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Feasibility of Screening for Violence in the Pediatric Emergency Department Setting

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BS, Prairie View A&M University, 2005

A Theses

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APPROVAL PAGE

Master of Public Health Thesis

Feasibility of Screening for Violence in Pediatric Emergency Setting

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Table of Contents

Chapter I Social and Behavioral Foundations of Youth Violence

Introduction 1

Prevalence and Significance of Youth Violence 2

Exposure to Youth Violence: Precursors and Consequences 4

Youth as Victims of Violence 7

Youth as Perpetrators of Violence 10

Youth as Witnesses of Violence 13

Current Standards for Assessment of Youth Violence 15

Chapter II Objectives and Methods

Thesis Objectives 18

Study Design and Methods 18

Chapter III Results

Feasibility of Screening for Violence 23

Pilot Data Analysis 23

Chapter IV Discussion and Recommendations 34

Appendix 44

References 45

Chapter I - Social and Behavioral Foundations of Youth Violence

Introduction

The World Health Organization defines violence as "the intentional use of physical force or power, threatened or actual, against oneself, another person, or against a group or community, that either results in or has a high likelihood of resulting in injury, death, psychological harm, maldevelopment or deprivation" (Krug, Dahl, Mercy, Zwi, & Lozano, 2002). This definition was designed to create a uniform response to the issue of violence, a significant public health problem across the globe. Violence among youth in the United States is of particular concern, as it is one of the leading causes of death in young people ages 10-24 (Centers for Disease Control [CDC], 2009). Emergency departments (EDs) treated over 690,000 youth for violence-related injuries in 2008 (CDC, 2010). The high volume of young patients seen in the ED makes it a good location for identifying at-risk youth for future intervention (CDC, 2010). Acknowledging the problem of youth violence and recognizing the lack of a standard method of screening youth for violence in this setting, we sought to develop an instrument that could be used to screen for violence in pediatric emergency rooms. We also aimed to better understand the risk factors associated with youth violence in this subset of patients.

This study took place at Connecticut Children's Medical Center (CCMC) in Hartford and has two major objectives to be addressed in this thesis. The first objective is to initiate the development of a screening instrument assessing multiple types of violence and to evaluate the feasibility of screening children for violence in a busy pediatric emergency department setting. The second objective is to gain a better

understanding of violence as it relates to this population through analysis of the pilot data generated by responses to the survey.

Prevalence and Significance of Youth Violence

Youth violence has been recognized as a major public health concern. It encompasses a broad range of behaviors including emotional and physical harm, rape and property crimes, and includes youth as victims, perpetrators and witnesses of violence (Hamby & Finkelhor, 2001). The World Health Organization has declared violence as one of the leading public health concerns of our time (Krug et al., 2002). Children are considered a vulnerable population and are even more susceptible than adults to criminal victimization (Hamby & Finkelhor, 2001; Finkelhor, 2008).

The annual prevalence of violent acts committed by high school seniors nationally is 30% (US Department of Health, 2001), with the cost of youth violence exceeding $158 million annually (CDC, 2008). Youth Violence is also a major cause of injury, disability and premature death in this country (Center for Disease Control, 2010). The Center for Disease Control (2009) reports nearly 4.7 million years of potential life lost (YPLL) before age 65 from homicide from 1999-2006, accounting for 5.1% of YPLL. This figure is even higher in blacks at 14.4%.

In 2006, a total of 5,958 individuals between the ages of 10 and 24 were murdered. Homicides accounted for 15.6% of total deaths in this age group, as shown in Table 1. In contrast, only 3.2% of deaths were from heart disease and 5.5% of deaths from cancer within this age group (CDC, 2009). Homicide is the second leading cause of death in the U.S. for individuals age 15-21. The CDC also reports that homicide has been the leading cause of death for black males ages 15-34, from 1991-2006.

Table 1. 10 Leading Causes of Deaths Amongst Ages 10-24, United States 2006

Cause of Death	Number of Deaths	% of All Deaths in Age Group
All Deaths	38,301	100.0%
Unintentional Injury	17,443	45.5%
Homicide	5,958	15.6%
Suicide	4,405	11.5%
Malignant Neoplasms	2,092	5.5%
Heart Disease	1,239	3.2%
Congenital Anomalies	622	1.6%
Cerebrovascular	260	0.7%
HIV	219	0.6%
Chronic Respiratory Disease	214	0.6%
Influenza & Pneumonia	212	0.6%
All Others	5,637	14.7%

Center for Disease Control and Prevention, National Center for Injury Prevention and Control. Web-based Injury Statistics Query and Reporting System (WISQARS) (2009)

There have been a significant number of injuries resulting from violence as well. In 2006, there were 2.4 million ED visits for violence related injury (Pitts, Niska, Xu, & Burt, 2008), with 149,000 of these visits by individuals under 18 (National Center for Health Statistics, 2009). More than 50% of the physicians surveyed by the American Academy of Pediatrics reported having treated a child with an intentional injury as a result of child maltreatment, and more than one third reported having recently treated a child with an injury related to domestic or community violence (American Academy of Pediatrics, 2009).

Exposure to Violence: Precursors and Consequences

An increasing amount of information on the precursors for exposure to violence is becoming available. As with many public health problems, exposure is a

multifactorial development, influenced by many variables. One factor that comes into play is the environment. The association between living in inner-city communities and violence exposure is well documented (Weist, Acosta, & Youngstrom, 2001; Campbell & Schwartz, 1996; Osofsky, 1995; Furlong, 1994). Inner-city communities tend to have increased levels of violent occurrences, and the young people living in these areas have increased opportunities for exposure (Weist et al., 2001; Selner-O'hagan, Kindlon, Buka, Raudenbush, & Earls, 1998). There are multiple studies supporting these findings. For example, 80% of youth in an all male study in an urban area of Chicago reported some exposure to violence in their lifetime and 65% reported exposure to violence within the last year (Gorman-Smith & Tolan, 1998). A study by Richter and Martinez (1993) reported similar findings for males in the same age group, with 75% witnessing some form of violence. The exposure to violence by youth in urban areas is not limited to the community; they tend to also have higher levels of exposure to violence in both the community and at home (Furlong, 1994; Osofsky, 1995).

Family dynamics influences exposure to violence. Several authors have found that decreased parental supervision and inconsistent discipline were associated with antisocial behaviors (Capaldi & Patterson, 1996; Gorman-Smith & Tolan, 1996; Patterson, Reid, & Dishion, 1992). Lambert, Ialongo, Boyd, & Cooley (2005) found that decreased parental supervision was associated with increased aggression in females; however it was not associated with aggression in males. In another study, there was an association between aggressive behavior and low parental monitoring (Elliot, 1993). However, a study of youth across diverse neighborhoods of Chicago did not find an association between parental supervison and violence exposure (Gibson, Morris, &

Beaver, 2009). Support from the family did not appear to be a significant mediator of the effects of violence exposure on externalizing and internalizing behaviors, including aggression, and anxiety or depression respectively (Weist et al., 2001).

Some researchers feel that there are other factors that are more influential than family, such as peer interactions (Gorman-Smith & Tolan, 1998). Youth who associate with peers who are involved in activities of a deviant nature are more likely to be exposed to violence. Poor parental supervision allows for even more opportunities for children to interact with these peers (Lambert et al, 2005; Halliday-Boykins & Graham, 2001).

Demographics are also components that are factored in when examining the precursors associated with total violence exposure. Males are victims and witnesses more frequently than females, and have an overall higher total exposure to violence (Fitzpatick & Boldizar, 1993; Lambert et al., 2005). There is also variability by ethnicity. Violence is more frequent among African American youth (Bell & Jenkins, 1993; Weist et al., 2001). Increasing age was also found to be a strong predictor of total violence exposure (Acosta, Albus, & Reynolds et. al, 2001; Selner-O'hagan et al., 1998).

It has also been hypothesized that aggression and/or other internalizing behaviors are precursors to violent exposures (Lambert et al., 2005; Weist et al., 2001). Aggressive youth may simply be drawn to situations where violent acts are taking place (Gorman-Smith & Tolan, 1998).

Children exposed to violence are at increased risk of developing psychosocial problems. Chronic exposure to violence is more likely to result in externalization of

symptoms, such as aggressive behavior, than acute exposure (Edleson, 1999). Similarly, severity of the event is a factor that influences outcomes. A child who witnesses a stabbing is more likely to have a severe response than a child who witnesses someone being pushed (Knapp, 1998).

Youth with increased exposure to violence experience feelings of low self-esteem, anger, and aggression (Fitzpatrick & Boldizar, 1993; Lai, 1999). Youth who are chronically exposed to violence also become desensitized and show a decreased reaction to episodes of violence (Cooley-Quille, Boyd, Frantz, & Walsh 2001). Post traumatic stress disorder (PTSD) is another consequence of violence exposure that is commonly reported (Buka et al., 2001; Richters & Martinez, 1993; Osofsky, 1993; Gorman-Smith & Tolan, 1998; Dyson, 1990). In one study, females and younger children reported more symptoms of post-traumatic stress disorder than males. Older males had more exposure to violence and were less likely to display symptoms of PTSD (Fitzpatrick & Boldizar, 1993). The authors theorized that males had more exposure to violence, and thus had built up a resistance that shielded them from its negative effects. The authors felt that women and younger children are subgroups with less exposure to violence who consequently have a more difficult time coping with violence when it does occur.

