

Exposure to Violence

Psychological and Academic Correlates in Child Witnesses

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Background: Inner-city children are frequently exposed to violence; however, there are few data regarding the psychological and academic correlates of such exposure in young children at school entry.

Objectives: To document exposure to violence in inner-city children aged 7 years; assess their feelings of distress; and evaluate the relationships of exposure to violence with school performance, behavior, and self-esteem.

Setting: A study center in an inner-city hospital.

Participants: One hundred nineteen inner-city children evaluated at age 7 years; 119 caregivers (biological and foster).

Design: As part of a longitudinal study, children were administered the following by a masked examiner: Things I Have Seen and Heard (TISH) to assess exposure to violence; Levonn, a cartoon-based interview for assessing children's distress symptoms; and the Culture-Free Self-Esteem Inventory, Second Edition. School performance was assessed by school reports and child behavior by the Child Behavior Checklist (CBCL), the Parent Report Form, and the Teacher Report Form. Caregivers for children were administered the parent report version of the Checklist of Children's Distress Symptoms (CCDS-PRV) as well as the CBCL Parent Report Form.

Main Outcome Measures: Exposure to violence (TISH); feelings of distress (Levonn); school performance; behavior (CBCL Parent Report Form and CBCL Teacher Report Form); and self-esteem (Culture-Free Self-Esteem Inventory).

Results: We found that these children were frequently exposed to violence. For example, 75% had heard gun shots, 60% had seen drug deals, 18% had seen a dead body outside, and 10% had seen a shooting or stabbing in the home (TISH). Many showed signs of depression and anxiety; eg, 61% worried some or a lot of the time that they might get killed or die and 19% sometimes wished they were dead (Levonn). Higher exposure to violence (TISH Total Violence score) was correlated with higher Levonn composite scores for depression and anxiety and with lower self-esteem ($P \leq .04$), and was also associated with lower grade point average and more days of school absence ($P \leq .02$). Caregiver assessment of child anxiety correlated poorly with child report of anxiety ($P = .58$).

Conclusions: Young inner-city children have a high exposure to violence by age 7 years; many show signs of distress that frequently are not recognized by caregivers. Further, higher exposure to violence in children correlates with poorer performance in school, symptoms of anxiety and depression, and lower self-esteem.

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THAT CHILDREN are witness to or victims of violence is not a novel finding; it is particularly common among children living in the inner city. A growing number of reports describe such exposure. Campbell and Schwartz¹ reported that 88% of preadolescents in an urban middle school had witnessed a robbery, beating, stabbing, shooting, or murder. Taylor et al² reported that 10% of 1- to 5-year-old children in an inner-city clinic had witnessed a knifing or shooting. Richters and Martinez³ found that 47% of 6- and 7-year-old children had witnessed shootings. With an estimated 5 million children living in America's in-

ner cities, the number of children who witness violence is formidable.⁴

Although exposure to violence is beginning to be documented in young children, few data are available regarding the association of such exposure with emotional distress and academic performance. In the studies by Richters and Martinez,^{3,5} young children witnessing violence in the community had high ratings of overall distress but they were not assessed for self-esteem or academic outcome.

In our ongoing study, we, too, have been impressed with the frequency with which young children report to us that they have witnessed violence. We hypothesized that such exposure could be asso-

METHODS

DESIGN

This prospective study of inner-city children is part of an ongoing longitudinal study of the effects of gestational cocaine exposure on infant and child outcomes. The children were enrolled at birth, half of whom had in utero cocaine exposure (COC) and half of whom did not (CON). We evaluate children on an annual basis for growth, development, and behavior. As the children reach school age, we perform additional evaluations to include social-emotional outcome, neurocognitive status, and academic performance.

At the time of enrollment of mothers and infants, all mothers were of low socioeconomic status in that they were receiving state medical assistance at the time of parturition. Mothers who did not speak English, who had a major psychiatric disorder, or who used drugs other than cocaine, marijuana, cigarettes, and alcohol were excluded. Infants were excluded if they were less than or equal to 34 weeks of gestational age at birth, had a 5-minute Apgar score of 5 or less, or had a syndrome known to be associated with adverse neurodevelopmental outcome. Mothers were classified as COC if they had a positive history of cocaine use. Mothers and infants were categorized as CON if there was a negative history for drug use and a negative result of enzyme-linked immunoassay urinalysis for cocaine metabolites in both the mother and infant.

