Poly-Substance Use Among Male and Female Street Youth in Toronto, Canada*

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ABSTRACT

Street-involved youth experience high rates of alcohol and other drug use, which put them at risk for other health-related problems including substance dependence, infectious diseases, drug overdose and victimization. There is limited research on gender differences in poly-substance use among street-involved youth. In this study of 150 street youth in Toronto, Canada, we explore the effects of gender, health and social factors on alcohol and other drug use. Multivariate regression analyses were used to create models predicting the number of substances (alcohol and illicit drugs) used in the last 30 days before interview. The mean number of substances used by the female and male street youth was 2.1 and 2.5, respectively, with up to seven used in total. Multivariate analyses showed that different factors were associated with

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poly-substance use for female street youth compared to male street youth. These results highlight gender-specific factors to be considered in developing preventive approaches and supportive services for homeless youth with substance use problems.

Keywords: Alcohol and drug use, homelessness, gender, health, youth

Introduction

Whether described as homeless, runaway, transient, street-involved, or street youth, youth lacking stable and safe housing accommodation, present a challenge to society (Karabanow, 2003; Krug et al., 2002). Street youth are defined as "young people up to age 24 who are absolutely, periodically, or temporarily without shelter" (Daly, 1996). Such youth are characterized by a number of accompanying vulnerabilities. Their backgrounds are often marked by unsettled home situations, histories of abandonment or maltreatment as children, poor school performance and parental substance abuse problems (Wade & Brannigan, 1998; Whitbeck et al., 2001). Once they leave the parental or foster home and become street-involved, street youth often experience poor health and nutrition, inadequate schooling, limited occupational opportunities, high rates of crime and victimization, mental health problems, and premature death (Baron, 2004; Gaetz, 2004; Hagan & McCarthy, 1997).

In every country, and particularly its urbanized areas where street youth congregate, recourse to a wide range of legal and illegal substances is a persistent feature of the homeless existence (Adlaf et al., 1996; Johnson et al., 2005). Among street youth, substances may be used for various reasons: to secure membership within a social group, for recreation and pleasure, or as a coping mechanism. Substance use may exacerbate other problems by increasing the risks of acquiring an infectious disease, addiction, sexual exploitation, drug overdose, criminal behaviour and violence related to the drug trade (Baron, 1999; Roy et al., 2004; Strike et al., 2001). The greater the number of substances consumed by the youth, the greater the risk for drug-related harms, including comorbidity with mental health problems (Johnston et al., 2005; Kipke et al, 1997).

Access to this population for research purposes generally involves street ethnographies or approaching clients of social service agencies serving street-involved youth. These youth present an overwhelming picture of disadvantage in relation to their housed and better-off counterparts. Since street youth of both sexes have few opportunities, privileges or resources to draw on, it might be assumed that gender inequalities are less pronounced than in the larger social context, but this has not been confirmed. Research on street youth in diverse locales finds a consistent 2:1 ratio of males to females. As a result, more studies have been conducted on male youth alone than those that also recruited females, and almost none have focused exclusively on female youth (Chen et al. 2004). Even research that includes both sexes rarely adopts a gendered perspective in comparing their various activities and outcomes. We propose to fill part of this gap by investigating how health and social factors may have different impacts on street youths' drug use patterns according to gender. A gender-based analysis helps to identify the factors that have the greatest impact on female street youth's poly-substance use and how these factors may be different than those affecting male street youth (Health Canada, 2002). Since many druginvolved street youth end up working in the sex trade and/or with long term homelessness (Erickson et al., 2000; Haley & Roy, 1999), it is important to identify gender-refined possibilities of early intervention to reduce their marginalization and their substance use problems.

First, we will review the pertinent literature, and describe our sample and methods. Then we will turn to the data analysis and findings, and conclude with the implications for further research on gender and substance use. We will also consider the contributions of this perspective to improving the conditions for both street-involved youth by providing gender sensitive services for substance abuse and related problems.

Literature Review

Substance Use Patterns among Street Youth and Related Health Risks

While the majority of adolescents in Canada and the United States experiment with alcohol and other drugs (Adlaf et al. 2005; Johnston et al., 2002), street-involved youth use more substances, earlier and more often, than their housed counterparts (Johnson et al., 2005; Smart et al., 1992). While alcohol and cannabis are generally widespread in this age group, rates of heavier and more frequent use of both are found among street youth, with levels of past year use exceeding 80% (Adlaf et al., 1996). In domiciled youth, use of other illicit substances such as cocaine, crack, opiates, and amphetamines rarely exceeds 5%, while these may more commonly reach levels of 30-40% among street youth (Adlaf et al., 1996; Johnson et al., 2005). The use of multiple substances, at greater frequency, by street youth, place them at greater risk for health problems such as substance dependence, infectious diseases, drug overdose and victimization.