Violence impacts learning and school performance. Regressions to previous stages of development, declining school performance, substance abuse, and somatization have been reported in children who witness violence (Knapp, 1998). Exposure to violence early in life is a particularly concerning problem that may be overlooked due to underestimation of the effects on young children. Exposure to

violence in the early stages of childhood development and infancy may in fact impede normal development (Osofsky, 1995; Scheeringa & Zeanah, 2006). A study of preschoolers living in environments where domestic violence was occurring found improvement in cognitive test scores after being removed from the situation and receiving counseling and social services (Lieberman, Van Horn, Grandison, & Pekarsky, 1998). Children may struggle in school and have poor academic performance. A significant association was found between increased exposure to violence and repeating grade levels (Acosta, Albus, Reynolds, Spriggs, & Weist, 2001). One study showed that children with a significant exposure to violence and trauma related stress had notably lower IQ and reading ability than their counterparts (Hurt & Malmud, 2001). The mediation of these effects of exposure by protective factors has also been reported. A positive correlation was seen between family and home stability and positive social and academic performance among individuals reporting exposure to violence (Richters & Martinez, 1993).

Youth as victims of violence

Violence in the community and in school has become a topic of interest for researchers, in part due to the prevalence and effects of such acts on the victims. An article published in the *New York Times* in 2008 paints a picture of the violence witnessed in urban environments. The author writes of an 18-year old male shot dead on the steps of his high school, another male beaten with a golf club, a 12-year old shot at a party, and a 15-year old shot by a rival gang while walking out of his home (Kotlowitz, 2008).

In a study examining victimization rates in the U.S. in 2007, 4.3% of individuals ages 12-15 had been victim to a violent crime, while 5.1% of individuals ages 16-19 reported criminal victimization (Matson, 2007). In a study of youth ages 9-24, 42% of subjects were targets of at least one violent act in their lifetime (Acosta, Weist & Youngstrom, 2001). In the Youth Risk Behavior Surveillance Survey (CDC, 2007), 35.5% of respondents had been in at least one physical fight in the past year, with 4.2% seeking treatment from a doctor or nurse following the incident.

A survey by the CDC reported that 5.5% of children did not go to school at least one day within the 30 days prior to the survey due to concerns for their safety (CDC 2007). These fears of unsafe school environments are legitimate concerns as 12.4% of students in a nationwide survey reported being in a physical fight and 7.8% had been threatened or injured with a weapon while on school property (CDC, 2007). Fighting on school property was reported by 12.4% of youth surveyed. However, violent offenses are still more likely to occur outside of school than at school or on the way to school (Office of Juvenile Justice and Delinquency Prevention [OJJDP], 2006). The OJJDP does note that there is an association between juvenile violence and school days, with 61% of all violent crimes by juveniles taking place on these days and peaking in the afterschool hours.

There is also concern over the use of weapons by young people. Nearly 8% of youth surveyed reported being threatened with a weapon at school in the past year (CDC, 2007). A study of youth living in a rural area showed that 14% of males had been shot or shot at in their lifetime (Slovak & Singer, 2002). Selner-O'Hagan et al. (1998) found that 5% of youth in an area of Chicago had been shot, 18% had been shot

at, and 28% had been attacked with a weapon. From 1999 to 2006, 65% of school-related homicides were from gunshot wounds and 27% from stabbings (CDC, 2007). Between 1980 and 2006, 78% of murder victims ages 15–17 and 10% of victims ages 0-5 years were killed with a firearm, with a disproportionate number of male victims (OJJDP, 2006). In 2006, there were 3,341 homicides by firearm among youth ages 5-21, making up close to half of all violence related deaths that year (CDC, 2005).

Youth are subject to victimization in ways that are not commonly displayed in newspaper headlines such as fights on the playground, pushing and shoving in the halls, and theft and assault by their peers, strangers, and family members (OJJDP, 2006). Additionally, children are subject to theft, vandalism, and other property crimes. Over 27% of students surveyed had property stolen or deliberately damaged in the past year (CDC, 2007). Among eighth and tenth graders in rural Texas, 15% had something taken from them by threat or by force (Kingery et al., 1991). Although the aforementioned acts are typically not included in most surveys, they have been found to have negative psychosocial effects on young people as well (Finkelhor & Ormrod, 2000).

Child maltreatment is another issue that is a part of exposure to youth violence. In 2007, there were 1,760 deaths from abuse and neglect in children in the US. (US Department of Health, 2007). Nationally, child protective services investigated over three million reports of child abuse or neglect. Over 794,000 of these children were classified as victims. The Connecticut Department of Child and Family Services (DCF) responded to 6,800 substantiated cases of child abuse or neglect in the past year, indicating the prevalence of child maltreatment occurring domestically within the state (Department of Child and Family Services, 2010). The victimization study by

Finkelhor et al. (2005) estimated that the rates of child maltreatment are even higher.

Youth as perpetrators of violence

Several violence studies have examined youth as perpetrators of violence. In a nationwide survey conducted by the CDC, nearly 36% of youth in grades 9-12 reported being in a physical fight within the past year (CDC, 2007). It has been hypothesized that excessive exposure to high levels of violence results in the belief that aggression and violence are normal and appropriate responses to conflict (Gorman-Smith & Tolan, 1998). However, Johnson, Frattoroli, Wright, Pearson-Fields, & Cheng (2004) report that a focus group of youth age 14 to 22, 89% of whom had been in a fight in their lifetime, acknowledged that fighting was not "right." On the other hand, many individuals in the focus group reported that they felt that fighting helped relieve stress, gain respect, and prevent violence from escalating to levels of continuous bullying or weapon involvement.

Weapon possession and use has also been examined. Eighteen percent of students surveyed by the CDC admitted to carrying a weapon within the past 30 days (CDC, 2007). Sixty-two percent of inner-city youth surveyed reported that they could acquire a gun within a few days (Schubiner, Scott, & Tzelepis, 1993). A survey of high school students in Boston found that younger students and students with a history of truancy had a higher incidence of weapon carrying (Kulig, 1998). Multiple studies suggest that carrying a weapon to school is not related to fear or being victimized, but rather is an act of aggression (Webster, Gainer, & Champion, 1993; Liqun, Zhang, & He, 2008; Bailey, Flewling, & Rosenbaum, 1997). However, in a focus group of male violent offenders in New York, many of the participants cited safety and the need to

protect themselves from their peers who had guns as a reason for carrying a gun (Wilkinson, McBride, Williams, Bloom, & Bell, 2009).

According to the U.S. Surgeon General's report (2001) on youth violence, most violence begins in the second decade of life. More than half of all violent offenders initiate their first offense between the ages of 14 and 17. However, many display antisocial behaviors early on and there are a significant number of early-onset offenders, or individuals who commit their first offense prior to adolescence (U.S. Department of Health and Human Services, 2001). These youth generally have a greater number of offenses; have committed more serious offenses such as aggravated assault; have been involved in a gang fight, rape or robbery; and are more likely to continue to commit violent acts as adults (Statin & Magnusson, 1996).

According to reports by victims in a 2007 national survey, 277,000 of all violent crimes reported were by offenders between the age of 12 and 17, representing 17% of all violent offenders that year (Bureau of Justice Statistics, 2008). This was a decrease from 2005, where 436,000 violent offenses by this age group were reported, accounting for 24% of violent offenses committed by individuals age 12 and up. A steady decline in the offending rates for children under the age of 14 was seen from 1980 to 2003, while the offending rate for teens age 14-17 increased sharply from 1985 to 2000, leveling out over the next five years (Bureau of Justice Statistics, 2006). Juvenile offenders were estimated to be involved in 8% (1,300) of all solved murders in 2002, with an equal number of black and white juveniles committing these violent crimes (Snyder & Sickmund, 2006).

While rates of arrest may not accurately estimate the occurrence of crime due to the reporting of multiple offenses by single perpetrators, underreporting, and the availability of law enforcement in communities, arrest rates are often used to examine the prevalence of violence perpetration (Criminal Justice Research Center, 1999). The OJJDP (2009) reports that in 2008, there were 288 arrests for violent criminal offenses for every 100,000 youth between the ages of 10 and 17. Violent crime arrests rates for white juveniles remained fairly constant from 1980-2008, peaking at 315 per 100,000 in 1995. The rate for black juveniles has remained significantly higher than that of white youth, peaking at 1,668 per 100,000 in 1995, and was five times higher than the rate in white youth in 2008.

Gender differences in the perpetration of violence have also been examined. Violence related arrest rates have remained anywhere from four to eight times higher for males than females over the last three decades. In 2008, the arrest rates for males and females were 465 and 102 per 100,000, respectively.

Risk factors for being a perpetrator of violence have been proposed and include substance use, antisocial behavior, aggression, low socioeconomic status, and coming from a broken home (Table 2). Adolescents who demonstrate violent behavior are more likely to socialize with peers involved in violent behaviors (Youngstrom et al., 2003). Serious violent offenders are also more likely to come from broken homes and to believe that others, including their family, view them as having emotional problems (Elliot, 1993).

Table 2. Risk Factors for Perpetrating Violence

Domain	Risk Factors	
Individual	General Offenses Substance use Aggression Crimes against persons Psychological condition Hyperactivity Restlessness Risk taking	Low IQ Being male Males with difficulty concentrating Physical violence Antisocial attitudes/beliefs/behaviors Exposure to television violence
Family	Low Socioeconomic status/poverty Low parental involvement Antisocial parents Poor parent-child relations Broken home/ separation from parents	Harsh/Lax/Inconsistent Discipline Family Conflict Neglect Abusive parents
School	Poor attitude, performance Academic Failure	
Peer Group	Weak Social ties Antisocial/delinquent Peers Gang Membership	
Community	Neighborhood crime, drugs Neighborhood Disorganization	

Modified from Youth Violence: A report of the Surgeon General, 2001

Youth as Witnesses of Violence

While there are varying opinions on what is considered witnessing violence (e.g., witnessing violence first-hand, hearing violent events, observing it on television, or hearing of violent encounters), there is a general agreement that witnessing violence can lead to significant consequences (Buka, Stichick, Birdthistle, & Earls, 2001).