Two hundred twenty-four (105 COCs and 119 CONs) participants were enrolled during a 3-year period (1989-1991). Five (1 CON and 4 COCs) have since died. There was approximately 30% attrition by 36 months; subsequently the attrition rate has declined, with cohort numbers remaining stable for the past several years.

A large database exists for this cohort. Briefly, COC and CON children, while differing on some natal variables (COCs had lower growth percentiles and increased admission to the

NICU),⁶ have showed similar outcomes on the Bayley Scales of Infant Development,⁷ play,⁸ language,⁹ Full-Scale IQ (intelligence quotient),¹⁰ development at age 5 years,¹¹ and neurological examination at age 6 years.¹² Annual assessments of this cohort continue; the data presented here were obtained from 7-year-old children during one of their ongoing assessments.

These children were administered Things I Have Seen and Heard (TISH), an interview for young children about exposure to violence³; the Levonn, a cartoon-based interview for assessing children's distress symptoms⁵; and the Culture-Free Self-Esteem Inventories, Second Edition (CFSEI-2).^{13,14} The TISH is a 20-item questionnaire that assesses the child's perception of the frequency with which he or she has been exposed to violence (to self or others) in both the home and community. Prior to administering the TISH, the examiner (E.M.) (a school psychologist) explains to the child that the child is to report only events that have happened to the child or that the child has witnessed; the child is told not to report events experienced by siblings or friends or events seen on television. Children rate answers on a 5-point pictogram scale ranging from never (0 times) to many times (>3) in regard to specific situations. On a one-on-one basis, the child is asked questions by the examiner and in response, the child points to the scale that in the child's estimation most accurately reflects his or her experience. When the examiner receives a response that elicits concern, such as a child having seen someone shot or stabbed in the home, the examiner asks for additional details. Referrals are made when appropriate. The TISH, used in a study of inner-city children in Washington, DC,³ has good test-retest reliability. Test-retest reliability for a composite score of the sum of all instances of child-reported exposure to violence was 0.81 for a random sample of 21 children in the cohort of Richters and Martinez.³ Validity has not been established, although developers of the TISH found no significant difference between reports of exposure to violence among young children and their older schoolmates in the fifth and sixth grades.

ciated with adverse social-emotional and academic outcomes, with increasing exposure correlating with worse outcomes. To explore such associations, we evaluated exposure to violence in 7-year-old inner-city children to document the degree of exposure in children of school age, to correlate exposure with social-emotional status and academic performance, and to expand the literature regarding environmental influences on young inner-city children.

RESULTS

One hundred nineteen children were evaluated at age 7 years with the TISH, Levonn, and CFSEI-2. The mean \pm SD age at testing was 7.6 ± 0.2 years, 57% of subjects were girls, 82% were in the care of their biological mothers, and 98% were African American. Selected results of the TISH show that the cohort was frequently exposed to violence (**Table 1**). Selected results of the Levonn are presented in **Table 2**.

Correlations between the T-VIOL score and measures of psychological status, academic performance, and behavior are presented in **Table 3**. Exposure to vio-

lence was associated with increased anxiety ($r=0.37$; $P<.001$) and depression ($r=0.31$; $P<.001$) as measured by the Levonn. Higher exposure to violence was also associated with lower self-esteem as indicated by the General Self-Esteem subscale ($r=-0.24$; $P=.01$) and the Total Self-Esteem score ($r=-0.19$; $P=.04$). There was no correlation with the Social, Academic, or Parent-Related subscales of the child's version of the CFSEI-2 ($r\leq-0.13$; $P\geq.18$) or with any caregiver self-esteem scale ($r\leq 0.10$; $P\geq.06$) (data not shown). In addition, higher exposure to violence was associated with lower grade point average ($r=-0.29$; $P=.01$) and more days of absence from school ($r=0.25$; $P=.02$). There were no significant associations between T-VIOL and any CBCL-PRF or CBCL-TRF summary scores ($r\leq 0.24$; $P\geq.08$) (Table 3). In subscores, however, higher T-VIOL was associated with lower School Competency (PRF) ($r=0.35$; $P=.002$) and more Delinquent Behavior (TRF) ($r=0.32$; $P=.02$).

