2002

Somatic complaints and health care utilization in children exposed to violence

Kellie Ann Hilker
Louisiana State University and Agricultural and Mechanical College, khilker@lsu.edu

Follow this and additional works at: https://digitalcommons.lsu.edu/gradschool_dissertations

Part of the Psychology Commons

SOMATIC COMPLAINTS AND HEALTH CARE UTILIZATION IN CHILDREN EXPOSED TO VIOLENCE

A Dissertation

Submitted to the Graduate Faculty of the
Louisiana State University and
Agricultural and Mechanical College
in partial fulfillment of the
requirements for the degree of
Doctor of Philosophy

in

The Department of Psychology

by
Kellie Ann Hilker
B.S., Lynchburg College, 1991
M.A., Catholic University of America, 1993
M.A., Louisiana State University, 2000
December, 2002

Table of Contents

List of Tables

Abstract

In the United States, violence has been referred to as a public health epidemic and violence exposure of our youth is a particularly serious national concern. Numerous negative outcomes are associated with both child victimization and violence exposure including externalizing problems, internalizing symptoms, and poor academic performance. Somatic complaints, which have been associated with internalizing symptoms, have been found as well; however, physical complaints have not been studied in depth. Additionally, health care utilization is an area that is not widely studied in pediatric psychology, but positive associations between posttraumatic stress disorder and increased health care utilization has been found in the adult literature. The purpose of the current study was to evaluate the relationship between violence exposure and internalizing symptoms with two outcome variables, somatic complaints and health care utilization, in a sample of children attending a pediatric primary care clinic. Results of a multiple regression analysis found that 62% of the variance of child-reported somatic complaints was predicted by child gender, higher scores on the Physical/Verbal Abuse scale of the KID-SAVE, and more reported internalizing symptoms. No differences in rates of violence exposure, somatic complaints, or internalizing symptoms were found between high and low utilizers of health care. Future research directions could include a longitudinal study to assess changes over time in somatic complaints and health care utilization in relation to childhood violence exposure.

Introduction

Violence is a widespread problem in our society and a high priority issue for politicians, mental health professionals, and citizens. Between 1983 and 1993, a sharp increase in violence occurred reaching epidemic proportions (Surgeon General, 2001). In 1999, 7.4 million violent crimes occurred including rape, robbery, and assault (Rennison, 2000). Preliminary figures of the national crime index for 2001 show a 1.7 percent increase in violent crime in the Southern region of the United States (U.S. Department of Justice, 2002). Over 3.3% of persons over the age of 12 were the victims of violence in 1999. Recent estimates have found that youth between the age of 12 and 17 are two times more likely than adults to be victims of serious crimes and three times as likely to be victims of simple assault (Children's Defense Fund, 2000).

Studies surveying children and adolescents have found high rates of exposure to violence. In one study, 85% of inner-city children and adolescents reported witnessing a violent act, while 70% reported experiencing direct victimization (Fitzpatrick & Boldizar, 1993). National surveys have found lower rates of both witnessing violence and direct victimization (Crouch et al., 2000). Of adolescents between the ages of 12 and 17, 34% to 49% reported witnessing violent acts and 15% to 24% reported they had been assaulted. These studies indicate that exposure to violence is elevated to significant levels across various samples and the impact of exposure needs to be thoroughly evaluated.

Violence exposure is associated with a variety of negative outcomes. Externalizing behaviors, such as oppositional behavior and hyperactivity, are associated with higher rates of violence exposure (Schwab-Stone et al., 1999; Cooley-Quille, Turner, & Beidel, 1995). Violence exposure also is associated with depression, anxiety, and posttraumatic stress disorder

(Schwab-Stone et al., 1999). Finally, mixed results have been found when studying the association of somatic complaints and violent exposure in youth. Studies of adolescents found that somatic complaints are associated with violence exposure, however, parent-report data of child somatic complaints and violence exposure have not found associations between these two variables (Lipschitz et al., 1999; Flowers, Lanclos, and Kelley, 2002). Evidence for a relationship between violence exposure and somatic complaints has been supported in the adult literature (McCauley et al., 1998).

Somatic complaints can occur frequently with children and adolescents. The most common somatic complaints include stomachaches and headaches (Garber, Walker, & Zemen, 1991). One important factor related to somatic complaints is health care utilization. Past research has found that children with greater somatic complaints have more frequent health care visits (Campo et al., 1999). Research on adult health care utilization is better developed and strong evidence exists supporting a relationship between posttraumatic stress disorder and health care utilization, however, this issue has not been investigated with children (Greenberg et al., 1999).

The following literature review will examine past research on rates of childhood violence exposure and the impact of violence exposure. Secondly, a review of somatic complaints in children and health care utilization will be presented. This will be followed by the current study evaluating the relationship between violence exposure, somatic complaints, and health care utilization in children.

<u>Prevalence of Violence Exposure</u>

A significant increase in the rate of violence in the United States occurred between 1983 and 1993, leading some to label violence in our country an epidemic (Surgeon General, 2001).

While rates of violence have decreased since 1993, many statistics indicate that violent crimes have not returned to pre-epidemic levels (Surgeon General, 2001). Furthermore, adolescents between the ages of 12 and 17 are at a significant higher risk of being the victims of both serious crimes and simple assault (Children's Defense Fund, 2000). Given the prevalence of violent crimes and increased risk of victimization during youth, understanding rates of both direct victimization and violence exposure in children and adolescents is paramount.

Demographic variables have been widely studied to elucidate patterns of violence exposure and victimization, for example, differences in violence exposure have been found based on the child's age. Schwab-Stone (1999) found that older children reported witnessing more violent events, but not victimization. Parents of inner-city children in 5th and 6th grade reported on their child's exposure to a variety of violent incidents (Richters & Martinez, 1993). Estimates revealed that 14% had witnessed a shooting, 43% had witnessed a mugging, and 16% had seen a dead body outside. Parents of 1st and 2nd graders, in contrast, reported their children witnessed less violent incidents (Richters & Martinez, 1993). Of this age group, 9% had witnessed a shooting, 25% had witnessed a mugging, and 16% had seen a dead body. In addition, victimization was found at lower rates with the younger age group as well. When children in this study were surveyed, no differences were evident in rates of violence exposure between the younger and older groups. Other studies also have not found significant differences by age groups, for example, Fitzpatrick and Boldizar (1993) did not find differences in rates of victimization and witnessing violent events between 3 age groups: 7 to 10 year olds, 11 to 14 year olds, and 15 to 18 year olds.

Rates of violence exposure also differ by the gender of the respondent. Past research has shown that females report witnessing less violent acts than males (O'Keefe, 1997; Schwab-Stone

et al., 1995). Studies evaluating both witnessing and victimization have found lower rates of both types of incidents reported by females (Fitzpatrick & Boldizar, 1993). Specifically, females were less likely to report a history of being in a fight, having someone threaten to kill them, and having someone threaten to shoot them (Farrell & Bruce, 1997). While differences by gender have been supported in many studies, others have not found significant differences in rates of violence exposure for males and females (Cooley-Quille, Turner, & Beidel, 1995; Mazza & Reynolds, 1999).

Race is another variable that has shown a relationship to violence exposure (Crouch et al., 2000). African-American and Hispanic adolescents reported witnessing significantly more violent events than Caucasian youth. Furthermore, the interaction of race and income has been examined. With increasing income, both rates of victimization and witnessing violence decreased for Caucasian participants. This decrease was not found as household income increased for African-American and Hispanic adolescents. Thus, rates of witnessed violence, physical abuse, physical assaults and sexual assaults did not decrease as a function of income for both African-American and Hispanic families. Further research on these specific demographic and family variables is required to better understand their relationship to violence exposure and underscores the importance of thorough representation of ethnic minorities in violence exposure studies.

The setting of the violent act is a commonly made distinction with the most common focus of research being community violence (Guterman, Cameron, & Staller, 2000), however, one area of serious concern is the violence that occurs in schools. School violence is occurring at a high rate with 7.4% of high school students reported having been threatened or injured on school property with a weapon during a 12 month time period (Center for Disease Control, 1999). Males were more likely to be threatened than females surveyed. Another study sampling

1,234 schools, found that 11,000 incidents of physical attacks with a weapon occurred during the 1996-1997 school year (National Center for Education Statistics, 1998).

Violence occurring in the home among family members, also called domestic violence, may have a significant impact on children. Estimates for domestic violence range widely from 960,000 to 3.9 million incidents per year (Rennison, 2000; Commonwealth Fund as cited in Family Violence Prevention Fund, 1999). The majority of individuals reporting domestic violence are women, with half of all victims of domestic violence living with children under the age of 12 (Rennison, 2000). O'Keefe (1997), for example, found that 19% of their respondents reported observing minor acts of violence between parents and 25% reported observing severe acts of interparental violence. Slightly over half of the children surveyed had never witnessed violence between their parents.

One study divided exposure by setting and found that the majority of violent incidents (68%) took place near the child's home (Richters & Martinez, 1993). Twenty-two percent of incidents took place in school, and 7% took place in their home. Community, school, and family violence were found to be positively related (O'Keefe, 1997). In other words, higher rates of exposure in one domain are related to higher rates in another domain. Given that students often go to school close to their homes, the relationship between community and school violence is understandable. The relationship between community violence and family violence is less clear. O'Keefe (1997) hypothesized that violence in the community may be a significant source of stress that increases the likelihood of family violence. Consideration of all of these domains may be important when conceptualizing the impact of violence exposure

Given that higher rates of violence are found in inner cities (U.S. Department of Justice, 2002), the majority of the violence literature employs samples from inner cities.

5

African-American and Latino 5th and 7th grade boys from inner-city Chicago reported on violence exposure and victimization during the year prior and over the course of a lifetime (Gorman-Smith & Tolan, 1998). Incidents that were evaluated included seeing someone attacked, witnessing a shooting, and being a victim of various types of assault. For the year prior to the interview, 54% had seen someone beat up. This rate increased to 67% when asked about lifetime exposure. Witnessing a shooting in the last year was reported by 15% of the boys and 22% reported this had occurred during their lifetime.

In an effort to obtain a broader picture of violence exposure, one study evaluated rates of violence exposure in both urban and suburban areas (O'Keefe, 1997). Of suburban and urban high school students aged 14 to 20, males reported witnessing more violent acts then female respondents (O'Keefe, 1997). Sixty-two percent of males reported observing threats with a gun or knife at school. This estimate was 45% for their female counterparts. Rates in the community setting were 58% and 35% for males and females, respectively. Contrary to the author's hypothesis, suburban youth in this study reported similar rates of violence exposure as inner city youth. Thus, the importance of including suburban youth in studies of violence exposure and the effects of violence exposure was highlighted.

Many critics argue that an even broader geographical area should be sampled when surveying children and adolescents about violence exposure (Guterman, Cameron, & Staller, 2000). To increase understanding about violence exposure, a nationally representative sample of adolescents were surveyed by telephone (Crouch et al., 2000). More than 1/3 of the respondents reported witnessing some form of violence in their lifetime. Rates of victimization were also surveyed. Sexual assault was reported less frequently and ranged from 5% to 11%. Physical abusive punishment was reported to be between 7% and 13%, and physical assault ranged from

15% to 24%. Overall, lower rates of exposure were reported with this sample, which may be due to the thorough sampling techniques used to obtain a national representative sample. However, the nation's youth as a whole appeared to be exposed to high rates of violence and victimization.

Conversely, some researchers have evaluated violence exposure using a more narrow approach, for example, specific populations have been surveyed about their exposure to traumatic events. Adolescents admitted to a psychiatric hospital were surveyed about traumatic events they had experienced and witnessed (Lipschitz et al., 1999). Ninety-three percent of respondents reported exposure to at least 1 traumatic event. The mean number of traumatic events experienced was 2.5.

Finally, primary care pediatric clinics have been settings for evaluating violence exposure in children and adolescents. This population has been chosen due to the recent interest in violence screening advocated by pediatricians (Abraham et al., 2001). Lipschitz and others (2000) evaluated violence exposure and posttraumatic stress in female adolescents in a primary care clinic. They found that the mean number of traumatic events experienced was 3.02. Eighty-five percent of the sample had witnessed community violence, for example, 67% reported that they had heard about a homicide of a friend or relative. In general, specific populations may have higher or lower reported levels of violence exposure; therefore, characteristics of samples should be closely considered.

In summary, rates of exposure vary by geographic location of the sample and specific sample characteristics. Additionally, the types of violence assessed and the demographic variables of the sample are important factors to consider when evaluating rates of violence exposure. Witnessing violent incidents versus victimization is another potential distinction. Despite the variability with reporting and numerous data collection issues, the rates of violence

exposure are a serious public health concern given that exposure to traumatic events may have a negative impact on a child's functioning.