The prevalence of witnessing violence by youth throughout the U.S. is variable. Males are three times more likely to witness violence than females (Weist et al., 2001)

and youth in low-income neighborhoods have more opportunities for witnessing violent incidents (Stouthamer-Loeber, Loeber, Wei, Farrington, & Wikström, 2002). However, there is variability among individuals living in high-violence communities, and not all youth living in the same neighborhoods are exposed to the same amount of violence (Richters & Martinez, 1993).

A survey of fifth and seventh graders revealed that 23% had seen someone shot or killed in their lifetime (Gorman-Smith & Tolan, 1998). In another study assessing violence exposure by youth referred for mental health services, only 4% of youth surveyed reported not having any exposure to violence (Weist et al., 2001). In a study on youth throughout Chicago, 22.7% had seen someone hit, 5.1% had seen someone shot, 7.9% had seen someone shot at, and 2.7% had seen someone killed (Gibson, Morris, & Beavers, 2009). In a national survey of youth ages 2-17 in 2003, 29.7% had witnessed community violence (Finkelhor, Turner, Ormrod, & Hamby, 2009).. A similar study in 2008 showed that 24.8% of individuals had witnessed violence in the community (Finkelhor et al., 2009). The incidence of witnessing violence in the past year was highest for 14-17 year olds, as reported by 47.6% of individuals in this group. The lifetime prevalence in this group was 70.2%. In the past year, 5.3% had witnessed a shooting, and 9.7% had witnessed this event over their lifetime. Witnessing of a murder occurred in 0.5% of children in the past year, and 1.3% over the lifetime.

Witnessing of family assault occurred in 9.8% of participants in a nationwide sample of 4,549 children in the past year, and in 20.3% of individuals over their lifetime (Finkelhor et al, 2009). Older children had witnessed familial assault in 34.6% of cases. More specifically, 6.2% of children had witnessed violence between their parents in the

past year, and 16.3% had witnessed this event in their lifetime. These children who are caught in the crossfire of abuse sustain injuries through multiple modalities including, but not limited to, being directly hit; hit by an object; or pushed, burned, or stabbed (Christian, Scribano, Seidl, & Pinto-Martin, 1997). However, even when children are not victimized directly, they can be affected. Older children may attempt to intervene when physical violence is occurring in the home, putting them at increased risk of injury. Children who witness intimate partner violence are also at increased risk of psychosocial harm. Developmental delay and/or development of psychiatric illness, failing in school, and perpetuating the cycle of violence have all been reported as effects of witnessing violence in the home (Cerny & Inouye, 2001; Jaffe, Wolfe, Wilson, & Zak, 1986; Wolfe, Jaffe, Wilson, & Zak, 1985).

Current Standards for Assessment of Youth Violence

The American Academy of Pediatrics (AAP, 2009) recommends the use of preventive screening measures by pediatricians, and maintains the position that identifying situations where children may be at risk and intervening is a professional responsibility of the clinician. Knowing that a child has witnessed episodes of violence can prompt the care provider to inquire more closely about the child's direct involvement in violence in the home. However, many physicians and practitioners do not routinely screen patients (Chamberlain & Perham-Hester, 2002; Glass, Dearwater, & Campbell, 2001; Ericson, Hill, & Siegel, 2001). Screening is relatively new in EDs and not commonly done. The domestic violence screening program piloted by the state of Massachusetts and University of North Carolina hospitals screened all females who presented to the ED age 12 and older and age 16 and up respectively (Gamble,

2001).This screening effort was met by many obstacles including lack of time, administrative support, and resources, and feeling of powerlessness. This resulted in a low screening rate by ED health care providers. Another study of barriers to screening showed similar sentiments expressed by participants, with 71% of those interviewed citing lack of time, 55% indicating a fear of offending, and 50% reporting a feeling of powerlessness (Sugg & Inui, 1992).

Given that limited time is the most frequently cited barrier (Gamble, 2001), there is great need for an assessment tool that is brief and easy to use. The tool must also be effective at identifying children who are at risk. Standardized self-report questionnaires are believed to produce the most accurate reports of victimization, and an increased interest in learning about the victimization of children has lead to the development of multiple questionnaires useful in different circumstances (Hamby & Finkelhor, 2001). Standardized interviews are also more likely to encompass a broad range of questions and use terminology found to be clear and concise by test groups (Hamby & Finkelhor, 2001). It is also important to have multi-victimization questions to identify children who are victims of any of the multiple types of violence (O'Hagan, 1998). Additionally, it is important to consider the age of the child and ensure that the survey is age-appropriate.

One example of a comprehensive instrument is the Violence Exposure Scale (VEX), which utilizes pictures in both questions and responses designed for use in children ages 4-10 (Hastings and Kelley, 1997). The Violence Prevention Exposure Tool (VPET) was developed based on the Structured Assessment of Violence Risk in Youth (SAVRY). SAVRY is a 24-item open-ended questionnaire utilized by the

criminal justice system, primarily with juveniles ages 12-18. Items are grouped into historical, social, and individual factors (Borum, Bartel, & Forth, 2005).

There are numerous questionnaires in use, varying in structure, type of victimization assessed, time period of the violent occurrence, and designated age of respondents. However, there is need for a standardized screening tool examining both the exposures and precursors of violence. The tool should also assess a wide range of age groups and types of violent experiences.

Chapter II- Objectives and Methods

Thesis Objectives

The purpose of this study was to develop a survey instrument assessing multiple types of violence in children aged 7-17. The ED is utilized by millions annually and may be an appropriate place to screen for individuals who may be at risk for violence exposure. However, there is no standard survey instrument for use in this setting. While there are multiple instruments available, our first objective was to create an instrument appropriate for use in the ED setting, and to determine the feasibility of violence prevention screening in a busy pediatric emergency department setting. The results of our field test of the instrument, including the ease of administering it and the subjects' understanding of the VEX-R and VPET, will be examined in greater detail. The second objective was to gain a better understanding of violence within this population. We will explore the associations between violence exposure and other variables, including evidence supported predictors of violence exposure.

Study Design and Methods

Measures

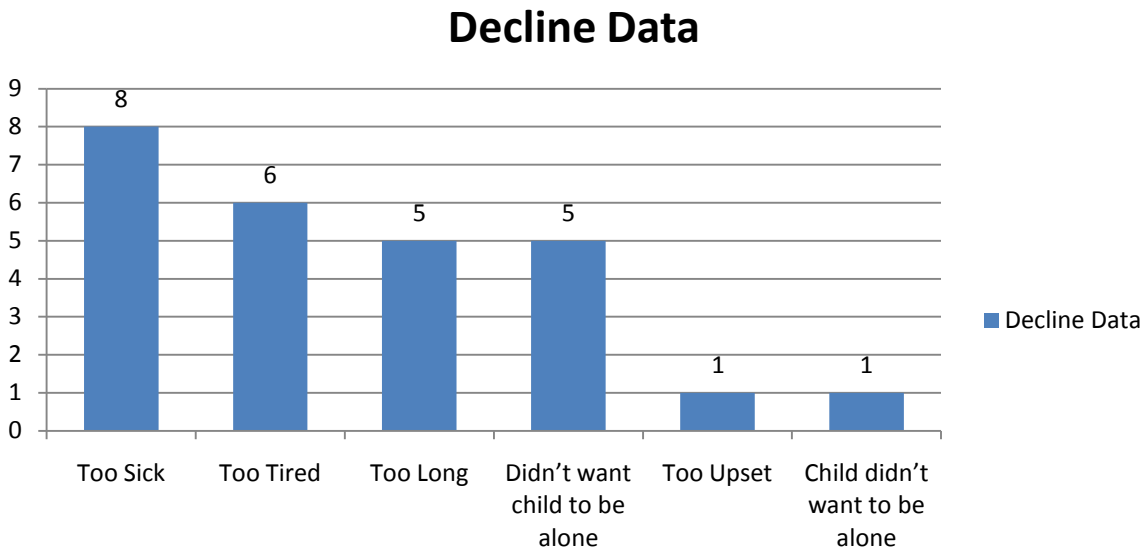
Two questionnaires, the Violence Prevention Emergency Tool (VPET) and the revised Violence Exposure Scale for Children (VEX-R), were piloted. The VPET, as previously noted, was developed at CCMC based on the SAVRY questionnaire and two focus groups at CCMC consisting of violence prevention experts and parents with children aged 8-17. VPET consists of 35 multiple-choice items related to victimization, witnessing, and perpetrating violence. It is an interviewer-administered interview schedule that covers exposure to various events occurring within the past year.

VEX-R is a comprehensive 22-item questionnaire concerning victimization and witnessing of violence (Fox & Leavitt, 1995). It is used to document self-reports of exposure to violence over the lifetime of the respondent. It utilizes a 4-point likert scale with pictures for both the question and response.

Logistics

Field testing of the survey instrument was conducted at Connecticut Children's Medical Center (CCMC) in Hartford, Connecticut, a tertiary-care pediatric referral center for residents of Connecticut, New York, Massachusetts, and Rhode Island. The pediatric ED receives approximately 45,000 visits per year. Children ages 8-17 who were enrolled in school at the time of the study were selected in order of arrival from the pediatric emergency department patient waiting list. Children were approached and excluded if they were critically ill, admitted with an acute psychiatric illness or previously diagnosed with psychiatric illness (excluding ADHD), in the custody of the police or the Department of Child and Family Services, unaccompanied by a parent or legal guardian, or had previously been enrolled in the study on a prior ED visit. A total of 132 children were approached, in order of arrival, for the study. Of the individuals approached, 100 agreed to be enrolled, 26 declined and 6 were found to be ineligible upon initiation of the survey. The reasons for decline are shown in Figure 1. The rate of participation was 70%. Seven of the participants had incomplete surveys. The 93 individuals for whom we had complete data were included in our analysis.

