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Childhood Trauma and Injection Drug Use among High-Risk Youth

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Abstract

We examined the association between five types of childhood maltreatment and initiation of injection drug use among a cohort of high-risk youth in Vancouver, Canada. Among 560 participants, 230 (41.1%) had injected drugs previously. In multivariate logistic analyses, only physical abuse (adjusted odds ratio = 1.91, 95% confidence interval: 1.29 – 2.83) was associated with injection drug use. These findings highlight the impact of childhood physical abuse on subsequent initiation into injection drug use among high-risk youth.

Keywords

youth; injection drug use; initiation; trauma

Introduction

Childhood maltreatment, including sexual and physical abuse, can lead to various adverse health outcomes [1,2]. It has been suggested that the negative impacts of early trauma can reduce ability to cope in later life, rendering those exposed to abuse in childhood more prone to engage in various high-risk behaviors, including sex work and injection drug use [3,4].

Although recent work has linked sexual abuse to the initiation of injection drug use [4,5], we know of no studies that have sought to assess the differential impact of distinct forms of childhood maltreatment on initiation of injection drug use among high-risk youth. The present study was therefore conducted to assess the relationship between five forms of childhood maltreatment and injection drug use initiation among high-risk youth.

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Methods

The At-Risk Youth Study (ARYS) is a prospective cohort study of street-involved youth in Vancouver, Canada that has been described previously [6]. We define street youth as youth between the ages of 14 and 26 who are absolutely, periodically, or temporarily without access to safe and table shelter, or youth who are heavily engaged in the street economy. Other eligibility for study enrollment included recent use of illicit drugs other than marijuana. Study participants completed a lengthy interviewer-administered questionnaire. All individuals who were recruited between September 2005 and November 2007 were included in this analysis. ARYS has been approved by the University of British Columbia's Research Ethics Board.

Participants were asked to complete the Childhood Trauma Questionnaire (CTQ), which uses twenty-five items to assess five forms of childhood maltreatment, including physical, sexual, and emotional abuse and physical and emotional neglect [7]. Using a five-point scale, participants provide ratings for statements such as 'When I was growing up I had to wear dirty clothes' and 'I got hit or beaten so badly that it was noticed by someone like a teacher, neighbor, or doctor' (all questions refer to events occurring during childhood). Each scale yields a total score for that type of maltreatment. The CTQ has been shown to be valid and reliable when applied with substance users and adolescents [7].

Other self-reported variables of interest included: age; gender, Aboriginal ethnicity, level of education (< high school vs. $\geq$ high school), exposure to foster care or an orphanage, and having a parent who used illicit drugs.

In univariate analyses, those who did and did not report a history of injection drug use were compared using Pearson's Chi-square test or Wilcoxon rank test, as appropriate. To assess for an independent association between different forms of childhood maltreatment and initiation into injection drug use, a multivariate logistic regression model was fitted using an *a priori* defined approach whereby variables that attained *p* values < 0.05 in univariate analyses were considered.

Results

Of 560 participants, 179 (34%) were females. The median age was 21.9 years (interquartile range = 19.8 – 23.9). In total, 230 (41%) had ever injected drugs. Prevalence of childhood maltreatment was as follows: 200 (35.7%) reported emotional neglect; 278 (49.6%) reported emotional abuse; 256 (45.7%) reported physical neglect; 228 (40.7%) reported physical abuse; and 150 (26.8%) reported sexual abuse.

Factors associated with injection drug use in univariate analyses included older age, having a parent who used illicit drugs, physical abuse, and sexual abuse (all *p* < 0.05; Table 1). Factors found to be independently associated with initiating injection drug use in multivariate analyses included: older age (adjusted odds ratio [AOR] = 1.24, 95% confidence interval [CI]: 1.16 – 1.33); having a parent who used drugs (AOR = 0.63, 95% CI: 0.43 – 0.92); and physical abuse (AOR = 1.92, 95% CI: 1.30 – 2.83) (Table 2). In a subanalysis, we ran a second model that included gender. Our model remained virtually unchanged and gender was not associated with initiating injection drug use (data not shown).