Impact of Violence Exposure

The effects of violence exposure can be categorized into three areas: emotional, behavioral, and cognitive or academic (Shakoor & Chalmers, 1991). Further, these effects may impact the child's future development in each area, therefore, violence exposure could potentially effect the child's developmental trajectory (Kuther, 1999). Also, symptoms in these three areas may interact to cause worse outcomes. Psychobiological abnormalities also have been investigated and these biological changes may contribute to the cognitive, behavioral, and emotional symptoms associated with violence exposure (Osofsky & Scheeringa, 1997).

The neurobiological effects of violence exposure are a significant interest of researchers, particularly the effects on children and adolescents. Damage to the hippocampus and left hemisphere secondary to violence exposure is suggested in past research by Perry (as cited in Margolin & Gordis, 2000). It is hypothesized that during stressful situations, cortisol is secreted which may be implicated in causing damage to these regions of the brain. In summary, children's developing brains may be more at risk for damage secondary to chemical changes as a result of exposure to traumatic events.

Perry has identified other physiological abnormalities found in children exposed to violence which include abnormalities with arousal, increased muscle tone, increased startle response, sleep disturbance, and abnormalities of cardiovascular regulation (as cited in Margolin & Gordis, 2000). Hypothesized causes of these physiological changes include elevations in the dopaminergic system and elevated chatacholamine activity.

Additionally, Nelson & Carver identified the dysregulation in the hypothalamic-pituitary-adrenal axis as a hypothesized pathway of these physiological changes (as cited in Margolin & Gordis, 2000). There are two potential outcomes with dysregulation of this feedback loop. First, an enhanced feedback loop will lead to lower basal cortisol levels and may be more related to symptoms of anxiety and posttraumatic stress disorder. Second, the opposite may occur with a reduced negative feedback loop; therefore, symptoms of depression may be more likely to occur. Thus, violence exposure creates alterations in physiology leading to an increase in internalizing symptoms. These data are more compelling in individuals diagnosed with posttraumatic stress disorder and in victims of violence. Less is known about the physiological effects of violence exposure and more specifically, the effects in children.

Academic Functioning

Poor academic performance is a serious concern in children exposed to violence. A study evaluating violence exposure in an economically disadvantaged sample found that academic performance and violence exposure had a negative relationship (Overstreet & Braun, 1999). Thus, higher levels of violence exposure were associated with worse academic performance.

Negative associations between violence exposure, with subsequent PTSD symptoms, and academic performance were found in adolescents. Lipschitz and others (2000) found that adolescent girls meeting criteria for PTSD were more likely to have failed a grade than girls with no PTSD symptoms and girls with partial PTSD symptoms, but did not meet criteria for a full PTSD diagnosis. In sum, girls exposed to violence, with significant levels of posttraumatic stress symptoms, were more likely to have been retained in school.

While studies have shown a relationship with academic performance, others have not or have found small effect sizes. When following elementary-aged children longitudinally over a

two year period, no relationship was found between exposure to community violence and academic performance (Attar, Guerra, & Tolan, 1994). In this study academic performance was determined by achievement scores in reading and math. Schwab-Stone and colleagues (1995) found that violence exposure and feeling unsafe accounted for 2.6% of the variance in school achievement as measured by a combination of grades and grade retention. While significant, this represents a small amount of the variance in school achievement. Overall, the research on the effects on academics is mixed. Perhaps with better outcome measurements and longitudinal data, a clearer picture of the relationship between violence exposure and school performance can be understood.

Behavioral Symptoms

Externalizing behavior problems associated with violence exposure include antisocial, oppositional, hyperactive, and aggressive behavior (Schwab-Stone et al., 1999; Farrell & Bruce, 1997). For example, oppositional defiant disorder has been found to be more prevalent in children who have been exposed to trauma (Famularo, Kinshcerff, & Fenton, 1992). O'Keefe (1997) tested a model predicting externalizing behavior problems in adolescence. For males, age, report of child abuse, community and school violence accounted for 18% of the variance in externalizing behavior. For females, 25% of the variance in externalizing behavior was accounted for by race, past child abuse, interparental violence, and school violence. Thus, higher levels of violence exposure are associated with higher rates of behavior problems in both girls and boys.

Longitudinal studies, as opposed to cross-sectional studies, have provided additional information about the relationship of violence exposure to externalizing symptoms. One study looked more specifically at the effects of violence exposure over the course of one year. Higher

10

rates of violence exposure during that year were associated with higher levels of aggressive behavior at the end of that year (Gorman-Smith & Tolan, 1998) Changes in antisocial behavior over 15 months was positively associated with witnessing community violence over that same time period (Miller et al., 1999). This effect was significant even when parental behavior, highly correlated with child behavior problems, was held constant.

Another behavioral concern in the violence exposure literature is hyperactivity. Children exposed to high levels of violence are reported to be more restless and active when compared to children who are exposed to low levels of violence (Cooley-Quille, Turner, & Beidel, 1995). Researchers have found a 10% increase in activity levels, as indicated by ambulatory monitoring devices, in children who were sexually and physically abused (Glod & Teicher, 1997). Furthermore, this finding was related to concurrent diagnoses of posttraumatic stress disorder (PTSD) and attention-deficit/hyperactivity disorder (ADHD). One study found a higher incidence ADHD in children who had been maltreated (Famularo, Kinscherff, & Fenton, 1992).

When focusing on high versus low exposure to violence, including both victimization and witnessing violent incidents, differences in activity level also have been found. Parent ratings of activity and restlessness were significantly different between the high and low exposure groups (Cooley-Quille, Turner, & Beidel, 1995). As predicted, higher ratings of activity and restlessness were found in the high violence exposure group. Thomas (1995) suggests that behaviors associated with posttraumatic stress disorder can include hyperactivity, inattention, distractibility, impulsivity, temper tantrums, irritability, aggression, and defiance. The symptom presentation of a child exposed to a traumatic event and a child with ADHD can be similar, therefore, children with PTSD may be misdiagnosed. This would have serious implications for adequate treatment planning.

In general, support for higher levels of externalizing behavior problems have been found both in cross-sectional and longitudinal research studies of violence exposure. Behaviors including aggressiveness, antisocial, acting-out, and hyperactivity all can be associated with violence exposure. Many psychologists have hypothesized that the association of violence exposure and externalizing behavior problems is based in social learning theory, in which children learn behavior through observation of models in their environment (Margolin & Gordis, 2000).

Emotional Symptoms

Internalizing symptoms, which have been linked to violence exposure, include anxiety, depressive symptoms, and posttraumatic stress disorder (Schwab-Stone et al., 1999). The rates of internalizing symptoms have varied widely across studies. Past studies have found variations in internalizing behavior by gender (O'Keefe, 1997). For females, 16% of the variance in internalizing problems was accounted for by race, child abuse, interparental violence, and school violence. No variable significantly predicted male internalizing symptoms. Changes in symptoms of depression and anxiety over the course of a year were related to violence exposure during that year (Gorman-Smith & Tolan, 1998). The increase in anxiety and depression symptoms was observed when prior internalizing symptoms were held constant. Overall, past data suggest that higher levels of anxiety and depressive symptoms may follow violence exposure.

Kleiwer and others (1998) tested a model for the development of internalizing problems with 99 youth residing in an inner-city environment. The authors suggest that intrusive thoughts mediate the relationship between violence exposure and internalizing problems. Furthermore, this relationship was thought to be moderated by social support. The authors' model accounted

for 29% of the variance in internalizing symptoms. In sum, children who are exposed to high levels of violence and have intrusive thoughts may have higher rates of internalizing symptoms, particularly if little social support is available.

The effects of violence exposure on subsequent internalizing symptoms have been demonstrated at a 2-year follow-up (Schwab-Stone et al., 1999). The strength of these associations was similar by sex and gender, however, younger adolescents were more likely report more internalizing symptoms. This finding suggests that the impact of violence exposure on children may have long-term effects.

A diagnosis of posttraumatic stress disorder (PTSD) is characterized first by exposure to a traumatic event in which the threat of serious injury was present and the response to this event was extreme fear (American Psychiatric Association, 1994). Other symptoms include reexperiencing of the traumatic event, persistent avoidance of stimuli associated with the traumatic incidence, and arousal symptoms such as sleep problems, hypervigilance, and an exaggerated startle response.

PTSD has been identified in children and adolescents exposed to violence. Of adolescents hospitalized in a psychiatric ward, 93% reported exposure to at least 1 traumatic event and 32.4% met criteria for a diagnosis of PTSD (Lipschitz et al., 1999). In a younger sample, 68% of the variance in PTSD symptoms was accounted for by the variables of sex, age, depression, suicide ideation, and violence exposure (Mazza, & Reynolds, 1999). These researchers theorize a complex relationship between symptoms, which involves symptoms of PTSD as a mediational variable between violence, and depression and suicide ideation. Therefore, higher rates of violence exposure may interact with symptoms of PTSD leading to worse outcomes.

Contradictory findings were found by White and colleagues (1998). In their sample of children, they did not find that violence exposure was significantly correlated with anxiety symptoms. Overall, report of anxiety symptoms was lower than other researchers have found. Other studies have found contradictory evidence for diagnoses thought to be associated with violence exposure. Cooley-Quille, Turner, and Beidel (1995) found no differences in rate of psychiatric diagnoses between children exposed to high levels of violence and children exposed to low levels of violence. Differences in activity level and conflict with family members were noted, therefore, the authors suggest that the children exposed to violence are more prone to develop externalizing type problems versus internalizing symptoms. In general, the research has been mixed when evaluating rates of diagnosis with children exposed to higher rates of violence exposure, however, increased rates of symptoms have been associated with violence exposure. Moreover, it may be important to evaluate subclinical symptomatology, as well as symptoms that meet criteria for a diagnosis of a mood or anxiety disorder.

Somatic Complaints

In general, little is understood about high rates of physical complaints in childhood. The Children's Somatization Inventory (CSI; Garber, Walker, & Zemen, 1991) was used to identify somatic complaints often found with children and adolescents. The CSI has 4 factors which correspond to the first 4 categories of somatic complaints in the diagnostic classification of somatoform disorder: pseudoneurological, cardiovascular, gastrointestinal, and pain/weakness. The most commonly reported somatic complaints include headaches, low energy, sore muscles, nausea or upset stomach, back pain, stomach pain, blurred vision, weakness, and food intolerance. In another study, gastrointestinal and autonomic complaints (headaches, sweatiness, & dizziness) were the most common somatic complaints reported (Bernstein et al., 1997). Taylor

and colleagues (1996) found that over 45 % of adolescents surveyed endorsed frequent headaches and stomachaches. Furthermore, 54% of the adolescents reported that they felt their health should be better. It appears that many children and adolescents do exhibit a wide array of somatic complaints and have significant concerns about their own health status.

Somatic complaints have been found to be more frequent as age increases (Campo et al., 1999). In one study, children identified by their parents as often complaining of physical ailments and having a history of unexplained medical illnesses were categorized as somatizers. Of 4 to 5 year olds, less than 1% were classified as somatizers. Percent of children labeled as somatizers in the 6 to 10 year old and the 11 to 15 year old age groups were 1.7% and 2.5%, respectively. Other studies have not found significant differences in somatic complaints by age (Egger et al., 1999; Bernstein et al., 1997).

In addition to age, somatic complaints may differ by sex. Somatic complaints appear to be more prevalent in females. This gender difference may be related to the child or adolescent's age. The gender difference is not significant at the younger age groups; however, significantly more females are described as somatizers in the 11 to 15 age group (Campo et al., 1999). Other researchers have not replicated the difference in somatic complaints by gender (Bernstein et al., 1997).

Parent somatization also is associated with somatic complaints in their children. For example, Walker, Garber, and Greene (1994) found that fathers with high levels of somatic complaints had children with higher levels of somatic complaints at a one year follow-up. Mothers with higher somatic complaints were more likely to have sons with higher somatic complaints, however, this relationship was not demonstrated with daughters. Of children diagnosed with recurrent abdominal pain, parents with higher rates of somatic complaints were

15

associated with higher reports of child somatic complaints (Walker, Garber, & Greene, 1994). This relationship was not found with children diagnosed with organic gastrointestinal pain and well children.

Other variables associated with increased somatic complaints include parent education, race, and parent marital status (Campo et al., 1999). A negative association between somatic complaints and parental education has been found, therefore, increased somatic complaints are associated with lower parental education. Children with higher rates of somatic complaints were more likely to be members of a minority group. Additionally, children with higher rates of somatic complaints were more likely to come from families in which parents were not married or living together. Further investigation of demographic and family variables is needed to better understand the relationship to somatic complaints in childhood.

Additionally, life stressors also are associated with increased somatic complaints (Walker, Garber, & Greene, 1994). Family stressors, or negative life events, including a parent losing a job or a family illness were investigated. Researchers found that children with lower ratings of social competence at an initial assessment and subsequent high levels of negative life events had more somatic complaints at a one year follow-up (Walker, Garber, & Greene, 1994). Thus, one potential hypothesis is that children with a lack of specific coping skills or social support may have more somatic complaints when faced with increased stress.