Among street youth, prior research has indicated that levels of alcohol and drug use are quite similar by sex, though this varies somewhat by the location of the study. In Toronto, Adlaf et al. (1996) found that male street youth were more likely to use LSD, speed and inhalants than females, and Dematteo et al. (1999) also found that females were less likely to take drugs; another study reported that female street youth were more likely to use methadone and other prescription drugs than men (Youthlink, 2003). Roy et al. (2004) in Montreal found that males were more likely to inject drugs but females were more likely to die of a drug overdose. While trend data are difficult to collect, given the transient nature of this population, there is some evidence that poly-substance use is increasing among the homeless, with new street drugs adding to rather than replacing the types of drugs available from the illicit drug market (Haley and Roy, 1999; Smart et al. 1992; Youthlink, 2003).

Health problems related to substance use by street youth may be direct or indirect. Direct health effects include overdose resulting in hospitalization or death, and the transmission of infectious diseases such as HIV and Hepatitis C through shared injection equipment (Dematteo et al., 1999; Roy et al., 2004). Indirect health effects of drug use related to diseases may be through prostitution and sexual coercion that involves payment for drugs or drug intoxication to facilitate unwanted sexual activity (Dematteo et al., 1999; Strike et al., 2001). Since female street youth are more likely than male street youth to be involved in the sex trade and other sexual services in exchange for food and shelter, this is a clear indication of their increased vulnerability. There is some evidence that female drug injectors are at greater risk for infectious diseases due to such pressure through their social networks and partner relationships (Choi et al. 2006; Riehman et al. 2004; Bruneau et al. 2001; Spittal & Schechter 2001).

Another potential outcome for substance-using street youth is the development of drug dependencies and other substance use problems. These have been investigated by Adlaf et al (1996) in Canada and Kipke et al. (1997) and Johnson et al. (2005) in the United States, with similar findings, namely that high rates of multiple dependencies and problems were evident. For example, Johnston et al. (2005) reported that nearly two-thirds of homeless adolescents met lifetime criteria for at least one substance disorder, for alcohol or other drugs, and nearly all of these also displayed at least one other mental disorder (based on the DSM III-R diagnostic interview). In this study, males were significantly more likely than females to be diagnosed with a substance disorder. Adlaf et al (1996) asked street youth about alcohol and drug problems such as being hospitalized, being the object of others' concern, or feeling they had a problem, and no differences by sex were

found, except for drug-related arrests (an indirect effect) being more common for males. However, they noted that the number of drugs used was significantly higher for males.

Risk of violent victimization is a daily fact of life on the street. In one of the few gender informed studies, Gaetz (2004) found that 92% of the male and 77% of the female street youth reported at least one incident of being the victim of a crime in the past year, compared to national rates of about 40% for the 15-24 year old age group. Rates were similar for victimization in the crimes of assault, theft, vandalism of personal property and illegal entry of household property, but for robbery, male rates were twice as high (45% vs. 23%); females were more than twice as likely to report sexual assault (51% vs. 19%). While it is not possible to conclude that substance use may have rendered the youth more vulnerable to certain forms of victimization, Gaetz did find a clear relationship for those involved in drug dealing: 85% were victims of crime. Other studies have similarly suggested that youth involved in drug dealing may both be more violent towards others and be more likely to be victimized through robbery of their drugs or money (Baron, 1999)

Correlates of Substance Use Problems among Street Youth:

Research has shown that poor physical and mental health, history of maltreatment, housing instability, peer relationships, and involvement in criminal activity are related to substance use problems among at-risk and street-involved youth (Baron 1999; Bousman et al. 2005; Van Leeuwen et al. 2004; Erickson & Butters 2005; Harrison, Erickson, Korf et al. 2007; Adlaf, Zdanowicz & Smart 1996; McCaskill et al. 1998; Ennett et al. 1999). For example, in his study of 200 male street youth, Baron (1999) found that parental substance use history, peer influence, history of physical abuse, involvement in property crime and drug dealing, and depression were predictive of heavier use of different types of drugs. Bousman et al. (2005) found that peer influence and parental monitoring were predictive of substance use among a sample of homeless youth in San Diego. In their study of 217 street youth in Toronto, Adlaf et al. (1996) found that family history of alcohol and drug problems, frequency of drinking alcohol, and length of time on the street were predictive of increased number of drugs used. Ennett et al. (1999) found evidence of peer influence on drug use in their study. They found that homeless youth who had an alcohol or illicit drug user in their social network were more likely to use alcohol and drugs.

