Characteristics of Youth Seeking Emergency Care for Assault Injuries

WHAT'S KNOWN ON THIS SUBJECT: The emergency department (ED) is a critical contact location for youth violence interventions. Information on the characteristics of youth, motivations for fights leading to the injury, as well as previous health service utilization of assault-injured youth seeking care is lacking.

WHAT THIS STUDY ADDS: Assault-injured youth are characterized in a systematic sample demonstrating frequent ED use and the need to address substance use and lethal means of force in interventions; context and motivations for the fight are novel and will inform intervention efforts.

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KEY WORDS

youth, assault, injuries, alcohol, emergency department

ABBREVIATIONS

CTS—Conflict Tactics Scale

ED—emergency department

ISS—injury severity score

OR—odds ratio

RA—research assistant

Dr Cunningham had full access to all the data in the study, takes responsibility for the integrity of the data and the accuracy of the data analysis, was responsible for the acquisition of data, conceptualized the study, is an investigator on the grant funding this work, was responsible for the statistical analysis plan, and wrote the initial draft of the manuscript; Drs Ranney and Newton and Ms Woodhull were responsible for the statistical analysis plan, wrote the initial draft of the manuscript, and contributed to the final manuscript; Dr Zimmerman conceptualized the study, is an investigator on the grant funding this work, and contributed to the final manuscript; Dr Walton had full access to all the data in the study, takes responsibility for the integrity of the data and the accuracy of the data analysis, was responsible for the acquisition of data, conceptualized the study, is an investigator on the grant funding this work, was responsible for the statistical analysis plan, wrote the initial draft of the manuscript, and contributed to the final manuscript; and all authors approved the final manuscript.

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abstract

OBJECTIVE: To characterize youth seeking care for assault injuries, the context of violence, and previous emergency department (ED) service utilization to inform ED-based injury prevention.

METHODS: A consecutive sample of youth (14–24) presenting to an urban ED with an assault injury completed a survey of partner violence, gun/knife victimization, gang membership, and context of the fight.

RESULTS: A total of 925 youth entered the ED with an assault injury; 718 completed the survey (15.4% refused); 730 comparison youth were sampled. The fights leading to the ED visit occurred at home (37.6%) or on streets (30.4%), and were commonly with a known person (68.3%). Fights were caused by issues of territory (23.3%) and retaliation (8.9%); 20.8% of youth reported substance use before the fight. The assault-injured group reported more peer/partner violence and more gun experiences. Assault-injured youth reported higher past ED utilization for assault (odds ratio [OR]: 2.16) or mental health reasons (OR: 7.98). Regression analysis found the assault-injured youth had more frequent weapon use (OR: 1.25) and substance misuse (OR: 1.41).

CONCLUSIONS: Assault-injured youth seeking ED care report higher levels of previous violence, weapon experience, and substance use compared with a comparison group seeking care for other complaints. Almost 10% of assault-injured youth had another fight-related ED visit in the previous year, and ~5% had an ED visit for mental health. Most fights were with people known to them and for well-defined reasons, and were therefore likely preventable. The ED is a critical time to interact with youth to prevent future morbidity. *Pediatrics* 2014;133:e96–e105

Violence is the second leading cause of death for Americans aged 15 to 25 years, and the leading cause of death for black males aged 15 to 25 years.¹ In 2011 alone, >700 000 youth aged 10 to 24 years presented to the emergency department (ED) for assault-related injuries.² In one of the few longitudinal hospital-based studies, 20% of youth admitted to the hospital for a violent injury would die of homicide within 5 years.³ Similarly, longitudinal community studies report that previous episodes of violence are the strongest predictor of future violent injury.^{4,5}

EDs successfully identify and intervene with victims of other forms of violence, such as child maltreatment and elder abuse.^{6–10} Yet, routine interventions for assault-injured youth seeking ED care are lacking. Several national medical organizations have identified youth violence as a preventable public health problem.^{11–13} Because youth involved with violence are more likely to be seen in the ED than in other settings,¹⁴ the ED is often advocated for as an appropriate location to intervene with victims to change their future morbidity and mortality. ED-based interventions are beginning to take root in many hospitals using an array of theoretical approaches including brief motivational interviewing styles, linkage to mentoring programs, as well as case-based strength approaches.^{15–20}