Finally, somatization is associated with increased child psychopathology. Internalizing problems, like anxiety and depression, are associated with somatization. Both self-reported internalizing and externalizing problems have been shown to significantly predict a child's somatic complaints (Bernstein et al., 1997). Additionally, children with numerous somatic complaints are more likely to be rated by parents as having emotional and behavioral problems

16

(Campo et al., 1999). A higher number of children who were reported as often having frequent somatic complaints met the cutoff score for significant psychopathology on the Pediatric Symptom Checklist (PSC; Jellinek et al., 1986) when compared to an intermediate somatizer and control groups. Approximately half of the children categorized as somatizers had clinically significant scores on the PSC. The intermediate group, which reported some somatic complaints, resulted in approximately 25% meeting the criteria for the cutoff, while 12.5% of the controls met criteria. It appears there is a relationship between presence of psychopathology and somatic complaints.

A relationship between gender, psychopathology, and somatic complaints has been found (Egger et al., 1999). Higher somatic complaints were found with females aged 9, 11, and 13 years of age with an anxiety disorder. Both stomachaches and musculoskeletal pains were specifically found in girls with anxiety disorders. The relationship between anxiety disorders and somatic complaints was not found with boys. Musculoskeletal pains were associated with symptoms of depression in both boys and girls. Interestingly, a relationship between disruptive behavior disorders and somatic complaints was found with boys, but not with girls. Specifically, stomachaches were associated with oppositional defiant disorder and attention-deficit/ hyperactivity disorder. Headaches were associated with a diagnosis of conduct disorder. In sum, there may be an interaction between gender, type of behavioral or emotional problem, and specific somatic complaints.

Relationship Between Somatic Complaints and Violence Exposure

As discussed previously, numerous negative outcomes have been linked to violence exposure. These include academic difficulties, anxiety, depression, PTSD, attention problems, and hyperactivity. A small number of studies evaluating internalizing and externalizing

symptoms in relation to violence exposure have examined somatic complaints as well (Lipschitz et al., 1999). Many of the studies utilizing internalizing problems as the dependent variable, utilize a measure, such as the Child Behavior Checklist (O'Keefe, 1997; Schwab-Stone et al., 1999). This measure includes a Somatic Complaints scale within the broader measure of internalizing problems. A small number of studies have examined somatic complaints independent from the broad scale of internalizing problems.

Higher rates of somatic complaints have been found in adolescents exposed to traumatic events. Mores specifically, somatic complaints have been associated with a diagnosis of posttraumatic stress disorder. Psychiatrically hospitalized adolescents diagnosed with posttraumatic stress disorder were more likely to have a pattern of somatic complaints meeting DSM III-R criteria for somatization disorder (Lipschitz et al., 1999). Unfortunately, this sample is very specific and includes both victims of sexual and physical abuse, as well as witnesses to traumatic incidents. Thus, the sample characteristics create significant difficulties with interpretation of the data. Most commonly, discussions of somatic complaints and trauma take place in the context of sexual or physical abuse. For example, boys who were the victims of sexual abuse were found to have higher rates of somatic complaints when compared to non-referred and neglected boys (White et al., 1988). Clearly, more research of children exposed to violence is needed to investigate the relationship of somatic complaints and violence exposure.

Often the evaluation of somatic complaints is obtained by parent-report questionnaires about child behavior and emotions. Frequency of violence exposure was not significantly predictive of parent report of somatic complaints (Flowers, Lanclos, and Kelley, 2002). Flowers, Lanclos, and Kelley (2002) found that both parent reported and child reported violence exposure did not significantly predict child somatic complaints. It is important to note that the measure of

child somatic complaints was a scale on a parent report measure. Other studies have found no difference in somatic complaints in children exposed to high levels of violence versus those exposed to low levels of violence (Cooley-Quille, Turner, & Beidel, 1995). Again, this study utilized parent-report information to evaluate this variable. Focusing on child report of somatic complaints is important, because the individual's own perception of physical health is important.

In the adult literature, women with exposure to violence report increased somatic complaints (McCauley et al., 1998). In particular, diarrhea, loss of appetite, vaginal discharge, and abdominal pain were more often reported by women exposed to higher levels of violent incidents. When women reporting no exposure to violence were compared to women reporting low severity violence and women reporting high severity violence exposure, significant differences were found between each group. Furthermore, increased somatic complaints were found with each level of exposure. The authors posit that this finding provides evidence for a dose response, which they state can be one consideration of many when evaluating causation between variables. While significantly more information would be needed to prove such a theory, the results of this study are compelling.

Theoretical Model Outlining Relationship of Trauma and Health

The adult literature provides information about the relationship of trauma and health complaints. Resnick, Acierno, and Kilpatrick (1997) developed an initial model to explain the relationship between trauma and health in adults. They hypothesize a relationship between violent assault and three potential immediate outcomes: acute physical injury, increased stress, and increased risk of mental health problems. Thus, trauma that is directly experienced may cause an immediate injury. Secondly, traumatic incidents lead to increased levels of experienced

19

stress. Lastly, a risk of mental health problems ranging from depressed or anxious mood can occur initially after trauma.

Acute injury resulting from an assault may lead to chronic physical problems, for example, an individual may have a head injury during the assault that may lead to a chronic seizure disorder (Resnick, Acierno, & Kilpatrick, 1997). Obviously, individuals with chronic conditions will have increased physical complaints and need ongoing medical attention. Thus, both acute and chronic injuries may increase the risk of health problems in individuals exposed to traumatic violence.

A pathway from violent assault to increased stress levels also is hypothesized in this model. Increased stress may lead to both impaired immune system functioning and an increase in health risk behavior. Chronic and acute stressors have been linked to alterations of immune system functioning (Kiecolt-Glaser et al., 2002). Further, these changes may persist over time (Baum et al., 1993). Subsequently, health status may be effected. Evidence for the deleterious affect of stress on the immune system has been identified with numerous health conditions including infectious diseases, cancers associated with a viral etiology, wound healing, autoimmune disease, and progression of HIV disease (Kiecolt-Glaser et al., 2002).

Individuals may engage in increased risky behaviors that may negatively impact stress, for example, individuals experiencing more stress in their lives may engage in behaviors such as smoking, alcohol use, and drug use. An increase of risky health behaviors including unprotected sexual intercourse, tobacco, alcohol, and drug use have been found in adolescent witnesses to violence (Berenson et al., 2001; Lipschitz et al., 2000). Adolescent victims of violence were found to be 2 to 4 times more likely to engage in unhealthy behaviors. Further, these risky

20

behaviors increase the chance of other health problems and subsequent increased somatic or physical complaints.

Violent assault has also been linked to an increased risk of mental health problems (Resnick, Acierno, & Kilpatrick, 1997). This relationship is probably the area most often examined in the literature. Furthermore, mental health problems also are related to impaired immune functioning. Thus, and individual with a suppressed immune function will have an increased risk of illness and subsequent increase in health complaints, which were discussed previously (Kiecolt-Glaser et al., 2002).

Mental health problems also are associated with an increase in health risk behaviors. An individual experiencing mental health difficulties may engage in a variety of risky behaviors (e.g., smoking, drinking, drug use) that may lead to increased health problems and health complaints, which has been demonstrated in the adolescent population (Berenson et al., 2001).

Finally, an increased risk of mental health problems is associated with inappropriate health care utilization. This may be due to misattribution of psychological symptoms to a potential physical illness. Subsequently, an individual may be prescribed medicine with side effects, therefore, the number of health complaints may increase. Additionally, an individual may undergo medical testing or treatment resulting in iatrogenic symptoms.

In sum, violent assault can initially lead to three possible events or situations: acute physical injury, increased stress, and an increase in mental health problems. These initial relationships may lead to four potential outcomes: chronic physical injury, impaired immune functioning, increased health risk behavior, and inappropriate health care utilization. All of these variables may contribute to increased risk of health problems. While this model has been discussed in the adult literature, particularly in the context of adult female victims of rape, little

has been discussed regarding the relationship between trauma, mental health problems, and health in children and adolescents. The model discussed above provides a framework for future research to examine this complex relationship. Furthermore, the model focuses on violent victimization and expanding the model to include violence exposure may prove useful for researchers investigating this area.

Problems Associated with Somatic Complaints

Problems associated with somatization include poor grades and academic difficulties (Campo et al., 1999). This may be due to missed days of school secondary to somatic complaints. Autonomic complaints; such as headache, dizziness, and sweatiness, were shown to be significantly associated with poor school attendance (Bernstein, 1997). A child with poor attendance may have difficulty catching up with schoolwork, which will result in poor academic performance.

One study evaluated children's perceptions of peers with somatic complaints both with and without an organic etiology (Guite et al., 2000). The authors found that female children liked male peers better when the peer's complaints had an organic etiology. Males were more likely to grant opposite sex peers with organic illness relief from responsibilities. This study demonstrated that children as young as 4th and 5th graders can distinguish between somatic complaints with and without an organic etiology. While this study evaluates child report, not behavior, future research in this area may yield important implications for social relationships in children exhibiting numerous somatic complaints.

In another study evaluating interpersonal relationships and somatic complaints, impairment in social relationships was found to be slightly related to increased somatic complaints (Taylor et al., 1996). Areas that were reported as problematic were found in social

relationships with parents, teachers, and peers. It appears that social functioning may be associated with somatic complaints; however, the extent and the specifics of impairment are yet unknown.

One important variable associated with somatization is health care utilization. Some estimates of pediatric office visits have found 2 to 4% of all visits are headache and recurrent abdominal pain (Campo & Fritsch, 1994). Children classified as somatizers were more likely to be frequent utilizers of health care services (Campo et al., 1999). One study did not demonstrate this relationship. Taylor et al. (1996) found no differences in self-reported health care utilization and self-reported somatic complaints. In summary, past research has found mixed evidence for an association between rates of health care utilization and somatization. Within pediatrics, little research has been conducted on this topic; however, many researchers suggest that somatic complaints may lead to increased health care visits. Finally, ongoing somatic complaints may lead to unnecessary medical tests and medical treatment, which could lead to iatrogenic effects resulting in additional somatic complaints. While research in this area is sparse, evidence does exist that somatic complaints may result in academic difficulties, peer relationships problems, and misuse of health care services. Given the potential for numerous associated difficulties, somatic complaints are an area worthy of continued study.

Health Care Utilization

Parents bring their children to the doctors for various purposes. The child may have an acute illness that requires immediate treatment, a chronic illness that requires ongoing management, or a child may present with physical symptoms without an identifiable medical illness associated with the child's symptoms. High medical care utilization is often seen with children who do not have an identifiable medical illness (Finney, Riley, & Cataldo, 1991). It is

the variables that contribute to health care utilization with this group that is of interest physicians, psychologists, and health care administrators.

Janicke and Finney (2001) developed a theoretical model of health care utilization by children, which includes consideration of family dynamics. This model includes social and cognitive factors that contribute to health care utilization including self-efficacy of coping, current life demands, and stress. They propose that parental stress and low self-efficacy for coping with various parenting and life demands interact to initiate the utilization of pediatric services. Thus, parents who are experiencing a high level of life demands and stress may be overwhelmed with the demands placed on them. When overwhelmed, a perception that the child's illness is too difficult to manage on one's own occurs. In other words, a decrease in self-efficacy is experienced. When self-efficacy to handle these demands is low, parents may seek out assistance from the primary care physician.

One could expand this model to incorporate a discussion of violence in our communities. Violence exposure could be conceptualized as a stressor experienced by families. In addition, the stress of parenting a child with emotional and behavioral concerns secondary to violence exposure could contribute cumulatively to stress experienced by the family. Therefore, a parent may be more likely to seek assistance from the physician when the child exhibits physical problems or reports somatic complaints. Once a parent seeks assistance in this situation, there is a decrease in the amount of stress, providing negative reinforcement for the help-seeking behavior (Janicke & Finney, 2001). Additionally, there may be a decrease in the amount of self-efficacy to cope with future medical situations, but an increase in self-efficacy to access physician help (Janicke & Finney, 2001). The culmination of these factors could lead to high, sustained health care usage by some families.

While this theoretical model advances the conceptualization of health care utilization in children, patterns of child health care usage have not been as widely studied as adult health care utilization. Researchers are still attempting to identify factors that contribute to utilization behavior for children. Past researchers have asked parents to identify factors that cause them to bring their child for a medical visit. As discussed previously, the child may have an acute illness or injury warranting medical attention, or the child may have a chronic medical condition that frequently brings them to the pediatric clinic (Janicke & Finney, 2001). Past research has found that health status accounts for a small percentage of variance in health care usage (Newacheck & Halfon, 1986). Thus, health status is only one of many potential variables that leads to health care utilization.

One area thought to be associated with increased child health care utilization is psychosocial problems of the family. Kinsman, Wildman, and Smucker (1999) investigated the possibility of using rate of health care utilization as an indicator for family psychological problems. Children in the high utilization group were identified as having more psychosocial problems. The researchers state that high utilization can indicate the need for additional screening, therefore, a pattern of high utilization of medical services may alert a medical provider to question more thoroughly about potential psychosocial concerns.

