

# Contributors to Violent Behavior Among Elementary and Middle School Children

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**ABSTRACT.** *Objective.* To examine the relative contributions of exposure to violence, parental monitoring, and television-viewing habits to children's self-reported violent behaviors. The study hypothesized that: 1) children's exposure to violence would be associated positively with self-reported violent behaviors; 2) parental monitoring would be associated negatively with children's violent behaviors; and 3) the number of daily television-viewing hours and a preference for watching violent television shows would be associated positively with children's violent behaviors.

*Methods.* The study used a survey design with an anonymous self-report questionnaire administered to students (grades 3–8) in 11 public schools. A total of 2245 students participated in the study, representing 80% of the students attending the participating schools during the survey. The subjects were from 7 to 15 years of age; 51% were male, 57% were white, 33% percent were black, and 5% were Hispanic.

*Results.* Hierarchical multiple regression analysis of the total sample revealed that the combination of demographic variables, parental monitoring, television-viewing habits, and exposure to violence explained 45% of students' self-reported violent behaviors. Violence exposure and parental monitoring were the most influential contributors in explaining children's violent behaviors, accounting for 24% and 5% of the variance in violent behaviors, respectively.

*Conclusions.* All three hypotheses were supported. A significant association was demonstrated linking violence exposure, lack of parental monitoring, and television-viewing habits with children's self-reported violent behaviors within a diverse sample of elementary and middle school students. Our findings support the importance of parental monitoring of children and emphasize the need to identify and to provide services to youth who are exposed to violence. *Pediatrics* 1999;104:878–884; *violent behaviors, exposure to violence, community violence, aggression, parental monitoring.*

ABBREVIATION. B,  $\beta$  weight.

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Physical aggression and violent behavior are frequent and pervasive events in the lives of children. Studies have documented the extent of exposure to violence among youth in the United States, and, even in light of concerns about the underreporting of victimization in child populations,<sup>1,2</sup> the findings are sobering. Murder is the fourth leading cause of death among children <14 years of age.<sup>3</sup> Although the overall death rate for youth decreased between 1979 and 1991, the homicide rate climbed to 22.4 per 100 000, an increase of 55%. Gender and ethnic differences are stark. The homicide rate for males was 400% higher than that for females, and black youth were eight times more likely to be victims of homicide compared with white youth.<sup>4</sup> International comparisons highlight the severity of the problem of children's victimization in the United States. Homicide rates for children <15 years of age were five times higher in the United States than for children in the other 25 industrialized nations combined. Firearm deaths were particularly alarming, with 86% of all firearm deaths across the 26 industrialized nations occurring in the United States.<sup>5</sup>

Nonlethal victimization rates also are disturbing. It is estimated that for every homicide there are ~100 assaults, many resulting in serious injury.<sup>6</sup> Violent victimization rates among young adolescents (12–15 years of age) have increased 36% over the past 2 decades.<sup>4</sup> National telephone surveys of youth have reported victimization rates as high as 35%,<sup>1,7</sup> and a recent self-report survey of exposure to violence showed that two thirds of urban and 40% of suburban middle school students had been beaten up, robbed, stabbed, or shot.<sup>8</sup> Violent victimization is being recognized increasingly as a major cause of morbidity and mortality among children and youth in the United States.

Numerous studies have documented the relationship between children's exposure to violence and various forms of psychologic distress including depression,<sup>9–11</sup> anxiety,<sup>12</sup> dissociation,<sup>13,14</sup> and posttraumatic stress.<sup>10,15–18</sup> Furthermore, the emotional effects of childhood victimization seem to be persistent and linger into adulthood.<sup>19,20</sup> However, children are not only victimized by violence, they are also the perpetrators of violence at increasingly younger ages.<sup>21</sup> Children  $\leq$ 12 years of age represented 8% of juvenile arrests for violent crimes in 1995, and youth 13 and 14 years of age represented 23% of arrests. From 1980 to 1995, arrests of children  $\leq$ 12 years of age for

violent crimes increased by 102%. Several cross-sectional surveys have found high rates of weapon carrying among adolescents.<sup>22,23</sup> An epidemiologic sample of urban school children<sup>24</sup> reported that involvement in carrying lethal weapons (eg, knife or gun) starts well before middle school years and increases with age. By 13 years of age, 15% of girls and 22% of boys in the study's sample reported that they had carried a lethal weapon.