Figure 1. Decline data



Procedure

Eligible children ages 8-17 who were enrolled in school at the time of the study were selected in order of arrival from the pediatric emergency department patient waiting list. Informed consent was obtained from the parent or guardian, with written assent obtained from children age 12 and up. The purpose, risks and benefits were detailed and CCMC institutional review board-approved consent forms were provided to the parent. Both parent and child were told that participation in the study was completely voluntary, with no tangible incentives for participation, and that participation would in no way affect the quality or timeliness of care received. Both the parent and child were also informed that interviews were confidential and that responses would not be shared with anyone including the parent. If there were any serious concerns, a physician and/or social worker would be notified, but the specifics of the interview would remain confidential.

All interviews were conducted in the ED in patient examination rooms. Surveys were administered after the patient had been triaged and stabilized, while the ED staff members were tending to matters outside of the patient's room. Interviews were interrupted whenever members of the health care team entered the room or when initiated by the child or parent. All interruptions were timed. Children were told not to include playful interactions, such as wrestling with a sibling or playful pushing, in their responses. While demographic information was collected with the parent or guardian present, the child was interviewed alone to avoid parental influence. While parents were not permitted to see the responses given by the child, they were given the opportunity to review the questionnaire prior to the interview. Both VPET and VEX-R questionnaires were administered to each subject by trained interviewers. This was done to eliminate the need to determine literacy and allow for inclusion of younger children in the study. Interviewers read the items aloud and recorded the subject's responses. All interviewers were trained to stop and contact the attending physician if specified responses were given. (See Appendix A for a list of these items). Upon completion of the questionnaires, subjects answered two additional 5-item questionnaires regarding the ease of understanding and were asked whether VPET or VEX-R was preferred.

Sample Characteristics

The mean age of enrolled subjects was 12.9 years with a standard deviation of 2.8. The sample was 42% female, 58% male, 38.7% Latino, and 14% Black, and 41.9% White. The demographic characteristics of children whose parents or guardians had declined participation were very similar to those of subjects enrolled in the study. Forty-seven percent of subjects resided in Hartford, a city with a population of 120,000

(Department of Community Development, 2001). Nearly all of the other participants were from neighboring towns within Connecticut. Mothers were the primary caretaker, giving consent for participation in 81.7% of cases, with fathers giving consent 15% of the time and other relatives acting as legal guardians and giving consent in the remaining 3.3% of cases. Education level of the parent or guardian present was below the 12th grade in 10.7% of the cases; another 31.2% of parents or guardians had completed high school or earned a GED, 32.3% had some college or technical school education, and 20.4% were college graduates. Over half (52.7%) of the parents or guardians were employed full-time, 17.2% were employed part-time, 14% were homemakers, 5.4% were self-employed, and 2.2% were students. Five percent of respondents were out of work, and 3.2% stated that they were unable to work. At least two adults were present in the home of 75.3% of the subjects.

Chapter III: Results

Feasibility of Screening for Violence

The mean time for completion of VPET was 9.05 minutes with a range of 4 to 17 minutes. Mean time for completion of VEX-R was 4.9 minutes with a range of 3 to 12 minutes. Times exclude intervals for informed consent, collection of demographic information, and interruptions by the child, parent, or the healthcare team.

The subjects understanding of items for VPET and VEX-R was analyzed based on response to four items, with responses based on a visual analog scale from 1 to 5. Ninety-three percent of subjects rated VEX-R as “easy” or “very easy.” Seventy-five percent of children reported that it was "easy" or "very easy" to answer VPET items. Three-fourths of participants thought both would find children who needed help.

Interviewers rated VEX-R easier to administer and felt the children understood the questions well. They thought VEX-R was “easy” or “very easy” and well understood by 92% of the respondents, while VPET was easy or very easy to administer in 74% of respondents. Seven percent of VPET surveys were reported to have items re-asked frequently" or "very frequently" while only 1% of the VEX-R surveys were reported to have items re-asked "frequently" or "very frequently."

Victimization, Witnessing, and Perpetrating of Violence

A notable amount of exposure to violence as a victim was reported among this sample, as depicted in Tables 3 and 4. The frequency of violent events generally decreased as the severity of the violent act increased. For instance, 53% of subjects had been pushed or had an object thrown at them in their lifetime, while 9.7% had been

Table 3. Frequencies for Victimization of Violence reported in VPET

Types of Violence Reported (N=93)	Past Year (VPET) % (n)	>2 Incidents % (n)
Injured	32.3 (30)	12.9 (12)
Threatened with weapon	9.7 (9)	2.2 (2)
Harmed	23.7 (22)	9.7 (9)
Injured requiring medical care	17.2 (16)	4.3 (4)

Table 4. Frequencies for Victimization of Violence reported in VEX-R

Types of Violence Reported (N=93)	Lifetime (VEX-R) % (n)	>2 Incidents % (n)
Yelled at	93.5 (87)	84.9 (79)
Objects thrown	53.8 (50)	23.6 (22)
Pushed	53.8 (50)	34.8 (32)
Chased	29.1 (27)	10.8 (10)
Slapped	43 (40)	12.9 (12)
Beat	16.1 (15)	3.2 (3)
Threatened with knife or gun	9.7 (9)	2.2 (2)
Spanked	53.8 (50)	33.3 (31)

threatened with a knife or gun in their lifetime. Nearly 32% reported being injured by someone else at least once in the past year, with 17.2% requiring medical treatment for their injuries. Twenty-four percent of children responded that they had something thrown at them on two or more occasions in their lifetime. Thirty-five percent had been pushed by someone upwards of two times. In response to VEX-R, only one child reported "lots of times" for victim items, and 11% responded “a few times" for victim items. When asked about age of first injury by someone, 7.5% of individuals responded that they were age 10 or younger, while 4.3% were over 10, 48% had never been injured and 39.8% did not remember or did not want to answer.

Witnessing violence was frequently reported by children surveyed, as can be seen Tables 5 and 6. Fifty-five percent had seen someone physically harmed, and 56% had seen someone hurt who had to go to a doctor or to the emergency room. Approximately 35% had seen someone shot, knifed or beat up. Sixty-four percent of subjects reported seeing an object thrown at someone on at least two occasions. The frequency for witnessing a stabbing and witnessing a shooting by youth in this sample was 15.1% for both occurrences. The most common reasons students gave for seeing other people fight were “anger” (25.8%) and disrespect (22.6%). Of the total sample, 8% reported "lots of times" and 30% responded "a few times" to witness items. Two of the children reported seeing someone stabbed or shot "lots of times,” and 20% of subjects reported seeing someone arrested "lots of times." The frequency of witnessing violent acts among this group was lower than that reported in many other studies of

Table 5. Frequencies for Witnessing Violence Reported in VPET

Types of Violence Reported (N=93)	**Past Year (VPET) % (n)**	**>2 Incidents % (n)**
Seen someone physically harmed	54.8 (51)	40.9 (38)
Seen someone hurt requiring medical care	55.9 (52)	21.5 (20)
Seen someone threatened with weapon	38.7 (36)	14 (13)
Seen someone injured	62.4 (58)	47.3 (44)
Seen someone shot, knifed, or beat up	35.5 (33)	14 (13)

Table 6. Frequencies for Witnessing Violence Reported in VEX-R

Types of Violence Reported (N=93)	**Lifetime (VEX-R) % (n)**	**>2 Incidents % (n)**
Yelling	96.8 (90)	92.5 (86)
Objects thrown	84.9 (79)	64.5 (60)
Pushing	86 (80)	65.6 (61)
Chasing	65.6 (61)	43.1 (40)
Slapping	61.3 (57)	39.8 (37)
Beating	66.7 (62)	50.5 (47)
Threatened with knife or gun	31.2 (29)	12.9 (12)
Stabbing	15.1 (14)	4.3 (4)
Shooting	15.1 (14)	5.4 (5)
Spanking	66.7 (62)	51.3 (48)

violence in inner-city communities, particularly the witnessing of shootings (Fitzpatrick & Boldizar, 1993; Selner-O'Hagan et al., 1998; Richters & Martinez, 1993). Unlike many other studies on violence exposure, questions about witnessing murder were not asked.

Reports of perpetrating violence were lower than reports of witnessing violence or being a victim of violence. As shown in Table 7, only two people responded that they had threatened someone with a weapon within the past year. Seventeen percent reported that they had injured someone while only 12.9% responded to a similar question that asked how many times they had physically harmed another person. According to the responses, 5.4% had hurt someone, causing the injured individual to seek medical care. The most common reasons given for fighting among those involved in a fight were "feeling disrespected" (21.5%) and "being hit first"(21.5%). Meanwhile, the most common reason for starting a fight among those involved in a fight was "feeling angry" (25.8%).

Table 7. Frequencies for Perpetration of Violence

Types of Violence Reported (N=93)	**Past Year (VPET) % (n)**	**> 2 Incidents % (n)**
Threatened with weapon	2.2 (2)	0 (0)
Injured someone	17.2 (16)	5.4 (5)
Physically harmed someone	12.9 (12)	3.2 (3)
Hurt someone that required medical care	5.4 (5)	1.1 (1)

A correlation was seen between items assessing victimization, perpetration, and witnessing of violence in this sample, with the strongest intercorrelations seen between victim and witness items and victim and perpetrator items. The Pearson correlations are shown in Table 8. Given the strong correlations observed, the creation of a single scale of exposure was proposed.