To guide growing ED-based efforts in preventing violence more information is needed about the characteristics of youth presenting for ED care with acute assault-related injury. Instead, previous researchers have focused on non-ED samples, typically school-based.^{21,22} Existing ED literature on the characteristics of acutely injured youth has had several limitations related to sampling, including using data from chart review only,²³ a convenience sample of ED youth,²⁴ small sample

sizes,²⁴ or only youth admitted to the trauma unit.^{23,25–35}

If EDs are to develop effective interventions for youth violence, it is of critical importance to understand who is presenting to the ED with acute violent injury, why they got in a fight, who the fight was with, and what modifiable characteristics distinguish them from their peers. These data are not currently available among a consecutive sample of assault-injured youth, which limits the development of ED-based interventions. Data from community samples can and have been used to inform interventions but cannot replace the need to characterize youth seeking ED care for violence to inform ED-based interventions.

To address the existing gaps in the literature on youth with acute assault-related injury, this study aims to (1) describe the demographic, ED utilization, and risk factor characteristics of a consecutive sample of youth (ages 14–24 years) who present to an urban ED for care of an acute assault-related injury, compared with a sample presenting for non-violence-related ED care, and (2) describe the characteristics of the fight leading to the injury.

METHODS

Study Design and Setting

This article presents cross-sectional screening data from an ongoing longitudinal study examining violent experiences among urban youth treated in the ED. The study was conducted in the ED of a level 1 trauma center, which is 57% African American with poverty and crime rates comparable to other urban centers.^{36,37} Study procedures were approved by the Institutional Review Boards at the University of Michigan and Hurley Medical Center, and a National Institutes of Health Certificate of Confidentiality was obtained.

Selection of Participants

Patients aged 14 to 24 years presenting to the ED for assault-related injury, along with a proportionally sampled (by gender and age group [14–17, 18–20, and 21–24 years]) comparison group of patients seeking care for non-assault-related care, were eligible for screening. This age group was chosen to coincide with the Centers for Disease Control and Prevention definition of youth violence.³⁸ Age-appropriate patients were identified through an electronic patient census and were approached by research assistants (RAs; December 2009 to September 2011). Assault-related injuries were defined as those intentionally caused by another person and assessed by RA interview. The comparison group was proportionally sampled on the basis of the age group and gender of the participants recruited in the assault-injury group. For example, after a 16-year-old female subject with an assault-related injury was screened and enrolled into the study, RA staff would approach sequentially, by triage time, the next female subject from the 14- to 17-year-old age group to screen. Recruitment proceeded 7 days per week, 24 hours per day, Thursday through Monday, and 5:00 AM to 2:00 AM Tuesday through Wednesday.

Patients presenting with a chief complaint of acute sexual assault, suicidal ideation or attempt, or child maltreatment were excluded from the survey because they already receive ED services. Patients were excluded if they had insufficient cognitive orientation due to conditions that would preclude informed consent or if the patient was a minor who had no parent/guardian available to give consent. Patients who were too unstable in the ED were recruited on the hospital floor if they stabilized within 72 hours of presenting to the ED.

Study Recruitment

Patients self-administered a ~25-minute computerized survey on a tablet computer and received a \$1.00 gift. This survey was administered privately; family and friends of the patient could not hear or see the survey.

