Published in final edited form as:

J Trauma Stress. 2018 June ; 31(3): 383–390. doi:10.1002/jts.22286.

Childhood Trauma and the Inability to Access Hospital Care Among People who Inject Drugs

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Abstract

Childhood traumatic experiences can disrupt attachment, influence personality development, and precipitate chronic disease. Although the repercussions of these experiences may also pose a barrier to healthcare, few studies have examined the association between childhood trauma and access to healthcare. Therefore, we sought to investigate whether a history of childhood trauma is associated with self-reported inability to access hospital care among persons who inject drugs (PWID). Data were derived from two prospective cohorts of PWID in Vancouver, Canada. We used multivariable generalized estimating equations to examine associations between five types of childhood trauma and self-reported inability to access hospital care, both overall and specifically due to perceived mistreatment by hospital staff. In total, 300 participants (18.3%) reported having tried but being unable to access hospital care in the previous 6 months at some point during the study period; the primary reason was perceived mistreatment by hospital staff (32.1%). In multivariable analyses, childhood emotional abuse was independently associated with self-reported inability to access hospital care, adjusted odds ratio (*AOR*) = 1.51, 95% CI [1.03, 2.20]. Childhood physical neglect was also independently associated with inability to access care due to perceived mistreatment by hospital staff, *AOR* = 1.80, 95% CI [1.11, 2.93]. This suggests potentially damaging consequences of early trauma in adult PWID populations. Further, this study emphasizes the need for trauma-informed models of care as well as the need to improve therapeutic alliances with survivors of childhood trauma in the PWID population.

Persons who inject drugs (PWID) experience an array of adverse health outcomes. In a recent systematic review and meta-analysis, Mathers and colleagues (2013) estimated that mortality among PWID was 15 times higher than that of the general population. Rates of psychiatric disease, bacterial infections, HIV seropositivity, and overdose have also been shown to be elevated in PWID (Evans et al., 2012; Haber, Demirkol, Lange, & Murnion,

2009). Unfortunately, childhood maltreatment is also common within this vulnerable group, with rates of childhood sexual abuse exceeding 30% in this population (Markowitz et al., 2011). Although the trauma literature has often focused attention on specific types of victimization, researchers have repeatedly shown that victims suffer a co-occurrence of various other problems (Dube et al., 2001; Finkelhor, Ormrod, & Turner 2007; Buckingham & Daniolos, 2013). Beyond the association between childhood abuse and adult drug use, survivors of early trauma are also at higher risk of other high-risk activities, including smoking, needle sharing, and sex work, as well as various psychiatric and medical diagnoses (Felitti et al., 1998; Davis, Luecken, & Zautra, 2005; Afifi et al., 2008; Dube, Cook, & Edwards, 2010).

Authors of multiple studies have demonstrated that people who use illicit drugs often underutilize preventative health care services in the community (Morrison, Elliot, & Gruer, 1997; Heinzerling et al., 2006; Sohler et al., 2007). Failure to access care in a timely manner could explain why PWID tend to present to hospitals mainly in crisis or emergently (Morrison et al., 1997). Indeed, studies have shown that rates of emergency department use and inpatient hospitalization are elevated in this population (Kerr, Wood et al., 2005; O'Brien et al., 2015; Thakarak, Morgan, Gaeta, Hohl, & Drainoni, 2015). From the perspective of PWID, the causes for primary care underutilization are numerous and range from system deficiencies, such as physical inaccessibility or lack of resources and restrictive policies, to personal factors, such as insufficient financial resources, having other daily priorities (including illicit drug use), or normalization of injection complications (Appel, Ellison, Jansky, & Oldak, 2004; McCoy, Metsch, Chitwood, & Miles, 2001; Lally, Montstream-Quas, Tanaka, Tedeschi, & Morrow, 2008; Lang et al., 2013; Wood et al., 2002). Stigma and discrimination towards PWID by health care providers are other important barriers that PWID report as reasons for their underutilization of services (Ahern, Stuber, & Galea, 2007). Indeed, many investigations have found that service providers are often uncomfortable when caring for PWID and have difficulty providing PWID with access to available services (Roche, Guray, & Saunders, 1991; Galea et al., 2002; Coffin et al., 2004).