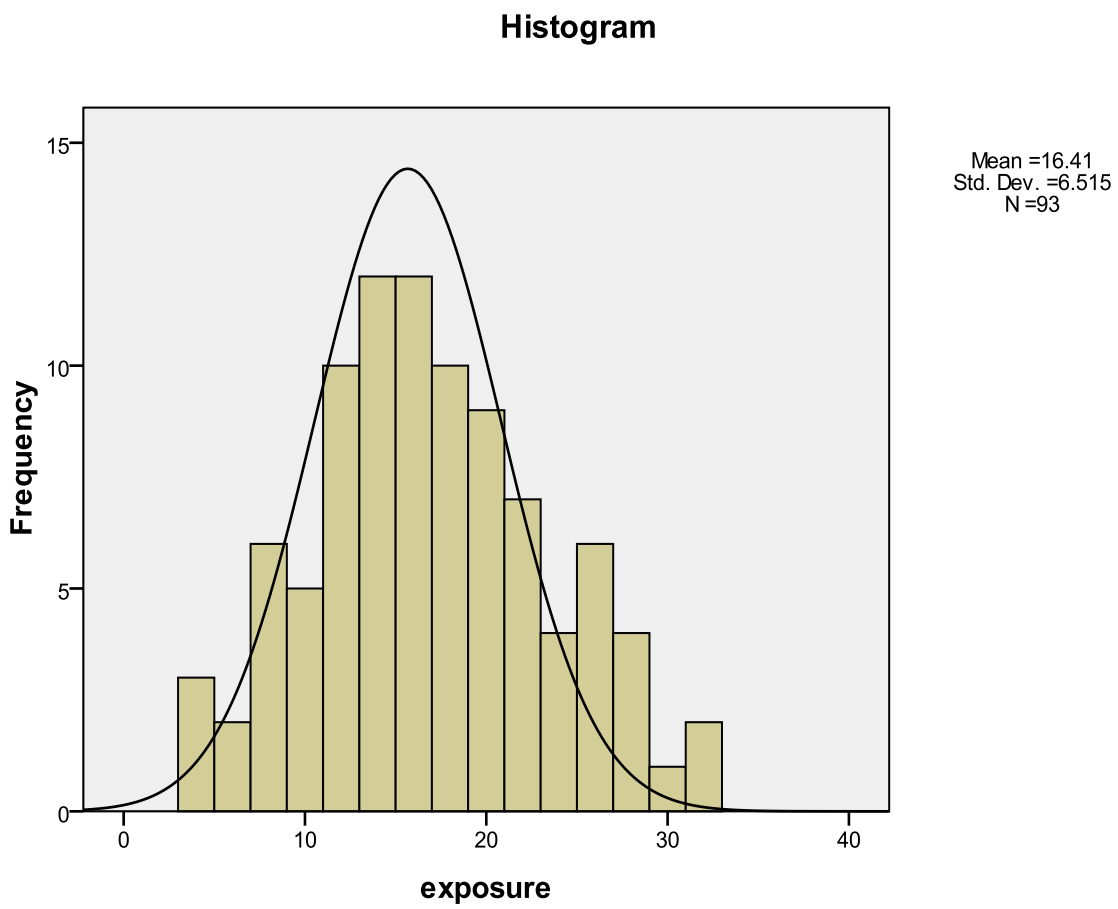
Table 8. Pearson R Correlations Among Victim, Witness and Perpetrator Scales

Variables	1	2	3
1. Victim	-	.493**	.419**
2. Witness	-	-	.315**
3. Perpetrator	-	-	-

** P<0.01

Using all the items from the highly correlated variables, a comprehensive "exposure to violence" scale was constructed, as shown in Figure 2. This new scale accounts for all respondents reporting exposure to one or more victim, witness, or perpetrator variables and was close to normal distribution, with a high internal consistency (Cronback's alpha = .882). To facilitate analysis, all variables were changed from the existing likert scale values to values representing either occurrence or non-occurrence of events.

Figure 2. Comprehensive Exposure to Violence Scale Distribution



Using the newly created total violence exposure scale, One-Way Anova analysis of various demographic variables was conducted. It showed that there was a significant difference in exposure to violence by ethnicity, with whites having a mean score of 14.1; Hispanics, 17.2 and blacks. 20.2 (F = 5.20 p =.007). This finding appears to support the trend across previous studies that there is a higher rate of violence exposure in black and Hispanic youth than exists among other ethnic groups, with black youth in

our sample having the highest rates of exposure. There was no significant difference in exposure between males and females, which is inconsistent with findings of previous studies. There was also no difference in exposure by age. Again, this does not coincide with previous findings of other studies that violence exposure increases with age.

The relationship between exposure and other variables assessed by the instrument were evaluated. These variables can be grouped into school, domestic, and social factors, with social factors further divided into peer, individual, and environmental categories (see Tables 9-11 for the distribution of these variables). One-way Anova showed several school factors that were statistically significant. Individuals who did not receive A's/B's in class had higher exposure to violence (19.59, F=4.73 P=.032) than those who did received theses grades (15.85). Similarly, individuals who reported skipping school had much higher mean violence exposure (19.43, F=3.64, P=0.59) than those who had never skipped school (15.87). Being sent to the office at school frequently was associated with higher mean violence exposure (18.11, F=6.03, P=.016) compared to those who were never sent to the office at school (14.88). Whether or not the student had ever failed a class was not significant.

Domestic factors that were assessed include the frequency of having an adult present when hanging out with friends, whether or not the child's guardian was employed full time, the number of adults living in the home, the number or children living in the home, and living in Hartford. There was no significant difference in mean exposure to violence in any of these variables.

Table 9. School Variables

Variable	Yes % (n)	No % (n)
Failed a class	12.9 (12)	87.1 (81)
Received A/B in classes	77.4 (72)	18.3 (17)
Skipped school	15.1 (14)	84.9 (79)
Sent to office at School	47.3 (44)	52.7 (49)

Table 10. Domestic Variables

Variable	Yes % (n)	No % (n)
Little or no adult supervision\	29.0 (27)	71.0 (66)
Only 1 adult in home	24.7 (23)	75.3 (70)
One child in the home	16.1 (15)	83.9 (78)
Guardian employed full- time	52.7 (49)	47.3 (44)

Table 11. Social Variables

Variable	Yes % (n)	No % (n)
Peer		
Friends in gangs	29.0 (27)	66.7 (62)
Friends who damage property	41.9 (39)	54.8 (51)
Environmental		
Live in Hartford	47.3 (44)	52.7 (49)
Always feel safe in neighborhood	59.1 (55)	40.9 (38)
Always feel safe at school	62.4 (58)	36.6 (34)
Individual		
Use alcohol or drugs	9.7 (9)	90.3 (84)
Stolen, sold drugs, or damaged property	8.6 (8)	91.4 (85)
Injured by someone in the past year	32.3 (30)	64.5 (60)

The instrument also assessed social factors, such as peer behaviors, substance use and distribution, destruction of property and perception of safety. Mean exposure was significantly higher among youth who had close friends in a gang (21.37, F=32.76, P<.001) than those who did not have friends in gangs (14.15) .Those who had close friends who damaged property also had higher mean exposure (19.85, F=20.41, P=0.006) than those who did not (14.25). This significant difference in exposure demonstrates the strong association between peers with deviant behavior and violence, which was previously identified as an important precursor for exposure to violence. Individuals who did not always feel safe in their neighborhoods had significantly more exposure (18.63, F= 8.055, P=0.006) than individuals who always felt safe in this environment (14.87). Individuals who reported always feeling safe in school also had lower mean exposure to violence (14.79) than those who did not always feel safe (19.03) (F=9.90, P=0.002). Being injured in the past year was associated with higher exposure (19.61) than not being injured in the past year (14.65) (F=14.07, P<.001). There was no significant difference between youth who had ever used alcohol or drugs and those who had not. There was also no difference seen between youth who had stolen, sold drugs, or damaged property and those who had not.

Variables found to be significantly associated with violence exposure, as well as the variable assessing alcohol and drug use by the respondent which was not significant, but showed a trend towards increasing exposure (p<0.10), were put into a generalized linear model (GLM), as shown in Table 12.

Table 12. Test of Between-Subjects Effect

Parameter	B	Mean Square	F	Sig.
Intercept	12.437	769.158	35.338	.000
Race	1.067	60.576	2.783	.100
Injury in past year	4.208	301.543	13.854	.000
Friends who damage property	4.238	279.936	12.861	.001
A/B in class	-2.001	42.896	1.971	.165
Feel safe in school	-.822	10.404	.478	.492
Feel safe in neighborhood	-.079	.103	.005	.945
Friends in gangs	4.785	303.700	13.953	.000
Use alcohol or drugs	4.640	135.142	6.209	.015
Sent to the office at school	-.769	7.629	.351	.556
Skipped school	1.092	9.789	.450	.505

The GLM is used in attempt to give an estimate of the relationship between violence exposure and the independent variables, including demographics, school, domestic situation, peers, environmental and individual factors. Variables that were not statistically significant in bivariate analysis, such as gender, were not utilized in the GLM.

Peer and individual behaviors, including having friends who damage property, friends in gangs, and injury in the past year, all remained statistically significant. Use of alcohol or drugs, which was not initially found to be significant, had statistical significance in the GLM. However, school and environmental variables that were initially found to be significant--receiving A/B's in class, feeling safe in school and the neighborhood, being sent to the office at school, and skipping school--all became insignificant when placed in the GLM.

Chapter IV - Discussion and Recommendations

This study attempts to examine the ability to screen children for violence and to examine the distribution of violence exposure among children utilizing the services of CCMC from Hartford and its neighboring communities. However, there were several limitations. First, the study used a convenience sample and not all children were approached or enrolled. This was in part due to lack of 24-hour pediatric ED coverage to enroll subjects. Most of the coverage was between Monday through Friday during the hours of 8am and 8pm. Children coming in during the night or on weekends may or may not be more at risk for exposure to violence and were not well represented in the study. To better assure that representative results are obtained, children should be randomly enrolled 24 hours per day, 7 days per week.