Discussion

In our study involving high-risk youth, physical abuse was independently associated with having initiated injection drug use after adjustment for various socio-demographic and psychosocial factors, and four other types of childhood maltreatment. It has been well established that childhood maltreatment, including physical abuse, can result in a number of

emotional and psychological consequences, such as depression, anxiety, suicidality, low self-esteem, and personality disorders [8]. These psychological effects may combine to create a vicious circle for many youth, wherein coping skills and a resources are not adequate for the high-risk situations in which they find themselves, thereby increasing their vulnerability to engage activities such as injection drug use.

Sexual abuse was not associated with injection drug use initiation. These findings differ from a recent study reporting an association between sexual abuse and injection drug use initiation [4,5]. However, this study did not include a measure of physical abuse, and it is notable that physical and sexual abuse were strongly associated in our study ($r = 0.28, p < 0.001$). It may be, therefore, that physical abuse is already accounting for a portion of the variance in the outcome that is also shared by sexual abuse. Regardless, our study and the aforementioned study are cross-sectional in nature, and therefore future studies should seek to evaluate prospectively the unique contributions of each form of childhood maltreatment on injection drug use initiation. Our finding that having a parent who used illicit drugs was negatively associated with having initiated injection drug use stands in contrast to earlier studies reporting elevated risks among individuals who reported having a parent who used drugs [9]. It may be that observing the consequences of injection drug use by one's parents serves to foster negative outcomes expectancies associated with injecting drugs, and hence reduces the likelihood that injection drug use is initiated later in life.

Collectively, our findings point to the need for programs that seek to reduce the incidence of childhood maltreatment, as well as the adverse impacts of childhood maltreatment on future high-risk behavior. The available evidence suggests that home-visit programs and in-hospital programs have shown promise in terms of preventing abuse, while cognitive behavioral therapy and enhanced foster care have found to be effective in addressing various sequelae associated with child maltreatment [10].

Our study has several limitations. First, ARYS participants were not randomly selected. Second, our study was restricted to drug-using youth and therefore our findings may not generalize to youth who have not used illicit substances. Third, we relied on self-report measures, and therefore some response biases may have affected our results. In particular, we may have underestimated some sensitive experiences, such as childhood maltreatment. However, we know of no reason why childhood maltreatment would be differentially reported by youth who had and had not injected drugs. Further, we feel that our use of a well-validated measure of childhood trauma is an important strength of our study [7].

In summary, we found that initiation of injection drug use among high-risk youth was associated with childhood physical abuse. Importantly, childhood sexual abuse did not remain associated with injection drug use initiation in multivariate analyses. These findings point to the need for continued efforts to reduce the incidence of childhood maltreatment as a means of preventing the initiation into injection use and other adverse health outcomes.

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References

1. Molnar BE, Buka SL, Kessler RC. Child sexual abuse and subsequent psychopathology: results from the National Comorbidity Survey. *American Journal of Public Health* 2001 May;91(5):753–760. [PubMed: 11344883]
2. Parillo KM, Freeman RC, Collier K, et al. Association between early sexual abuse and adult HIV-risky sexual behaviors among community-recruited women. *Child Abuse & Neglect* 2001 Mar;25(3):335–346. [PubMed: 11414393]
3. Stoltz J-AM, Shannon K, Kerr T, et al. Associations between childhood maltreatment and sex work in a cohort of drug-using youth. *Social Science & Medicine* 2007;65(6):1214–1221. [PubMed: 17576029]
4. Ompad DC, Ikeda RM, Shah N, et al. Childhood sexual abuse and age at initiation of injection drug use. *American Journal of Public Health* 2005 Apr;95(4):703–709. [PubMed: 15798133]
5. Roy E, Haley N, Leclerc P, et al. Drug injection among street youths in Montreal: predictors of initiation. *Journal of Urban Health* 2003;80(1):92–105. [PubMed: 12612099]
6. Wood E, Stoltz JA, Montaner JS, et al. Evaluating methamphetamine use and risks of injection initiation among street youth: the ARYS study. *Harm Reduction Journal* 2006;3:18. [PubMed: 16723029]
7. Fink LA, Bernstein D, Handelsman L, et al. Initial reliability and validity of the childhood trauma interview: a new multidimensional measure of childhood interpersonal trauma. *The American Journal of Psychiatry* 1995 Sep;152(9):1329–1335. [PubMed: 7653689]
8. Spertus IL, Yehuda R, Wong CM, et al. Childhood emotional abuse and neglect as predictors of psychological and physical symptoms in women presenting to a primary care practice. *Child Abuse & Neglect* 2003 Nov;27(11):1247–1258. [PubMed: 14637300]
9. Fergusson DM, Boden JM, Horwood LJ. The developmental antecedents of illicit drug use: evidence from a 25-year longitudinal study. *Drug and Alcohol Dependence* 2008 Jul 1;96(1–2):165–177. [PubMed: 18423900]
10. Macmillan HL, Wathen CN, Barlow J, et al. Interventions to prevent child maltreatment and associated impairment. *Lancet* 2009 Jan 17;373(9659):250–266. [PubMed: 19056113]