Further evidence that psychological concerns and behavior problems may be related to health care utilization was found by Finney, Riley, and Cataldo (1991). They found a decrease in medical usage after brief targeted treatment through a behavioral consultation service. Children were referred for a few select problems including behavior problems, toileting difficulties, and school problems. They found that medical visits for children presenting with behavior problems decreased by ⅓ and medical visits for children with toileting problems decreased by ½. They

hypothesize that when psychosocial and behavioral problems exist, parents have a lower tolerance for physical symptoms. Thus, they will more readily utilize services, which decreases parental distress and increases the likelihood of usage in the future.

The relationship of trauma to health care utilization has been a focus for the adult literature. An initial study investigating victimization examined health in women (Koss, Koss, & Woodruff, 1991). Their findings suggest that victimization was associated with increased service use, and women who had been victimized multiple times had even higher rates of medical visits. More specifically, Hidalgo and Davidson (2000) reported that individuals diagnosed with PTSD were more likely to utilize general health care. An economic analysis found that the cost of anxiety disorders was approximately $42.3 billion dollars in 1990 (Greenberg et al., 1999). Further, the diagnoses of panic disorder and posttraumatic stress disorder had the highest service use rate (Greenberg et al., 1999). Upon closer examination they found that over half (54%) of the costs identified were nonpsychiatric medical expenses.

One study evaluating the relationship of trauma and health care utilization evaluated an adolescent sample (Lipschitz et al., 2000). In the process of evaluating violence exposure in a primary care clinic, they found no differences in primary care visits between adolescents with no PTSD symptoms, partial PTSD, and a full diagnosis PTSD. Walter and colleagues (1996) did find that adolescents exposed to higher levels of community violence were more likely to utilize a health clinic located in their schools in the preceding academic year. Given that the economic burden of anxiety disorders has been investigated in adult trauma victims, this area should be studied further within the child literature. Furthermore, no study to date has evaluated a younger sample of children.

Resnick, Acierno, and Kilpatrick (1997) hypothesize this phenomenon within the context of the model outlining the relationship between trauma and health in adults. They state that a misinterpretation of posttrauma signs, mainly physiological arousal, may play a role. Individuals that have witnessed or experienced a trauma may experience ongoing physiological arousal. Instead of identifying these symptoms as secondary to experiencing a feared situation, the individual attributes these symptoms to potential physical problems.

The authors of this model also hypothesize that individuals may misidentify psychological symptoms, particularly those symptoms associated with anxiety and depression, as physical illness (Resnick, Acierno, & Kilpatrick, 1997). Symptoms that might be misidentified could include shakiness, trouble catching one's breath, or dizziness, as in the case of anxiety. As for depression, fatigue and sleep problems could be misinterpreted. Trauma victims may misattribute these symptoms to a physical cause, therefore, these complaints will cue the individual to seek out medical care.

Further, classical conditioning and operant conditioning of physical arousal and trauma cues may lead to an increased chance at misidentifying physical symptoms as a serious threat (Resnick, Acierno, & Kilpatrick, 1997). The authors state that various physical sensations that occur at the time of the trauma are paired with environmental cues also present at the time of the trauma. Experiences of pain or physiological arousal may cue the individual to perceive a threat in the environment that was originally associated with the traumatic event. These physiological cues then falsely alarm the individual of a threat or potentially serious medical condition leading to health care utilization.

Overall, researchers are just beginning to identify the factors that lead to increased medical usage. The data suggest that psychosocial issues, psychopathology, and behavior

problems may be related. Within the adult literature, anxiety disorders and trauma exposure is related to health care utilization. More research is needed to discover the association of these variables, particularly within the child and adolescent age groups. Once relationships between variables can be established, interventions can be developed to improve patient functioning, decrease unnecessary health care utilization, and ultimately decrease health care costs.

Summary and Purpose

Violence is a widespread concern in our society and has been called a public health epidemic. Incidents of violence occur more frequently in inner-city environments, however, violence in suburban areas also is a serious concern. Given the frequent occurrence of violence, children and adolescents are often witnesses to violent incidents in their immediate environment. Even young, elementary-aged children report significant rates of exposure to violent incidents. Also, differences in rates of exposure are found by ethnicity and gender with boys and minorities at greater risk for higher levels of both victimization and violence exposure. Furthermore, these violent incidents can range in severity from hearing about a neighborhood shooting, to witnessing a physical fight, to serious direct victimization.

Past research has identified numerous symptoms that are thought to be secondary to exposure to violence. These effects can be categorized into cognitive, emotional, and behavioral concerns. Academic difficulties and inattention are two problem areas thought to occur at higher rates in children exposed to violence. Additionally, internalizing and externalizing problems are frequently seen with child witnesses. Higher rates of acting-out and aggressive behavior are positively related to violence exposure in children. Depression, anxiety, and posttraumatic stress symptoms also are associated with violence exposure in children. These associated behavioral

and emotional concerns have been found in both cross-sectional and longitudinal studies raising concerns that the effects of violence exposure may persist over time.

Somatic complaints are common in childhood and adolescence. Frequent physical complaints reported by children include headaches, stomachaches, fatigue, and muscle soreness. Higher rates of somatic complaints are associated with higher rates of parent somatic complaints. Somatic complaints also may be associated with age and gender with older children and females reporting more physical complaints. High rates of somatic complaints may have implications for poor academic performance, problems with peer relationships, and iatrogenic effects from unnecessary medical treatment.

Increased levels of somatic complaints are found in adults who have been exposed to violence. Furthermore, this relationship also has been demonstrated in adults diagnosed with posttraumatic stress disorder. Most research in this area is found in the adult literature with this research topic relatively neglected in the child literature. Preliminary evidence suggests that victimized children have higher rates of somatic complaints including headaches, stomachaches, and leg problems. Moreover, many child studies approach the measurement of somatic complaints from a parent-report perspective. It may be important to obtain the child's report on these symptoms or complaints. Furthermore, somatic complaints have not been studied independently as a potential problem secondary to violence exposure in children. Further research is needed to examine this relationship.

Given that support exists in the adult literature for a positive association between trauma and health, a theoretical model has been developed to define the complex relationship between trauma and increased physical complaints (Resnick, Acierno, & Kilpatrick, 1997). This model outlines three initial pathways: acute injury, increased stress, and mental health concerns. Acute

injury may lead to a chronic medical condition and increased somatic complaints. Increased

stress and mental health problems may impact an individual's immune system leading to more

health concerns. Finally, increased health risk behaviors, such as smoking and alcohol use, are

considered secondary to these variables as well. In sum, physical and mental health variables

interact and contribute to an increased risk of physical complaints. While this model was

developed to discuss violent victimization of adults, it could be expanded to encompass trauma

exposure more broadly to include violence exposure in children.

A related issue to somatic complaints, health care utilization, has rarely been studied in

youth. Children with high rates of health care utilization are thought to be at risk for increased

psychosocial difficulties, emotional problems, and behavioral difficulties. Janicke and Finney

(2001) hypothesize a social and cognitive model of elevated health care use in children. They

state that the stress of parenting and life demands interacts with low self-efficacy to cope with

these demands. Thus, families experiencing high rates of these interacting variables utilize health

care services more readily to receive support and reinforcement from the child's primary care

physician. A child's exposure to violence could be considered one of the many stressors

experienced by parents and could be incorporated into the theoretical model as a factor that may

lead to high rates of doctor's visits.

Evidence does exist for a positive relationship between posttraumatic stress symptoms

and increased health care utilization in adult victims of trauma. Furthermore, research has found

an increased rate of non-psychiatric medical visits in adults diagnosed with posttraumatic stress

disorder, which raises significant concerns regarding the economic burden of posttraumatic stress

disorder. This relationship has been explored in a limited number of studies in the adolescent

literature, with equivocal results found between these variables (Lipschitz et al., 2000). In light of

the findings in the adult literature, the association between violence exposure and health care utilization in children and adolescents needs to be adequately explored.

The purpose of this research study was to further evaluate violence exposure, somatic complaints, and emotional symptoms in a sample of children. Given that children are considered more accurate reports of their own internalizing symptoms, the main focus of this study was the investigation of somatic complaints from a child's perspective using self-report measures. The variable of somatic complaints was investigated using the potential predictor variables of violence exposure and internalizing symptoms. Finally, the relationship of these variables to health care utilization also was examined.

Hypotheses

The current study had two main hypotheses. Firstly, higher rates of violence exposure and internalizing problems were hypothesized to significantly predict more frequent somatic complaints. Secondly, children were divided into two groups based on frequency of health care usage in the past year. Children who utilize health care at high rates were thought to be significantly different than children who utilize health care at low levels on the following variables: violence exposure, internalizing symptoms, and somatic complaints. Children in the high utilization group were expected to have significantly higher scores on these three variables.

Method

<u>Participants</u>

Participants were parent-child dyads seen at one of two general pediatric clinics. Fifty participants were recruited from Earl K. Long Medical Center in Baton Rouge, Louisiana. Forty participants were recruited from the University of Mississippi Medical Center in Jackson, Mississippi. A total of 90 parent-child dyads participated in the study. Sixty-eight percent of families recruited participated in the study. One-way analyses of variance did not reveal any differences between the two groups on demographic variables, socioeconomic status, rates of violence exposure, internalizing symptoms, child somatic complaints, or number of health care visits. Children ranged in age from 9 to 13 years of age (mean = 11.32). The sample consisted of slightly more females (59%) than males. The majority of the sample was African-American (80.7%). The remainder of the sample was Caucasian (14.8%) or identified their race as "other" (4.5 %). Ninety-one percent of parent responders were mothers. Few fathers (2.2%) or other guardians (6.6%) completed questionnaires for the study. Socioeconomic status was calculated using the Hollingshead Index (Hollingshead, 1975). This index takes into account parent's education, marital status, and current occupation to arrive at a score of social strata. The mean socioeconomic status for the sample was 28, which indicates the average family fell in the semiskilled worker social strata range. Finally, children diagnosed with a chronic medical condition or mental retardation were excluded from the sample. Demographic information is presented in Table 1.

Table 1

Demographic Characteristics

	n	%	M (SD)
Sex (%)			
Male	53	59	
Female	37	41	
Age			11.32 (1.46)
9	16	17.8	
10	29	32.2	
11	14	15.6	
12	13	14.4	
13	18	20.0	
Race			
Caucasian	13	14.8	
African-American	71	80.7	
Other	6	4.5	
Socioeconomic Status			28.02 (11.44)

Measures

KID-SAVE

The KID-SAVE (Flowers, Hastings, & Kelley, 2000) is a measure of violence exposure

for children in grades 3 through 7. In addition to the child self-report version, a parent version of

the KID-SAVE can be administered. The scale has 34 items, which load onto

three subscales: Traumatic Violence, Indirect Violence, and Physical/Verbal Abuse. Items

loading on the Traumatic Violence factor include "someone has pulled a gun on me" and " I have

been attacked with a knife." Items loading on the Indirect Violence factor include "I have heard

33

about someone getting shot" and "I hear gunshots in my neighborhood." Items asking about witnessing severe violent incidents or victimization comprise the Traumatic Violence subscale. Less severe interpersonal violence the child has heard or seen are included in the Indirect Violence subscale. The Physical/Verbal Abuse factor consists of items that assess the frequency and impact of violent incidents involving aggression between peers and adult aggression (verbal and physical) toward the child. Items loading on this factor include "someone has threatened to beat me up" and "grown-ups scream at me at home." Children rate frequency of exposure as "never," "sometimes," or "a lot." The child then rates the impact for each item as "not at all upsetting," "somewhat upsetting," or "very upsetting." In addition, three faces correspond with the levels of impact to aid children in identifying the impact of each type of violence. The KID-SAVE has demonstrated adequate internal consistency ranging from .6 for the Physical/Verbal Abuse subscale and .9 for the Total Scale. Test-retest reliability was .86 for the Total Scale and construct validity was demonstrated with significant, positive correlations with a measure assessing symptoms of posttraumatic stress disorder. Overall, the KID-SAVE is a newly developed measure of violence exposure that has demonstrated adequate psychometric properties. For the purposes of the present study, only the frequency subscale was utilized to provide a quantification of child-reported violence exposure.

Trauma Symptom Checklist for Children (TSCC-A)

The TSCC-A (Briere, 1996) is a shortened version of the TSCC which does not include the Sexual Concerns subscale. This 44-item self-report measure consists of seven subscales associated with posttraumatic stress disorder including Anxiety, Depression, Post-Traumatic Stress, Dissociation, and Anger scales. Normative data on the TSCC-A is available for children aged 8 to 16. Internal consistency ranges from .82 to .89. Additionally, adequate construct and

convergent validity has been established through past research (Briere, 1996). The TSCC-A was used to provide a measure of internalizing symptoms by examining scores on the Depression, Anxiety, and Posttraumatic Stress scales.