However, little is known about gender differences with respect to these correlates of substance use problems among this population. This study

explored the following hypotheses regarding potential gender differences in correlates of poly-substance use among homeless and under-housed street youth: 1) health factors such as poor physical and mental health, and victimization are associated with the use of a greater number of substances, referred to as increased poly-substance use, in the last 30 days; 2) social factors such as involvement with the child welfare system, living with partners or friends, involvement in the drug trade, and conflict with the criminal justice system are associated with increased poly-substance use in the last 30 days; and that 3) these relationships differ by gender.

Methods

Data Collection:

This study presents data from the first wave of the Youth Pathways Project (YPP), conducted by a transdisciplinary team of researchers from the Centre for Addiction and Mental Health and the University of Toronto. The purpose of the study was to examine and compare pathways to independent living or continued housing instability among high-risk young women and men over time. The YPP study also sought to explore the relationship between physical and mental health, drug use, victimization, criminal activity, pregnancy and service utilization on housing status among vulnerable youth. The study incorporated a longitudinal design in which youth, aged 16-20, accessing services for street-involved youth in Toronto were recruited to participate in four interviews over the course of 12 months. After screening, youth were interviewed in private, in a one-to-one interview, and paid \$20 for their participation. Data collection took place from January 2005 to June 2006. During this time, a total of 150 respondents were recruited: 75 female street-involved youth; 75 male street-involved youth. Given our interest in gendered correlates of poly-substance use among homeless and under-housed street youth, this paper presents data from the first wave of data collected with a complete substance use history. The study proposal was reviewed and received ethical approval from the Research Ethics Boards of the University of Toronto and the Centre for Addiction and Mental Health.

Measures:

Outcome Measure – Poly-Substance Use:

The poly-substance use variable was a continuous variable comprised of a count of the number of substances, including alcohol and illicit drugs (but

excluding tobacco) used by the participants in the last 30 days before interview. This variable was constructed by first dichotomizing items assessing the frequency of use in the last 30 days of alcohol, marijuana, hallucinogens, amphetamines, cocaine, crack, and heroin. These dichotomous variables were then summed to create a count of the number of substances used by the participants over the course of a month. The response range for this variable was from 0-7.

Predictors

Health Factors:

Physical health was assessed using a measure of self-rated health whereby participants were asked to rate their health as "excellent, very good, good, fair or poor". To explore the influence of perceptions of poor physical health on poly-substance use, a dummy variable was created to represent fair/poor self-rated physical health and was incorporated into the data analyses. The measure of mental health included in the analyses was captured through a ves/no question on whether the participant had ever received a formal mental health diagnosis. History of self-harm was measured as an assessment of mental health status, and was captured with a yes/no question concerning whether the participant had ever intentionally hurt him/herself without intending to kill him/herself. Victimization was explored through a series of questions regarding whether someone had hurt or assaulted participants with a knife, gun or other object in the last 12 months. These variables assessing experiences of victimization/ physical assault were summed and dichotomized to represent whether participants had been physically assaulted at least once (1), or had never been victimized (0) in the last 12 months.

Social Factors:

Dichotomous measures concerning whether the participant was *living with friends* or *living with a partner* were considered as measures of potential peer influence on substance use through social networks. These are proxy measures as data regarding whether the partners or friends with which participants were living used substances were not collected in this study. Involvement in the drug trade was measured with a dichotomous variable on *drug dealing*. This variable was derived from a question regarding whether the participant had ever sold drugs in the last 12 months. *Involvement with the criminal justice system* was assessed with a categorical variable reflecting the number of times participants had ever been arrested.

Two dummy variables were then created to indicate whether participants had been arrested once (0 vs. 1) and whether they had been arrested more than once (0 vs. 1). *History of involvement with the child welfare system* was assessed with a question regarding whether participants had ever been in the care of the Children's Aid Society. This variable could also be considered as a proxy for child maltreatment as the Children's Aid Society often becomes involved in the lives of families under circumstances of child abuse or neglect (Children's Aid Society of Toronto 2009).

