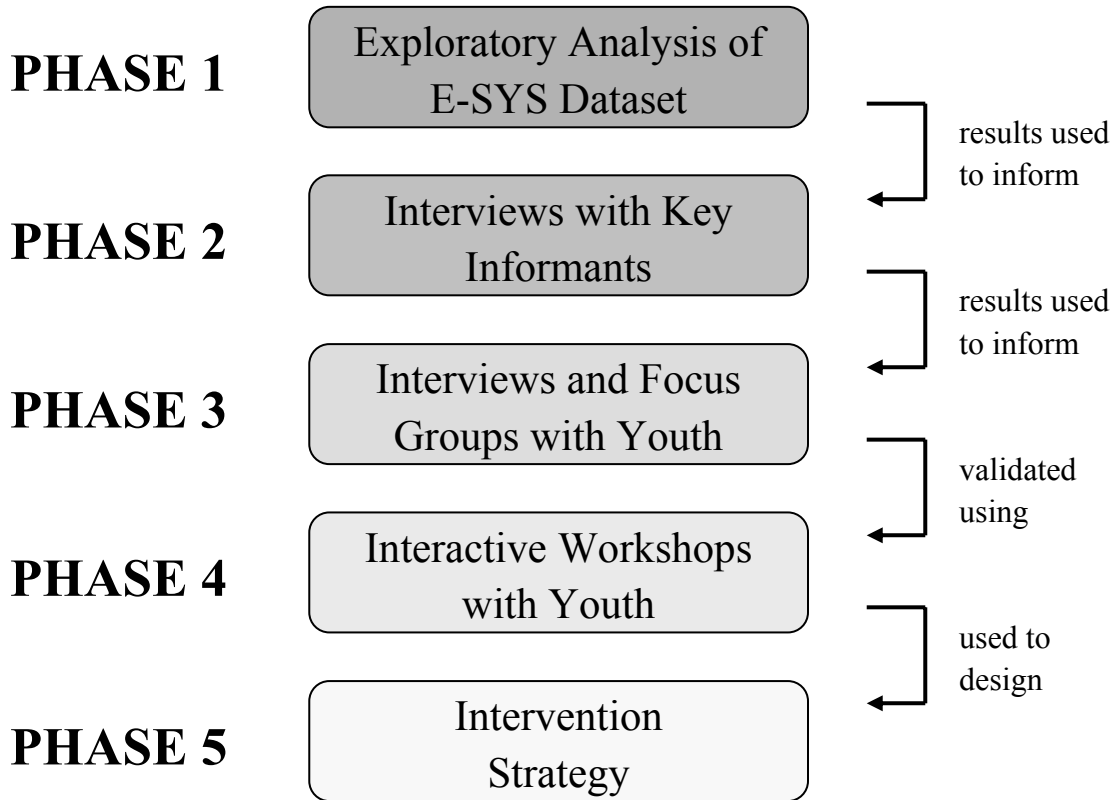
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APPENDIX I: Project Overview