Despite independent associations between childhood maltreatment and a variety of adverse consequences related to adult health and functioning (Molnar, Buka, & Kessler, 2001; Marshall, Galea, Wood, & Kerr, 2013), little is known about the impact of childhood trauma on healthcare utilization in PWID. The overarching objective of this study was to further clarify this association, with an aim to facilitate proactive policies to improve the health outcomes of PWID. We decided to examine accessibility to hospital services, as these services are critical in that they often serve as a substitute or continuation of primary care among PWID (Kerr, Wood et al., 2005), and care received can potentially prevent more catastrophic illness.

Method

Participants and Procedure

The Vancouver Injection Drug Users Study (VIDUS) and the AIDS Care Cohort to evaluate Exposure to Survival Services (ACCESS) are ongoing, open prospective cohorts of adults

who use drugs and have been recruited through self-referral and street outreach in Vancouver, Canada. The studies have been described in detail previously (Tyndall et al., 2003; Wood et al., 2008). Briefly, VIDUS enrolls HIV-negative individuals who have reported injecting an illicit drug at least once in the previous month; ACCESS enrolls HIV-positive persons who have reported using an illicit drug (other than cannabis) in the previous month. For both cohorts, other eligibility criteria includes being aged 18 years or older, residing in the Greater Vancouver regional district, and providing written informed consent. The study instruments and follow-up procedures for each study are harmonized to allow for combined analyses.

At baseline and semiannually, participants completed an interviewer-administered questionnaire eliciting sociodemographic data as well as information pertaining to drug use patterns, risk behaviors, health care utilization, and other social-structural exposures. Nurses collected blood samples for HIV and hepatitis C serology, and they also provided referrals to appropriate health care services as needed. Participants received a \$40 (CDN) honorarium for each study visit. An interviewer explains the studies to each participant, after which the participant provided written informed consent. The University of British Columbia/ Providence Healthcare Research Ethics Board provided ethical approval for both studies.

The present analysis included data from VIDUS and ACCESS participants who reported having ever injected drugs at baseline and attended at least one study visit between June 1, 2008 and May 31, 2015. The study sample was further restricted to individuals who completed at least one part of the Childhood Trauma Questionnaire (CTQ; Bernstein & Fink, 1998) at baseline.

Measures

Hospital healthcare access—The primary outcome of interest (Outcome 1) was self-reported inability to access hospital health services in the previous 6 months, which was ascertained by asking, “Have you tried to access services at a hospital in the last 6 months, but were unable?” Participants who reported inability to access hospital health services were also asked about reasons for this inability. Specific causes listed for the participant to select included wait time too long, turned away, treated poorly by hospital staff, asked to leave, no personal health care number/identification, language barrier, and “other.” This facilitated ascertainment of the second outcome (Outcome 2): self-reported inability to access hospital-based care due to perceived mistreatment by hospital staff.

Childhood trauma exposure—The main exposures of interest, the five forms of childhood trauma, were measured at baseline using the CTQ, a 28-item validated instrument used to retrospectively assess childhood sexual, physical, and emotional abuse, and physical and emotional neglect (Bernstein & Fink, 1998). The CTQ has been used successfully in several studies of illicit drug-using populations (Bernstein & Fink, 1998; Lake et al., 2015) and has demonstrated good validity and reliability (Bernstein et al., 2003; Scher, Stein, Amsundson, McCreary, & Forde, 2001). The questionnaire provides a score ranging from 5 to 25 for five subscales that correspond to each type of abuse and neglect. We used recommended and predetermined cutoff scores to convert subscale scores into four levels of

childhood trauma (Bernstein & Fink, 1998): None or minimal (5–8), low to moderate (9–12), moderate to severe (13–15), and severe to extreme (greater than 15). Consistent with previous studies (Lake et al., 2015; Stoltz et al., 2007), we collapsed these four trauma levels into two levels: none/low (5–12), and moderate/severe (13–25). The internal reliability coefficient for each type of trauma is as follows: sexual abuse, Cronbach's $\alpha = .95$; physical abuse, Cronbach's $\alpha = .88$; emotional abuse, Cronbach's $\alpha = .87$; physical neglect, Cronbach's $\alpha = .75$; and emotional neglect, Cronbach's $\alpha = .87$.