Data Analysis:

After descriptive characteristics were calculated for the total sample, bivariate analyses were conducted involving chi-square tests and t-tests to identify differences between the female and male street youth samples with respect to socio-demographic, social and health factors. To address the study hypotheses, a linear regression model was built exploring the effects of gender, physical and mental health status, involvement with the child welfare system, living with partners and friends, victimization, involvement in the drug trade, and conflict with the criminal justice system on polysubstance use. Interaction terms exploring the interactive effects of gender and the predictor variables that significantly differed by gender in the bivariate analyses were entered into this model. A set of gender-specific regressions was conducted to explore the specific effects of gender on polysubstance use, while adjusting for age and educational attainment. Multicollinearity between all independent variables was checked, and the history of self-harm variable was removed from the gender-specific regression models due to potential multicollinearity with the mental health diagnosis variable. All data analyses were conducted using SPSS version 16.

Results

Sample Characteristics:

As shown in Table 1, the mean age among the total sample was 19 years and only 16% of the sample had completed high school. The mean number of substances used (including alcohol and illicit drugs) in the last 30 days before interview was 2.3, with an average of 2.1 for females and 2.5 for males. Overall, in the last 30 days, 71% had used alcohol, 73% marijuana, 34 % hallucinogens (mainly ecstasy), 16% amphetamines, 24% cocaine, 11% crack and 5% heroin. Significantly more males than females reported using alcohol and marijuana in the last 30 days (80% vs. 63%). Furthermore, significantly more males than females were involved in drug dealing in the last 12 months (51% vs. 35%).

With respect to housing, participants stayed in various locations within the last 7 days, with significantly more males than females having stayed on the street or stayed in a shelter. Thirty-five percent reported currently staying with friends and 15% reported currently staying with a partner. Significantly more females reported currently staying with a partner or friends than did male participants. Experience with the Children's Aid Society (CAS) was evenly distributed among the sample with 43% reporting having been apprehended and in the care of a child welfare agency at lease once in their lifetime. Eighteen percent of the total sample had been arrested at least once, and almost half of the sample had been arrested more than once. Number of arrests differed significantly between females and males, with more females having been arrested once, and more males having been arrested more than once.

With respect to health-related factors, 33% of the sample rated their overall health as fair or poor, and 42% percent had received a mental health problem diagnosis in their lifetime. Thirty-nine percent of the sample reported having been physically assaulted in the last 12 months, and 45% reported ever having engaged in self-harming behaviour, such as cutting or hurting oneself without the intent to kill oneself. Males reported higher rates of physical assault than females (51% vs. 27%), while females reported higher rates of self harm than male participants (56% vs. 34%).

Multivariate Results:

Results from the linear regression analyses are presented in Table 2. Model 1 illustrates results from the linear regression on the total sample. These results show that self-rated fair or poor health was associated with the use of more substances, or increased poly-substance use, in the last 30 days. Furthermore, the interaction terms of gender x lives with friends, gender x more than one arrest, and gender x drug dealing were significantly related to poly-substance use in the last 30 days, thus highlighting potential gender differences.

The second model reflects a linear regression analysis among the female sample only. The results indicate that for females, living with friends was strongly associated with the use of more substances in the last 30 days. Moreover, a lifetime mental health diagnosis and having sold drugs in the last 12 months were significantly associated with poly-substance use among the female sample. The third model represents regression results among the male sample. For the male street youth, fair or poor self-rated health and having sold drugs in the last 12 months were moderately associated with the use of more substances in the last 30 days.

Discussion and Conclusion

This study examined gender differences in patterns and correlates of polysubstance use among a sample of street youth. While we found similarities in the number of drugs used in the last 30 days between males and females, we found significant gender differences in alcohol and marijuana use, with more males using these substances than females. However, similar rates of use of other drugs, such as hallucinogens, amphetamines, cocaine, crack and heroin, were found between the female and male street youth. With the exception of the findings regarding alcohol and marijuana, these findings are consistent with previous research showing similar drug use patterns among female and male street youth (Adlaf et al. 1996). Nevertheless, more needs to be known about the ways in which the gendered social organization of street life (Gaetz, 2004) may influence street youth's choice of available substances, with different implications for social response.

