Abstract:
Emergency medicine practitioners often see young patients who are treated for injuries sustained during a violent encounter, most often with a peer from the same neighborhood. In addition, many more of the children and adolescents that we see are affected by the violence that surrounds them in their homes, neighborhood, and schools. This article reviews the prevalence and impact of interpersonal violence on our young patients, offers a suggested management approach to assault-injured children and adolescents who visit the emergency department, and reviews multidisciplinary outpatient programs for which the emergency department practitioners can advocate within their medical and social services systems.

Keywords:
violence; adolescence; assault; trauma; emergency medicine

The Assault-Injured Youth and the Emergency Medical System: What Can We Do?

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1522-8401/$ - see front matter

Interpersonal violence occurs between 2 or more noncaretaker individuals in which at least one individual intended to harm the other. These altercations frequently occur in the school, schoolyard, or street. Interpersonal violence differs from family violence, such as child abuse and domestic violence, in which an individual has a significant power or caretaking responsibilities over another within the relationship. Although most health care systems have protocols for the management of child abuse and some for domestic violence, there is no mandated reporting system or accepted psychosocial protocol for patients who are injured through interpersonal violence.

The 2 most widely understood facts about youth violence are as follows: (1) violence victimization and perpetration peak during the adolescent and young adult years, and (2) a very small percentage of adolescents perpetrate the most serious forms of violence, and correspondingly, a very small percentage of adolescents require medical attention as a consequence of violent

victimization.[1,2] Less well known is the fact that there is significant overlap among adolescent victims and perpetrators; victims of violence are more likely to have histories and subsequent likelihoods of violence perpetration and vice versa.[3] Being a victim of physical assault increases the risk of subsequent violent offending by up to 350%.[4] Indeed, these individuals tend to have a common set of risk factors and engage in similar lifestyle activities in high-crime areas.[5] The phenomenon of the same individuals appearing repeatedly in the same hospital has led to much frustration among emergency department (ED) physicians[6] and has prompted the American Academy of Pediatrics to issue a model protocol to address the needs of adolescent assault victims.[7] In that same year, the Society of Academic Emergency Medicine issued its own report and recommendations regarding the role that the emergency physician can play in reducing subsequent violence among assaulted victims treated in the ED.[8]

Clearly, serious violent injury provides a tragic and potentially teachable moment in an adolescent's life.[9] Moreover, there is growing evidence and consensus that much can be done in the hospital setting to reduce the rate of injury recurrence and subsequent retaliatory violence.[10]

A NATIONAL PROBLEM

Interpersonal violence remains a major issue in American society. Homicide is the second leading cause of death for all Americans aged 15 to 24 years, accounting for almost 4700 deaths in this age group in 2010, a statistic that is unchanged in more than a decade.[11] Homicide rates do not tell the entire story, however; in 2011, almost 800 000 youth aged 15 to 24 years were cared for in an ED for injuries caused by violence, and 11% of these patients were hospitalized.[12] In urban communities, interpersonal intentional injuries account for 25% of all youth injuries, 45% of hospitalizations, and 85% of injury deaths.[13] However, children from all settings are vulnerable; one study found that 89% of students in a suburban school knew someone who had been robbed, beaten, stabbed, shot, or murdered, and 57% had witnessed such an event. In a comparative urban school, 96% of students knew the victim of a violent crime, and 88% had witnessed an attack.[14] Similarly, in a study of multiple towns and cities in Connecticut, although a higher proportion of poor, urban children witnessed violence, those in non–poor, suburban communities were not immune.[15] Johnson and colleagues[16] report that rural teens were as or more likely than urban and suburban teens to display violent behavior or experience victimization.

Importantly, even homicide rates combined with hospital visits do not paint a complete picture of violence-related morbidity. Recently, more subtle effects of "indirect" exposures to violence have been identified. Adolescents, especially girls, who witness violence are more likely to experience symptoms of posttraumatic stress disorder than are adolescents who do not witness violent events.[17]

ASSESSMENT OF THE ASSAULT-INJURED YOUTH

Given the significant impact of interpersonal violence, we need to consider our assessment of assault-injured youth. Similar to how we assess patients with asthma, diabetes, or other illnesses for their risk of returning in similar or worse condition, we can try to assess how likely the youth is to return with another violent injury or subsequently injure another individual, frequently motivated by retaliation and a norm of retribution.[18] This assessment can be divided into 3 components: a brief screening for immediate safety risk, a screening instrument to identify longer-term psychosocial risk, and a more thorough assessment of problem areas identified by the screening instrument. Based on the results from such assessments, risk and protective factors can be identified and a posthospital release plan established.