Measurements

Demographic Characteristics

Information on age, gender, race, ethnicity, employment, cohabitation with a partner, number of children, level of education, health insurance status, and receipt of public assistance was collected by using measures from the National Longitudinal Study of Adolescent Health and the National Institutes of Health Drug Abuse Treatment Outcome Study of Adolescents.^{39–42}

Previous Violence

Previous 6-month peer violence measures were taken from the National Longitudinal Study of Adolescent Health.^{40,41} These included questions on how often adolescents were involved in a group fight, involved in a serious physical fight, had used alcohol before fighting, and had caused injury to another person that required medical attention. Current and lifetime gang affiliation was assessed with 2 questions from the Tulane National Youth Study.^{43,44} Attitudes toward aggression were assessed by using a retaliation subscale of Children's Perceptions of Environmental Violence.^{45,46} Items were reverse coded such that higher scores indicated more willingness to endorse retaliation. Dating/partner violence was assessed with the Revised Conflict Tactics Scale (CTS-2).⁴⁷ Frequency of weapon perpetration and weapon victimization was measured by using questions from the CTS-2 response scale.^{40,43,48,49}

Substance Use

Substance use was assessed by using the Alcohol Use Disorders Identification

Test and the Alcohol, Smoking, and Substance Use Involvement Screening Tests.^{50–53} Substance misuse was defined as meeting criteria for alcohol misuse (Alcohol Use Disorders Identification Test scores of ≥ 3 for ages 14–17 years and ≥ 4 for ages 18–24 years) or drug misuse (Alcohol, Smoking, and Substance Use Involvement Screening Tests score of ≥ 4 for any drug subscales).

Characterization of Assault Resulting in Index ED Visit

The assault-injured group also responded to the Time Line Follow Back Aggression Module.^{54–56} This module asked participants about the fight leading to the participant's current ED visit, including the following: location of the conflict (eg, in his/her home), participant's relationship with the other person/people involved in the fight (eg, boyfriend), reason(s) for conflict (eg, rumors), the type(s) of aggressive behaviors involved (eg, use of gun), substance(s) consumed before/during the fight, and whether any injuries resulted. Response options for the Time Line Follow Back Aggression Module paralleled those in the CTS,⁵⁷ which have been used successfully in past studies.^{54,55}

Current and Past-Year ED Utilization

Chart review data, including disposition and mechanism of injury (E-code) for the current visit, were collected by a trained RA, who calculated injury severity scores (ISSs) for the current injury.⁵⁸ Similar data were collected for every ED visit in the year before the index visit and categorized into "medical," "psychiatric," or "injury-related." Injury visits were coded as "assault-related," "unintentional injury," or "self-harm" per standard E-codes⁵⁹; 5% of charts were audited (error rate $\leq 5\%$).⁶⁰ Previous work¹⁵ reveals that 90% of youth seeking ED care at this site use this ED exclusively.

Analysis

Data were analyzed by using SAS 9.2 I software (SAS Institute, Cary, NC). Descriptive and bivariate statistics (*t* test) were calculated by group (assault-injured versus comparison). Conditional logistic regression accounting for gender and age was used to evaluate correlates of assault-related injury. When building the conditional logistic regression model, we first looked at the bivariate analysis to identify covariates. We selected all the variables whose *P* values were $< .05$. We then fit a conditional logistic regression model using the variables selected in the bivariate analysis. Violence variables could not all be included in the model due to multicollinearity with each other. Weapon involvement was retained/chosen as the 1 violence variable to include because it is a theoretically important and severe behavior and provided a good model fit without evidence of multicollinearity.

RESULTS

Over the 18-month recruitment period, 1718 youth presented to the study ED for acute care of an assault-related injury. Among youth with assault-related ED visits, 81.4% ($n = 1399$) presented for care during sampling times; 27.6% ($n = 474$) were ineligible for participation. Most (91.8%; $n = 849$) potentially eligible youth with an acute assault-related injury were approached by an RA, and 84.6% ($n = 718$) of assault-injured youth who were approached completed the screen; 730 youth in the comparison group (86.3% of those approached) completed the survey (Fig 1).