Children's Somatization Inventory (CSI)

The CSI (Garber, Walker, & Zeman, 1991) is a 36-item self-report inventory for children in grades 2 through 12. The items are a collection of items from the Hopkins Symptom Checklist (HSCL, Derogatis et al., 1974) and developed by the authors based on the DSM-III (American Psychiatric Association, 1980) diagnostic criteria for somatization disorder. Children rate the extent they have been bothered by each symptom in the past two weeks on a 4-point scale. The scale ranges from "not at all" to "a whole lot." Scores for each item are summed to create a Total Score with higher scores representing more somatic complaints. Test-retest data has revealed adequate temporal reliability. Concurrent validity is adequate at .76. Factor analysis has revealed 4 distinct factors on the CSI, which correspond to the 4 categories of criteria for a diagnosis of somatization disorder in the DSM-III (American Psychiatric Association, 1980). These 4 factors are Pseudoneurological, Cardiopulmonary, Gastrointestinal, and Pain/ Weakness. Overall, the CSI has demonstrated adequate psychometrics for clinical and research use. This measure is included to provide an estimate of the frequency of child somatic complaints. Scores on the four CSI factors also were analyzed to obtain more specific information on types of somatic complaints reported by children.

Wahler Physical Symptoms Inventory (WPSI)

The WPSI (Wahler, 1983) is a 42-item checklist that assesses the frequency of physical complaints in individuals aged 13 and older. Respondents rate each somatic complaint on a 5-point scale ranging from "almost never" to "nearly every day." The WPSI Score is derived from

the sum of all ratings and is divided by 42 minus the number of items omitted. Internal

consistency coefficients are over .85 and estimates of test-retest reliability ranged from .55 to .94.

Additionally, adequate convergent and discriminant validity has been demonstrated. Overall, the

author suggests that the WPSI is appropriate for both clinical and research purposes. This

measure was used to provide a frequency of parent somatic complaints, a variable held constant

in the statistical analyses predicting child somatic complaints.

<u>Demographics Questionnaire</u>

Data collected included age, race, and sex of the participants. Additionally, information

about parent occupation and education was obtained to determine the socioeconomic status of the

sample. On this questionnaire, parents were asked to estimate the number of health care visits in

the past 12 months for the child participating in the study. Lastly, they indicated the locations

where the child has received medical care over this time period. These last two items were used

to provide additional information regarding the child's pattern of health care utilization.

<u>Procedure</u>

Informed consent was obtained from parents and informed assent was obtained by

children while they waited for a pediatric clinic appointment. To eliminate children diagnosed

with mental retardation and chronic medical conditions from the sample, parents were asked to

report on their child's status in these areas. Parents and children who denied being diagnosed

with any chronic conditions were included in the sample, therefore, the sample represents a

relatively healthy pediatric sample. Parents completed the brief demographics questionnaire and

Wahler Physical Symptom Inventory. Children completed the Trauma Symptom Checklist, the

Children's Somatization Inventory, and the KID-SAVE. To control for variability with reading

levels, especially with the younger participants, questionnaires were read aloud to elementary

aged participants. Completion of questionnaires took approximately 20 minutes. Families

participating in the study were compensated with $5.00 gift certificates to a local fast food

restaurant.

Each child participant's medical information was reviewed for the 12 months prior to

obtaining informed consent. Information was obtained from computerized charts at the

University of Mississippi Medical Center. At Earl K. Long Medical Center, the patient's paper

charts were examined for medical visit history. Frequency of medical visits was tallied and lists

of diagnoses were recorded for descriptive analyses.

Results

Violence Exposure

The KID-SAVE was evaluated based on the three-factor structure identified in previous research (Flowers, Hastings, & Kelley, 2000; Flowers, Lanclos, & Kelley, 2002). Due to the lack of normative data for this measure, potential ranges of scores for each scale are presented to offer reference points to examine the results from this sample. To provide further information regarding the pattern of responding on this measure, information is presented for select items from each of the scales. Descriptive data on this measure is presented in Table 2.

The possible range for the Indirect Violence scale is 0 to 34. A score of 0 indicates that the child endorsed "never" for all violence exposure questions on this scale. In contrast, a score of 34 indicates that the child endorsed "a lot" for all questions. The mean score for this scale was 9.69. Twenty-three percent of the sample endorsed "a lot" for the item "I have seen someone get arrested." For the items "I hear gunshots in my neighborhood" and "I have heard about someone getting shot,"12% of the sample endorsed each of these items as occurring "a lot."

The range of possible scores for the Traumatic Violence scale is 0 to 24. For this sample, the mean score was 1.18. For the item stating "I have seen someone get shot," 2% of child participants indicated this item as occurring "sometimes." No participants endorsed this item as occurring "a lot." Two percent and an additional 1% of the sample endorsed the item "someone has pulled a gun on me" as "sometimes" and "a lot," respectively. Finally, 20% of participants endorsed "sometimes" to the item asking if they had seen someone pull a knife on someone else.

For the Physical/ Verbal Abuse scale the range of possible scores is 0 to 12. For this sample, the mean score was 2.69. Fourteen percent of the sample endorsed "a lot" to the item

Table 2

Descriptive Information

_____

Scale/Variable	M	SD
KID-SAVE		
Indirect Violence	9.69	5.83
Traumatic Violence	1.18	1.81
Physical/ Verbal Abuse	2.69	2.34
TSCC-A		
Anxiety	47.01	9.61
Depression	45.36	10.23
Anger	43.07	8.65
Posttraumatic Stress	46.39	8.75
Dissociation	46.25	8.18
CSI		
Total Score	21.18	16.26
Pseudoneurological Factor	1.68	2.19
Cardiopulmonary Factor	3.53	3.46
Gastrointestinal Factor	5.58	4.83
Pain/ Weakness Factor	4.26	4.73
Health Care Visits		
Chart Review Data	3.06	2.29
Parent Report Data	4.72	5.00

_____

stating "grown-ups scream at me at home." For the item "grown-ups hit me at home," 17% of the

participants indicated this as occurring "sometimes." Lastly, 26% of the sample endorsed either

"sometimes" or "a lot" to the item "someone my age hits me." Overall, the scores found on each

of these scales in the current study are similar to results found in previous studies (Flowers,

Hastings, & Kelley, 2000).

Internalizing Symptoms

Internalizing symptoms were assessed using the Trauma Symptom Checklist for Children (TSCC-A). Scores on the TSCC-A are presented as T-scores with a mean of 50 and a standard deviation of 10. T-Scores of 65 and above are considered clinically significant. Scores at this level are at least 1.5 standard deviations above the mean and represent scores higher than 94% of children in the standardization sample. In general, the mean scores of the TSCC-A were slightly lower than the normative sample, for example, the average scores on the Anxiety scale and Depression scale were 47.01 and 45.36, respectively. The average score on the Anger scale of the TSCC-A was 43.07 and the average score on the Posttraumatic Stress scale was 46.39. Lastly, the average score on the Dissociation scale was 46.25. Overall, small percentages of the sample were elevated at or above a T-score of 65. Approximately 4% of the sample was elevated to the clinically significant range on both the Depression and Anxiety scales. Three percent of the sample was significantly elevated on the Anger scale. For the Posttraumatic Stress scale, 2% of sample was considered clinically significant. Finally, 3% of the sample fell in the clinically significant range on the Dissociation scale. The means and standard deviations are reported for each of these scales in Table 2.

Somatic Complaints

As with the KID-SAVE, the Children's Somatization Inventory (CSI) does not have normative data, therefore, ranges of possible scores are presented to provide reference points. Again, information about responding to select items is presented. The possible range of total scores on the CSI is 0 to140. A score of 0 indicates all items were endorsed as "not at all" and a score of 140 indicates all items were endorsed as "a whole lot." The mean total score for the CSI was 21.18 (see Table 2). The symptom that was most frequently endorsed was headaches.

Twenty-one percent of the children in the sample indicated experiencing headaches "a lot" or "a whole lot." Both the items assessing nausea and low energy also were frequently endorsed. Seventeen percent of the sample endorsed these two symptoms as occurring "a lot" or "a whole lot." The CSI was further evaluated by examining the 4 separate factors: Pseudoneurological, Cardiopulmonary, Gastrointestinal, and Pain/Weakness.

The possible range of scores on the Pseudoneurological factor is 0 to 32. The mean score on this factor was 1.68. For the item assessing the frequency of the symptom fainting, 2% of children reported this as occurring "some" and 1% as "a lot." Memory loss was endorsed as occurring "some" by 4%, "a lot" by 2%, and "a whole lot" by 2% of the children in the sample. Seizures were reported as occurring "some" by 2%, "a lot," and "a whole lot" by 1% of the children in the sample

For the Cardiopulmonary factor, the range of possible scores is 0 to 24. The mean score on this factor was 3.53. Eight percent of the sample reported experiencing their heart beating too fast (even when not exercising) as "some" and 6% indicated experiencing this symptom either "a lot" or "a whole lot." Trouble catching breath was reported as occurring "some" by 9%, "a lot" by 3%, and "a whole lot" by 2% of children in the sample.

The possible range of scores on the Gastrointestinal factor is 0 to 28. The mean score for this factor was 5.58. Nausea was reported by 7% of the sample as occurring "a whole lot". This same item was endorsed as "some" and "a lot" by 30% and 11% of the sample, respectively. Stomach pains were endorsed as "some" by 9% of the sample. Thirteen percent of the sample endorsed this item as "a lot" or " a whole lot." Sickness from food was endorsed as occurring "some" or "a lot" by 22% of the sample.

Finally, the possible range of scores for the Pain/Weakness factor is 0 to 24. For this

factor the mean score was 4.26. Weakness in parts of the body was endorsed as occurring "some"

by 18%, "a lot" by 6%, and "a whole lot" by 3% of the children in this sample. Arm and leg pain

was endorsed as "a lot" or "a whole lot" by 11% of the child sample. Overall, these data are

similar to the findings presented in past research assessing the psychometric properties of this

measure (Garber, Walker, & Zeman, 1991).

Health Care Utilization

Chart Review

The average number of visits indicated by chart review for the past year was 3.06 (see

Table 2). This number includes both visits to the general pediatric clinic and to specialty clinics

within that clinic system. The average number of general pediatric clinic visits was 2.67.

Parent Report

Parent report of medical visits in the past year also was obtained. The average number of

parent reported visits in the past year was 4.7. Unfortunately, many parents (n = 23) left this

blank on the form, therefore, this data must be interpreted with caution. Parent report of medical

visits and chart review visits were significantly correlated (r = .38, p<.001), therefore, more

frequent visits indicated by the chart were associated with higher number of medical visits by

parent report.

Descriptive Information

Diagnoses and complaints for medical visits were obtained from the medical chart. For

ease of interpretation, data was placed in categories. Table 3 shows the percent of visits that fell

into each category. The most frequent reason for appointments was a cardiopulmonary diagnosis

or concern (16%) followed by emotional/behavioral diagnoses (13%). Neurological and

musculoskeletal complaints both represented 10% of the diagnoses.

Table 3

Chart Review Data

_____

Category	n	%
Cardiopulmonary	43	16.4
Behavioral/ Emotional	34	13.0
Neurological	26	9.9
Musculoskeletal	25	9.5
Dermatological	20	7.6
Gastrointestinal	18	6.9
Well Child, Check-Up	16	6.1
Ear/ Nose/Throat	14	5.3
Allergies	13	5.0

_____

Correlational Analyses

Pearson product-moment correlations were calculated between the total scores on the

three scales of the violence exposure measure, T-scores for the three internalizing symptoms

scales, and the total score of somatic complaints. All correlations were significant and in the

predicted direction. All three of the KID-SAVE scales (Traumatic Violence, Indirect Violence,

and Physical Verbal Abuse) were positively correlated with child somatic complaints. The

Posttraumatic Stress, Anxiety, and Depression scales from the TSCC-A were positively related to

child somatic complaints. Results from the correlational analyses are presented in Table 4. In

sum, higher levels of reported somatic complaints were associated with increased ratings of

violence exposure and internalizing symptoms.

Table 4

Correlation Matrix

	Anx. Score	Posttraumatic Score	Depression Score	Indirect Violence	Traumatic Violence	Physical Verbal Abuse
CSI Total	.64**	.56**	.62**	.52**	.43**	.61**
Anxiety Score	---	.78**	.74**	.49**	.45**	.56**
Posttraumatic Stress Score		---	.61**	.55**	.36*	.55**
Depression Score			---	.40**	.42**	.57**
Indirect Violence				---	.50**	.54**
Traumatic Violence					---	.44**

*   p<.01
**   p < .001

Prediction of Somatic Complaints

The multiple regression model predicting child-reported somatic complaints involved 3 steps. First, child age, sex, and parent somatic complaints were entered into the equation. These variables were chosen due to past research identifying significant relationships with child somatic complaints. The second step included the three scales of the KID-SAVE (Indirect Violence, Traumatic Violence, and Physical/Verbal Abuse). The third and final step included in the analysis was internalizing symptoms reported by the child. Three scales from the Trauma Symptom Checklist were included in this step (Depression, Anxiety, and Posttraumatic

Symptoms). Due to high correlations between the three scales of the Trauma Symptom Checklist and concerns over multicollinearity, an internalizing score was created. A principle components analysis was conducted on the three variables to create one factor to enter in the equation. Thus, elevation of the error variance involved in summing the three scores was avoided.