A systematic and sensitive approach to questioning adolescents removes blame and judgment, discusses confidentiality and reporting requirements, and engenders the adolescent's trust that the ED team is interested in his or her safety and well-being. The entire ED staff should be well attuned to the complexities that may lead to a single violent injury.[6] As mentioned, it is not useful to apply the terms "victim" and "perpetrator" because, often, the "victim" that presents to the ED may have instigated the fight that he or she subsequently "lost." Receptive and positive attitudes are key: adolescents do not generally view the ED as the appropriate place to be counseled about violence.[19] They are remarkably attuned to nonverbal and verbal cues about the feelings of the adults around them, and it is important to convey to them that the downward path into ever increasing and repeated violence is not inevitable. To write these patients off as hopeless or forever caught up in the mire of violence is akin to a self-fulfilling prophecy.[20,21] Although they, like all of us, are responsible for their actions, multiple factors contribute to violence, some of which are out of their control.

Therefore, a "trauma-informed" approach to the violently injured patient is necessary to avoid increasing the impact of the event on their presenting complaints, their reactions to treatment interventions, and their adherence to discharge recommendations.[22] This approach takes into consideration how community and institutional stressors such as poverty and racism and individual-level stressors such as poor nutrition, family dysfunction, and family violence influence how an adolescent copes with a threatening situation. The response to stress, driven more by the limbic system than by the cortex, needs to be considered when discussing how we counsel an assault-injured youth on how to avoid retaliation or risky situations.[23] For example, asking "what happened to you?" rather than "what's wrong with you? or "what did you do?" avoids the perception that they are being judged and creates a dialogue rather than an interrogation. The patient can be retraumatized if not allowed some control over the depth and direction of the conversation about event.[24]

Trauma-informed emergency providers have also learned to recognize acute stress reactions, which can be additive to these conditions and complicate this picture.[25,26] These include symptoms of hyperarousal, reexperiencing the event, dissociation (feeling like you were not really "there"), and avoidance.

Brief Screen for Immediate Safety Risk

The Immediate Safety Screen for Violently Injured Youth outlines questions that gauge the potential for immediate danger to the patient or others as a result of the violent incident (Table 1). The questions do not have to be used verbatim; physicians or other health care providers should choose language that is most comfortable for them but also understandably direct in gathering the perceived intentions of the patent, family, and friends. Much of this information can be asked while obtaining the circumstances that led to the ED visit, naturally fitting into the "event" portion of the medical history. Asking first if the patient knows the other person or persons who were involved in the incident ascertains the risk for retaliation. If this is a truly random act such as mugging or robbery, then it is unlikely that the involved parties will meet again; however, such encounters are the exception rather than the rule.[27] Importantly, there may be some confusion around the term "know the person," such that the youth may, in fact, recognize the assailant from the neighborhood or school but not be familiar with his or her family, friends, or "business." Therefore, a negative response should be confirmed by asking if there is a possibility of even just meeting or seeing the other involved person(s) again. Stated intent to retaliate while in the ED conveys high risk of actual violent interactions with the involved parties in the 2 months subsequent to the ED visit, including a 5-fold risk of the youth threatening to hurt someone.[28] Copeland-Linder and colleagues[29] have shown that retaliatory attitudes ascertained during an interview soon after a violent event were associated with higher levels of aggression and fighting behavior more than 6 months after that event. Asking about whether the police or other authorities are or will be involved gauges the "protective" factor of the youth and family "delegating justice" rather than taking it into their own hands. Unfortunately, there is often distrust between the criminal justice system and poor, urban community members, in addition to a culture of "no snitching" in some areas, so the suggestion to "allow the police to handle it" may meet with some skepticism or resistance.

TABLE 1. The Children's Hospital of Philadelphia violence screening tool.

Do you know the person that hurt you?
Do you think that the fight or argument that caused this is over?
Do you plan to hurt anyone because of what happened?
Do you think that your friends or family will hurt anyone because of what happened?
Have you reported this incident to the police or other authority, and if not, do you want to?