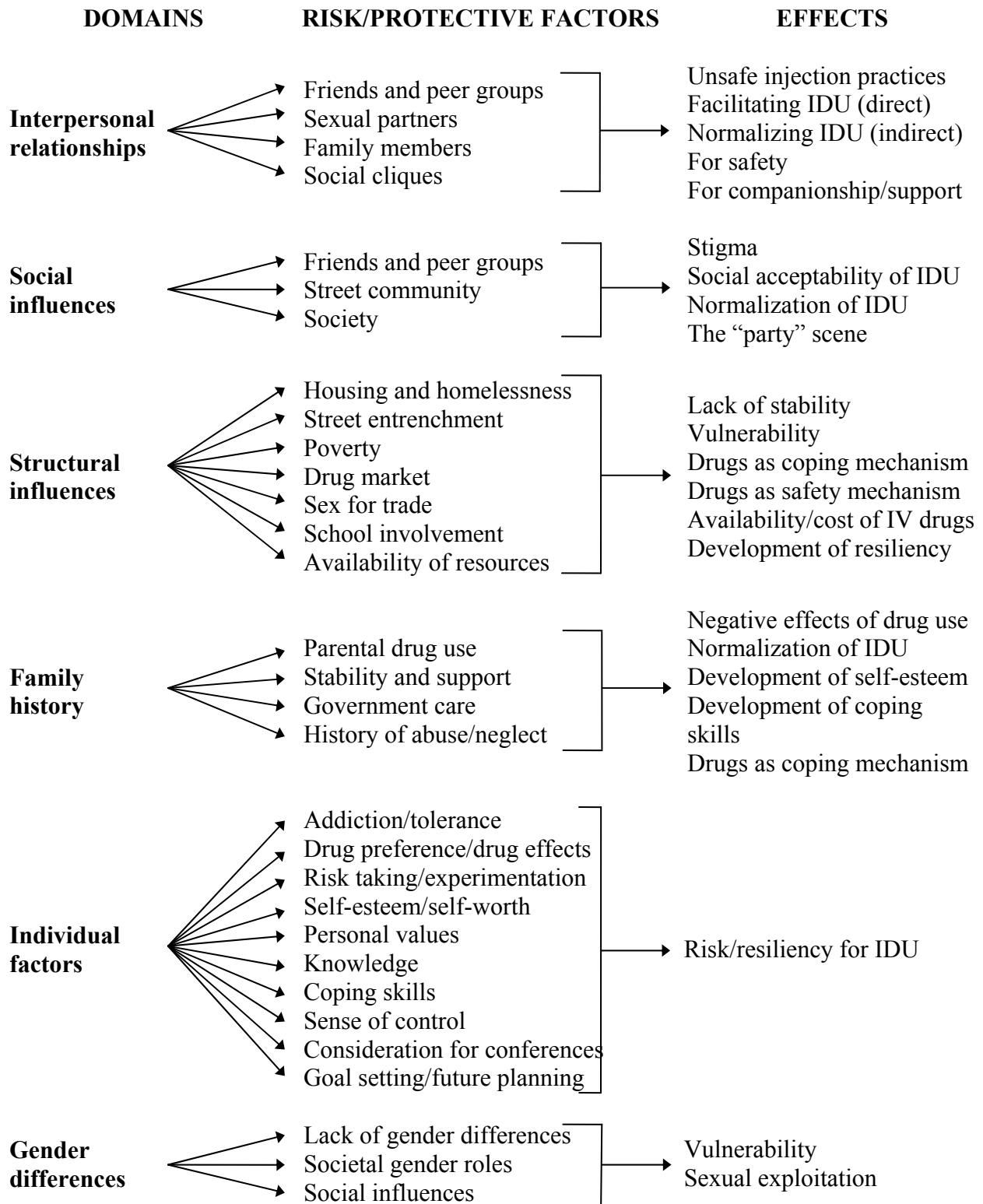


APPENDIX II: Electronic Databases Used for Literature Review

Index	Producer	Vendor	Date Range	Description
PubMed	U.S. National Library of Medicine	NCBI	1949 to present	An international index for biomedical literature
MEDLINE	U.S. National Library of Medicine	OvidSP	1950 to present	A database for journal articles in the life sciences with a concentration on biomedicine
Academic Search Complete	EBSCO Publishing	EBSCOHost	1975 to present	A multi-disciplinary full-text database for scholarly periodicals
BIOSIS Previews	Thomson Reuters	ISI Web of Knowledge	1969 to present	A life sciences database for literature in the life sciences and agricultural sciences
CINAHL	EBSCO Publishing	EBSCOHost	1982 to present	An index for nursing and allied health literature

Index	Producer	Vendor	Date Range	Description
EMBASE	Elsevier	OvidSP	1980 to present	An international database for biomedicine and pharmacology literature
PsychInfo	American Psychological Association (APA)	EBSCOHost	1887 to present	A database for literature in psychology and psychological aspects of related disciplines
Web of Science	Institute for Scientific Information (ISI)	ISI Web of Knowledge	1965 to present	A database for physical sciences, medical sciences, life sciences, applied sciences, agriculture, humanities and social sciences, law, and business literature

APPENDIX III: Domain Analysis of Risk and Resiliency Factors



APPENDIX IV: Ethics Certificate for Secondary Analysis of E-SYS Dataset



The University of British Columbia
Office of Research Services
Behavioural Research Ethics Board
Suite 102, 6190 Agronomy Road,
Vancouver, B.C. V6T 1Z3

CERTIFICATE OF APPROVAL - FULL BOARD

PRINCIPAL INVESTIGATOR: Jane Buxton	INSTITUTION / DEPARTMENT: UBC/Medicine, Faculty of/School of Population and Public Health/Public, Environmental & Occupational Health	UBC BREB NUMBER: H08-01012
INSTITUTION(S) WHERE RESEARCH WILL BE CARRIED OUT:		
Institution		Site
UBC BC Centre for Disease Control Other locations where the research will be conducted: N/A		Vancouver (excludes UBC Hospital) BC Centre for Disease Control
CO-INVESTIGATOR(S): Catharine Chambers		
SPONSORING AGENCIES: Michael Smith Foundation for Health Research		
PROJECT TITLE: Preventing the Transition of At-Risk Youth into Injection Drug Use		
REB MEETING DATE: July 10, 2008	CERTIFICATE EXPIRY DATE: July 10, 2009	
DOCUMENTS INCLUDED IN THIS APPROVAL:		DATE APPROVED: July 17, 2008
Document Name	Version	Date
Protocol: Preventing the Transition of At-Risk Youth into Injection Drug Use: Proposal for the Secondary Analysis of the Enhanced Surveillance of Canadian Street Youth Survey		
	1.2	May 7, 2008
Consent Forms: Enhanced STD Surveillance in Canadian Street Youth (Phase V) Consent Form		
	N/A	August 8, 2005
The application for ethical review and the document(s) listed above have been reviewed and the procedures were found to be acceptable on ethical grounds for research involving human subjects.		
<i>Approval is issued on behalf of the Behavioural Research Ethics Board and signed electronically by one of the following:</i>		

