



Understanding the service needs of assault-injured, drug-using youth presenting for care in an urban Emergency Department



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HIGHLIGHTS

- Over half of all youth in this ED sample met criteria for a substance use disorder.
- Among assault-injured youth, 1 in 4 intended to retaliate.
- Being on probation/parole and having PTSD were associated with assaultive injury.
- Findings emphasize substance use and psychiatric needs of assault-injured youth.

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ABSTRACT

Background: Violence is a leading cause of injury among youth 15–24 years and is frequently associated with drug use. To inform optimal violence interventions, it is critical to understand the baseline characteristics and intent to retaliate of drug-using, assault-injured (AI) youth in the Emergency Department (ED) setting, where care for violent injury commonly occurs.

Methods: At an urban ED, AI youth ages 14–24 endorsing any past six-month substance use ($n = 350$), and a proportionally-sampled substance-using comparison group (CG) presenting for non-assault-related care ($n = 250$), were recruited and completed a baseline assessment (82% participation). Medical chart review was also conducted. Conditional logistic regression was performed to examine correlates associated with AI.

Results: Over half (57%) of all youth met the criteria for drug and/or alcohol use disorder, with only 9% receiving prior treatment. Among the AI group, 1 in 4 intended to retaliate, of which 49% had firearm access. From bivariate analyses, AI youth had poorer mental health, greater substance use, and were more likely to report prior ED visits for assault or psychiatric evaluation. Based on multivariable modeling, AI youth had greater odds of being on probation/parole (AOR = 2.26; CI = 1.28, 3.90) and having PTSD (AOR = 1.88; CI = 1.01, 3.50) than the CG. **Conclusions:** AI youth may have unmet needs for substance use and mental health treatment, including PTSD. These characteristics along with the risk of retaliation, increased ED service utilization, low utilization of other health care venues, and firearm access highlight the need for interventions that initiate at the time of ED visit.

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1. Introduction

Homicide is the second leading cause of death among all Americans ages 15–24 years, and the leading cause of death for African-Americans in the same age range (Centers for Disease Control & Prevention, 2013). It is also a leading cause of morbidity, with over 600,000 American

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youth ages 15–24 presenting to Emergency Departments (EDs) for assault-related injuries (i.e., intentionally caused by another person) every year (Centers for Disease Control & Prevention, 2013). Without intervention, an estimated 30% of assault-injured youth are re-injured within five years (Buss & Abdu, 1995; Morrissey, Byrd, & Deitch, 1991; Sims et al., 1989), a considerable proportion of which are the result of retaliation from a prior assault (Copeland-Linder, Johnson, Haynie, Chung, & Cheng, 2012).

There is an extensive evidence-base regarding the association between substance use, mental health disorders, and a history of violence (Cuevas, Finkelhor, Clifford, Ormrod, & Turner, 2010; Cunningham et al., 2006, 2009; Elliott, 1994; Ford, Elhai, Connor, & Frueh, 2010; Kerig, Ward, Vanderzee, & Arnzen Moeddel, 2009; Kilpatrick et al., 2003; Russo, Katon, & Zatzick, 2013; Singer, Anglin, Song, & Lunghofer, 1995; Walton, Cunningham, Chermack, et al., 2009; Walton, Cunningham, Goldstein, et al., 2009; White, Loeber, Stouthamer-Loeber, & Farrington, 1999; Whiteside et al., 2013). The few ED-based studies of youth with *acute assault-injuries* have reported high levels of depressive symptoms (Anixt, Copeland-Linder, Haynie, & Cheng, 2012; McCart, Davies, Phelps, Heuermann, & Melzer-Lange, 2006; Pailler, Kassam-Adams, Datner, & Fein, 2007; Ranney et al., 2011; Zun & Rosen, 2003), post-traumatic stress symptoms (Boccellari et al., 2007; Pailler et al., 2007), and alcohol/substance use (Pailler et al., 2007; Ranney et al., 2011; Zun, Downey, & Rosen, 2005). Nonetheless, prior studies have been limited by: 1) the use of convenience samples; 2) the inclusion of only those with biological markers of substance use, alone; 3) interviewing patients long after the assault event took place; 4) the lack of use of diagnostic criteria for substance use/mental health disorders; 5) the lack of a non-injured comparison group of drug using youth (Becker, Hall, Ursic, Jain, & Calhoun, 2004; Cooper, Eslinger, Nash, al-Zawahri, & Stolley, 2000; Datner & Ferroggiaro, 1999; De Vos, Stone, Goetz, & Dahlberg, 1996; Dicker, 2005; Luna et al., 2001; Madan, Yu, & Beech, 1999; Sege, Stringham, Short, & Griffith, 1999). Thus, the association between prior violence and other risky behaviors reported in previous studies might simply reflect the higher prevalence of these risky behaviors among youth seen in urban, socio-economically disadvantaged EDs for *any* reason (Bernstein et al., 2009; Dorfman, Trokel, Lincoln, & Mehta, 2010; Wilson & Klein, 2000).