Assessment of Long-Term Psychosocial Risk and Protective Factors

The second component of the assessment of assault-injured youth involves multiple socioecologic domains. Given the prevalence of violence among our youth, it is crucial that we work toward programs that can reduce the immediate and long-term effects of these events. Much work has been done to identify particular risk factors and protective factors for violent injury; understanding these factors will allow for more targeted interventions. These include individual, family, and peer factors such as psychological functioning, risk, and protective behaviors including gang involvement and drug and/or alcohol use, symptoms of psychological trauma, and the adolescent's interests, hobbies, and coping skills. The interaction between early childhood experiences and mental health is

undeniable, and this blurs the line between psychosocial and environmental risk factors.[30-33] Asking such personal questions of an adolescent with whom we do not have an existing relationship takes skill and understanding. Certainly, adolescents, particularly those youth who have been or are currently involved in the criminal or juvenile justice systems, are cautious about revealing themselves to unfamiliar adults. The person chosen in the hospital setting to conduct screening and assessments and make referrals to outside agencies must be seen as trustworthy and nonjudgmental. Moreover, the assessments should not be "done" to the patients and their families; rather, the adolescents and their families must be actively engaged as partners in figuring out how to prevent any future violent events or stressful life experiences.[20] To assist in this task, several violence-related screening and assessment instruments have been successfully used in the hospital setting, some of which can be administered via a computer, and cover multiple domains associated with assaultive injury including but not limited to the following: retaliation, peer aggression, attitudes toward fighting and aggression, alcohol and substance abuse, psychological trauma, and internalizing and externalizing behaviors including depression, parental involvement, and future orientation.[10,25,26,34-37]

Demographic Risk Factors

Multiple demographic risk factors including sex, race, family composition, educational level of the youth and caretakers, and income have all been associated with the risk of violent injury. For example, boys are more often involved in community violence outside dating relationships.[38] Of note, the influence of environmental and behavioral factors may render some demographic variables less important in predicting violent behavior.[39] For example, although black race is often cited as having a high correlation with violent injury, investigators have shown that this becomes less important after adjustment for income, sex, perception of intent, and exposure to violence.[38,40] Similarly, high mobility (moved primary residence 2 times in the past 4 years) may be associated with a disrupted family, which can also place the child at risk for perpetration of and victimization by violence,[38,41] as can family dysfunction, family violence, and inadequate parental monitoring.[42] Some demographic factors such as access to a gun in the home are more clearly associated with violent injury even after other risk indicators are statistically controlled.[43,44] Certainly, living in a neighborhood with high rates of crime and a high level of concentrated poverty increases the risk of adolescent injury and violent perpetration.[45] Exposure to violence on television and other media may reinforce false stereotypes,[46] which is particularly problematic for youth who have been repeatedly told they cannot succeed and feel that the only way they can secure basic positive status, or "juice," is through violence.[47] Moreover, violence is often perceived by youth in the inner city as a way to prevent future victimization.[18]

Psychosocial Characteristics

An individual's attitude or temperament can impact the risk of violent injury. Assessment of the circumstances under which the youth would engage in violence can be very important in determining that child's overall risk.[38,48] For example, asking "what situation would make you fight" is a way of assessing the child's reactivity. Answers to this question, such as "if someone looks at me the wrong way," are more concerning than "if someone hits me first." Similarly, asking about grades, how often he or she misses school, and how they feel about teachers or other students at school are also associated with violence risk.[41,49,50] School connectedness or school engagement including being close to others at school, feeling like part of the school, and feeling that teachers treat students fairly is perhaps the most important protective factor in minimizing the risk of subsequent involvement in violent activities.[51] If there are significant issues that relate to a particular school, most urban centers have school advocacy programs that can assist students and their parents/guardians in finding and enrolling in the most appropriate school. Some, but certainly not all, school districts want to avoid recurrences of violence and can be helpful in identifying the best school setting. Moreover, school disengagement or dropping out of school is powerfully associated with delinquent and antisocial behavior.[41,48] Violent youth, especially girls, are also more likely to have poor mental health compared with their nonviolent counterparts.[48] Self-reported depression, anxiety, and stress are associated with handgun carrying, which, in turn, significantly increases the youth's risk of violent injury.[40]