Table 1
Characteristics associated with injection drug use among street involved youth (*n* = 560).

Characteristic	Injection Drug Use		Odds Ratio (95% CI)	<i>p</i> value
	No (%)	Yes (%)		
Age				
≥ 22 years	133 (47.3)	148 (52.7)	2.67 (1.89 – 3.79)	<0.001
< 22 years	197 (70.6)	82 (29.4)		
Gender				
Female	112 (62.6)	67 (37.4)	0.80 (0.55 – 1.15)	0.230
Male	218 (57.2)	163 (42.8)		
Aboriginal ancestry				
Yes	80 (61.1)	51 (38.9)	0.89 (0.59 – 1.33)	0.578
No	250 (58.3)	179 (41.7)		
Education level				
< high school	218 (56.9)	165 (43.1)	1.30 (0.90 – 1.88)	0.156
≥ high school	112 (63.3)	65 (36.7)		
Ever in foster care				
Yes	160 (56.9)	121 (43.1)	1.18 (0.84 – 1.65)	0.337
No	170 (60.9)	109 (39.1)		
Parent used illicit drugs				
Yes	165 (63.9)	93 (36.1)	0.67 (0.48 – 0.95)	0.031
No	165 (54.6)	137 (45.4)		
Emotional neglect				
Yes	113 (56.5)	87 (43.5)	1.16 (0.82 – 1.65)	0.400
No	210 (60.2)	139 (39.8)		
Emotional abuse				
Yes	159 (57.2)	119 (42.8)	1.20 (0.85 – 1.69)	0.299
No	165 (61.6)	103 (38.4)		
Physical neglect				
Yes	154 (60.2)	102 (39.8)	0.94 (0.67 – 1.32)	0.729
No	172 (58.7)	121 (41.3)		
Physical abuse				

Characteristic	Injection Drug Use		Odds Ratio (95% CI)	p value
	No (%)	Yes (%)		
Yes	116 (50.9)	112 (49.1)	1.82 (1.28 – 2.57)	0.001
No	209 (65.3)	111 (34.7)		
Sexual abuse				
Yes	79 (52.7)	71 (47.3)	1.49 (1.02 – 2.17)	0.041
No	243 (62.3)	147 (37.7)		

Note: Some cells do not add up to 560 as participants may refuse to answer sensitive questions.

Table II

Multivariate logistic regression analysis of factors associated with injection drug use among high-risk youth ($n = 560$).

Characteristic	Adjusted Odds Ratio (95% CI)	<i>p</i> value
Age (≥ 22 years)	1.24 (1.16 – 1.33)	<0.001
Parents used drugs	0.63 (0.43 – 0.92)	0.018
Sexual abuse	1.26 (0.83 – 1.93)	0.282
Physical abuse	1.91 (1.29 – 2.83)	0.001

Note: CI = Confidence Interval. Model was adjusted for all variables found to be associated with injection drug use in univariate analysis at $p \leq 0.05$.