Our results advance our understanding of the gendered correlates of polysubstance use among street youth. Among the female street youth, living with friends, drug dealing and ever having received a mental health problem diagnosis were predictive of the use of more substances. Among the male street youth, fair to poor self-rated health and involvement in the drug trade were associated with more substances used in the last 30 days. Drug dealing in the last 12 months was highly predictive of increased polysubstance use among females. While drug dealing was more prevalent among males than females among the sample, these findings suggest greater susceptibility of females to be involved both in more problematic substance use and in the drug trade. For the female street youth, engaging in drug dealing as a means to provide funds and drugs for their own use may be one of their few sources of ready income compared to the males.

The findings regarding mental health among females and physical health among males as associated with increased poly-substance use are possibly reflective of coping behaviours in response to poor mental and physical health profiles that characterize involvement in street life. The finding of previous mental health problem diagnosis among females may be suggestive of greater self-medication for mental health problems among females than males, despite similar rates of mental health diagnoses by gender. This finding may also be indicative of a disjuncture between mental health help-seeking and substance use help-seeking behaviour among female street youth. While those female street youth with a mental health diagnosis had at some point sought help from a mental health professional in order to have received a diagnosis, mental health problems may contribute to self-medication and impede motivation to seek treatment for substance use problems (Ballon, Kirst & Smith 2004). This finding could also be reflective of a difficulty for street-involved youth who have concurrent mental health and substance use problems to navigate the treatment system, and thus a need for more integrated treatment approaches for this population (Slesnick & Kang 2008). More research on the relationship between mental health and substance use among street youth, and their related treatment needs is greatly needed.

The findings with respect to living with friends may be supportive of the role of peer influence as explained by differential association theory (Sutherland & Cressey 1978). If the friends with whom the female street youth were living provided favourable definitions of the use of multiple substances, then they may be at heightened risk of engaging in polysubstance use themselves. Nevertheless, there is mixed evidence concerning gender differences in susceptibility to peer influence for substance use among youth in the general population (Erickson, Crosnoe & Dornbusch 2000; Nofzinger & Lee 2006; Flannery et al. 1994), and little is known about such differences among street youth. These findings may reflect that susceptibility to peer influence to substance use for female street youth may be dependent on the strength of the peer relationships. Unfortunately, we do not have data concerning the strength and closeness of the street youths' peer relationships nor whether these peers were using substances. This stands as a limitation to the current study. Social network relationships are an important determinant of health (Kawachi & Kennedy 1997; Berkman & Syme 1979). More research that examines the influence of the social networks of female and male street youth, and other marginalized populations, is needed in order to better understand how peer networks may differentially affect the risky and protective health behaviours of these populations (Kirst, in press).

Another limitation to this study relates to the cross-sectional nature of these analyses, which limits our ability to infer causality of the relationships observed. Poly-substance use could be predictive of many of the independent variables included in the analyses, such as housing status, mental health and physical health status. More research incorporating longitudinal design is needed in order to clarify the order of these relationships. This study contributes to an extensive literature on the antecedents and consequences of street-involvement among youth. Hagan & McCarthy's (1997) important study on youth crime and homelessness in Toronto and Vancouver, Canada, emphasized the need to explore the characteristics and environments that contribute to street-involvement among youth; however, they did not extensively explore the role of gender differences in pathways to, and experiences on, the street. The current study also highlights the need to examine background and foreground factors related to youth substance use and marginalization in general, but also the interrelationships between the two. While previous research has shown relatively equal amounts of risk-taking behaviour between male and female street youth, this study has shown that different factors may contribute to substance use and related-risk behaviour. A greater understanding of the different predictors of polysubstance use among street youth is necessary in order to inform preventive and treatment approaches that meet the gender-specific needs of these vulnerable youth. It may also be crucial to engage youth directly in interventions aimed at reducing the possible harms of their substance use (Paterson and Panessa, 2008). Many adult programs for substance use problems have recognized the importance of different strategies for men and women (Anderson, 2008) but these have not yet been similarly extended to this extremely vulnerable population of homeless and under-housed youth whose lives focus on the street.