Description of Acutely Assault-Injured Youth Versus Comparison Sample

In accordance with the sampling strategy, age and gender of the assault-injured and comparison groups were similar. Of note, almost half of the

FIGURE 1

Project Flint Youth Injury Study (FYI) screening flowchart (December 2009 to September 2011). ^a See Methods section for details.

assault-injured youth (49.2%; $n = 353$) were female. On bivariate analysis of demographic factors, the assault-injured group differed from the comparison group in a few ways; the assault-injured youth were more likely to have children, to be receiving public assistance, and to have dropped out of high school. They were less likely than the comparison group to be cohabiting with a partner and less likely to have a parent with some college education (Table 1).

Almost half of all youth reported past 6-month substance misuse. Those in the assault-injured group, however, had significantly higher odds of reporting substance misuse (Table 1). In particular, members of the assault-injured group were more likely than those in

the comparison group to report misuse of alcohol (23.5% vs 17.8%; odds ratio [OR]: 1.42), marijuana (46.7% vs 32.5%; OR: 1.98), and cocaine (3.2% vs 1.0%; OR: 2.75).

Similarly, although both groups reported violence exposure in the previous 6 months, on bivariate analysis the assault-injured group reported significantly higher rates of all measured violence variables, except for gang membership, which was very low in both groups. Their fights were more consequential: more likely to be self-defined as “serious” and more likely to have caused injuries. Youth in the assault-injured group were almost 3 times as likely to be involved with partner violence. They were more likely to endorse aggressive attitudes, meaning

that they were at high risk of retaliatory violence. Finally, the assault-injured group had more than twice the odds of having consumed alcohol before a fight and had significantly higher frequencies of weapon exposure (perpetration or victimization) (Table 1). Indeed, the assault-injured youth reported 5 times higher frequency of weapon use (53.6% [$n = 385$] vs 20.0% [$n = 146$]; OR: 4.63; 95% confidence interval: 3.66–5.84) and 4 times the odds of having had a weapon used on them (56.4% [$n = 405$] vs 24.4% [$n = 178$]; OR: 4.01; 95% confidence interval: 3.21–5.02) (data not presented in Table 1).

Past-Year ED Service Utilization of the Acutely Assault-Injured Youth Versus Comparison Sample

Approximately half of the participants in each group reported visiting the ED for any reason in the past year. Assault-injured youth who visited the ED for an assault in the past year were more likely to be seen for assault injuries and mental health chief complaints. Assault-injured youth who visited the ED for an assault were often seen multiple times in the ED, with a mean number of 4.6 ED visits (SD = 3.9 visits), and assault-injured youth who visited the ED for mental health chief complaints were seen a mean number of 2.6 times in the past year (SD = 2.2 times). The comparison group was more likely to have presented for medical evaluation, and those youth in this group who came to the ED sought care various times (mean = 9.1; SD = 10.9) (Table 1).

Multivariate Analysis

Multivariate analysis revealed that youth seeking care for an assault-related injury reported higher frequency of weapon exposure (perpetration or victimization) in the past 6 months, higher odds of having dropped out of high school, and higher odds of substance misuse in the past 6 months than youth in the

TABLE 1 Bivariate Analysis Demographic, Service Utility, and Substance and Violence Characteristics by Group and Entire Sample