Perhaps driven in part by juvenile violent crime rates, there is increased attention to the relationship between exposure to violence and children's own aggressive and violent behaviors. Of all child behavior problems, aggression has arguably the most far reaching social and psychologic implications for the child, the family, and society. Aggressive behavior in childhood has been demonstrated to be very stable across time and situations into adulthood and is associated closely with juvenile and adult criminal convictions.<sup>25-27</sup>

Survey research,<sup>28</sup> comparative studies,<sup>12,29</sup> and longitudinal research<sup>30,31</sup> have demonstrated a relationship between children's exposure to violence and their own violent and aggressive behaviors. The majority of this research has investigated the effects of family violence such as physical abuse on subsequent violent behavior. Less is known about the effects of a range of victimization experiences, particularly the transfer of maladaptive behaviors such as aggression across nonfamilial pathways. Several studies have reported associations between self-reports of exposure to violence in the community and aggressive behavior,<sup>32,33</sup> but this association has not reached significance consistently.<sup>34</sup>

In addition to home, neighborhood, and school violence, children are exposed to portrayals of violence in the news and entertainment media. Numerous studies have documented the role of television in fostering violent behaviors among children.<sup>35-40</sup> Two recent meta-analyses investigating the relationship between violence viewed on television and aggressive behavior in children concluded that exposure to portrayals of violence on television was associated consistently with children's aggressive behaviors.<sup>41,42</sup> Although these studies do not suggest that viewing violence on television is one of the most important determinants of children's aggressive behaviors, they indicate that such viewing can have significant behavioral and emotional consequences for children.

Recently, attention has been given to the role of parents in protecting children from initiating various types of high-risk behaviors including violence. A study of risk behaviors in over 12 000 adolescents revealed that parent and family connectedness were protective against most measured health risk behaviors except pregnancy.<sup>43</sup> Among family process variables, parental monitoring of children has been identified as one of the proximal determinants of early development and maintenance of antisocial and delinquent behaviors in both children and adolescents.<sup>44-46</sup> Numerous studies have reported an inverse relationship between parental monitoring of children and children's participation in antisocial and delinquent activities.<sup>47-50</sup>

Few, if any, studies have explored simultaneously the relative contributions of television-viewing habits, parental monitoring, and violence exposure to explain children's violent behaviors. This study was designed to examine the above in a large, multiethnic, multisite community sample of children. We hypothesized that: 1) children's exposure to violence will be associated positively with self-reported violent behaviors; 2) parental monitoring will be associated negatively with children's violent behaviors such that children who are monitored more highly will report lower levels of violent behavior; and 3) the number of hours of daily television-viewing hours and a preference for watching violent television shows will be associated positively with children's violent behaviors.

## METHODS

The study used a survey design with a 45-minute, anonymous self-report questionnaire administered to third through eighth grade students in the 1995-1996 school year during regular school hours. The questionnaire was pretested on a socioeconomically diverse sample of children. Students were informed that their participation was completely voluntary. The study protocol was approved by the University Review Committee for Human Studies of Case Western Reserve University.

All students in grades 3 through 8 who were present on the day that the survey was administered were eligible for inclusion. The 11 public schools in 3 school districts in Ohio included 3 central city schools in Cleveland, 4 schools in a small northeast Ohio city, and 4 schools from a rural county in northern Ohio. Students in the Cleveland schools resided in predominantly lower or lower-middle socioeconomic neighborhoods. The small city schools were located in a town whose residents were characterized primarily as blue-collar workers. Students from the rural schools resided in a blue-collar school district composed of several small towns and villages, which were designated as a rural school district by the Ohio Department of Education.

## Variables and Instrumentation

### *Demographic Variables*

Demographic information included age, grade level, gender, race/ethnicity, and parental composition at home. Race was categorized into four groups: black, Hispanic, white, and other. To measure parental composition in the home, respondents were asked with whom they lived: mother only, father only, mother and father, or neither mother nor father. This question did not distinguish between biological parents and other parental figures.