Additional variables—In our analysis, we accounted for additional variables that we hypothesized might confound the association between the primary exposures and outcomes. These included age (per 10 years older), gender (male vs. nonmale), ancestry (Caucasian vs. non-Caucasian), language with which the participant was most comfortable (English vs. non-English), sexual orientation (heterosexual vs. non-heterosexual), level of education achieved (less than high school completion vs. high school completion or more), and HIV serostatus (positive vs. negative). Substance use behaviors included were cocaine injection (at least daily vs. less than daily), heroin injection (at least daily vs. less than daily), and noninjection crack use (at least daily vs. less than daily). Frequent alcohol use (more than 3 drinks in one day in the past week or more than 7 drinks per week [females]; more than 4 drinks in one day in the past week or more than 14 drinks per week [males]) was defined in accordance with the National Institute on Alcohol Abuse and Alcoholism criteria (NIAAA, 2010). Other covariates we considered included living in unstable housing (yes vs. no), ever been diagnosed with a mental illness (yes vs. no), sex work or drug dealing (yes vs. no), incarceration (yes vs. no), overdose (yes vs. no), and use of any addiction treatment (yes vs. no). All behavioral variables were in reference to the 6 months prior to the interview. With the exception of gender, ancestry, language, sexual orientation, and education, all variables were time-updated. Variable definitions were consistent with those described in previous studies (Kerr, Marsh, Li, Montaner, & Wood, 2005; Kerr et al., 2007; Stoltz et al., 2007).

Data Analysis

First, we used Pearson's chi-square tests to compare the CTQ outcomes of the sample, stratified by reports of inability to access hospital services in the previous 6 months. Next, to analyze the longitudinal data, which included all available baseline and follow-up data, we used a generalized estimating equation (GEE) with logit link function and exchangeable working correlation structure to determine whether, during the entire follow-up period, childhood trauma was independently associated with self-reported inability to access hospital care, both in general and due to perceived mistreatment (Lee, Herzog, Meade, Webb, & Brandon, 2007). Most variables were missing less than 4% of data, with heavy alcohol use missing the most (7.6%). The missing data were handled as listwise deletion.

We fit bivariable GEE models to examine associations between main explanatory variables of interest (each form of childhood trauma), secondary explanatory variables (potential confounders), and each of the two outcomes. To build multivariable GEE models separately for each of Outcome 1 and 2, we included all five forms of childhood trauma and secondary explanatory variables that were associated with the outcome at $p < .10$ in bivariable GEE

analyses. All analyses were performed in SAS software (Version 9.4; SAS, Cary, NC). All *p* values are two-sided.

RESULTS

A total of 1,642 participants met our inclusion criteria. These individuals contributed a median of 65.6 months of observation per participant (interquartile range [IQR]: 29.5–76.4 months). The median number of study visits made per participant during the study period was 9 (IQR: 4–12). At baseline, 1,087 of participants (66.2%) were men, 963 (58.6%) were Caucasian, and 689 (42.0%) were HIV positive. In total, 300 participants (18.3%) made 402 reports of having tried but being unable to access hospital care in the previous 6 months at some point during the study period. The primary reason for not accessing care was perceived mistreatment by hospital staff (32.1%), followed by being asked to leave and told that nothing was wrong with them by hospital staff (12.2%), being turned away and accused of seeking drugs (11.2%), and finally, leaving because the wait time was perceived to be too long (11.2%).

The baseline characteristics of study participants who self-reported inability to access hospital health services in the previous 6 months are as described herein. The median age was 42.8 years (IQR: 33.5–48.1), 41.0% were female, 43.6% were non-Caucasian, 96.2% spoke English as their primary language, 76.9% identified as heterosexual, 73.1% suffered unstable housing, and 52.6% had less than a high school education. These participants also reported injecting cocaine, injecting heroin, and smoking crack daily or more than daily in the past 6 months at rates of 17.9%, 25.6%, and 34.6%, respectively. Heavy alcohol use was common, with 17.9% of this group falling into that category. In the past 6 months, the majority of these participants (51.3%) accessed addiction treatment, 12.8% suffered a nonfatal overdose, 10.3% were incarcerated, and 46.2% engaged in sex work or drug dealing. Rates of mental health issues were high, as 73.1% this group had been previously diagnosed with a mental illness. Many of these participants experienced a moderate-to-severe level of childhood emotional neglect (60.3%) and emotional abuse (61.5%). Many participants also noted a history of physical abuse (47.4%), sexual abuse (41.0%), and physical neglect (38.5%).

Among the total 1,642 participants, there were various combinations of trauma types reported, demonstrating overlap in the forms of trauma experienced by the participants. Of participants, 10.5% reported all five types of CTQ outcomes, 13.2% had four types of CTQ outcomes overlap, 12.6% had three types overlap, and 14.4% had overlap of any two types of CTQ outcomes.