Variable	Total Sample (<i>N</i> = 1448, 100%)	Assault-Injured Youth (<i>n</i> = 718, 49.6%)	Comparison Group (<i>n</i> = 730, 50.4%)	OR (95% CI)
Demographic characteristics				
Age, mean ± SD	(19.7 ± 2.74)	(19.7 ± 2.64)	(19.6 ± 2.84)	1.02 (0.98–1.06)
Male, <i>n</i> (%)	742 (51.2)	365 (50.8)	377 (51.6)	1.03 (0.84–1.27)
African American, <i>n</i> (%)	845 (58.4)	436 (60.7)	409 (56.0)	1.21 (0.98–1.50)
Cohabiting with a partner, <i>n</i> (%)	356 (24.6)	145 (20.2)	211 (28.9)	0.62 (0.49–0.79)
Has at least 1 child, <i>n</i> (%)	549 (37.9)	295 (41.1)	254 (34.8)	1.31 (1.06–1.62)
Dropped out of high school, <i>n</i> (%)	347 (24.0)	218 (30.4)	129 (17.7)	2.03 (1.59–2.60)
Parent has at least some college, <i>n</i> (%)	650 (44.9)	299 (41.6)	351 (48.1)	0.77 (0.63–0.95)
Receives public assistance, <i>n</i> (%)	1012 (69.9)	521 (72.6)	491 (67.3)	1.29 (1.03–1.61)
Substance misuse, <i>n</i> (%)	686 (47.4)	394 (54.9)	292 (40.0)	1.84 (2.26–4.48)
Violent behaviors/experiences				
Been in a serious fight, <i>n</i> (%)	802 (55.4)	578 (80.5)	224 (30.7)	9.33 (7.32–11.89)
Drank alcohol before a serious fight, <i>n</i> (%)	239 (16.5)	163 (22.7)	76 (10.4)	2.53 (1.88–3.93)
Hurt someone badly enough to need treatment, <i>n</i> (%)	306 (21.3)	189 (26.3)	119 (16.3)	1.83 (1.42–2.37)
Experienced any partner violence, <i>n</i> (%)	752 (51.9)	471 (65.6)	281 (38.5)	3.05 (2.46–3.78)
Endorsed gang membership, <i>n</i> (%)	44 (3.0)	24 (3.3)	20 (2.7)	1.23 (0.67–2.24)
Endorse aggressive attitudes ^a , mean (SD)	2.4 (0.5)	2.5 (0.5)	2.3 (0.5)	2.07 (1.69–2.54)
Recent weapon experience (perpetration or victimization) ^b , mean (SD)	1.9 (3.2)	2.7 (3.4)	1.1 (2.8)	1.28 (1.21–1.35)
ED service utilization in past year (type of visit) and type of health insurance, <i>n</i> (%)				
For any reason	729 (50.4)	350 (48.8)	379 (51.9)	0.88 (0.72–1.08)
For assaults	93 (6.4)	62 (8.6)	31 (4.2)	2.16 (1.38–3.38)
For unintentional injuries	200 (13.8)	98 (13.6)	102 (13.9)	0.94 (0.69–1.28)
For medical reasons	599 (41.4)	275 (38.3)	324 (44.4)	0.63 (0.48–0.82)
For psychiatric reasons	47 (3.2)	31 (4.3)	16 (2.2)	7.98 (1.07–3.66)
For self-harm injuries	10 (0.7)	7 (1.0)	3 (0.4)	2.32 (0.60–9.03)
Private insurance	132 (9.1)	63 (8.8)	69 (9.4)	1.17 (0.91–1.50)
Public insurance	855 (59.2)	441 (61.4)	414 (56.8)	1.13 (0.78–1.62)

CI, confidence interval.

^a Evaluated on a scale where higher scores indicated more willingness to endorse aggressive attitudes.^b Frequency of experience.

comparison group. The assault-injured group was significantly less likely to report cohabiting with a partner. Goodness-of-fit of the model was acceptable (Wald $\chi^2 = 127.0$, $P < .0001$) (Table 2).

Characterization of the Fight Resulting in Index ED Visit for the Assault-Injured Group

The majority of fights occurred at someone's home (37.6%) or in the streets (30.4%) (Table 3). Most of the fights were with people whom the participant knew (acquaintance, 25.1%; romantic partner, 24.4%; friend, 10.0%; family member, 8.8%). Approximately one-quarter of the fights were with a stranger. Only 1.0% of youth in this urban setting reported that their fight was gang-related. Approximately one-fifth (20.8%) of assault-injured youth

reported substance use immediately before or during the fight.

Most of the fights (85.7%) involved high-severity violence (ie, punching, kicking). Participants self-reported a substantial portion of fights involving weapons that could cause lethal force (eg, sharp objects [15.0%] or firearms [14.1%]). The group overall had a low mean ISS, consistent with single-body system injury; however, 15.6% of the assault-injured youth were admitted and had a mean ISS of 7.46 (SD = 7.28). The most commonly reported reasons for the fights were as follows: because of issues of territory (eg, "doesn't belong in my neighborhood"; 23.3%), being angry or in a bad mood (25.2%), for self-defense/protection (26.4%), in "retaliation" (8.9%), to protect/defend a friend/family member/lover (4.3%), because they were drunk/high (4.3%),

or just because they "got shot" without further explanation (6.4%). Other less commonly noted reasons were arguments stemming from jealousy (1.1%), disagreements about personal belongings (0.3%), or related to bullying (1.3%).