### *Recent Exposure to Violence*

Recent exposure to violence was measured by directly asking children to report violence they had experienced or witnessed personally over the past year. Students were asked not to include events they may have seen or heard about from other people or from other sources such as television. The 26 items contained in this part of the questionnaire were derived from the 22-item Recent Exposure to Violence Scale<sup>51</sup> that examined five types of violence: threats, slapping/hitting/punching, beatings, knife attacks, and gun violence. Two questions on being a witness or victim of sexual abuse were added. Children were asked whether they had been "touched on a private place on your body where you didn't want to be touched," and whether they had witnessed this act happening to someone else. An additional two questions were added that asked children whether a gun had been pointed at them or whether they had witnessed a gun being pointed at someone else. For three types of violence (threats, slap/hit/punch, and beatings), questions were categorized by the setting in which the violence occurred: home, school, and/or neighborhood. The remaining items were not specific to the setting where the violence occurred. A 4-point Likert scale ranging from never (0) to almost every day (3) was used to assess the frequency of each type of violence. Reported reliability based on Cronbach's  $\alpha$  for five fac-

tors derived from principal component analysis on the Recent Exposure to Violence items in the previous study<sup>51</sup> were as follows: 1) witness of neighborhood violence ( $\alpha = 0.87$ ); 2) victim or witness of home violence ( $\alpha = 0.75$ ); 3) witness of school violence ( $\alpha = 0.80$ ); 4) victim/witness of a shooting/knife attack ( $\alpha = 0.70$ ); and 5) victim of school or neighborhood violence ( $\alpha = 0.68$ ).

The following Cronbach's  $\alpha$ s were achieved for the current study's sample: 1) witness of neighborhood violence (0.80); 2) victim/witness of home violence (0.77); 3) witness of school violence (0.76); 4) victim/witness of a shooting/knife attack (0.75); 5) victim of school or neighborhood violence (0.72); and 6) sexual abuse (0.52). All Cronbach's  $\alpha$ s with the exception of sexual abuse are  $>0.70$ , indicating an acceptable level of reliability. The scale for sexual abuse is comprised of only two items, a probable reason for its lower reliability.

#### Past Exposure to Violence

Past exposure to violence was measured through a modified 12-item version of the 10-item Past Violence Exposure Scale used in a previous study.<sup>51</sup> Children were asked to report specific acts of violence that they had experienced or witnessed during their lifetimes, not including the past year. The same types of violence described in the Recent Exposure to Violence Scale were included with the exception of gun-pointing (an important behavior that we had failed to measure in the 10-item version). The specific settings (home, school, and neighborhood) were excluded for all questions because of concern about memory recall for events that occurred  $>1$  year in the past. The same 4-point Likert scale response choices were used, ranging from never (score of 0) to very often (score of 3). Previously reported<sup>51</sup> reliability based on Cronbach's  $\alpha$ s for three factors extracted from the Past Exposure to Violence Scale were as follows: 1) witness of past violence ( $\alpha = 0.80$ ); 2) victim of past violence ( $\alpha = 0.66$ ); and 3) victim/witness of a shooting or knife attack ( $\alpha = 0.71$ ).

For the current sample, based on results from exploratory and confirmatory factor analyses, two items ("self been attacked or stabbed with a knife" and "self been shot at or shot with a real gun") needed to be removed because of unclear factor loadings. Out of the remaining items, three dimensions (scales) were found to measure past violence exposure. These dimensions and their corresponding Cronbach's  $\alpha$ s are as follows: 1) witness of past violence (0.79); 2) victim of past violence (0.68); and 3) victim/witness of sexual abuse (0.59). All  $\alpha$ s indicate a moderate level of reliability and can be accepted by common standard, although the reliability of sexual abuse is lower than is desired, again, probably attributable to the small number of scale items (ie, 2).

#### Violent Behaviors

Aggressive behaviors were measured by asking students to report how often during the past year they had engaged in each of five violent acts: threatening others; slapping, hitting, or punching someone before the other person hit them; slapping, hitting, or punching someone after the other person hit them; beating someone up; and attacking someone with a knife. A 4-point Likert scale with the response categories never (score of 0), sometimes (score of 1), often (score of 2), and almost every day (score of 3) was used

to assess the frequency of each type of violence. A similar 6-item scale used in a previous study<sup>52</sup> achieved a Cronbach's  $\alpha$  of 0.79; and, for the current sample, the Cronbach's  $\alpha$  was 0.77.