Results of the regression analysis are found in Table 5. The first step of the regression predicted 11% of the variance in child somatic complaints ($R^2 = .11$, $F (3,75) = 3.07$, $p < .05$). Upon further inspection, the one variable that reached significance was sex of the child (females had higher ratings of somatic complaints). The second step accounted for an additional 43% of the variance in child somatic complaints ($R^2 = .54$, $F (3, 72) = 13.81$, $p < .001$). Again, not all the variables contributed significant unique variance to the outcome measure. Only the Physical/Verbal Abuse significantly predicted somatic complaints reported by children. Finally, the third step, which involved inclusion of the internalizing symptom composite score, accounted for an additional 8% of the variance in child somatic complaints ($R^2 = .62$, $F (1,71) = 16.36$, $p < .001$). When examining the regression model in completion, gender, report of Physical/Verbal Abuse, and internalizing symptoms significantly predicted child somatic complaints. Thus, females, higher ratings of exposure to physical/verbal abuse, and more reported internalizing symptoms were associated with higher frequency and number of somatic complaints.

Further Examination of Somatic Complaints and Violence Exposure

To further examine the relationship between somatic complaints and violence exposure, correlational analyses were conducted between the factors on the CSI and the scales on the KID-SAVE. A Bonferroni correction was utilized to control for Type I error, therefore, the null

Table 5

Regression Predicting Somatic Complaints

	Results at Each Step in Regression				Results in Final Step	
Variable	R^2	df	F	R^2 Change	t	ß
Step 1:	.11	3,75	3.07	.11		
Age					-1.43	-.11
Sex					2.60*	.20
WPSI Score					1.11	.09
Step 2:	.54	3,72	13.81	.43		
Indirect Violence					1.67	.17
Traumatic Violence					.73	.07
Physical/Verbal Abuse					2.24*	.24
Step 3:	.62	1,71	16.36	.08		
Internalizing Symptoms					3.91**	.41

* $p < .05$
** $p < .0001$

hypothesis was rejected if p-values were lower than .004. Results are presented in Table 6.

Overall, significant positive correlations were found between all factors of the CSI and the

Physical/Verbal Abuse scale. Similar results were found with the Indirect Violence scale and all

4 factors of the CSI. Finally, two of the four correlations conducted between the factors of the

CSI and the Traumatic Violence scale were significant. The Pseudoneurological and

Cardiopulmonary factors were positively correlated with the Traumatic Violence scale. The

Pearson product moment correlations between the Traumatic Violence scale, and the

Pain/Weakness and Gastrointestinal factor was .22 (p=.042) for each. While not significant,

these correlations represent a trend in the expected direction. In sum, higher reports of indirect violence and physical/verbal abuse were associated with higher frequencies of pseudoneurological, cardiopulmonary, pain/ weakness, and gastrointestinal complaints. Higher reports of exposure to traumatic violence exposure were associated with higher ratings of cardiopulmonary and pseudoneurological symptoms.

Table 6

Correlations Between CSI and KID-SAVE

	Indirect Violence	Traumatic Violence	Physical/ Verbal Abuse
Pseudoneurological	.35*	.39*	.40*
Cardiopulmonary	.45*	.50*	.60*
Gastrointestinal	.38*	.22	.42*
Pain/ Weakness	.35*	.22	.38*

* $p<.001$

Comparison of High and Low Health Care Utilization Groups

To analyze the health care utilization data, two categories were created based on the median number of health care visits (3). If a child had less than 2 medical visits in the past year, they were placed in the low health care utilization category. If a child had 3 or more visits in the past year, they were placed in the high utilization group. One-way analyses of variance did not reveal any significant differences between these two groups on socioeconomic status, age of participants, and gender. One-way analyses of variance were conducted on 7 variables. Using a Bonferroni correction to control for Type-1 error, p-values less than .006 were required for

significance. No significant differences were found between the high and utilization group on age or parent somatic complaints. The high utilization and low utilization group were not significantly different on the Traumatic Violence, Indirect Violence, and Physical/Verbal Abuse scales of the KID-SAVE. Finally, the two groups did not differ significantly on internalizing scores or child somatic complaint scores.

The issue of health care utilization was investigated using the parent-report data using the same method discussed above. The high utilization group and low utilization group were created by using a median split, which was the same as the group division described above in the chart review data section. As with the chart review data, no significant differences were found on any variables when comparing the low and high utilization group as indicated by parent report.

Discussion

This study evaluated the relationship between somatic complaints, health care utilization, and violence exposure in children. This was the first study to date to investigate these variables in children. Findings from the regression analysis showed that higher scores on the Physical /Verbal Abuse scale and higher levels of internalizing symptoms significantly predicted child-reported somatic symptoms, as indicated by the CSI. Specifically, the hypothesized model accounted for 62% of the variance in somatic complaints. Therefore, higher frequencies of direct physical victimization by peers and grown-ups paired with higher internalizing symptoms (anxiety, depression, and posttraumatic stress) were associated with increased somatic complaints. Contrary to past research evaluating the relationship of direct violent victimization and somatic complaints via parent-report (Flowers, Lanclos, & Kelley, 2002; Cooley-Quille, Turner, & Beidel, 1995), significant relationships were found in this study. Consequently, the importance of assessing child-report of somatic complaints was highlighted.

Further investigation of somatic complaints by examining specific factors, or subgroups, of somatic complaints yielded interesting results. Significant and positive correlations were found between the three scales of the KID-SAVE and the majority of factors from the CSI. Reports of increased exposure to Physical/Verbal Abuse items were associated with more symptoms in all four physical domains: pseudoneurological, gastrointestinal, pain/weakness, and cardiopulmonary. This pattern also was found with the Indirect Violence scale, lending support to the hypothesis that even indirect, or less severe, forms of violence can be associated with increased somatic complaints. Higher reports of witnessing more severe forms of violence, as indicated by higher scores on the Traumatic Violence scale, were associated with increased

somatic complaints of the pseudoneurological and cardiopulmonary areas. The pain/weakness and the gastrointestinal scale were not significantly correlated with this scale, but did show trends in the predicted direction. In sum, higher ratings of violence along a continuum of severity are associated with more child-reported physical complaints. It is important to note, however, that when these variables are all entered into the regression model predicting somatic complaints, the unique variance contributed by the physical/verbal abuse scale was significant above and beyond the contribution of the other categories of violence exposure. This underscores the potential impact of direct victimization on child-reported somatic complaints.

Overall, these results lend support for the model of trauma and health theorized by Resnick, Acierno, and Kilpatrick (1997). One hypothetical pathway between trauma exposure and increased health concerns involves an increased risk of mental health problems. The current study showed that violence exposure and internalizing symptoms are significant predictors of somatic complaints. Furthermore, this provides support that this model can be extended to include violence exposure in children. Clearly more research is needed to more closely examine the relationships between these variables to provide support for the model as a whole.

When comparing children classified as high health care utilizers to low health care utilizers, the groups were more similar than different. No significant differences emerged with respect to clinical or demographic data. This finding was the same when using chart review data as when using parent- report data. The lack of differences found in the current study replicates previous research comparing rates of health care utilization in adolescents with and without PTSD, which found no relationship between clinic visits over a six month time period and violence exposure in adolescents (Lipschitz et al., 2000).

In general, the health care utilization data, both chart review and parent reported, collected in this study was fraught with many limitations. One of the most difficult to combat in this population is the number of different clinics attended by these participants. The parents were asked to indicate at what clinics or medical facilities their children obtained medical care. Only 60% indicated that the clinic where they were recruited was the sole medical clinic attended, therefore, 40% of the participants had obtained care at other clinics or medical centers. In many cases, multiple clinics were listed further confusing the pattern of health care utilization in this population.

This finding may be due to several factors. First, both of the hospitals from which the samples were obtained have a large catchment area, therefore, patients may travel long distances for medical care. If there is a more emergent issue, parents may chose to take their child to a local walk-in clinic rather than drive the long distance to the medical centers in this study. Additionally, children may be new to the area and were recruited on their initial visit to the clinic, therefore, no chart review data were available for the year prior to obtaining consent. Even for children for whom chart review data were available, the correlation between parent-report of health care visits and chart review indication of health care visits was not particularly strong. Therefore, there may be a significant proportion of medical visits that are not accounted for by the medical chart, or parents may not be accurate reporters of their child's medical visit history.

Overall, limited health care utilization data were obtained due to numerous reasons. Unfortunately, due to these methodological and logistical limitations, no firm conclusions can be drawn. An alternative manner of examining this issue may be through the use of a large insurance database to gather medical visit information. More specifically, recruiting a large

sample of children enrolled in the Child Health Insurance Program (CHIP) may be the most thorough approach to this issue.

Conversely, the lack of differences between the high and low utilization group may be due to the time period for which information is gathered. Perhaps the true effects of these negative life events on health will not be experienced until adolescence or adulthood. Williams, Holmbeck, and Greenley (2002) highlight the concern that experiences and behavior as a child and adolescent will be related to health as an adult. They posit that during adolescence, health behaviors (both positive and negative) develop. Community level variables, including violence exposure and victimization, could potentially act as moderator variables and influence future health concerns. Thus, interventions during this time period may prevent future health problems during adulthood. Longitudinal studies are clearly necessary to truly understand the impact of these adverse life events experienced as a child and adolescent.

Concordant with this line of research is the theory that specific interventions may reduce stress and subsequent immune system alterations. Thus, future health conditions associated with immune system dysregulation may be avoided. A number of studies have used a variety of cognitive and behavioral interventions to reduce immune system changes (Kiecolt-Glaser & Glaser, 1992). Research has found some encouraging findings. Specifically, immunological differences were found when comparing a disclosure versus a non-disclosure intervention for adults exposed to a traumatic event (Christensen et al., 1996). Researchers interpret these differences as a potential intervention that can be used to stave off future health concerns, however, more research in this area is clearly needed.

The descriptive data available from the chart review provided additional information regarding patterns of health care complaints in this sample. The most frequently identified

52

category of diagnoses or concerns was cardiopulmonary in nature. Despite asking parents if their child had a significant or chronic medical conditions, a large number of these visits listed asthma as a diagnoses for which the physician was following the child. Asthma is quite prevalent in this population of patients (Godfrey, 1992), so it may be difficult to screen these individuals out of the sample. In contrast, parents may not consider asthma a chronic enough medical condition, perhaps due to the high prevalence rate in the population.

Furthermore, physicians often listed a number of diagnoses that the child was being followed, even if it was not the primary concern of the visit. For example, the child may have been diagnosed with asthma in the past; however, the child is not being actively treated for this condition. He or she may have attended the clinic for another reason on that day, but asthma could be included as a diagnosis. Again, the data collected from the medical charts proved to be difficult to analyze and interpret. Despite these complications, it may be beneficial to further examine the association of violence exposure and actual child health in future studies, perhaps through physician ratings of child health status.

Emotional and behavioral concerns were identified in 13% of the medical visits, which was second only to cardiopulmonary symptoms. Both clinicians and researchers have advocated for behavioral screening in pediatric primary care settings (Kelley & Drabman, 1995). This provides additional evidence that appropriate screening and psychological consultation services would be a great benefit to pediatricians and a potentially useful service for families. Finally, future research may want to evaluate the relationship between violence exposure, externalizing behavior problems, somatic complaints, and subsequent health care utilization.

Currently, pediatric departments are promoting physician screening of violence in their patients (Abraham et al., 2001; Johnson et al., 1999). In the context of screening, exposure to

violence is a focus, given that it increases the risk for future violent behavior. Educational

programs for medical residents and students include teaching of skills needed to discuss violence

with adolescence within the context of primary care visits. Despite inclusion of these programs

into physician training, no significant differences were found between groups that received the

educational program and a control group (Abraham et al., 2001). Given this finding, and the high

rate of behavioral and emotional concerns found in the primary care setting, pediatric

psychologists are poised to assist pediatricians with implementation of these programs to better

serve their patients.

Methodological limitations to consider include the population from which the sample was

obtained. This sample consisted of mostly African-American participants and fell in a low

socioeconomic strata. Both ethnicity and economic status may be be a factor affecting medical

utilization (Newacheck & Halfon, 1986; Woodward et al., 1988). Additionally, ethnicity and

socioeconomic status may be related to the expression and reporting of internalizing symptoms,

particularly somatic complaints (Reynolds et al., 2001). Due to the fact that participants were

recruited from a pediatric clinic, it is possible that many children exposed to violence are not

receiving medical care and may or may not have significant internalizing symptoms and somatic

complaints. Future research could perhaps include a general community sample followed

prospectively to obtain accurate health care utilization data, therefore, both clinic attenders and

clinic non-attenders would be represented in the sample. Given that this would involve the

cooperation of a large number of hospitals and medical clinics, this would be a significantly

difficult undertaking, however, a direction that may yield important results.