Although detailed multivariate analyses are desirable to define whether higher exposure to violence is associated with psychological, behavioral, and academic outcomes or is causal, such analyses are hampered by the modest correlation coefficients in univariate analyses, the

The Levonn, created by Martinez and Richters,⁵ evaluates children's symptoms of distress, such as anxiety and depression. It is a 40-item questionnaire assessing the similarity of the child's experience to that of a cartoon character named Levonn, who is shown in a variety of situations accompanied by verbal descriptions. The examiner reads the description to the child; for example, the description of the cartoon in the **Figure** states, "Here's Levonn at a birthday party. All of his friends are laughing and having a good time, but Levonn feels very sad about something. How many times have you felt like Levonn?" At this time the child points to a thermometer that best reflects his or her feelings: never (thermometer on zero), some of the time (thermometer half-filled), or most of the time (thermometer filled). Higher scores indicate greater stress (depression, anxiety). Test-retest reliability for a composite score of distress ratings was 0.81 for a random subsample of 22 first- and second-graders in the study by Martinez and Richters.⁵ Validity was 0.30 with the Child Behavior Checklist Parent Report Form (CBCL-PRF) and 0.32 with the Parent Report Version of Children's Distress Symptoms (CCDS-PRV). Authors of the Levonn explain this low correlation as reflecting lack of caregiver recognition of child's feelings.⁵

The CFSEI-2 has 30 yes/no items and yields 4 self-esteem subscales (General [child's overall perception of self-worth], Social [child's perceptions of the quality of his or her relationship with peers], Academic [child's perceptions of ability to succeed academically], and Parent-Related [child's perception of relationships with parents]), and a Total Self-Esteem score (based on the 4 subscales). Higher scores on the CFSEI-2 indicate higher self-esteem. At the same session at which the child is being evaluated, the child's caregiver is administered the CCDS-PRV,^{3,5} a 28-item instrument designed as a companion to the Levonn that asks caregivers to rate signs of distress in their children on a 5-point Likert Scale ranging from 1=never to 5=most of the time. This instrument has high interrater reliability and concurrent validity.¹⁵ Internal consistency reliabilities are also reported by Richters and Martinez^{3,5} for the CCDS-PRV, which

reveal 2 correlated scales ($r=0.80$) of moderately high reliability: depression ($\alpha=.75$) and anxiety ($\alpha=.70$).

In addition to these evaluations, child IQ (Wechsler Preschool and Primary Scale of Intelligence-Revised)¹⁶ was obtained at age 6 years and the CBCL-PRF¹⁷ was completed by the caregiver at the 6½-year visit. At age 8 years, the child's home environment was evaluated using the elementary school version of the Home Observation for Measurement of the Environment (HOME).¹⁸ Caregiver IQ (Wechsler Adult Intelligence Scale),¹⁹ self-esteem (CFSEI-2 adult version),¹⁴ and yearly urine drug screen results were also obtained as part of the longitudinal study. With permission from and cooperation with the School District of Philadelphia (Pa), school performance (grades, days absent, and CBCL Teacher Report Form [TRF²⁰]) was also documented. Informed consent was obtained from the parent or guardian. The institutional review boards of the Albert Einstein Medical Center (Philadelphia) and the School District of Philadelphia approved this study.

DATA ANALYSIS

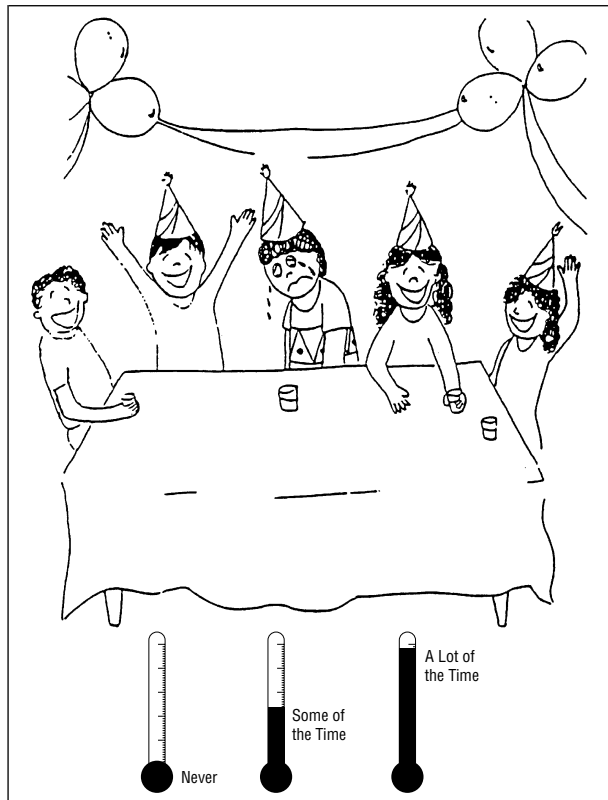
Data analysis included a tabulation of children's exposure to violence and feelings of distress. Based on question content, composite scores for the TISH (Total Violence [T-VIOL]), Levonn (Depression, Anxiety), and CCDS-PRV (Depression, Anxiety) were calculated.^{3,5} Correlations between T-VIOL score (higher scores indicate more exposure to violence) and depression, anxiety, self-esteem, behavior, and school outcome were assessed using the Pearson r for parametric or the Spearman ρ for nonparametric data as appropriate. Children's anxiety and depression composite scores, derived from the Levonn, were correlated with the corresponding anxiety and depression scores from caregiver responses on the CCDS-PRV. Regression analyses were performed with SPSS 9.0 for Windows 95 (SPSS, Chicago, Ill). All P values are 2-tailed and $P\leq.05$ was considered statistically significant.