#### Parental Monitoring

Parental monitoring is the degree to which a parent is aware of his or her child's daily activities and friends. Parental monitoring was measured using an adaptation of a 6-item parental monitoring scale<sup>50</sup> that previously had achieved a Cronbach's  $\alpha$  of 0.77. Parental monitoring items included such questions as: "How important is it for your parents or guardian to know who your friends are?" and "Do your parents or guardian make you come home at a certain time at night?". An additional question regarding punishment by parents was added to the original 6 items for the present study: "Do your parents or guardian punish you if you break the rules?" Likert scale response choices were never or not important (score of 0); sometimes or a little important (score of 1); usually or pretty important (score of 2); and always or very important (score of 3). For this study's sample, Cronbach's  $\alpha = 0.76$ .

#### Television Viewing

Children were asked about how much television they watched per day with answer options of: no television,  $<1$  hour of television viewing per day, 1 to 2 hours, 3 to 4 hours, 5 to 6 hours, and  $>6$  hours. A second question asked what types of television shows children preferred watching. Show topics included: "shows that are funny," "shows that teach me things," "shows that have lots of action and fighting," "shows about kids and their families," "shows about imaginary places," "shows that talk about news and current events," and "shows that feature music videos."

## RESULTS

### Description of the Sample

A total of 2245 students participated in this study. This figure represents 80% of the students present in the schools at the time the survey was administered. Based on participating schools' records of student enrollment, our final sample was representative of each school with respect to gender, age, and race.

Almost equal percentages of males (50.9%) and females (49.1%) are represented in the final sample. The average age of the participants is 11 years old (standard deviation: 1.8 years; range: 7–15 years). The sample was 57% white, 33% black, 5% Hispanic, and 4% other. Of the students, 54% were living with both their mother and father.

### Univariate and Bivariate Analyses

Across geographic sites and genders, children's reports of being threatened or slapped/hit/punched

TABLE 1. Percentage of Students Victimized by Violence Within the Past Year

Type of Violence	Central City ( <i>n</i> = 860)		Small City ( <i>n</i> = 838)		Rural ( <i>n</i> = 547)	
	Male	Female	Male	Female	Male	Female
Threatened at home	23.3	19.9	29.5	25.1	28.5	28.9
Threatened at school	43.9	34.8	54.5	39.8	46.0	35.5
Threatened in the neighborhood	29.0	26.2	36.9	24.2	24.4	16.0
Slapped/hit/punched at home	40.4	37.7	42.4	43.3	45.2	45.3
Slapped/hit/punched at school	41.7	34.4	41.1	25.5	50.2	29.0
Slapped/hit/punched neighborhood	31.1	28.3	37.0	20.1	25.9	14.1
Beaten up at home	16.7	13.0	18.1	11.1	15.5	10.9
Beaten up at school	14.7	10.3	13.8	5.5	14.1	4.7
Beaten up in neighborhood	17.6	11.1	16.4	7.4	11.3	2.7
Knife attack/stabbing	7.6	9.5	10.6	5.2	6.2	3.5
Gun pointed at you	11.7	10.4	12.3	5.7	17.2	6.6
Shot at or shot	6.5	5.0	8.5	2.4	14.6	2.8
Sexually abused	7.6	14.7	8.0	10.5	3.5	6.7

at home were quite uniform (Table 1). However, greater percentages of boys than of girls reported being beaten up at home, at school, and in the neighborhood. Approximately 12% of boys in central city and small city schools and 17% of boys in rural schools reported having had a gun pointed at them within the last year, and 6% to 11% reported being attacked or stabbed with a knife. A higher percentage of girls than of boys reported being abused sexually within the past year with girls' rates ranging from 7% to 15%.

Rates of witnessing violence were high for both genders (Table 2). Recent witnessing of violence was consistently higher at school than at home or in the neighborhood for all geographic sites. The highest percentages of children witnessing more serious forms of violence (ie, beatings, knife attacks/stabbings, and shootings) were students at central city schools.