DISCUSSION

This article presents self-reported data from a systematic sample of assault-injured youth compared with an age- and gender-matched group of peers presenting to the ED for non-violence-related chief complaints. This study screened >80% of all the assault-injured youth presenting to an urban ED over a 21-month period, and consented ~85% of eligible assault-injured youth. By using a systematic recruitment process, a proportionally recruited comparison group by age and gender, and validated measures of demographic

TABLE 2 Conditional Logistic Regression Analysis Predicting Assault-Related Injury

Risk Factors	OR (95% CI)
Public assistance	1.07 (0.84–1.37)
Dropped out of high school	1.65 (1.25–2.17)
Has at least 1 child	1.23 (0.95–1.60)
Parent education	0.90 (0.72–1.13)
Cohabiting with a partner	0.50 (0.38–0.65)
Substance misuse	1.41 (1.11–1.78)
Recent weapon use (perpetration or victimization)	1.25 (1.18–1.31)

Wald $\chi^2 = 127.0$, degrees of freedom = 7; $P < .0001$. CI, confidence interval.

characteristics and violence-related risk factors, this study extends previous work on youth violence in the ED setting.

Most important, this study reveals that an assault-related ED visit is only the “tip of the iceberg.” In the past 6 months, most youth had been in a serious fight, two-thirds had experienced partner violence, and they had a mean of 4.6 ED visits in the past year. These rates are significantly higher than those of the comparison group, and as high as or higher than those reported in other ED-based studies.^{24,61} Youth with assault injuries were also more likely to have visited the ED in the past year for mental health issues, highlighting the need in resource-poor communities for access and availability of mental health services for the prevention of violence.

Although additional prospective data are needed, an ED visit for acute assault-related injury may be a marker of being at high risk of future violence-related injury. Notably, many patients had a low ISS, reported having passed out, sustained a fracture, or needed stitches. These injuries may not result in hospital admission, but the societal costs in terms of medical care, lost productivity, and mental health consequences are not inconsequential.^{62,63}

Some emergency physicians question whether the ED is the proper setting to identify and intervene with victims of youth violence. The results of this study highlight that the ED may be an important setting to access high-risk youth and intervene. The vast majority of assault-injured youth were discharged directly to home, so they will not be exposed to hospital-based violence intervention programs.^{18,64} In multivariate analysis, the assault-injured youth were less likely to be in school, so they will not have access to school-based violence prevention.^{65,66} Previous work^{14,67–69} also indicates that these high-risk youth, particularly boys, are unlikely to have any other source of medical care. Approximately one-third of the youth

sampled here are uninsured; thus, not only are they unlikely to be enrolled in primary care or pediatrician-initiated violence prevention programs but the hospital costs for the care of their current and potentially subsequent violent injuries are not reimbursed. Correspondingly, both the assault-injured and comparison youth in our study reported high rates of past-year ED visits. Therefore, the ED visit may provide a unique opportunity to break the cycle of violence.

Although youth violence is often portrayed by the media as an issue of young minority men in gangs,⁷⁰ our results reveal the fallacy of this stereotype. Although this situation may be different in other communities, in our study 3%