Characteristic	Total Sample (N=150)	Female Sample (N=75)	Male Sample (N=75)	
Sociodemographics				
Age: Mean (SD)	19.21 (1.33)	19 (1.35)	19.43 (1.28)	
Completed High School	24 (16%)	10 (13%)	14 (19%)	
Housing Type in Last Seven Days				
In a rented apartment	36 (24%)	18 (24%)	18 (24%)	
At parent's or other relative's	25 (17%)	12 (16%)	13 (17%)	
At partner or friends' place*	38 (25%)	24 (32%)	14 (19%)	
On the street+	19 (13%)	6 (8%)	13 (17%)	
In a shelter+	80 (53%)	35 (47%)	45 (60%)	
In an internet café	11 (8%)	5 (7%)	6 (8%)	
Currently Lives with a Partner***	23 (15%)	20 (27%)	3 (4%)	
Currently Lives with Friends***	52 (35%)	37 (49%)	15 (20%)	
CAS History	64 (43%)	32 (43%)	32 (43%)	
Number of Arrests				
One time**	27 (18%)	19 (25%)	8 (11%)	
More than	74 (49%)	24 (32%)	50 (67%)	
once***				
Health				
Fair or Poor Self-Rated Health	49 (33%)	28 (37%)	21 (28%)	
Ever Received a Mental Health Diagnosis	63 (42%)	32 (44%)	31 (41%)	
History of Self Harm**	65 (45%)	40 (56%)	25 (34%)	
Physical Assault in Last 12 Months**	58 (39%)	20 (27%)	38 (51%)	
Substance Use in last 30 Days				
Alcohol*	106 (71%)	47 (63%)	59 (80%)	
Marijuana*	109 (73%)	48 (64%)	61 (82%)	
Hallucinogens	50 (34%)	25 (34%	25 (34%)	
Amphetamines	24 (16%)	10 (13%)	14 (19%)	
Cocaine	35 (24%)	18 (24%)	17 (23%)	
Crack	16 (11%)	6 (8%)	10 (14%)	
Heroin	7 (5%)	4 (5%)	3 (4%)	
Number of Drugs Used: Mean (SD)	2.31 (1.56)	2.11 (1.55)	2.52 (1.56)	
Drug Dealing in Last 12 Months*	64 (43%)	26 (35%)	38 (51%)	

Table 1. Sample Characteristics, Stratified by Gender

+ p<.10; *p<.05; **p<.01;***p<.001

	Model 1 Total Sample (N=150)		Model 2 Female Sample (N=75)		Model 3	
				1 , ,		nple (N=75)
Characteristic	В	95% CI	В	95% CI	В	95% CI
Gender	-0.74	-1.67, 0.20	-	-	-	-
Lives with Partner	-1.43	-3.50, 0.64	-0.12	-0.95, 0.72	0.52	-1.31, 2.34
Lives with Friends	-0.68	-1.63, 0.28	1.15**	0.37, 1.92	-0.71	-1.78, 0.35
Fair or Poor Self-Rated Health	0.48+	-0.05, 1.01	0.23	-0.48, 0.94	0.70+	-0.12, 1.50
Ever Received a Mental Health Diagnosis	0.39	-0.12, 0.91	0.72*	0.02, 1.43	0.23	-0.52, 1.00
CAS History	-0.26	-0.71, 0.24	-0.32	-1.00, 0.36	0.09	-0.67, 0.87
Drug Dealing	0.49	-0.24, 1.22	1.47***	0.80, 2.14	0.74+	-0.11, 1.59
Arrested More than Once	0.68	-0.12, 1.48	-0.36	-1.06, 0.33	0.68	-0.28, 1.65
Physical Assault in Last 12 Months	-0.26	-1.01, 0.48	-0.16	-0.94, 0.62	-0.08	-0.90, 0.75
History of Self Harm	0.12	-0.61, 0.84	-	-	-	-
Gender x Self Harm	0.24	-0.81, 1.29	-	-	-	-
Gender x Lives with Friends	1.83**	0.58, 3.07	-	-	-	-
Gender x Lives with a Partner	-0.46	-3.00, 2.05	-	-	-	-
Gender x Arrested More than Once	-0.93+	-2.01, 0.15	-	-	-	-
Gender x Drug Dealing	0.91+	-0.12, 2.00	-	-	-	-
Gender x Physical Assault in Last 12 Months	0.03	-1.08, 1.24				
R ²	.309		.403		.221	

Table 2. Adjusted Linear Regressions^a: Predictors of Poly-Substance Use inLast 30 Days among the Total Sample, and Stratified by Gender

+ p<.10; *p<.05; **p<.01;***p<.001

^aAll regression models adjusted for participant age (continuous) and educational attainment (high school complete vs. high school incomplete).

REFERENCES

Adlaf, E.M., Begin, P., & Sawka, E. (Eds.) (2005). *Canadian Addiction Survey (CAS): A National Survey of Canadian's Use of Alcohol and Other Drugs*. Ottawa: Canadian Centre on Substance Abuse.