relatively small sample size, and the multiple factors that affect child outcome. However, to explore factors that could confound the associations found between violence exposure and psychological, behavioral, and academic outcomes, we first evaluated several child, caregiver, and home characteristics that might be related to violence exposure (Table 3). There was no correlation between child sex or IQ and T-VIOL. Likewise, child T-VIOL was not correlated with caregiver IQ, caregiver self-esteem, or with the Total HOME score. Interestingly, given the original study design, caregiver cocaine use, either current or during pregnancy, was not correlated with child T-VIOL or any other study outcome. Since there was no relationship between any of these factors and T-VIOL, these factors do not seem to confound our findings. Second, we examined the relationship between anxiety and violence exposure using regression analysis with the Levonn anxiety score as the outcome; we entered factors associated with anxiety as independent variables at $P\leq.10$. Results (**Table 4**) show that Total Violence exposure ($P<.03$) and Total Self-Esteem ($P=.003$) were the only factors that predicted the Levonn anxiety score ($R^2=0.37$; $F_{5,56}=6.7$; $P<.001$).

Finally, caregiver perception of child anxiety as determined by the CCDS (the Levonn companion instrument) had poor correlation with anxiety reported by children ($r=0.05$; $P=.58$).

COMMENT

Our study, conducted on very young inner-city African American children and their caregivers, supports and extends the literature describing the relationship of children's exposure to violence and psychological distress. Using TISH, the instrument developed by Richters and Martinez,³ we find data similar to what these investigators have reported from their cohort in Washington. While they found the prevalence of exposure to violent events to be high, they reported that the data from the young children did not differ significantly from rates reported by the fifth and sixth grade schoolmates of these children. In our evaluations, performed on a one-on-one basis (in contrast to the small groups used by Richters and Martinez³), children were repeatedly reminded to report only what they had seen and heard, not events reported to them by others or seen on television. Further,



Example of illustration and thermometer shown to child during administration of Levonn, a cartoon-based interview for assessing children's distress.

if a child reported a particularly upsetting event, such as a stabbing or shooting seen in the home, the examiner asked for specific details to verify the report and refer for counseling, if appropriate. Thus, while we cannot absolutely verify the data reported to us by these young children, we feel the information given is a reasonable reflection of their exposure to violence.

Richters and Martinez,³ who developed the Levonn instrument,⁵ reported that children witnessing violence in the community had high ratings of overall distress. The specific elements of psychological distress in children exposed to violence include depression,²¹⁻²³ anxiety,²⁴ dissociation,²⁵ and posttraumatic stress.^{22,26-30} Lai³¹ reported higher levels of depression and lower self-esteem in adolescents with high exposure to violence, either as a witness or victim. Likewise, Schwab-Stone et al³² found that violence exposure was closely associated with both externalizing and internalizing symptoms in adolescence. Internalizing symptoms (anxiety, depression, and somatization) were seen more frequently in younger adolescents (sixth grade) than in older adolescents (10th grade). Similar to these reports, children in our cohort with higher exposure to violence had significantly higher composite scores for both depression and anxiety than children with lower exposure. We further explored the association of exposure to violence with psychological status by extending our evaluations to include a self-esteem measure, the CFSEI, administered to the children and their caregivers. Results showed that by age 7 years, children with the highest exposure to violence are beginning to demonstrate lower self-esteem on some measures when compared with children with lower exposure to violence. In our re-

Table 1. Selected Results of TISH*: Percentage of Children Exposed to an Event 1 or More Times

Have seen someone arrested	81
Have heard guns being shot	75
Have seen drug deals	60
Have seen someone get shot	34
Have seen grown-ups in the home hit each other	28
Have not felt safe at home	23
Have seen a dead body outside	18
Have seen someone in the home get shot or stabbed	10

*TISH indicates the "Things I Have Seen or Heard" interview.