TABLE 3 Characterization of the Fight That Caused the ED Presentation for Care

Variable	Value
Where did the fight occur?, <i>n</i> (%)	
At a home/porch/stoop/steps	225 (37.6)
In the street	182 (30.4)
In a store	35 (5.8)
At school	32 (5.3)
At a bar	22 (3.7)
Other	103 (17.2)
Who was the fight with?, <i>n</i> (%)	
Person known to youth (acquaintance, friend, partner)	457 (68.3)
Acquaintance (person seen before or know who they are)	168 (25.1)
Current or past partner (partner violence)	163 (24.4)
A friend	67 (10.0)
Family member	59 (8.8)
Gang member	7 (1.0)
Stranger (person did not know or could not identify)	176 (26.3)
Other	28 (4.2)
Violence experience during fight ^a , <i>n</i> (%)	
Severe violent behaviors	615 (85.7)
Moderate violent behaviors	38 (5.3)
Injury or services needed after the fight (self-reported medical care), <i>n</i> (%)	
Sprain, bruise, or small cut because of this fight	530 (79.3)
Broken bone, passed out, needed stitches because of this fight	266 (39.8)
Needed surgery or an operation and/or admitted to the hospital	28 (4.2)
Alcohol/drug use and the conflict, <i>n</i> (%)	
Used alcohol or drugs before or during the conflict	141 (20.8)
Used alcohol before or during the conflict	123 (18.4)
Used any drugs before or during the conflict	107 (15.8)
ED visit	
ISS, mean (SD)	2.6 (3.8)
ED disposition to home, <i>n</i> (%)	603 (84.0)

N = 718. Percentages may not add to 100% due to rounding and/or the ability to choose multiple answers.

^a The CTS2 defines severe violence as shooting, stabbing, kicking, punching, hitting with something that could hurt, beating someone up, burning or scalding someone on purpose, choking, or slamming against a wall; and defines moderate violence as twisting an arm or hair, pushing, shoving, grabbing, slapping, or throwing something that could hurt. These could be behaviors the participant did in the conflict or that the other person did in the conflict.

of youth self-identified as being gang members. Among ED patients in our study, youth violence was more likely to be caused by personal acquaintances than by group-related conflicts. This finding may be because youth with fatal injuries did not survive to be treated in the ED. Violence with people who are not strangers is inherently more preventable and addressable in interventions. Only half of the assault-injured youth were male, confirming recent data that found increasing rates of violence among young women,^{71,72} and emphasizes the importance of developing interventions for both genders. Notably, in analysis, race was not significantly associated with an assault-related injury. This article provides novel information on the antecedent reasons for fights among assault-injured youth. Data reveal that a bad mood (and to a lesser, but important, extent retaliation) was a common reason for fights, and interventions should address coping skills, including anger management, as well as identify alternatives to retaliation to break the cycle of violence. Although the importance of mental health, as both a precedent to and consequence of youth violence, has previously been described,^{73,74} to our knowledge no one

has reported these reasons among patients seeking care for violent injury. Exposure to violence as a child increases the risk of involvement with violence as a young adult.⁷⁵ It is worth highlighting that ~40% of the youth in this study report being parents. Because ~65% of youth report partner violence, it is likely that their children are being exposed to the violence. Thus, effective interventions that reduce violence involvement among these parents may help to reduce the cycle of violence among future generations.

This study was conducted at a single urban site, limiting its generalizability, especially to suburban settings. Although a potential limitation, the use of a self-report computer survey has previously been shown to have high reliability and validity among adolescents for risk behaviors including violence and substance use.^{76–83} Finally, the chart review for service utilization was conducted within one health system and thus our estimates of past ED service use may be underestimated. Nevertheless, it is the only level 1 trauma center in the study city, and our previous work reveals that 90% of youth in the hospital system obtain all their care in this health system.

CONCLUSIONS

Assault-injured youth seeking ED care report higher levels of previous violence, weapon exposure, and substance use compared with a group of peers seeking care for non–assault-related care. Almost 10% of assault-injured youth had another fight-related ED visit in the previous year and were more likely to have had an ED visit for mental health reasons. Most fights were with people known to them, and for well-defined reasons. Our results suggest that the ED visit may present a unique and important opportunity for prevention. The ED is a critical time to interact with youth at high risk of violent behavior and victimization in an effort to prevent future ED recidivism, retaliation, subsequent morbidity and mortality, and health care costs of assault injuries.

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