Results of bivariate GEE analysis of factors associated with inability to access hospital services are as follows: older age, odds ratio (*OR*) = 0.89, 95% CI [0.78, 1.01]; male, *OR* = 0.99, 95% CI [0.77, 1.27]; Caucasian, *OR* = 1.13, 95% CI [0.88, 1.44]; English-speaking, *OR* = 1.46, 95% CI [0.82, 2.61]; heterosexual, *OR* = 0.74, 95% CI [0.55, 0.98]; possessed less than a high education, *OR* = 1.09, 95% CI [0.85, 1.39]; endured unstable housing, *OR* = 1.26, 95% CI [1.01, 1.58]; daily or more frequent cocaine injection, *OR* = 1.62, 95% CI [1.11, 2.36]; daily or more frequent heroin injection, *OR* = 1.23, 95% CI [0.91, 1.66]; daily

or more frequent crack smoking, $OR = 0.90$, 95% CI [0.70, 1.14]); positive HIV serostatus, $OR = 0.94$, 95% CI [0.74, 1.21]; previous history of incarceration, $OR = 0.91$, 95% CI [0.59, 1.40]; sex work or drug dealing in the previous 6 months, $OR = 1.43$, 95% CI [1.13, 1.81]; accessed addiction treatment in the previous 6 months, $OR = 1.03$, 95% CI [0.82, 1.30]; experienced a nonfatal overdose in the previous 6 months, $OR = 3.05$, 95% CI [2.19, 4.26]; experienced heavy alcohol use in the previous 6 months, $OR = 1.00$, 95% CI [0.73, 1.36]; and previous diagnosis of a mental illness, $OR = 1.67$, 95% CI [1.30, 2.15]. Table 2 summarizes bivariate GEE analysis of CTQ outcomes associated with the inability to access hospital services.

Table 3 summarizes the results of the final multivariable GEE models. As shown, after adjusting for potential confounders, childhood emotional abuse was independently associated with self-reported inability to access hospital care, $AOR = 1.51$, 95% CI [1.03, 2.20]. Childhood physical neglect was also independently associated with the inability to access hospital care due to self-reported mistreatment by hospital staff, $AOR = 1.80$, 95% CI [1.11, 2.93].

Discussion

Our data demonstrates a high prevalence (approximately 30 to 60%) of moderate-to-severe levels of various forms of childhood maltreatment among this cohort of PWID. These reported rates are comparable to those reported in other studies that have examined abuse among similar cohorts of adult and youth injection drug users (Medrano, Hatch, Zule, & Desmond, 2003; Walton et al., 2011). In multivariable analyses, after adjusting for sociodemographic, behavioral, and clinical characteristics, childhood emotional abuse was independently and positively associated with self-reported inability to access hospital services. Physical neglect was also independently and positively associated with inability to access hospital services due to self-reported mistreatment by hospital staff.

To our knowledge, this is the first study to use a well-validated tool to examine various forms of childhood trauma as risk factors for inaccessibility to hospital service among PWID. Our finding of an association between childhood emotional abuse and self-reported inability to access hospital services during adulthood adds to a growing body of literature that details the long-term sequelae of such abuse, including mental illness, suicidality, sex work, somatic symptomology, and elevated risk of retraumatization (Stoltz et al., 2007; Marshall et al., 2013). Early exposure to traumatic events can disrupt normal childhood development and lead to mental illness and diminished self-care, and ultimately discourage health-promoting behaviours (Heim & Nemeroff, 2001). For instance, Kang, Deren, and Goldstein (2002) showed a correlation between childhood maltreatment among individuals with substance use disorder correlates and decreased enrollment in addiction treatment programs. Additionally, Cohen and colleagues (2004) found that among HIV-positive women in a multicenter trial in the United States, those who experienced a history of abuse, including childhood and domestic abuse, were more likely to be noncompliant with antiretroviral therapy.

The association we found between childhood physical neglect and inability to access hospital care due to self-reported mistreatment by hospital staff sheds light on the engagement between PWID and health services. As with other forms of abuse, neglect has been connected to disrupted childhood attachment and future psychosocial dysfunction (Gauthier, Stollak, Messé, & Aronoff, 1996). Survivors of abuse, and intimate partner violence in particular, often struggle to communicate with service providers and are more likely to find providers judgemental and disrespectful (McNutt, van Ryn, Clark, & Fraiser, 2000). Understandably, overall patient satisfaction is affected, as Coles, Lee, Taft, Mazza, and Loxton (2015) demonstrated in the primary care setting among individuals who had experienced childhood sexual abuse. These difficult patient-provider relationships can further be hampered, as previous abusive experiences often disrupt the capacity of survivors to trust others, including those working in healthcare settings (Whetten et al., 2012). Significant attachment trauma may fundamentally alter how survivors relate to others, tolerate frustrations, and interpret the intentions of others. This could potentially make PWID more likely to perceive maltreatment and (through behavior-prompting) suffer maltreatment from hospital staff.