Table 2. Selected Results of Levonn*: Percentage of Children With These Feelings Some or a Lot of the Time

Worry that they may get killed or die	61
Have trouble sleeping	54
Feel sad when other people are having fun	50
Feel sad and do not know why	41
Are afraid something bad will happen if they go out to play	32
Feel mother does not love them and would like to send them away	26
Feel they may not have a happy life when they grow up	23
Sometimes wish they were dead	19

*Levonn indicates a cartoon-based interview for assessing children's distress.

view of the literature, the correlation of high exposure to violence with low self-esteem in children aged 7 years is novel. Moreover, low self-esteem was also suggested in caregivers of children with high exposure to violence (data not shown), with Total Self-Esteem of the child and caregiver correlating ($r=0.25$; $P=.01$). Given this correlation, the low self-esteem in children with higher exposure to violence may be multifactorial in origin. Regardless, the lower self-esteem of both caregivers and children with high exposure to violence suggests potential for future maladaptive behavior in the children, since low self-esteem has been cited as a precursor to participating in risk behaviors.^{13,33-35}

Children in our cohort with higher exposure to violence had lower grade point averages—suggestive of poorer academic performance—than did the children with less exposure. Further, higher violence exposure was correlated with more days of school absence than was lower exposure. To our knowledge, this association of exposure to violence and poorer academic performance has not been previously reported to our knowledge in children at this young age. Poor academic performance, however, has been associated with low self-esteem.^{13,33} In this regard, our cohort's school performance was documented at the end of the first grade, with the CFSEI-2 being administered during the school year; thus, it is not clear whether the low self-esteem found in children with high exposure preceded or was concomitant with the less favorable school experience. Regardless, the coexistence of low self-esteem, poor academic performance, and exposure to violence renders these children particularly vulnerable to risk behaviors, including violent behavior.^{31,33,36-38}

This study has several limitations. First, it is possible that our outcome variables, such as low self-esteem and increased anxiety and depression, antedated the exposure to violence. Since we did not measure these characteris-

tics prior to our assessment of exposure to violence, these outcomes or characteristics may have been preexisting and not a result of exposure to violence. Earlier and repeated assessments in larger cohorts should provide important information. Second, our sample size is not large enough to determine whether exposure to violence is causal or merely an associative factor with cohort outcomes. We have described the correlation of higher exposure to violence with more emotional distress, lower self-esteem, and poorer academic performance but we cannot assign causality from a sample size of 119 children. While multivariate analyses would help differentiate factors causing distress and poor academic performance, as previously noted, we are limited by the numerous factors (home environment, maternal and child IQ, preschool experience, etc) that affect these outcomes, and by the cohort size. The suggestion, however, that high exposure to violence may lead to adverse outcomes, needs to be explored with larger cohorts. Third, relying on self-report in young children has inherent problems that cannot be completely resolved.

These limitations aside, of great concern to us is the lack of caregiver recognition of child distress. In our cohort, there was poor correlation between child anxiety and caregiver recognition of child anxiety ($r=0.05$; $P=.58$). Similarly, Richters and Martinez,³ in their cohort of fifth- and sixth-grade children, found the children to report significantly higher levels of distress than their parents reported them to have. For example, 49% of the parents reported that their children never worried about being safe, whereas none of the children said they never worried. In our study, 58% of the parents reported that their children never worried about being safe, whereas none of the children said they never worried.

This caregiver lack of recognition of child distress, using the Children's Checklist of Distress Symptoms, was corroborated by findings from the CBCL, both the PRF and TRF: neither parents nor teachers perceived high anxiety levels in children with high exposure to violence. Thus, 3 instruments suggest that child anxiety is not recognized by individuals close to the child who could offer counsel or seek support for the child. Reasons for lack of recognition include: caregivers may be "immune" to exposure and the effects of exposure through chronic exposure to violence themselves; caregivers may not be aware of the amount of violence to which the child is exposed because the child underreports for fear of curtailment of activities^{3,5}; caregivers may be preoccupied with social-emotional issues of their own.