Table 3 contains the findings of students' reports of their own violent behaviors within the past year. Almost without exception, boys reported higher rates of violence toward others than did girls across all three sites. Hitting others was reported to be very common behavior for all students surveyed. The percentage of both boys and girls who reported hitting someone else before being hit was large across all three sites: approximately one half of central city, small city, and rural boys, as well as one half of central city girls reported hitting someone else before they were hit. Approximately 42% of small city girls and 37% of rural girls reported initiating this behavior toward others at least once within the past year.

The number of students who reported hitting someone in retaliation, hitting someone after being hit, was high for both boys and girls. Over 8 in 10 boys and ~7 in 10 girls reported hitting someone else after being hit. This behavior showed a very strong pattern of consistency across genders and across sites.

Parental monitoring items indicated some variation between genders. Approximately 88% of girls compared with 69% of boys indicated that when they were not in school, it was important or very important for a parent to know where they were; and 86% of girls compared with 77% of boys indicated that

their parents usually or always expected them to call if they were going to be late. However, almost equal percentages of girls (60%) and boys (58%) indicated that they usually or always got punished by their parents if they broke the rules.

To understand more about the students' reported levels of parental monitoring and the relationship between parental monitoring and other constructs of interest, two groups were created that comprise the upper quartile of scores and the lower quartile of scores on the Parental Monitoring Scale and were renamed the high monitor and low monitor groups. This reduced the sample size on the following analyses to approximately one half of the total sample.

A two-way (monitor  $\times$  gender) analysis of variance was used to compare the responses of children who reported high parental monitoring with the responses of children who reported low parental monitoring on the dependent measure, violent behaviors. The primary effect for monitor was significant,  $F_{(1,1202)} = 124.99$ ;  $P < .01$ . There was no significant effect for monitor by gender. A subsequent univariate test revealed that children in the low monitor group reported significantly higher levels of violent behavior than did those children in the high-monitor group (monitor = 4.09 and 2.45, respectively).  $\eta^2$ , a measure of the strength of a statistically significant effect, revealed that 9.4% of the variability in a student's score on violent behaviors can be attributed to his or her score on the Parental Monitoring Scale.

Over 1 in 5 students reported watching >6 hours of television per day. For boys, the most popular type of television programming was "shows that have lots of action and fighting" (44%). For girls, the most highly endorsed type of television programming was "shows that are funny" (38%).

#### Multiple Regression Analysis

Through use of hierarchical multiple regression, we assessed the degree to which students' own violent behaviors could be explained by five demographic variables, parental monitoring score, two television-viewing habits, six recent violence exposure variables, and three past violence exposure variables. Each of these sets of variables was entered hierarchically into a multiple regression analysis re-

TABLE 2. Percentage of Students Witnessing Violence Within the Past Year

Type of Violence	Central City ( <i>n</i> = 860)		Small City ( <i>n</i> = 838)		Rural ( <i>n</i> = 547)	
	Male	Female	Male	Female	Male	Female
Witnessed threats at home	27.8	26.6	27.0	24.4	23.4	22.7
Witnessed threats at school	72.9	68.7	81.0	90.2	68.3	64.8
Witnessed threats in the neighborhood	59.8	59.9	52.2	48.6	34.5	30.1
Witnessed slap/hit/punch at home	45.6	50.4	37.2	41.8	37.1	38.0
Witnessed slap/hit/punch at school	80.8	77.2	78.7	73.9	74.2	65.6
Witnessed slap/hit/punch in neighborhood	68.1	70.1	57.9	51.9	36.1	35.3
Witnessed beating at home	33.8	34.5	19.4	21.4	16.6	15.6
Witnessed beating at school	78.0	75.7	67.9	67.5	62.2	55.1
Witnessed beating in neighborhood	70.2	72.3	48.6	43.2	33.8	29.4
Witnessed knife attack/stabbing	45.9	40.7	22.4	17.5	10.7	5.5
Witnessed gun pointing	51.4	42.1	24.9	15.8	20.0	9.4
Witnessed someone shot at or shot	44.3	37.5	16.4	11.4	13.1	7.8
Witnessed sexual abuse	34.9	35.4	13.7	18.1	5.2	7.8