Adlaf, E.M. & Zdanowicz, Y.M. (1999). A cluster-analytic study of substance problems and mental health among street youths. *The American Journal of Drug and Alcohol Abuse*, 25(4), 639-660.

Adlaf, E.M., Zdanowicz, Y.M., & Smart, R.G. (1996). Alcohol and other drug use among street-involved youth. *Addiction Research & Theory*, 4(1), 11-24.

Anderson, T. (Ed.). (2008). *Neither Villain nor Victim: Empowerment and Agency among Women Substance Abusers.* New Brunswick, NJ, Rutgers University Press.

Ballon, B., Kirst, M.J. & Smith, P. (2004). Youth help seeking expectancies and their relation to help seeking behaviors for substance use problems. *Addiction Research & Theory*, 12(3), 241-260.

Baron, S.W. (1999). Street youths and substance use: The role of background, street lifestyle, and economic factors. *Youth & Society*, 31(1), 3-26.

Baron, S. W. (2004). General strain, street youth and crime: A test of Agnew's revised theory. *Criminology*, 42(2), 457-483.

Berkman, L. & Syme, L. (1979). Social networks, host resistance and mortality: a nineyear follow-up study of Alameda County residents. *American Journal of Epidemiology* 1979;109:186-204.

Bousman, C.A., Blumberg, E.J., Shillington, A.M., Hovell, M.F., Ji, M., Lehman, S. & Clapp, J. (2005). Predictors of substance use among homeless youth in San Diego. *Addictive Behaviors*, 30(6), 1100-1110.

Bruneau, J., Lamothe, F., Soto, J., Lachance, N., Vincelette, J., Vassal, A. & Franco, E. (2001). Sex-specific determinants of HIV infection among injection drug users in Montreal. *Canadian Medical Association Journal*, 164(6), 767-773.

Chen, X., Tyler, K.A., Whitbeck, L.B., & Hoyt, D.R. (2004). Early sexual abuse, street adversity, and drug use among female homeless and runaway adolescents in the midwest. Journal of Drug Issues, 34 (1), 1-21.

Children's Aid Society of Toronto (2009). Retrieved February 26th 2009, from http://www.torontocas.ca/

Choi, S.Y.P., Cheung, Y.W., & Chen, K. (2006). Gender and HIV risk behavior among intravenous drug users in Sichuan Province, China. *Social Science & Medicine*, 62, 1672-1684.

Daly, G. (1996). Homeless: Policies, Strategies and Lives on the Street. New York: Routledge.

Dematteo, D., Major, C., Block, B., Coates, R., Fearon, M., Goldberg, E., King, S, Millson, M., O'Shaugnessy, M., & Read, S. (1999). Toronto street youth and HIV/AIDS: Prevalence, demographics, and risks. *Journal of Adolescent Health*, 25, 358-366.

Ennett, S.T., Bailey, S.L., & Federman, E. (1999). Social network characteristics associated with risky behaviors among runaway and homeless youth. *Journal of Health and Social Behavior*, 40(1), 63-78.

Erickson, K. G., Crosnoe, R. & Dornbusch, R. (2000). A social process model of adolescent deviance: Combining social control and differential association perspectives. *Journal of Youth and Adolescence*, 29(4), 395-425.

Erickson, P.G., Butters, J., McGillicuddy, P., & Hallgren, A. (2000). Crack and prostitution: gender, myths and experiences. *Journal of Drug Issues*, 30(4), 767-788.

Erickson, P.G., & Butters, J.E. (2005). How does the Canadian juvenile justice system respond to detained youth with substance use associated-problems? Gaps, challenges and emerging issues. *Substance Use & Misuse*, 40(7), 953-973.

Flannery, D.J., Vazsonyi, A.T., Torquati, J., & Fridrich, A. (1994). Ethnic and gender differences in risk for early onset substance use. *Journal of Youth and Adolescence*, 23(2), 195-213.

Gaetz, S. (2004). Safe streets for whom? Homeless youth, social exclusion, and criminal victimization. *Canadian Journal of Criminology and Criminal Justice*, 46(July), 423-455.

Haley, N. & Roy, E. (1999). Canadian street youth: Who are they? What are their needs? *Paediatric and Child Health*, 4(6), 381-383.

Harrison, L. Erickson, P.G., Korf, D., Brochu, S. & Benschop, A. (2007). How much for a dime bag? An exploration of youth drug markets. *Drug and Alcohol Dependence*, 90S, S27-S39.