An additional limitation to take into account is the nature of the internalizing scores

obtained for the analyses. These represent PTSD, depression, and anxiety symptoms, not

diagnoses. The findings of this study do highlight a relationship between these variables and violence exposure, which still represents a serious concern; however, it may be beneficial for future research also to examine actual diagnoses of PTSD and depression versus level of symptoms. Furthermore, information on violence exposure, somatic complaints, and internalizing symptoms were obtained by self-report and may be effected by response bias. Future studies may want to include examination of validity scales to assess for response bias.

In summary, this study was the first to examine the relationship of child-reported somatic complaints and violence exposure. Past studies have either relied on parent-report questionnaires to obtain information regarding somatic complaints, or the outcome measure of internalizing symptoms has included a somatic complaint component. Additionally, this study examined the relationship of health care utilization and violence exposure in a younger sample than previously studied.

In the current study, somatic complaints were significantly predicted by physical/ verbal abuse rates and internalizing symptoms. Further, positive associations were found between all types of violence exposure and specific clusters of somatic complaints. While no differences were found between groups of high and low health care utilization groups with regards to violence exposure, internalizing symptoms, and somatic complaints, more research approaching this from a different methodological standpoint is needed. Future research may provide support for a model of trauma and child health similar to the one hypothesized in the adult literature.

References

Abraham, A., Cheng, T.L., Wright, J.L., Addlestone, I., Huang, Z., & Greenberg, L. (2001). Assessing an educational intervention to improve physician violence screening skills. *Pediatrics, 107*, Article 68. Retrieved June 6, 2002, from www.pediatrics.org

American Psychiatric Association (1980*). Diagnostic and Statistical Manual of Mental Disorders* (3rd ed., revised). Washington, DC: American Psychiatric Association.

American Psychiatric Association (1994*). Diagnostic and Statistical Manual of Mental Disorders* (4th ed.). Washington, DC: American Psychiatric Association.

Attar, B.K., Guerra, N.G., & Tolan, P.H. (1995). Neighborhood disadvantage, stressful life events, and adjustment in urban elementary school children. *Journal of Clinical Child Psychology, 23*, 391-400.

Baum, A., Cohen. L., & Hall, M. (1993). Control and intrusive memories as possible determinants of chronic stress. *Psychosomatic Medicine, 55*, 274-286.

Berenson, A.B., Wiemann, C.M., & McCombs, S. (2001). Exposure to violence and associated health-risk behaviors among adolescent girls. *Archives of Pediatrics & Adolescent Medicine, 155(11),* 1238-1242.

Bernstein, G.A., Massi, E.D., Thuras, P.D., Perwien, A.R., Borchardt, C.M., & Crosby, R.D. (1997). Somatic symptoms in anxious-depressed school refusers. *Journal of the American Academy of Child and Adolescent Psychiatry, 36(5),* 661-668.

Briere, J. (1996). *The Trauma Symptom Checklist for Children: Professional Manual*. Odessa, FL: Psychological Assessment Resources.

Campo, J.V., & Fritsch, S.L. (1994). Somatization in children and adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry, 33(9)*, 1223-1236.

Campo, J.V., Jansen-McWilliams, L., Comer, D.M., & Kelleher, K.J. (1999). Somatization in pediatric primary care: Association with psychopathology, functional impairment, and use of services. *Journal of the American Academy of Child and Adolescent Psychiatry, 38(9)*, 1093- 1102.

Center for Disease Control (1999). *Facts about violence among youth and violence in schools.* Retrieved January 29, 2001, from http://www.cdc.gov/od/oc/media/fact/violence.htm

Children's Defense Fund (2000). *Key facts on youth, crime, and violence.* Retrieved February 6, 2001, from http:// www.childrensdefense.org/youthviolence/keyfacts_youthcrime

Christensen, A.J., Edwards. D.L., Wiebe, J.S., Benotsch, E.G., McKelvey, L., Andrew, M., & Lubaroff, D.M. (1996). Effect of verbal self-disclosure on natural killer cell activity: Moderating influence of cynical hostility. *Psychosomatic Medicine, 58*, 150-155.

Cooley-Quille, M.R., Turner, S.M., & Beidel, D.C. (1995). Emotional impact of children's exposure to community violence: A preliminary study. *Journal of the American Academy of Child and Adolescent Psychiatry, 34(10),* 1362-1368.

Crouch, J.L., Hanson, R.F., Saunders, B.E., Kilpatrick, D.G., & Resnick, H.S. (2000). Income, race/ethnicity, and exposure to violence in youth: Results from the national survey of adolescents. *Journal of Community Psychology, 28(6),* 625-641.

Derogatis, L.R., Lipman, R.S., Rickels, K., Uhlenhuth, E.H., & Covi, L. (1974). The Hopkins Symptom Checklist. *Behavior Science, 19,* 1-15.

Egger, H.L, Costello, E.J., Erkanli, A., & Angold, A. (1999). Somatic complaints and psychopathology in children and adolescents: stomach aches, musculoskeletal pains, and headaches. *Journal of the American Academy of Child and Adolescent Psychiatry, 38(7)*, 852-860.

Family Violence Prevention Fund (1999*). Domestic Violence is a Serious Widespread Social Problem in America: The facts.* Retrieved February 6, 2001, from http://www.fvpf.org/facts/

Famularo, R., Kinscherff, R., & Fenton, T. (1992). Psychiatric diagnoses of maltreated children: Preliminary findings. *Journal of the American Academy of Child and Adolescent Psychiatry, 31(5)*, 863-867.

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 Psychology, 26 (1)*, 2-14.

Finney, J.W., Riley, A.W., & Cataldo, M.F. (1991). Psychology in primary health care: Effects of brief targeted therapy on children's medical care utilization. *Journal of Pediatric Psychology, 16*, 447-461.

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 Child and Adolescent Psychiatry, 32(2)*, 424-430.

Flowers, A.L., Hastings, T.L., & Kelley, M.L. (2000). Development of a screening instrument for exposure to violence in children: The KID-SAVE. *Journal of Psychopathology and Behavioral Assessment, 22(1)*, 91-104.

Flowers, A., Lanclos, N.F., & Kelley, M.L. (2002). Validation of screening instrument for exposure to violence in African-American children. *Journal of Pediatric Psychology, 27(4),* 351-361.

Garber, J., Walker, L.S., & Zeman, J. (1991) Somatization symptoms in a community sample of children and adolescents: Further validation of the Children's Somatization Inventory. *Psychological Assessment, 3(4),* 588-595.

Glod, C.A., & Teicher, M.H. (1997). Relationship between early abuse, posttraumatic stress disorder, and activity levels in prepubertal children. *Journal of the American Academy of Child & Adolescent Psychiatry, 35(10),* 1384-1393.

Godfrey, S.G. (1992). Childhood asthma. In T.J.H. Clark, S.G. Godfrey, & T.H. Lee (Eds.), *Asthma* (3rd ed., pp. 551-604). London: Chapman Hall Medical.

Gorman-Smith, D., & Tolan, P. (1998). The role of exposure to community violence and developmental problems among inner-city youth. *Development and Psychopathology, 10*, 101-116.

Greenberg, P.E., Sisitsky, T., Kessler, R.C., Finkelstein, S.N., Berndt, E.R., Davidson, J.R., Ballenger, J.C., & Fyer, A.J. (1999). The economic burden of anxiety disorders in the 1990s. *Journal of Clinical Psychiatry, 60(7),* 427-435.

Guite, J.W., Walker, L.S., Smith, C.A., & Garber, J. (2000). Children's perceptions of peers with somatic symptoms: The impact of gender, stress, and illness. *Journal of Pediatric Psychology, 25(3*), 125-135.

Guterman, N.B., Cameron, M., & Staller, K. (2000). Definitional and measurement issues in the study of community violence among children and youth. *Journal of Community Psychology, 28(6)*, 571-587.

Hidalgo, R.B., & Davidson, J.R.T. (2000). Posttraumatic stress disorder: Epidemiology and health-related considerations. *Journal of Clinical Psychiatry, 61* (suppl. 7*),* 5-13.

Hollingshead, A.B. (1975). *Four Factor Index of Social Status*. Unpublished Manuscript.

Janicke, D.M., & Finney, J.W. (2001). Children's primary health care services: A social-cognitive model of sustained high use. *Clinical Psychology: Science and Practice, 8(2),* 228-241.

Jellinek, M.J., Murphy, J., & Burns, B. (1986). Brief psychosocial screen in outpatient pediatric practice. *Journal of Pediatrics, 112*, 201-209.

Johnson, C.D., Fein, J.A., Campbell, C., & Ginsburg, K.R. (1999). Violence prevention in the primary care setting. *Archives of Pediatrics and Adolescent Medicine, 153*, 531-535.

Kelley, M.L., & Drabman, R.S. (1995). Psychological contributions to primary pediatric health care. In G.R. Caddy & D.G. Glenn (Eds.), *Behavioral Medicine: International perspectives: Vol. 3. Development in clinical psychology* (pp.207-236). Stamford CT: Ablex Publishing.

Kiecolt-Glaser, J.K., McGuire, L., Robles, T.F., & Glaser, R. (2002). Psychoneuroimmunology: Psychological influences on immune function and health. *Journal of Consulting and Clinical Psychology, 70*, 537-547.

Kinsman, A.M., Wildman, B.G., & Smucker, W.D. (1999). Parent report about health care use: Relationship to child's and parent's psychosocial problems. *Journal of Pediatric Psychology, 24(5)*, 435-439.

Kliewer, W., Lepore, S.J., Oskin, D., & Johnson, P.D. (1998). The role of social and cognitive processes in children's adjustment to community violence. *Journal of Consulting and Clinical Psychology, 66*, 199-209.

Koss, M.P., Koss, P.G., Woodruff, W.J. (1991). Deleterious effects of criminal victimization on women's health and medical utilization. *Archives of Internal Medicine, 151*, 342-347.

Kuther, T.L. (1999). A developmental-contextual perspective on youth covictimization by community violence. *Adolescence, 34(136)*, 699-714.

Lipschitz, D.S., Rasmusson, A.M., Anyan, W., Cromwell, P., & Southwick, S.M. (2000). Clinical and functional correlates of posttraumatic stress disorder in urban adolescent girls at primary care clinic. *Journal of the American Academy of Child and Adolescent Psychiatry, 39*, 1104-1111.

Lipschitz, D.S., Winegar, R.K., Hartnick, E., Foote, B., & Southwick, S.M. (1999). Posttraumatic stress disorder in hospitalized adolescents: Psychiatric comorbidity and clinical correlates. *Journal of the Academy of Child and Adolescent Psychiatry, 38(4),* 385-392.

Margolin, G., & Gordis, E.B. (2000). The effects of family and community violence on children. *Annual Review of Psychology, 51*, 445-479.

Mazza, J.J., & Reynolds, W.M. (1999). Exposure to violence in young inner-city adolescents: Relationships with suicide ideation, depression, and PTSD symptomatology. *Journal of Abnormal Child Psychology, 27*, 203-213.

McCauley, M., Kern, D., Kolodner, K., Derogatis, L.R., & Bass, E.B. (1998). Relation of low-severity violence to women's health. *Journal of General Internal Medicine, 13(10)*, 687-691.

Miller, L.S., Wasserman, G.A., Neugebauer, R., Gorman-Smith, D., & Kamboukos, D. (1999). Witnessed community violence and antisocial behavior in high-risk, urban boys. *Journal of Clinical Child Psychology, 28(1)*, 2-11.

National Center for Education Statistics (1998). *Frequency of Crime and Violence.* Retrieved January 29, 2001, from http://nces.ed.gov/pubs98/violence/98030005.html

Newacheck, P.W., & Halfon, N. (1986). The association between mother's and children's use of physician services. *Medical Care, 24(1),* 30-38.

O'Keefe, M., (1997). Adolescents' exposure to community and school violence: Prevalence and behavioral correlates. *Journal of Adolescent Health, 20*, 368-376.

Osofsky J.D. & Scheeringa, M.S. (1997). Community and Domestic Violence exposure: Effects on development and psychopathology. In D. Cichetti & S.L. Toth (Eds.), *Developmental Perspectives on Trauma: Theory, Research, and Intervention* (pp. 155-180). Rochester, NY: University of Rochester Press.

Overstreet, S., & Braun, S. (1999). A preliminary examination of the relationship between exposure to community violence and academic functioning. *School Psychology Quarterly, 14(4)*, 380-396.

Rennison, C.M. (2000). Criminal Victimization 1999. *Bureau of Justice Statistics National Crime Victimization Survey* (NCJ Publication No. 182734).

Resnick, H.S., Acierno, R., & Kilpatrick, D.G. (1997). Health impact of interpersonal violence 2: Medical and mental health outcomes. *Behavioral Medicine, 23*, 65-78.