Behavioral Characteristics

The behavioral risk factor most strongly associated with youth violence is weapon carrying. DuRant and colleagues[52] have shown that carrying a weapon is a very strong indicator of frequency of fighting and

a tendency to use violence to resolve interpersonal conflict. Furthermore, there is considerable evidence that weapon carrying among teenagers is quite prevalent. In a study of more than 12 000 students in grades 7 through 12, more than 12% report carrying a weapon to school during the month before the interview.[50] In another study, 42% of urban teenagers said that they could acquire a gun if they wanted one, and 17% had carried a concealed gun.[53] Many youths carry a weapon to feel safer in their environment and may hope never to need to use it. Nevertheless, delinquent or deviant behavior, most often defined as a history of theft, destruction of property, or suspension or expulsion from school, is highly correlated with violent injury,[50] and youth with injuries from violence that result in ED visits report high rates of past-year peer violence and assault-related injury.[54] Youths who report selling illicit drugs are also at very high risk for being injured violently.[50] Persistently violent youth are 10 times as likely to sell drugs as are nonviolent youth.[48]

Other problem behaviors of adolescence may offer a clue about the youth likely to experience violence. Alcohol use, both acute and chronic, is more commonly reported in patients with violent injuries compared with those with nonviolent injuries. Acute or binge drinking was found to be of more consequence than chronic use.[55] Tobacco or drug use, including marijuana or cocaine, has been found to correlate highly with youth's intentions to use violence in various situations and with ED visits for assault-related injuries.[54,56] The association between drug use and violence is impressive: students who reported using tobacco or marijuana in the 9th grade were more likely to carry a gun by the time they reached the 12th grade.[40]

Environmental Characteristics

Environmental conditions that place a youth at risk for violence relate to past or recent exposure to violence and community norms regarding violent behavior.[39] Although the nature of the term "environmental" suggests that many of these conditions can be altered, a lifetime of negative experiences is more difficult to counteract. Prior victimization or injury caused by community violence strongly predicts future perpetration and victimization.[38,50] Witnessing violence in the community has similar effects; one may even consider a dose-response relationship in this regard. For example, witnessing an actual knife or gun attack is more influential in predicting male violent behavior than are other types of exposure such as witnessing school or home violence.[39] This does not necessarily mean that the exposure actually causes subsequent violent behavior, but may indicate that the youth exists in a community where this type of event can occur as part of daily routine. Some authors propose a contagion model of violence, whereby increasing threats and exposure to violence causes more youth to carry weapons, which, in turn, further increases the perceived threat within the community, creating a vicious cycle.[53] Violence exposure through the media can also have deleterious effects on our youth. It has been shown that children who watch 6 or more hours of television are more likely to exhibit symptoms of depression, anxiety, and violent behaviors.[57]

Experiencing or witnessing family violence shows a smaller but still significant contribution to a youth's risk for community and family violence.[38,39] Family structure and integrity also play a role, in that the presence of both parents in the household is protective rather than predictive of violent injury.[38,53] The level of affection and support from parents and peers are also important.[41] Family functioning is also important to assess because family cohesion is a known protective factor and family violence a known risk factor. Therefore, it is important to obtain information about negative life events such as separation or divorce, remarriage, recent family suicide attempt or completion, death of a family member, and parental loss of a job.[41,50]

INTERVENTIONS, OPPORTUNITIES, AND STRATEGIES

Family engagement is crucial to the success of most interventions; however, often times, a parent does not know how to satisfactorily manage, support, and monitor his/her child, and many parents are going to need help in keeping their son/daughter out of harm's way. The ED team can support the family by providing brief interventions after initial assessment, giving appropriate postdischarge contacts and connections, and engaging the patient and family into community-based programs.