Improving accessibility to medical resources among PWID who had traumatic childhoods requires healthcare providers and policymakers to develop both preventative and management programs. To arrest the cycle of abuse that leads to poor health outcomes, the onset of abuse must be prevented. Current evidence suggests that this can be done successfully via home visitation and parental training programs in at-risk communities (Macmillan et al., 2009). The literature also recommends that for individuals who have already suffered abuse, intervention programs involving cognitive behavioral therapy and enhanced foster care be made available (Macmillan et al., 2009). Additionally, Danese and colleagues (2009) suggested that the promotion of healthy psychosocial experiences, including being raised in a nurturing and financially secure household, could play a preventative role for future mental illness and age-related disease among children with histories of abuse. Finally, the integration of trauma-informed care into clinical practice may be critical to removing healthcare barriers for vulnerable groups with traumatic pasts (Torchalla, Linden, Strehlau, Neilson, & Krausz, 2015).

Individuals who inject drugs tend to present acutely to hospitals with higher complication rates (Kievlan, Gukasyan, Gesch, & Rodriguez, 2015). Ideally, those with minor complaints would be managed in the community; however, PWID often rely heavily on emergency departments for the same level of care (Kerr, Wood et al., 2005). If this cohort of PWID who obtain care classically associated with community practice (e.g., oral antibiotics for cellulitis) are delayed in seeking care at the hospital level due to self-determined barriers, they are placed at greater risk of returning to the emergency department with disease progression (e.g., abscesses or sepsis). Therefore, any barrier to hospital care, which can often function as a substitute or continuation of primary care, is concerning and could lead to PWID requiring more emergent care for higher acuity disease.

This study had limitations that warrant consideration. First, our study sample was not randomly selected and recruitment into the study relied upon self-referral and street outreach. As a result, our findings may not be generalizable to other PWID populations.

Second, we relied on self-report measures. Because the content of the questionnaires that were used involved highly sensitive personal information, responses could have been influenced by social desirability bias in addition to recall bias. In particular, we acknowledge that childhood trauma is susceptible to underreporting in adulthood (Hardt & Rutter, 2004). We also recognize the role of stress as a potential confounder. Unfortunately, our data set did not account for this and was therefore not included in our analysis. Also, there may be some confounders that were dropped from the models due to our analytical strategy, but which are nonetheless important. Finally, as a prospective cohort study, our study did not include a control group of non-PWID.

In summary, PWID who experienced childhood emotional abuse were more likely to report inability to access hospital services, and those with a history of physical neglect were more likely to report inability to access care because of perceived stigma. These findings add to a growing body of literature that connects early traumatic experiences with deleterious health outcomes, particularly among PWID. More importantly, this study points towards the urgent need to consider histories of childhood abuse and neglect amongst PWID when determining how best to foster a welcoming environment within our healthcare system.

Acknowledgments

The authors thank the study participants for their contribution to the research as well as the current and past researchers and staff. The study was supported by the U.S. National Institutes of Health (U01DA038886, R01DA021525). This research was undertaken, in part, thanks to funding from the Canada Research Chairs program through a Tier 1 Canada Research Chair in Inner City Medicine which supports Dr. Evan Wood, Director of BC Centre on Substance Use, and the Canadian Institutes of Health Research (CIHR) through the Canadian Research Initiative on Substance Misuse (SMN-139148). Kanna Hayashi is supported by a CIHR New Investigator Award (MSH-141971), Michael Smith Foundation for Health Research (MSFHR) Scholar Award, and the St. Paul's Hospital Foundation. M-J Milloy is supported in part by the United States National Institutes of Health (R01DA021525) and a Scholar Award from the MSFHR. His institution has received an unstructured gift to support his research from NG Biomed, Ltd.