**TABLE 3.** Percentage of Students' Self-Reported Acts of Violence Within the Past Year

Violent Act	Central City ( <i>n</i> = 860)		Small City ( <i>n</i> = 838)		Rural ( <i>n</i> = 547)	
	Male	Female	Male	Female	Male	Female
Threatened to hurt others	56.3	47.5	53.9	42.7	48.8	27.0
Hit someone before you were hit	60.3	51.8	52.5	41.7	47.8	37.1
Hit someone after you were hit	84.8	76.2	80.9	69.7	80.1	66.4
Beaten someone up	69.0	57.1	52.6	28.6	42.8	22.0
Attacked/stabbed someone with a knife	7.5	8.3	4.9	3.1	2.7	2.0

sulting in five models that account for students' violent behavior. In this hierarchical analysis, each model adds a new set of variables that builds from the previous model (see Table 4). Thus, the newly added set of variables' unique contribution to explaining violent behavior is indicated while controlling for the previously entered variables.

Demographic variables included: gender (0 female and 1 male), grade, site (0 small city), race (0 white), and 2-parent family. Television-viewing habits included hours of television viewed per day and favoring action television shows.

Parental monitoring and television-viewing habits were entered after demographics to control for their effects before examining the impact of violence exposure on violent behavior. The results of our analyses indicated that a significant amount of variance in students' violent behavior was explained by model 5 when all variables were taken into account. All  $R^2$  values and  $R^2$  increments were significant ( $P < .05$ ). The  $R^2$  in the final model indicated that 45% of the variance in student's violent behavior can be accounted for by demographics, parental monitoring, television-viewing habits, and exposure to violence (recent and past). The greatest increase in explained variance occurred in model 4, which entered recent violence exposure variables, resulting in a 0.24

increment with demographics, parental monitoring, and television-viewing behaviors held constant.

The relative importance of variables in predicting violent behavior was determined by comparing standardized regression coefficients or  $\beta$  weights (B). Among demographic variables, race ( $B = -0.11$ ), gender ( $B = 0.08$ ), and grade ( $B = 0.08$ ) were the three most important predictors of students' violent behavior.

Male children and children in higher grades had higher levels of violent behavior. Racial differences, however, are confounded with covariates such as socioeconomic status and parental education, and therefore cannot be interpreted with accuracy.

The parental monitoring score was a major contributor among the five sets of variables ( $B = 0.16$ ). Students who reported higher levels of parental monitoring reported lower levels of violent behavior. Parental monitoring consisted of elements such as being required to be home at a certain time, parental knowledge of the identities of their children's friends, and children receiving consequences for breaking rules at home. Television-viewing habits made modest, yet statistically significant, contributions to the explained variance in violent behavior scores ( $B = 0.05$ ;  $B = 0.06$ ).

Violence exposure variables were powerful con-

**TABLE 4.** Hierarchical Regression Analysis on Violent Behaviors

Explanatory Variable	Model 1	Model 2	Model 3	Model 4	Model 5
Demographics					
Gender (male = 1)	.16*	.14*	.10*	.08*	.08*
Grade	.12*	.10*	.10*	.08*	.08*
Residence					
Central city	.04	.05	.03	-.03	-.03
Rural	-.01	-.01	-.01	.04*	.04*
Race (white = 1)	-.22*	-.20*	-.19*	-.09*	-.11*
Two parent family	-.08*	-.08*	-.07*	-.02	-.02
Parental monitoring score		-.24*	-.24*	-.15*	-.16*
TV watching habits					
Daily watch hours			.09*	.06*	.05*
Favoring action			.10*	.06*	.06*
Recent violence exposure subscales					
Witnessed in NBHD				.15*	.12*
Victimized/witnessed home				.18*	.13*
Witnessed at school				.15*	.12*
Shooting/knife attack				.20*	.15*
Victimized school or NBHD				.07*	.04*
Sexual abuse				.03	.04
Past violence exposure subscales					
Witnessed					.13*
Victimized					.08*
Sexual abuse					-.04
Adjusted $R^2$	.121	.175	.194	.436	.449
Incremental $R^2$		.054	.019	.242	.013

\* Significant at .05 level, two-tailed test.

tributors to the prediction of violent behavior. The important recent violence exposure contributors were exposure to shooting/knife attacks ( $B = 0.15$ ), victim or witness of home violence ( $B = 0.13$ ), witness of neighborhood violence ( $B = 0.12$ ), and witness of school violence ( $B = 0.12$ ). Witnessing past violence ( $B = 0.13$ ) also made an important contribution to explaining violent behavior.