Moreover, prior to the development of interventions for assault-injured youth, it is critical to understand the ideal location and optimal timing for such interventions. Case management-based interventions are increasingly being implemented with promising preliminary outcomes among those admitted to surgery units with severe injury (Cooper, Eslinger, & Stolley, 2006; Karraker, Cunningham, Becker, Fein, & Knox, 2011). Nonetheless, the majority of assault-injured youth are treated in the ED and released, underscoring the need for an examination of a broader sample of all assault-injured youth presenting for care.

In addition, risk factors for retaliatory violence following an index ED visit have been explored among children ages 10–14; (Copeland-Linder et al., 2007, 2012) however, the subject has not been studied among drug-using assault-injured youth, or those ages 14–24 *who may be at greater risk of re-injury from retaliation*. Consequently, additional data are needed that examine drug-using youth presenting to the ED for care in order to determine whether service needs differ based on presenting complaint; namely, whether needs differ for those presenting for assault-related injury as compared with those presenting for other medical reasons. To disentangle this issue, the present study compares assault-injured youth in an urban ED who reported drug use, with a systematically sampled comparison group of youth who presented to the ED for other medical reasons and also reported drug use, in order to inform future potential interventions aimed at addressing unmet substance use and mental health service needs. Thus, we compare these two groups of drug-using youth (i.e., assault-related injury group and comparison group) in the present study. We hypothesize that: 1) assault-injured youth will have greater substance use, and mental

health needs than other drug using youth; 2) acute timing of substance use is important, and that in the 24 h prior to the ED visit use will be higher among assault-injured youth than other youth with drug use, suggesting that the ED may be the ideal place for intervention efforts during this high risk window in order to reduce the likelihood of future drug use and injury; and 3) among the assault-related injury group, there will be relatively high percentages of intent to retaliate, as well as firearm access, both of which are not generally assessed in the ED among assault-injured youth yet are critical issues that warrant focused evaluation at the time of ED care.

2. Methods

2.1. Study design and setting

This manuscript focuses on youth treated in an urban, level 1 trauma center ED located in Flint, MI, which is 57% African American (U.S. Census B, 2010). Poverty and crime rates for Flint are comparable with other urban centers (Federal Bureau of Investigation, 2011). Study procedures were approved by the University of Michigan and the Medical Center's Institutional Review Boards, and a Certificate of Confidentiality was obtained.

2.2. Participant recruitment

Two patient groups who reported any drug use within the past six months on a screening survey (Cunningham et al., 2014) were eligible for an ongoing natural history study: 1) Patients aged 14–24 years presenting to the ED for assault-related injuries, and 2) a comparison group of patients presenting for other reasons that was proportionally sampled based on sex and age-group (i.e., 14–17 years, 18–20 years, and 21–24 years) characteristics of the assault-related injury group. The present manuscript reports findings from the initial baseline assessment.

Recruitment occurred seven days per week, excluding major winter holidays. The sample was recruited for screening by a research assistant (RA) 24 h per day from Thursday through Monday, and from 5 AM until 2 AM on Tuesday through Wednesday. Patients presenting with a chief complaint of acute sexual assault or suicidal ideation or attempt were excluded from the screening survey as they were already receiving mental health services in the ED. Patients were also excluded if they had insufficient cognitive orientation due to conditions precluding informed consent, or if a minor had no parent/guardian available to give consent. Trauma patients who were too medically unstable to recruit in the ED were recruited on the hospital floor if they stabilized within 72 h.

Assault-injuries were defined in keeping with the CDC definition (Centers for Disease Control & Prevention, 2013), i.e., those intentionally caused by another person, and were assessed by a RA at the time of ED presentation. Patients were identified through an electronic patient census, and were approached by RAs in waiting rooms or treatment spaces (12/2009–9/2011). As an example, after a 16-year old female with an acute assault-related injury screened positive for past six-month drug use and was enrolled into the study, RAs would recruit sequentially, by triage time, the next female from the 14–17 year old age-group who sought ED care for a medical or injury reason that was not due to assault and who screened positive for any past six-month drug use. Therefore, the comparison group was systematically enrolled in the study during the same timeframe and season as the assault-related injury group. Past six-month drug use and study eligibility were assessed using the NIDA-ASSIST (Chung et al., 2000; Humeniuk et al., 2008; National Institute on Drug Abuse; WHO ASSIST Working Group, 2002), which included the use of marijuana, cocaine, methamphetamine, inhalants, hallucinogens, street opioids, or misuse of prescription drugs (see measures).

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