Dr. M. Judith Lynam, Chair
Dr. Ken Craig, Chair
Dr. Jim Rupert, Associate Chair
Dr. Laurie Ford, Associate Chair
Dr. Daniel Salhani, Associate Chair
Dr. Anita Ho, Associate Chair

APPENDIX V: Ethics Certificate for Key Informant Interviews



The University of British Columbia
Office of Research Services
Behavioural Research Ethics Board
 Suite 102, 6190 Agronomy Road,
 Vancouver, B.C. V6T 1Z3

CERTIFICATE OF APPROVAL - FULL BOARD

PRINCIPAL INVESTIGATOR: Jane Buxton	INSTITUTION / DEPARTMENT: UBC/Medicine, Faculty of/School of Population and Public Health/Public, Environmental & Occupational Health	UBC BREB NUMBER: H08-02060
INSTITUTION(S) WHERE RESEARCH WILL BE CARRIED OUT:		
Institution	Site	
UBC BC Centre for Disease Control Other locations where the research will be conducted: This project will be conducted with the collaboration of the following community partners: 1. Directions Youth Services Centre, Vancouver, BC 2. The McCreary Centre Society, Vancouver, BC 3. The Pacific Community Resource Society, Vancouver and Surrey, BC 4. The Street Nurse Program, STI/HIV Prevention and Control Division, BC Centre for Disease Control, Vancouver, BC 5. Youth Addiction and Prevention Services, Vancouver Coastal Health Authority, Vancouver, BC 6. YouthCO AIDS Society, Vancouver, BC These organizations will provide meeting space for the key informant interviews and focus group discussions.	Vancouver (excludes UBC Hospital) BC Centre for Disease Control	
CO-INVESTIGATOR(S): Elizabeth M. Saewyc Michael R. Botnick Darlene Taylor Catharine Chambers		
SPONSORING AGENCIES: British Columbia Medical Services Foundation Canadian Institutes of Health Research (CIHR) - "Protective factors associated with preventing injection drug use initiation among street youth at risk for HIV and hepatitis C infection in Vancouver" Michael Smith Foundation for Health Research		
PROJECT TITLE: Preventing the Transition of At-Risk Youth into Injection Drug Use		
REB MEETING DATE: December 11, 2008	CERTIFICATE EXPIRY DATE: December 11, 2009	
DOCUMENTS INCLUDED IN THIS APPROVAL:		DATE APPROVED: January 5, 2009
Document Name	Version	Date
Protocol: Research Proposal: Preventing the Transition of At-Risk Youth into Injection Drug Use		
	1.0	September 26, 2008
Consent Forms: Consent Form for Youth One-on-One Interviews		
	1.0	December 17, 2008
Consent Form for Parent Guardian of Focus Group Participants		
	1.0	November 28, 2008

Consent Form for Focus Group Participants	3.0	December 17, 2008
Consent Form for Key Informants	2.0	November 28, 2008
<u>Advertisements:</u>		
Recruitment Poster for Focus Groups	3.0	December 23, 2008
Recruitment Invitation for Focus Groups	3.0	December 23, 2008
Recruitment Invitation for Youth Collaborators	1.0	November 28, 2008
Recruitment Invitation for Key Informant Interviews	1.0	October 15, 2008
<u>Questionnaire, Questionnaire Cover Letter, Tests:</u>		
Questioning Guide for Focus Group Participants	3.0	December 23, 2008
Questioning Guide for Youth One-on-One Interview Participants	1.0	December 23, 2008
Demographic Information Form for Focus Group Participants	1.0	September 26, 2008
Questioning Guide for Key Informant Interviews	2.0	November 28, 2008

The application for ethical review and the document(s) listed above have been reviewed and the procedures were found to be acceptable on ethical grounds for research involving human subjects.

***Approval is issued on behalf of the Behavioural Research Ethics Board
and signed electronically by one of the following:***

Dr. M. Judith Lynam, Chair
Dr. Ken Craig, Chair
Dr. Jim Rupert, Associate Chair
Dr. Laurie Ford, Associate Chair
Dr. Daniel Salhani, Associate Chair
Dr. Anita Ho, Associate Chair