The lack of recognition of distress in young children exposed to violence is critical to rectify. In high-profile events, such as the Jonesboro (Jonesboro, Ark, 1998) and Columbine (Littleton, Colo, 1999) school shootings, the nation was shocked and grieved; schools closed and counseling was offered. In stark contrast, many young inner-city children enter school each day with a heavy burden of exposure to violence. The distress associated with exposure to violence is not being recognized.

Pediatricians have become actively involved in violence prevention.³⁸⁻⁴⁰ The American Academy of Pediatrics Task Force on Violence, in a recent strong statement,⁴⁰ issued policies for pediatricians in youth violence

Table 3. Correlations With TISH Total Violence Score*

	Correlation†	P Value
Levonn		
Depression	.31	<.001
Anxiety	.37	<.001
Self-esteem (CFSEI-2)		
General	-.24	.01
Social	-.02	.83
Academic	-.07	.48
Parent-related	-.13	.18
Total	-.19	.04
School		
Grade point average‡	-.29	.01
No. of days absent	.25	.02
CBCL Parent Report Form		
Competency	-.06	.61
School (subscale)	-.35	.002
Social	-.06	.56
Thought	-.13	.22
Attention	.05	.60
Internalizing	.001	.99
Externalizing	.04	.70
Total Problem score	.02	.84
CBCL Teacher Report Form		
Total Adaptive	-.19	.19
Social	.05	.74
Thought	-.02	.91
Attention	.07	.59
Internalizing	-.02	.89
Externalizing	.24	.08
Delinquent (subscale)	.32	.02
Total Problem score	.17	.22
Child characteristics		
Sex‡§	.05	.58
Full-Scale IQ	-.16	.10
Caregiver and home characteristics		
Full-Scale IQ	-.11	.30
Total Self-esteem	-.14	.14
Total HOME score	-.15	.19
Cocaine use-pregnancy‡	.042	.65
Cocaine use-current‡	.10	.29

*TISH indicates Things I Have Seen and Heard; CFSEI-2, Culture-Free Self-Esteem Inventory, Second Edition; CBCL, Child Behavior Checklist; and HOME, Home Observation for Measurement of the Environment.

†Pearson r unless otherwise indicated.

‡Spearman ρ .

§Female = 0, male = 1.

||No = 0, yes = 1.

Table 4. Factors Associated With Child Anxiety: Linear Regression Analysis*

Independent Variables	B	95% Confidence Interval		β	F	P Value
		Lower	Upper			
Total Violence Exposure	0.16	.02	.30	.27	2.3	.03
Total Self-esteem	-0.60	-.99	-.22	-.36	-3.1	.003
Total HOME score	-0.21	-.50	.09	-.16	-1.4	.17
Full-Scale IQ	-0.03	-.15	.09	-.06	-.47	.64
Caregiver Personal Self-esteem	-0.10	-.69	.50	-.04	-.33	.75

*HOME indicates Home Observation for Measurement of the Environment. Dependent variable: Levonn Anxiety score. Overall: $R^2 = 0.37$; $F_{5,56} = 6.7$; $P < .001$.

What This Study Adds

It is common for children living in the inner city to witness violence. Few data are available regarding the emotional and academic effects of witnessing violence at a young age. Our study explores associations between exposure to violence by age 7 years and emotional distress and poor academic performance. We found that young inner-city children have a high exposure to violence by age 7, with many children showing signs of anxiety, depression, and low self-esteem that frequently are not recognized by caregivers. Further, higher exposure to violence correlated with poorer performance in school. These findings underscore pediatricians' responsibility to not only assess young children for exposure to violence but to screen for signs of distress as well.

prevention and management. Early nurturing, limit-setting, safety screening, and treatment and referral guidelines are given in detail for age ranges from infancy to later adolescence. The importance of parent support, encouragement, and education is emphasized repeatedly. Given the results of our study, however, we would encourage direct assessments of young children. For example, questions regarding exposure to violence should be directed not only at parents, but also at children to assess their reported feelings of distress.

Despite this recent emphasis on violence prevention and management, according to one survey,⁴¹ few pediatricians are routinely screening for exposure to family and community violence. Reasons cited include lack of training in violence prevention and reluctance to provide anticipatory guidance when the pediatrician perceives that the advice will not be followed. Regardless of reasons, not addressing this issue comes at a time when it is increasingly important to direct attention to the young inner-city child at the time of school entry. Neglecting to assess exposure to violence and to screen for signs of distress may not only fail the individual child but may also contribute to the cycle of violence experienced by inner-city children.

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