## DISCUSSION

This study illustrates the high rates of exposure to violence and violent behaviors among elementary and middle school children. Compared with the contexts of home and neighborhood, high percentages of students reported witnessing violence at school. However, students' reports of victimization at school were not higher than were their reports of victimization at home or in the neighborhood. This suggests that when violence occurs at school, it is witnessed by many children. Curiosity often may compel students to approach fights or loud altercations rather than to avoid such occurrences.

Beating someone up, a potentially injurious form of violent behavior, was reported by over two thirds of central city boys, and approximately one half of central city girls and small city and rural boys. High percentages of both boys and girls across all sites reported hitting someone after being hit, reflecting the strength of children's impulses for physical retaliation and the apparent cultural support for this type of violent act. Of even greater concern is the high percentage of boys who reported striking others first (ie, hitting someone before they hit you). A previous study of >3700 high school students found similarly high levels of boys striking first.<sup>52</sup> This type of preemptory violence is troubling because a growing number of studies based on information processing theory have demonstrated that, compared with other children, children repeatedly exposed to violence have lower thresholds of impulse control, are poorer judges of impending violence, and more frequently overreact to perceived threats.<sup>30,53</sup> Therefore, students who preemptorily strike others may be frequently incorrect in their perceptions of impending attack from others.

The high percentage of children reporting having had a gun pointed at them (particularly rural students) is of additional concern. Children's inappropriate access to firearms has been a source of ongoing concern in the United States and represents a serious potential health hazard. This study suggests that residing in a rural community does not protect children from the improper handling of firearms. Thus, similar to their counterparts in urban settings, pediatricians practicing in rural communities should be concerned about their patients' access to and use of firearms.

After controlling for the effects of demographics, lack of parental monitoring, violence exposure, and television-viewing habits were found to be related reliably to children's self-reported violent behaviors. Therefore, each of the initial three hypotheses was supported. Parental monitoring and recent violence exposure were the most robust predictors of violent behavior, accounting for 5% and 24% of the variance

in violent behavior, respectively. However, it is important to note that although the influences of television viewing were statistically significant, the contribution of television viewing to explaining violent behavior was relatively small.

Our findings underscore the importance of parental monitoring of children because low parental monitoring was a primary contributor to children's reports of engaging in violent behavior. Parental monitoring also may be a marker for a home environment that emphasizes the importance of broader parent-child communication. Knowing where children are when they are not in school, knowing the identities of children's friends, expecting children to be home at a particular time, and providing consequences for children when they break the rules were associated reliably with lower levels of violent behaviors. The import of these child-rearing skills should be emphasized by pediatricians and by other professionals working with children and their families.

The relationship between violence exposure and violent behaviors suggests that pediatricians working with children who have sustained violence-related injuries should screen routinely for violence exposure, particularly in emergency settings. In these settings, consideration should be given to referring children who have sustained violence-related injuries to programs in which more extensive evaluations and long-term interventions can be obtained. Screening for violence exposure in primary care settings would serve as part of clinical preventive services by identifying children who are at high risk of exhibiting violent behaviors and providing them with appropriate referrals to address these potential behaviors as well as to minimize their future exposure to violence.

This study was limited by the geographic scope from which the sample was drawn and provided correlational rather than causal inferences. Furthermore, exposure to violence and the perpetration of violent behavior are interrelated, with the possibility that many of the children exposed to violence are the same youth who are perpetrating violence against others. Our data cannot disentangle the potentially reciprocal nature of this relationship. These relationships would be elucidated further by prospective longitudinal studies of children and by samples representative of diverse locations. Nevertheless, our study represents one of the largest investigations to date on the relationship between violence exposure and violent behaviors among elementary and middle school children and illustrates the strength of violence exposure and the importance of parental monitoring and television viewing as contributors to children's risk of engaging in violence.

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