This study was also limited by exclusion of certain populations. While excluding children who were not enrolled in school allowed for information to be obtained regarding academic performance and behavior, it may have excluded individuals who are at high risk for exposure to violence, such as youth who were expelled from school for fighting. Similarly, excluding children who had known psychiatric disorder also eliminated a group that may provide useful information, particularly since the lifetime prevalence of violent behavior, that is being involved in a physical fight, with or without a weapon, is estimated at 16% among individuals with major psychiatric disorders (Swanson, 1994). Young people with mental health conditions make up a significant portion of the population. It is estimated that at any given time, one in five children in the general population carries a psychiatric disorder (Costello & Angold, 2000; Brandenburg, Friedman, & Silver, 1990).

Given the small sample size and exclusion of certain populations represented at CCMC, it is not possible to generalize theses results to the overall CCMC population. In the future, it would be important to improve on sampling methods to gain a better understanding of the characteristics and behaviors of all children receiving services at CCMC.

We also asked children not to include episodes of violence that occurred during play. While this was done in attempt to exclude unintentional injuries, this effort failed to account for playful activities that may have escalated to violence and intentional harm. Finkelhor et al. (2010) reported that 45% of participants in a nationwide survey reported having been assaulted by a peer or sibling. Depending on how this instruction was interpreted by the respondents, this effort may have lead to an underestimation of violent occurrences.

One must also keep in mind that this was a pilot study assessing the feasibility of screening for violence, and the ability of the survey tools to identify at-risk youth in this population is unknown. We explored some of the risk factors and exposures previously reported for youth at risk for being victims, witness, and/or perpetrators of violence in attempt to gain a better understanding of these factors within the population at CCMC. However, more investigation into these variables, specifically their role in predicting violence exposure in a similar population, is paramount to creating a system for recognizing children who might benefit from interventions.

This study did confirm that asking questions about violence in a pediatric ED is feasible, as the great majority of parents are willing to allow their children to be interviewed and questions were generally understood by the respondents, as reported by

interviewers and participants. There was a 20% decline rate, which primarily was due to parents' concern that the child was too sick or tired to answer or that care would be slowed down. Only 5 of the 132 total children declined because their parent/guardian did not want them to be interviewed alone. The interviewers found the interviews easy to administer and there was a low frequency of repeating items.

Instruments were completed in a relatively short period of time; however, when timed interruptions occurred during the interview, seven of the initial 100 participants opted not to continue after initiation of the study or were discharged prior to completing the study. This occurrence emphasizes the need for a survey tool that is precise and can be administered in a short period of time. This need is further supported by the impedance of "lack of time" on the success of previous ED questionnaire projects. The informed consent process was approximately an additional 10 minutes, which also may have contributed to the parents' concern that the survey was too long or would adversely affect the child.

This study showed that the exposure as a witness to violence is high within the sample, with closest correlation to witnessing violence being victimization in this sample. Youth who live in environments where violent occurrences are more commonly witnessed may have more opportunity to be victimized. Conversely, youth who have a greater tendency to become involved in violent acts may be more likely to place themselves in situations where violence is witnessed. It would have been desirable to learn more about the context in which violence was observed, as it might have given us a better understanding of the environment and circumstances surrounding these events. It also might have provided an enhanced understanding of the severity of the event. For

instance, a child witnessing mom pushed into the wall at home by dad on multiple occasions might be deemed more severe than a child seeing another child shoved once in a fight at school. Given that consequences of violent exposure vary with respect to chronicity and severity, more insight into these factors would allow us to assess the risk of negative consequences more accurately, and identify areas for improvement of the survey tool.

Despite the limitations, this study does add to the literature documenting the relationship between population demographics and exposure to violence. Peer and individual behaviors showed statistically significant relationships with violence, while all other factors did not. The specifics of these findings are detailed below.

The demographic variables were all statistically insignificant in the multivariate analysis. The finding of no significant difference between male and female participants was unexpected, as higher exposures to violence in males are often reported in violence exposure studies. It may simply be that there is an increased exposure to violence in females in our sample. This finding of no significance may also have been due to the assessment of different types of exposure in some of these studies relative to our study.

Black youth showed a greater preponderance towards violence exposure than all other races in the bivariate analysis. However, race was found to be an insignificant factor in total violence exposure when placed in the GLM. The finding of no significance may be related to the influence of other variables that were not studied that add to the complexity of analyzing the effects of race and ethnicity, such as socioeconomic status, cultural norms, and environment.

We also expected to see an increased mean exposure in older participants, as reported in other studies. Older individuals inherently have had more opportunity and time for violence exposure. Yet, it is possible that the younger participants in our study have higher exposure rates than expected. Another plausible explanation is that less serious offenses may be thought to be more significant and thus reported more frequently by younger children, while being underreported by older children. This possibility should not undermine the importance of exposure to minor violent offenses, but rather should generate interest in the specific type of exposures witnessed among different age groups.

In previous studies on consequences of violence, difficulty in school and externalization of behaviors were common findings in children exposed to increased levels of violence. While we initially found an association between individuals with poor academic and behavioral performance at school, these variables were statistically insignificant in the GLM. We were surprised to find that there was no association between deviant school behaviors and violence exposure, as it has been reported throughout the literature. Adolescents who have been expelled or suspended from school have more time to spend in the community and thus have more opportunity for exposure to violence within the community (National Research Council and Institute of Medicine, 2002). However, most of the respondents in our sample who reported these occurrences stated that the events had occurred very infrequently. It is possible that the students with repetitive behavior problems, who are not represented in our study, would show an association with violent exposure. It would be important to look at this association with the inclusion of those not attending school. We were also surprised to

find no association between academic performance and violence exposure. However, the concept of resiliency, or the ability of the child to successfully adapt in spite of challenging or threatening circumstances, has been reported as a modifier of the effects of violence exposure on academic performance (Ratner , Chiodo, Sokol, Ager, & Delaney-Black, 2006). Perhaps there is a correlation between resiliency and the high rate of violence exposure in our sample, which would explain the lack of association.

Because we did not see a statistically significant difference between violence exposure and domestic variables in the bivariate analysis, domestic variables were not placed in the GLM. Studies documenting the effect of adult supervision have had varying results; thus, whether or not parental monitoring has any effect on any aspect of violence exposure is yet to be determined. In the future, it might be useful to report on the primary caregiver's relationship to the child and where the child attends school, as these factors may play a role in violence exposure and may be important in directing future survey development efforts.

Peer variables showed a statistically significant association with violence exposure in both bivariate and multivariate analyses. There was a notable association between total exposure and interaction with peers who were involved in gangs or other delinquent behaviors. This association might be related to peer pressure or the need for social acceptance. It may also be influenced by the desire not to become a target of acts of violence. Perhaps like-minded individuals have a tendency to associate, and thus will take part in activities considered acceptable by both parties. More likely than not, it is a complex issue involving many factors. This is another variable that needs to be explored further.

Environmental factors had no significant association with total violence exposure. The finding of no association between exposure in youth living in Hartford compared to those outside of Hartford was unexpected, as living in urban areas proposed factor important in violence exposure. However, half of the respondents in our study were from areas outside of Hartford, some of which may be considered urban areas, or areas with high crime rates. Thus our study does not necessarily show that there is no association between violence exposure and urban settings, but simply that there is no difference in exposure among youth coming from Hartford and outside of Hartford. A more thorough evaluation of the communities of the respondents is needed.

Although bivariate analysis showed that perception of safety in both the school and neighborhood settings was associated with violence exposure, these variables were not significant in the GLM. This finding of no association was unexpected and contrary to findings in previous studies. It would be important for future investigators to explore reasons for the perceived threats to safety, as this information may be useful in the refinement of the screening tool.

There was a statistically significant association seen between individual behaviors and experiences and violence exposure in the bivariate analysis. Being injured in the past year remained significant when placed in the GLM, while use of alcohol or drugs became significant. The finding of no association between exposure and deviant behaviors by the individual was unanticipated, as this finding was also reported in previous studies. However, there are studies that have argued against the theory of the child's behavior as a necessary factor in violence exposure (Finkelhor,

1997; Halliday-Boykins et al., 2000). These studies support the idea that violence exposure manifests in variable ways in different individuals and in different contexts.

Future studies should address the limitations previously mentioned, including increasing the sample size and characteristics of the sample. This will aid in obtaining results generalizable to not only the population of children receiving services at CCMC, but potentially children receiving medical services in other pediatric EDs in urban settings. Increasing the availability of interviewers overnight and on weekends will help address this issue. A long term goal for researchers should be retrospective evaluation of the patients that are screened to determine which factors in the survey correlate with the occurrence of future violence. Collection of qualitative data may also be useful in determining the factors that are most closely related to violence exposure and developing an effective survey tool.

Adjustment of the survey tool to include fewer items and decreasing the time required to administer it will also be important in future development endeavors. Given the correlation between items assessing for victimization, perpetration, and witnessing of violence, it may be possible to screen for violence using only items screening for witnessing of violence. We speculate that children may be more likely to report witnessing than other forms of involvement, and that witnessing violence may be a good indicator of exposure.

Future prevention efforts should be directed towards early detection of violence exposure risk. Gary Slutkin, physician, epidemiologist, and founder of a group working to decrease gun violence in Chicago, compares youth violence to infectious diseases, such as tuberculosis and AIDS (Kotlowitz, 2008). He argues that the public health

approach taken to combat theses diseases, targeting the most infected and stopping the infection at the source, is the same approach that should be taken towards decreasing youth violence, predicting violent activity and interrupting the event prior to transmission of violence (Kotlowitz, 2008). Our ability to stop the transmission of violence relies heavily on our ability to identify those most at risk of exposure to violence. Development of a tool that can identify youth at risk for violence is an important step in this direction.