Brief Intervention in the ED

Effective brief interventions, generally based on the principles and practices of motivational interviewing, are available for multiple problem areas and have been successfully used in the hospital setting.[58] Cunningham and colleagues[59] demonstrated the effectiveness of a single therapist conducted brief intervention session at a level I trauma center in reducing peer victimization and

aggression and adverse consequences from alcohol use among adolescents who had engaged in some form of violence during the prior year. Using a randomized control trial design, some of these differences held up at 12 months postdischarge. Similarly, Johnston and colleagues[60] used a single behavior change counseling session with adolescent patients who were primarily involved in unintentional injuries. They found that patients who received such sessions were more likely to use seat belts and wear bicycle helmets than a randomly assigned comparison group. Although these studies are encouraging, the basic lesson learned is that young people can make some, although limited, behavioral changes as a result of a brief intervention in the hospital setting after medical treatment. Not surprisingly, programs that engage violently injured youth in the hospital setting, conduct screenings and assessments, and refer patients to ongoing wraparound and case management services for 6 to 12 months after hospital release have secured more robust changes and outcomes regarding subsequent victimization and violent perpetration.[61-63] Of course, it is optimal to link patients and their families to community-based programs if they are available, as follow-up on the initial work done at the hospital.[35] This requires "strategic collaboration" and the adoption of a thoroughgoing public health approach to violence prevention.[20]

Community-Based Interventions

Interventions based on strategies such as scare tactics, boot camps, gun buy-backs, and isolated self-esteem enhancement programs that provide information without skills were ineffective or even harmful.[64,65] Although well-meaning hospitals and medical providers would like teens to understand "what might happen," research shows that programs for youth that tour trauma bays and morgues are not effective prevention strategies and may actually cause more harm than good by retraumatizing the participants. The most successful programs evaluated were based on strategies such as social skills training, positive youth development, mentoring, parent and family training, and home visitation. Effective violence prevention approaches, short of massive social and economic reform, build resilience and enhance protective factors to overcome social and environmental stressors.[66-69] These approaches include encouraging participation in prosocial peer groups, appropriate school settings, and community-based programs that emphasize positive social norms; facilitating concomitant involvement in safe activities; providing supportive relationships with positive adults in their communities; and enhancing competence in cognitive, social, and emotional skills.

Family-focused interventions such as multisystemic therapy and functional family therapy are among the most effective interventions for chronically violent youth.[70,71] This is not to suggest that these kinds of programs need to be provided at the hospital, but rather, to ensure that the hospital's social work team is aware of such programs in the community. Both programs focus centrally on family dynamics, both use cognitive behavioral techniques, both programs use therapists who work with the adolescents in their own neighborhoods, and both programs work diligently to engage adolescents in school and other prosocial activities. One promising violence reduction program—CeaseFire Chicago, now known as Cure Violence—has been adopted in at least one major hospital-based program.[72] Cure Violence is implemented in high-crime neighborhoods and uses outreach workers and interventionists who work with individuals known to be at highest risk for perpetrating gun violence. The outreach workers and interventions are chosen based on their "street credibility" and their skills and passion for reducing street violence. Multisystemic therapy and functional family therapy, as well as Cure Violence, include elements common to many hospital-based violence intervention programs, particularly the core model Caught in the Crossfire, that have also been shown to reduce retaliatory violence and re-injury.

In the prevention literature, meta-analyses typically focus on programs or risk factors as the primary unit of analysis. A recent meta-analysis used program components as the unit of analysis to detect which components are most effective among youth violence prevention programs in reducing violence recidivism.[73] Program characteristics that discern which programs are likely to be most successful include focus, intensity, quality, fidelity, emphasis on cognitive behavioral approaches, appropriate response to risk level, and the use of a written procedures manual. Although this protocol needs more refinement, the identified elements are feasible to adopt via hospital-based violence intervention programs or hospital-affiliated programs that provide or refer patients to needed services and case management. These programs identify, assess, and support assault-injured patients after discharge from the hospital.[74] Many of these programs have joined to form a coalition, The National Network of Hospital-based Violence Intervention Programs (www.nnhvip.org). These programs share data and best practices in administration and

community-level intervention and seek to recruit and help build similar programs across the country. The network has developed a "best practices guide" that outlines the steps required to start and maintain this kind of program within a hospital system.[75]

SUMMARY

The visit by an assault-injured youth in the emergency department setting is an opportunity to break the immediate and potentially long-term consequences of violence. Individual emergency medical practitioners can have a substantial impact on the way that these patients respond to medical and psychosocial evaluation. Hospital systems can support their patients and the communities in which they exist by designing and implementing trauma-informed programs that fully assess, refer, and even case manage these youth after hospital discharge.

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