Health Canada (2002). Health Canada's Gender-based Analysis Policy. http://www.hc-sc.gc.ca/english/women/gba_policy.htm

Johnson, K.D., Whitbeck, L.B. & Hoyt, D.R. (2005). Substance abuse disorders among homeless and runaway adolescents. *Journal of Drug Issues*, 35(4), 799-816.

Johnston, L.D., O'Malley, P.M., & Bachman, J.G. (2002). *Monitoring the Future-National Results on Adolescent Drug Use: Overview of Key Findings, 2001.* Bethesda, MD: National Institute on Drug Abuse.

Karabanow, J. (2003). Creating a culture of hope: Lessons from street kid agencies in Canada and Guatemala. *International Journal of Social Work*, 46(3), 369-386.

Kawachi, I. & Kennedy, B.P. (1997). Socioeconomic determinants of health: Health and social cohesion: why care about income inequality? *British Medical Journal*, 314, 1037.

Kipke, M.D., Montgomery, S.B., Simon, T.R., & Iverson, E.F. (1997). Substance abuse disorders among runaway and homeless youth. *Substance Use & Misuse*, 32 (7-8), 969-986.

Kirst, M.J. (in press). Social capital and beyond: A qualitative analysis of social contextual and structural influences on drug use-related health behaviours. *Journal of Drug Issues*.

Krug, E., Mercy, J., Dahlberg, L. & Zwi, A. (2002). The world report on violence and health. *The lancet*, 360, 1083-1088.

McCaskill, P.A., Toro, P.A., & Wolfe, S.M. (1998). Homeless and matched housed adolescents: A comparative study of psychopathology. *Journal of Clinical Child & Adolescent Psychology*, 27(3), 306-319.

Nofzinger, S. & Lee, H.R. (2006). Differential associations and daily smoking of adolescents: The importance of same-sex models. *Youth & Society*, 37(4), 453-478.

O'Grady, B. & Gaetz, S. (2004). Homelessness, gender and subsistence: The case of Toronto street youth. *Journal of Youth Studies*, 7(4), 397-416.

Paterson, B. & Panessa, C. (2008). Engagement as an ethical imperative in harm reduction involving at-risk youth. *International Journal of Drug Policy*, 19(1), 24-32.

Riehman, K.S., Kral, A.H., Anderson, R., Flynn, N. & Bluthenthal, R.N. (2004). Sexual relationships, secondary syringe exchange, and gender differences in HIV risk among drug injectors. *Journal of Urban Health*, 81(2), 249-259.

Roy, E., Haley, N., Leclerc, P., Sochanski, B. Boudreau, J-F., & Boivin, J-F. (2004). Mortality in a cohort of street youth in Montreal. *Journal of the American Medical Association*, 292(5), 569-574.

Slesnick, N. & Kang, M.J. (2008). The impact of an integrated treatment on HIV risk behavior among homeless youth: A randomized control trial. *Journal of Behavioral Medicine*, 31(1), 45-59.

Smart, RG., Adlaf, E., Walsh, G., & Zdanowicz, Y. (1992). *Drifting and Doing: Changes in Drug Use among Toronto Street Youth, 1990-1992.* Research Report. Toronto: Addiction Research Foundation.

Spittal, P.M. & Schechter, M.T. (2001). Injection drug use and despair through the lens of gender. *Canadian Medical Association Journal*, 164(6), 802-3.

Strike, C., Myers, T., Calzavara, L., & Haubrich, D. (2001). Sexual coercion among young street-involved adults: Perpetrators' and victims' perspectives. *Violence and Victims*, 16(5), 537-551.

Sutherland, E. & Cressey, D. (1978). Criminology. Philadelphia: Lippincott.

Van Leeuwen, J.M., Hopfer, C., Hooks, S., White, R., Petersen, J. & Pirkopf, J. (2004). A snapshot of substance abuse among homeless and runaway youth in Denver, Colorado. *Journal of Community Health*, 29(3), 217-229.

Wade, T. & Brannigan, A. (1998). The genesis of adolescent risk-taking: Pathways through family, school and peers. *Canadian Journal of Sociology*, 23(1), 1-19.

Whitbeck, L.B., Hoyt, D.R., Yoder, K.A., Cauce, A.M, & Paradise, M. (2001). Deviant behavior and victimization among homeless and runaway adolescents. *Journal of Interpersonal Violence*, 16, 1175-1204.

Youthlink (2003). *Inner City Hepatitis C Support Program:* 12 *month interim report.* Toronto: Children's Aid Society of Toronto.