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Childhood Trauma Questionnaire Outcomes Stratified by Self-Reported Inability to Access Hospital Health Services in the Previous 6 Months Among Persons Who Inject Drugs (PWID) in Vancouver, Canada

Table 1

Characteristic	Inability to Access Hospital Health Services ^a						χ^2	df	p
	Total	Yes		No					
	n	%	n	%	n	%			
Total	1,642	100	78	4.8	1,564	95.2			
Physical Abuse									
Moderate/severe	562	34.2	37	47.4	525	33.6	5.56	1	.018
Low/none	1,043	63.5	41	52.6	1,002	64.1			
Sexual abuse									
Moderate/severe	499	30.4	32	41.0	467	29.9	4.00	1	.045
Low/none	1,120	68.2	46	59.0	1,074	68.7			
Emotional abuse									
Moderate/severe	729	44.4	48	61.5	681	43.5	9.47	1	.002
Low/none	856	52.1	28	35.9	828	52.9			
Physical neglect									
Moderate/severe	495	30.1	30	38.5	465	29.7	3.00	1	.083
Low/none	1,103	67.2	45	57.7	1,058	67.7			
Emotional neglect									
Moderate/severe	806	49.1	47	60.3	759	48.5	3.93	1	.048
Low/none	782	47.6	29	37.2	753	48.1			

Note. N= 1,642. Not all cells add up to 1,642 due to missing observations.

^aSelf-reported inability to access hospital health care services in the previous 6 months, as reported at baseline.

Table 2

Bivariate Generalized Estimating Equations (GEE) Analyses of Childhood Trauma Questionnaire Outcomes Associated With Self-Reported Inability to Access Hospital Health Services Among Persons Who Inject Drugs (PWID) in Vancouver, Canada^a

Characteristic	Unadjusted Odds Ratio	95% Confidence Interval	<i>p</i>
Physical abuse	1.45	[1.13, 1.86]	.003
Sexual abuse	1.30	[1.01,1.67]	.040
Emotional abuse	1.61	[1.26, 2.06]	< .001
Physical neglect	1.24	[0.97, 1.59]	.085
Emotional neglect	1.16	[0.90, 1.48]	.249

Note. *N* = 1,642.

^aAll analyses are moderate/severe versus low/none.

Table 3

Multivariable Generalized Estimating Equation (GEE) Analyses of Factors Associated With Inability to Access Hospital Health Services Among Persons Who Inject Drugs (PWID) in Vancouver, Canada

Characteristic	Outcome 1 ^a		Outcome 2 ^b	
	Adjusted Odds Ratio	95% CI	Adjusted Odds Ratio	95% CI
Emotional abuse (moderate/severe vs. none/low)	1.51	[1.03, 2.20] [*]	1.14	[0.68, 1.92]
Emotional neglect (moderate/severe vs. none/low)	0.84	[0.61, 1.16]	0.68	[0.42, 1.11]
Physical abuse (moderate/severe vs. none/low)	0.98	[0.68, 1.41]	0.93	[0.54, 1.58]
Physical neglect (moderate/severe vs. none/low)	1.08	[0.80, 1.45]	1.80	[1.11, 2.93] [*]
Sexual abuse (moderate/severe vs. none/low)	0.97	[0.72, 1.30]	1.07	[0.68, 1.68]
Non-fatal overdose ^c (yes vs. no)	2.47	[1.71, 3.57] ^{***}	2.78	[1.55, 4.98] ^{***}
Mental illness diagnoses ever (yes vs. no)	1.43	[1.09, 1.87] [*]	1.41	[0.91, 2.19]
Cocaine Injection ^c (daily vs. < daily)	1.51	[1.01, 2.24] [*]	-	-
Heroin Injection ^c (daily vs. < daily)	-	-	1.38	[0.84, 2.28]
Unstable housing ^c (yes vs. no)	1.17	[0.92, 1.49]	-	-
Sex work or drug dealing ^c (yes vs. no)	1.31	[1.01, 1.70] [*]	-	-
Sexual orientation (heterosexual vs. nonheterosexual)	0.78	[0.57, 1.07]	0.58	[0.35, 0.95] [*]
Age (per 10 years older)	0.96	[0.84, 1.11]	-	-
Ethnicity/ancestry (Caucasian vs. other)	-	-	1.47	[0.98, 2.20]

Note. N= 1,642.

Dashes indicate variable was not included in the final multivariate model.

^aOutcome 1 = Inability to access hospital health services.

^bOutcome 2 = Inability to access hospital health services due to perceived mistreatment by hospital staff.

^cDenotes events in the previous 6 months.

^{*}
 $p < .05$.

^{***}
 $p < .001$.