Reynolds, L.K., O'Koon, J.H., Papademetriou, E., Szczgiel, S., Grant, K.E. (2001). Stress and somatic complaints in low-income urban adolescents. *Journal of Youth and Adolescence, 30(4)*, 499-514.

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

Schwab-Stone, M.E., Ayers, T.S., Kasprow, W., Voyce, C., Barone, C., Shriver, T., & Weissberg, R.P. (1995). No safe haven: A study violence exposure in an urban community. *Journal of the American Academy of Child and Adolescent Psychiatry, 34(10),* 1343-1352.

Schwab-Stone, M., Chuansheng, C., Greenberger, E., Silver, D., Lichtman, J., & Voyce, C. (1999). No save haven II: The effects of violence exposure on urban youth. *Journal of the American Academy of Child and Adolescent Psychiatry, 38(4)*, 359-367.

Shakoor, B.H., & Chalmers, D. (1991). Co-victimization of African-American children who witness violence: Effects on cognitive, emotional, and behavioral development. *Journal of the National Medical Association, 83(3)*, 233-238.

Surgeon General (2001). *Youth Violence: A report of the surgeon general.* Retrieved January 29, 2001, from http://www.surgeongeneral.gov/library/youthviolence.

Taylor, D.C., Szatmari, P., Boyle, M.H., & Offord, D.R. (1996). Somatization and vocabulary of everyday bodily experiences and concerns: A community study of adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry, 35(4),* 491-499.

Thomas, J.M. (1995). Traumatic stress disorder presents as hyperactivity and disruptive behavior: Case presentation, diagnosis, and treatment. *Infant Mental Health Journal, 16(4),* 306-317.

U.S. Department of Justice (2002). *Crime Trends, 2001 Preliminary Figures.* Retrieved June 24, 2002, from http://www.fbi.gov/pressrel/pressrel02/01bprelimcius.htm

Wahler, H.J. (1983). *Wahler Physical Symptoms Inventory Manual.* Los Angeles, CA: Western Psychological Services.

Walker, L.S., Garber, J., & Greene, J.W. (1994). Somatic complaints in pediatric patients: A prospective study of the role of negative life events, child social and academic competence, and parental somatic symptoms. *Journal of Consulting and Clinical Psychology, 62(6)*, 1213-1221.

Walter, H.J., Vaughan, R.D., Armstrong, B., Yrakoff, R.Y., Tiezzi, L., & McCarthy, J.F. (1996). Characteristics of users and nonusers of health clinics in inner-city junior high schools. *Journal of Adolescent Health, 18*, 344-348.

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.

White, S., Halpin, B.M., Strom, G.A., & Santilli, G. (1988). Behavioral comparisons of young sexually abuse, neglected, and nonreferred children. *Journal of Clinical Child Psychology, 17(1),* 53-61.

Williams, P.G., Holmbeck, G.N., & Greenley, R.N. (2002). Adolescent health psychology. *Journal of Consulting and Clinical Psychology, 70(3)*, 828-842.

Woodward, C.A., Boyle, M.H., Offord, D.R., Cadman, D.T., Links, P.S., Munroe-Blum, H., Byrne, C., & Thomas, H. (1988). Ontario child health study: Patterns of ambulatory medical care utilization and their correlates. *Pediatrics, 82*, 425-434.

Appendix A

Consent and Assent Forms

1. **STUDY TITLE:** "Somatic Complaints and Health Care Utilization in Children Exposed to Violence"

2. **PERFORMANCE SITES:** Parents and children will be recruited on a voluntary basis from the Pediatric Clinic at Earl K. Long Medical Center.

3. **CONTACTS:** Contact the following investigators with any questions regarding this study:
Kellie Hilker, M.A.   LSU Baton Rouge Dept. of Psychology (225)358-1321(9am-4pm)
Mary Lou Kelley, Ph.D.   LSU Baton Rouge Dept. of Psychology (225)388-4113(9am-4pm)
24-Hour Crisis Hotline   (225)924-3900(24 hours)

4. **PURPOSE OF THE STUDY:** The purpose of this research study is to evaluate the relationship between violence exposure, emotional problems, behavior problems, physical complaints, and the frequency of children's doctor's visits. Children aged 9 to 13 and their parents can participate in this study. We will ask both you and your child about the amount of violence that your child has seen or heard about. Your child will be asked about physical complaints they may have, and any anxiety or sadness they experience. Additionally, we will ask you about anxiety, depression, and physical complaints you may have. Information from this study will help psychologists and doctors that work with children who may have seen or heard violent events. We hope to better understand the factors that lead to a child having more physical complaints and having more doctor's appointments. This study is being conducted in Baton Rouge, Louisiana. Ninety families (one child and one parent from each family) will be included in the study.

5. **DESCRIPTION OF THE STUDY:** Children between the ages of 9 to 13 years old and their parents will be recruited from the waiting room of the Pediatric Clinic at Earl K. Long Medical Center. If you agree to participate in this study, you and your child will be asked to complete several surveys during one session for approximately 1 hour. Your child will complete surveys about community violence exposure, physical complaints, and emotional and behavioral problems (your child will complete 3 survey forms). You will complete surveys about your child's behavior and emotions, and physical complaints you may have (you will complete 3 forms). You and your child will be separated while completing these forms. To help your child understand the surveys, he or she will be read the questions and answers out loud. Both you and your child will be allowed to complete the forms in a quiet room in the Pediatric Clinic. We will ask you your child's Earl K. Long medical record number. This will be used to obtain your child's medical chart for the purpose of finding out the number of doctor's visits your child has had in the past year. Once the information is obtained from the medical chart, we will destroy our form that includes your child's medical record number. We will destroy this information within 3 months after you complete the surveys. You and your child will have no further obligation after you complete the surveys. If you or your child becomes upset about the questions that we ask, a therapist will be

present during the data collection to help you. If you want help immediately, you and the therapist can go to a private room to discuss the concerns that you or your child has. If you would like to be seen by a therapist at a later time, we can provide a referral card to a local agency that provides free services to children and families. Additionally, the person collecting data will look at the questions that you and your child answered. If we believe that you or your child are in immediate danger of getting hurt, hurting himself or someone else, we will discuss this with you and provide immediate services. Also, we will add together all of your answers and your child's answers. Based on those answers, if your child is depressed, worried, has seen or heard about many violent events, or is acting out more than other children, we will call you to let you know of any problems that your child may have. We will provide you with a referral to an agency that may help you or your child, and this agency will provide treatment at no cost to your family. The families that complete <u>all</u> of the surveys will be compensated with a $5.00 gift certificate to a local fast food restaurant.

6. BENEFITS TO SUBJECT: Some children who see or hear about violent events have some sadness, anxiety, or act out; however, many children do not have these problems. The information that we get from this study will help us determine if children exposed to violence complain about physical illnesses a lot or frequently visit the doctor's office. Although this information will help us in the future with other children, there is not direct benefit to you or your child.

7. RISKS TO SUBJECT: You and your child may become upset when asked to think about violent events that have happened in his or her life. Also, both parents and children will be asked about feelings of sadness, anxiety, and thoughts about harming themselves. All of these questions are sensitive issues and may cause both parents and children to become upset. Therapists will be present during data collection, so that if you or your child experiences any sadness or worry because of the questions we asked, immediately inform the person collecting data. We will provide immediate help, make an appointment with you, or refer you to a free, local agency that helps children that have seen and heard violent events. We will give referral cards to everyone in case you or your child becomes emotionally upset later. The agencies listed on the referral cards will not charge you, if you and/or your child seek treatment. **If we find out that your child is being physically, emotionally, or sexually abused or neglected, we are required to report this information.** We will immediately tell you that we are making a report to Child Protective Services if your child is in danger of abuse or has been abused.

8. ALTERNATIVES TO PARTICIPATION IN THE STUDY: Participation in the study is voluntary. If a subject chooses not to participate, but would like to discuss children's exposure to community violence, local telephone numbers of experts in the community will be provided. Parents may choose not to participate in the study without penalty. Parents and children will continue to receive services from Earl K. Long Medical Center if they choose not to participate.

9. SUBJECT REMOVAL: Subjects may be removed from the study without their consent if they fail to complete all questionnaires.

10. SUBJECT'S RIGHT TO REFUSE TO PARTICIPATE OR WITHDRAW: Subject participation is voluntary, refusal to participate will involve no penalty or loss of benefits to which the subject is otherwise entitled, and the subject may discontinue participation at any time without penalty or loss of benefits to which the subject is otherwise entitled.

11. SUBJECTS RIGHT TO PRIVACY: The results of the study may be released to the LSU Baton Rouge Department of Psychology. The results of this study may be published, however, no identifying information will be published. The privacy of the subjects will be protected and the identifying information (name, phone number, and medical record number) will be destroyed within 3 months of completion of the forms. No identifying information will be on the remaining forms after this time, and each families forms will be identified by an assigned number (1-90).

12. RELEASE OF INFORMATION: The medical records related to the study are available to the Food and Drug Administration, and the Louisiana State University Health Sciences Center in New Orleans Institutional Review Board. While every effort will be made to maintain your privacy, absolute confidentiality cannot be guaranteed. Records will be kept private to the extent allowed by law.

13. FINANCIAL INFORMATION: Participation in this study will not result in any extra charges above and beyond those routinely incurred by patients with similar illnesses. Families that complete <u>all</u> the forms will be given a $5.00 gift certificate to a local fast food restaurant.

14. SIGNATURES: The study has been discussed with me and all my questions have been answered. I understand that additional questions regarding the study should be directed to the investigators listed on the first page of this consent form. I understand that if I have any questions about subjects' rights, or other concerns, I can contact the Chancellor of LSU Health Sciences Center at (504) 568-4801. I agree with the terms above, acknowledge I have been given a copy of the consent form, and agree to participate in this study. I understand I have not waived any of my legal rights by signing this form.

_____   _____

Signature of Subject   Date

_____   _____

Signature of Witness   Date

The study's subject has indicated to me that the subject is unable to read. I certify that I have read this consent form to the subject and explained that by completing the signature line above the subject has agreed to participate.

_____   _____

Signature of Reader   Date

_____   _____

Signature of Person Administering Consent   Date

_____   _____

Signature of Principle Investigator   Date

Assent Form

I agree to be in a study about bad or violent things that kids see, hear about, or experience. I will have to fill out three questionnaires. The first one will ask about violent things I may have seen and heard. The second one will ask about how I feel and behave. The last one asks about health problems I may have. My parent and I will be in different rooms when I complete the questionnaires, and I can have someone read the questions and answers out loud. I understand that my parent will be asked questions about my behavior, and violent things I have seen and heard. If having my parent answer these questions makes me upset, I do not have to be in this study. If we find out that you are being harmed, we will need to tell someone about it. I can decide to stop being in the study at any time without getting in trouble.

_____   _____   _____
Child's Name and Age   Child's Signature   Date

The study subject is a child and I certify that I am his/her legal guardian.

_____   _____   _____
Legal Guardians Name   Legal Guardians Signature   Date

Appendix B

Demographics Questionnaire

Child's Sex: Male ____   Female ____
Child's Age: _____
Date of Birth: _____

Race: ____ White
        ____ African-American
        ____ Asian
        ____ Other

Child lives with:
_____ Mother
_____ Father
_____ Mother and Father
_____ Mother and Stepfather
_____ Father and Stepmother
_____ Other (please specify_____)

Mother's job: _____
Father's job: _____
Other guardian's job: _____

Mother's Education: Father's Education:
_____ Elementary   _____ Elementary
_____ Junior High (6-8th)   _____ Junior High (6-8th)
_____ Some High School   _____ Some High School
_____ High School Graduate   _____ High School Graduate
_____ Some College or Trade School   _____ Some College or Trade School
_____ College Graduate   _____ College Graduate
_____ Graduate School (like law/ master's degree)   _____ Graduate School (like law/ master's degree)

Number of child's visits to doctor in last year: _____
List locations where child has seen doctor: _____

This section to be destroyed once data is collected and scored.

Medical Record Number: _____
Child's Name: _____
Phone Number: _____

Vita

Kellie Ann Hilker was born in Baltimore, Maryland, and raised in Sykesville, Maryland. She attended Lynchburg College and received her Bachelor of Arts degree in psychology in May 1991. She received her Master of Arts degree in psychology in May 1993 from Catholic University of America. In August 1997, she began her doctoral training in clinical psychology at Louisiana State University under the supervision of Mary Lou Kelley, Ph.D. She received her Master of Arts degree in psychology from Louisiana State University in 2000. She attended the University of Mississippi Medical Center from August 2001 to August 2002, where she completed her pre-doctoral internship training, under the supervision of Ronald Drabman, Ph.D. She will receive the degree of Doctor of Philosophy in clinical psychology in December 2002. Her primary clinical and research interests are in the area of pediatric psychology, specifically the assessment and treatment of children adjusting to chronic illnesses.