Determining appropriate sites for screening is also an important factor in the development of an effective screening tool. Emergency departments are unique in their capability to treat a variety of populations, including individuals who are uninsured and have no other means of receiving healthcare, and in their roles as the initial health care providers in acute injuries from violence. However, EDs also face the unique challenge of having time constraints due to treating multiple patients simultaneously; the need to balance treatment of the acute medical issues with the management of the underlying non-medical causes of the medical issue; and inability to establish long-term relationships with the patient. Primary care providers and outpatient clinic settings, although faced with time constraints as well, cater to a different population, have the ability to establish long term relationships, and may be an alternative place for screening for violence. Future efforts should also be directed towards training health care providers in both settings, so that they are more competent in and comfortable with screening for violence in children and young adults. Introduction of this practice into medical training programs should be encouraged.

In conclusion, youth violence is a major public health problem and there is great need for improvement in prevention efforts. While there are multiple means of addressing the issue of youth violence, pediatric emergency rooms are utilized by thousands of children each year and may be useful sites for implementing preventive surveillance. Our study should be used to guide research efforts in the creation of an acceptable screening tool tailored for use in this setting.

Appendix A. Interview "Stop Items"

Interview discontinued if any of the following was encountered:

VPET Items

1. How many times in the past year have you been injured by someone?
2. How many times in the past year have you been physically harmed by another person that caused an injury?
3. How many times in the past year have you seen a doctor or gone to the emergency room because someone hurt you?

   STOP and notify an attending physician if:
   One response of "More than 5 times"
   Two responses of "2-4 times"
   "Don't want to answer" to all three items

VEX-R Items

1. How many times has a person thrown something at you?
2. How many times has a person pushed or shoved you really hard?
3. How many times has a person slapped you really hard?
4. How many times has a person beaten you up?

STOP and notify an attending physician if:
One response of "lots of times"
Two responses of "a few times"
"Don't want to answer" to two or more of the items

References

Acosta, O. M., Albus, K. E., Reynolds, M. W., Spriggs, D., & Weist, M.D. (2001). Assessing the status of research on violence-related problems among youth. *Journal of Clinical Child Psychology, 53,* 152-160.

American Academy of Pediatrics. (2009). Policy statement—role of the pediatrician in youth violence prevention. *Pediatrics,124*, 393-403.

Bailey, S.L, Flewelling, R.L., & Rosenbaum, D.P. (1997). Characteristics of students who bring weapons to school. *Journal of Adolescent Health, 20,* 261-270.

Bell, C.C., & Jenkins, E.J. (1993). Community violence and children on Chicago's southside. *Psychiatry: Interpersonal and Biological Process, 56,* 46-54.

Borum, R., Bartel, P. & Forth, A. (2005). Structured Assessment of Violence Risk in Youth (SAVRY). In T. Grisso, G. Vincent, & D. Seagrave (eds), *Mental Health Screening and Assessment in Juvenile Justice (*pp. 311-323). New York, NY: Guilford Press.

Buka, S.L., Stichick, T.L.,Birdthistle, I.,& Earls, F.J. (2001). Youth exposure to violence: prevalence, risks, and consequences. *American Journal of Orthopsychiatry, 71,* 298-310.

Carlson, B.E. (1984). Children's observations of interparental violence. In: A.R. Roberts (ed), *Battered Women and Their Families (pp. 147-167).* New York, NY: Springer.

Campbell, C., & Schwartz D.F. (1996). Prevalence and impact of exposure to interpersonal violence among suburban and urban middle school students. *Pediatrics. 98*, 396-402.

Cao, L., Zahng, Y., & He, N. (2008). Carrying weapons to school for protection: An analysis of the 2001 school crime supplement data. *Journal of Criminal Justice. 36,* 154-164.

Capaldi, D.M., Patterson, G.R. (1996). Can violent offenders be distinguished from frequent offenders: Prediction from childhood to adolescence. *Journal of Research in Crime and Delinquency, 33,* 206-231.

Centers for Disease Control and Prevention. (2010). Injury prevention and control: Violence prevention. Retrieved from www.cdc.gov/violenceprevention/STRYVE/index.html

Centers for Disease Control and Prevention. (2009). National Centers for Injury Prevention and Control. Web-based Injury Statistics Query and Reporting System (WISQARS). Retrieved from www.cdc.gov/ncipc/wisqars.

Centers for Disease Control and Prevention. (2008). Youth violence prevention scientific information: Consequences. Retrieved from www.cdc.gov.

Centers for Disease Control and Prevention. (2007). *MMWR:Youth Risk and Behavior Surveillance US 2007.* Retrieved from www.cdc.gov.

Cerny, J.E., & Inouye, J. (2001).Utilizing the child abuse potential inventory in a community health nursing prevention program for child abuse. *Journal of Community Health and Nursing, 18,* 199-211.

Chamberlain, L., & Perham-Hester, K.A. (2002). The impact of perceived barriers on primary care physicians' screening practices for female partner abuse. *Womens' Health, 35,* 55-69.

Christian, C.W., Scribano, P**,** Seidl, T**,** & Pinto-Martin, J.A. (1997). Pediatric injury resulting from family violence. *Pediatrics. 99,* 1-4.

References

Cooley-Quille, M., Boyd, R.C., Frantz, E., & Walsh, J. (2001). Emotional and behavioral impact of exposure to community violence in inner-city adolescents. *Journal of Clinical Child & Adolescent Psychology, 30*,. 199-206.

Copelan R.I., Messer M.A., & Ashley D.J. (2006). Adolescent violent screening in the ED. *American Journal of Emergency Medicine, 24*, 582-5.

Costello, E.J.,& Angold, A.(2000). Developmental epidemiology: a framework for developing psychopathology. In: Lewis M, Sameroff A, eds. *Handbook of Developmental Psychopathology.* 2nd ed, (pp. 57-73). New York, NY: Kluwer Academic/Plenum Press

Criminal Justice Research Center, Department of Criminal Justice Services. (1999). Crimes in the commonwealth. Retrieved from www.dcjs.virginia.gov.

Crutchfield, R.D., & Wadsworth, T. (2003). Poverty and violence. In W Heitmeyer & J. Hagan (eds), *International Handbook of Violence Research* (pp67-82). Norwell, MA: Kluwer Academic Publishers.

Brandenburg, N.A., Friedman, R.M., & Silver, S.E. (1990). The epidemiology of childhood psychiatric disorders. *Journal of the American Academy of Child Adolescent Psychiatry*, *29*, 76-83.

Denavas-Walt, C., Proctor, B.D., & Lee, C.H. (2005). Income, poverty, and health insurance coverage in the United States, 2004. *United States Census Bureau Current Population Reports* (pp.60-229). Washington, DC: U.S. Government Printing Office.

Department of Child and Family Services. (2010). About DCF. Retrieved from www.ct.gov/dcf.

Department of Economic and Community Development. (2001). Connecticut Town Profiles. Retrieved from http://ct.gov.

Dyson, J.L. (1990). The effect of family violence on children's academic performance and behavior. *Journal of the National Medical Association, 82,* 17-22.

Edleson, J.L.(1999).Children's witnessing of adult domestic violence. *Journal of Interpersonal Violence,14,* 839-870.

Eliott, D. S. (1994). Serious violent offenders: Onset, developmental course, and termination. The American Society of Criminology 1993 presidential address. *Criminology,* 32, 1-21.

Eliot D.S., Huizinga D, & Morse B. (1986). Self-reported violent offending: A descriptive analysis of juvenile violent offenders and their offending careers. *Journal of Interpersonal Violence,. 1,* 472-514.

Erickson, M.J., Hill, T.D., & Siegel, R.M. (2001). Barriers to domestic violence screening in the pediatric setting. *Pediatrics, 108,* 98-102.

Farrell, A.D., & Bruce, S.E. (1997). Impact of exposure to community violence on violent behavior and emotional distress among urban adolescents. *Journal of Clinical Child & Adolescent Psychology, 26,* 2 – 14.

Finkelhor, D., Ormrod, R., Turner, H., & Hamby, S.L. (2009). Violence, abuse, and crime exposure in a national sample of children and youth. *Pediatrics, 124,*1411-23

Finkelhor, D. (2008). Childhood victimization: Violence, crime, and abuse in the lives of young people. New York, NY: Oxford University Press.

References

Finkelhor, D., & Ormrod, R. (2000). Juvenile Victims of Property Crimes. *US Department of Justice Bulletin.*

Finkelhor, D., Ormrod, R., Turner, H., & Hamby, S.L. (2005).The victimization of children and youth: A comprehensive national survey. *Child Maltreatment, 10*, 5-25.

Fitzpatrick, K.M., & Boldizar, J.P. (1993). The prevalence and consequences of exposure to violence among African-American youth. *Journal of the American Academy of Adolescent and Child Psychiatry,. 32,* 424-430.

Fitzpatrick K.M. (1997). Aggression and environmental risk among low-income Africa-American youth. *Journal of Adolescent Health*, *21*, 172-178.

Fox, N. A., & Leavitt, L. A. (1995). The Violence Exposure Scale for Children-VEX. College Park, Maryland: Department of Human Development, University of Maryland

Furlong, M. (1994). School violence and safety in perspective. *School Psychology Review, 23*, 139-150.

Gamble, E. (2001). Emergency department screening for domestic violence. *Popular Government.* pp. 39-43.

Gibson, C., Morris, S., & Beave, K. (2009). Secondary exposure to violence in childhood and adolescence: Does neighborhood context matter? *Justice Quarterly, 26,* 30-57.

Gladstein, J., Rusonis, E., & Heald, F.P. (1992). A comparison of inner-city and upper-middle mlass youths ' exposure to violence. *Journal of Adolescent Health, 13*, 275-280.

Glass, N., Dearwater, S., & Campbell, J. (2001). Intimate partner violence screening and intervention: Data from eleven Pennsylvania and California community hospital emergency departments. *Journal of Emergency Nursing*, *27,* 141-149.

Gorman-Smith, D., & Tolan, P. (1996). The relation of family functioning to violence among inner-city minority youths. *Journal of Family Psychology, 10*, 115-129.

Gorman-Smith, D., & Tolan, P. (1998). The role of exposure to community violence and developmental problems among inner-city youth. *Developmental and Psychopathology*, *10*, 101-

Hamby, S.L.,& Finkerlhor, D. (2001). Choosing and using childhood victimization questionnaires. *Office of Juvenile Justice and Delinquency Prevention Bulletin*. pp 1-16.

Hastings, T., & Kelley, M.L. (2004). Development and validation of the screen for adolescent violence exposure (SAVE). *Journal of Abnormal Child Psychology, 25*, 511-520.

Hurt, H., Malmud, E., Brodsky, N.L., & Gianetta, J. (2001). Exposure to violence: psychological and academic correlates in child witnesses. *Archives of Pediatric and Adolescent Medicine, 155*, 1351-1356.

Halliday-Boykins, C.A., & Graham, S. (2001). At both ends of the gun: Testing the relationship between community violence exposure and youth violent behavior. *Journal of Abnormal Child Psychology, 29,* 383-402.

Jaffe, P., Wolfe, D., Wilson, S., & Zak, L. (1986). Similarities in behavioral and social maladjustment among child victims and witnesses to family violence. *American Journal of Orthopsychiatry, 143*, 74-77.

Johnson S.B., Frattaroli S., Wright J.L., Pearson-Fields, C., & Cheng, T. (2004). Urban youths' perspectives on violence and the necessity of fighting. *Injury Prevention*, *10*, 287-291.

References

Kingery, P.M., Mirzaee, E., Pruitt, B.E., Hurley, R.S., & Heuberger, G. (1991). Rural communities near large metropolitan areas: Safe havens from adolescent violence and drug use? *Health Values, 15*, 39-48.

Knapp, J.F. (1998). The impact of children witnessing violence. *Pediatric Clinics of North America, 45*, 355-364.

Kotlowitz, A. (2008, May 4). Blocking the transmission of violence. *The New York Times.* Retrieved from www.nytimes.com.

Krug, E.G., Dahlberg, L.L., Mercy, J.A., Zwi, A.B., & Lozano, R. (eds). (2002). World report on violence and health. Geneva, World Health Organization.

Kulig, J., Valentine, J., Griffith, J., & Ruthazer, R. (1998). Predictive model of weapon carrying among urban high school students: Results and validation. *Journal of Adolescent Health, 22*, 312–319.

Lai, D.W. (1999). Violence exposure and mental health of adolescents in small towns: An exploratory study. *Canadian Journal of Public Health, 90*, 180-185.

Lambert, S.F., Ialongo, N.S., Boyd, R.C., & Cooley, M.R. (2005). Risk factors for community violence exposure in adolescents. *Journal of Community Psychology, 36*, 29-48.

Lieberman, A.F., Van Horn, P., Grandison, C.M., & Pekarsky, J.H. (1998). Mental health assessment of infants, toddlers, and preschoolers in a service program and a treatment outcome research program. *Infant Mental Health Journal. 18*, 158-170.

Lowry, P.W., Hassig, S.E., & Gunn, R.E. (1988). Homicide victims in New Orleans: Recent trends. *American Journal of Epidemiology, 128*, 1130-1136.

Maguire, K., & Pastore, A.L. (1999). *Sourcebook of Criminal Justice Statistics, 1998.* Retrieved from www.albany.edu/sourcebook.

Marans, S., & Cohen, D.J. (1993). Children and inner-city violence: Strategies for intervention. In L.A. Leavitt, & N.A. Fox (eds). *The Psychological Effects of War and Violence on Children (pp281-300).* Hillsdale, NJ: Lawrence Erlbaum Associates.

Matson, K.T. (2007). Victimization rates for persons age 12 and over, by type of crime and age of victims. Criminal Victimization in the United States, 2007 -- Statistical Tables Bureau of Justice Statistics. (Publication No. NCJ 227669).

Muscat, J.E. (1988). Characteristics of childhood homicide in Ohio, 1974-84. *American Journal of Public Health, 78*, 822-824.

National Center for Health Statistics. (2009). Health, United States, 2009, with special features on medical technology. Hyattsville, MD.

Office of Juvenile Justice and Delinquency Prevention. (2009). *OJJDP Statistical Briefing Book*. Retrieved at http://ojjdp.ncjrs.org.

Office of Juvenile Justice and Delinquency Prevention. (2006). *OJJDP Statistical Briefing Book*. Retrieved at http://ojjdp.ncjrs.gov.

Osofsky, J.D. (1995). The effects of exposure to violence on young vhildren. *American Psychologist*, 50, *782-788*.

Osofsky, J.D., Wewers, S., Hann, D.M.,& Fick, A.C. (1993). Chronic community violence: What is happening to our children? *Psychiatry, 56*, 34-45.

References

Patterson, G.R., Reid, J.B, & Dishion, T.J. (1992). Antisocial Boys. In J.M. Jenkins, K. Oatley, & N.L. Stein (eds). *Human Emotions: A Reader (pp.* 330-335). Malden, MA: Blackwell Publishers.

Perez-Smith, A.M., Albus, K.E., & Weist, M.D. (2001). Exposure to violence and neighborhood affiliation among inner-city youth. *Journal of Clinical Child & Adolescent Psychology, 30,* 464 – 472.

Pitts, S.R., Niska, R.W., Xu, J., & Burt, C.W. (2008). National hospital ambulatory medical care survey: 2006 Emergency department summary. National Health Statistics Report, no.7. Hyattsville, MD: National Center for Health Statistics.

Richters, J.E., & Martinez, P. (1993). The NIMH community violence project: Children as victims of and witnesses to violence. *Psychiatry, 56,* 7-21.

Scheeringa, M.S.,& Zeanah, C.H. (2006). Symptom expression and trauma variables in children under 48 months of age. *Infant Mental Health Journal, 16,* 259 – 270.

Schubinger, H., Scott, R., & Tzelepis, A. (1993). Exposure to violence among inner city youth. *Journal of Adolescent Health, 14,* 214-219.

Snyder, H.N., & Sickmund, M. (2006). Juvenile offenders and victims: 2006 national report. U.S. Department of Justice, Office of Justice Programs, Office of Juvenile Justice and Delinquency Prevention. Washington, DC.

Selner- O'hagan, M., Kindlon, D.J., Buka, S.L, Raudenbush, S.W., & Earls, F.J. (1998). Assessing Exposure to Violence in Urban Youth. *Journal of Child Psychology and Psychiatry, 39,* 215-224.

Slovak K , Singer M.I. (2002). Children and violence: Findings and implications from a rural community. *Children and Adolescents Social Work Journal, 19,* 35-56.

Stattin, H., & Magnusson, D. (1996). Antisocial development: A holistic approach. *Development and Psychopathology, 8,* 617-645.

Stouthamer-Loeber, M., Loeber, R., Wei, E., Farrington, D.P., & Wikström, P.O. (2002). Risk and promotive effects in the explanation of persistent serious delinquency in boys. *Journal of Consulting and Clinical Psychology, 70,* 111-123.

Swanson, J.W. (1994). Mental disorder, substance abuse, and community violence: an epidemiological approach. In J. Monahan & H.J. Steadman (eds). *Violence and Mental Disorder: Developments in Risk Assessment* (pp101-136). Chicago, IL: University of Chicago Press.

Sugg, N.K., & Inui, T. (1992). Primary care physicians' response to domestic violence: Opening pandora's box. *Journal of the American Medical Association, 267,* 3157-3160.

Wolfe, D.A., Jaffe, P., Wilson, S., & Zak, L. (1985). Children of battered women: the relation of child behavior to family violence and maternal stress. *Journal of Consulting and Clinical Psychology,53,* 657-665.

Widom, C.S. (1991). Role of placement experiences in mediating the criminal consequences of early childhood victimization. *American Journal of Orthopsychiatry, 61,* 195-209.

Webster, D.W., Gainer, P.S., & Champion, H.R. (1993). Weapon carrying among inner-city junior high school students: defensive behavior versus aggressive delinquency. *American Journal of Public Health, 83,* 1604-1608.

References

Weist, M.D., Acosta, O.M., Youngstrom, E.A. (2001). Predictors of violence exposure among inner-City Youth. *Journal of Clinical Child Psychology, 30,* 187-198.

U.S. Department of Health and Human Services, Administration on children, youth, and families. (2007). *Child Maltreatment*. Retrieved from www.childwelfare.gov.

U.S. Department of Health and Human Services. (2001). Youth violence: A report of the surgeon general. U.S. Department of Health and Human Services, Office of the Surgeon General. Rockville, MD. Retrieved from www.surgeongeneral.gov.

White, K.S., Bruce, S.E., Farrell, A.D., & Kliewer, W. (1998). Impact of exposure to community violence on anxiety: A longitudinal study of family social support as a protective factor for urban children. *Journal of Child and Family Studies, 7,* 187-203.

Youngstrum, E., Weist, M.D., & Albus, K.E. (2003). Exploring violence exposure, stress, protective factors and behavioral problems among inner-city youth. *American Journal of Community Psychology, 32,* 115-129.