

Caretaker-Child Concordance for Child's Exposure to Violence in a Preadolescent Inner-City Population

Carey Conley Thomson, MD, MPH; Kevin Roberts, MS; Andrew Curran, BA; Louise Ryan, PhD; Rosalind J. Wright, MD, MPH

Background: Effective screening for exposure to violence (ETV) in the pediatric setting depends on informant reliability and recognition of patients at increased risk. Pediatricians screening for children's ETV often rely on parent reporting.

Hypothesis: That there would be poor caretaker-child concordance given that children would report events occurring outside the home not witnessed by the caretaker and that ETV would be higher among immigrant families.

Objectives: To examine concordance between caretaker and child self-report of the child's ETV in a pre-adolescent population and to explore factors related to increased risk.

Design: Community-based survey.

Setting: Urban community health center.

Participants: One hundred sixty-five caretaker-child pairs.

Methods: The ETV was assessed by means of a standardized interview questionnaire on location and fre-

quency of ETV. A Rasch model was used to develop summary scores of ETV (frequency and severity).

Results: Caretaker-child concordance on reports of child's ETV was poor. The κ statistics ranged from -0.04 for seeing someone knifed to 0.39 for witnessing a shooting. Children reported ETV more often in their neighborhood or at school, whereas caretakers reported more events near or at home. Univariate predictors of child's self-reported ETV were female sex ($\beta \pm SE, -10.1 \pm 4.6$; $P = .03$) and caretaker being divorced ($\beta \pm SE, 12.6 \pm 6.0$; $P = .04$). In multivariate analyses, country of origin predicted child's ETV, adjusting for child's age and sex, and caretaker educational status and marital status.

Conclusions: Caretakers and their children have poor agreement on reports of the child's ETV. Intervention strategies around ETV should include assessment of the child independent of caretaker report for preadolescents. Screening may be more effective if pediatricians are aware of factors related to increased risk, including immigration status and caretaker marital status.

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From the Channing Laboratory, Department of Medicine, Brigham and Women's Hospital (Drs Thomson and Wright and Mr Curran), and Pulmonary and Critical Care Unit, Massachusetts General Hospital, Department of Medicine (Dr Thomson), Harvard Medical School, Department of Biostatistics, Harvard School of Public Health (Mr Roberts and Dr Ryan), and Pulmonary and Critical Care Division, Beth Israel Deaconess Medical Center (Dr Wright), Boston, Mass.

VIOLENCE IS A MAJOR cause of childhood morbidity in urban America. Finkelhor and Dziuba-Leatherman¹ interviewed 2000 children aged 10 to 16 years and found that more than half were victims of violence at some time in their lives. These investigators estimate that 6.2 million youth aged 10 to 16 years experience some form of completed assault or abuse per year; 1 in 8 (2.8 million) experience an injury; and 1 in 100 (almost 250 000) require medical attention.¹

High rates of witnessing violence among inner-city youth have been reported.²⁻⁴ A prevalence study in an urban pediatric primary care clinic found that 10% of children had witnessed a knifing or shooting before the age of 6 years; 18% had witnessed shoving, kicking, or punching;

and 47% reported hearing gunshots in their neighborhood.⁵ Sheehan and colleagues⁶ surveyed 146 African-American children aged 6 to 13 years and found that 42% had seen someone shot, 37% had seen someone stabbed, 21% lived with someone who had been shot, 16% lived with someone who had been stabbed, and 47% of girls and 55% of boys had witnessed violence.⁶ In addition, children experience violence in the home,⁷ with an estimated 3.3 million⁸ to 10 million⁹ children witnessing parental violence annually. Taken together, these data suggest that our urban youth are experiencing violence of epidemic proportions.

Another body of research demonstrates potential adverse psychological consequences among children growing up with chronic violence.^{10,11} Adverse behavioral sequelae have been documented, in-

SUBJECTS AND METHODS

PARTICIPANTS

Participants included mother-child pairs drawn from a larger sample voluntarily recruited for a longitudinal study of the effects of prenatal maternal smoking on childhood respiratory illnesses. The design of the parent study has been detailed previously.²³ The study is based at an inner-city neighborhood health center. The study protocol was approved by the human subjects committees of the Brigham and Women's Hospital and the Beth Israel Deaconess Medical Center, Boston, Mass.

The initial study population consisted of 1000 mother-child pairs enrolled in early pregnancy between March 1986 and October 1992. The majority of participants were urban poor or working class, with 75% of participants coming from households with an annual family income of less than \$30 000. Fifty percent were white, 48% Hispanic, 2% black, and 5% of other or mixed racial or ethnic backgrounds. Of this initial group, approximately 500 families continued under active follow-up.

Beginning in November 1996, participants were recruited from the original cohort. Voluntary written consent was obtained from 412 adult caretaker participants who agreed to participate in the violence assessment. Subjects were interviewed face-to-face in their preferred language (English or Spanish) in a private setting located in the clinic. The subjects who did not participate did not differ significantly from those who underwent the assessment in terms of education, but they did differ by ethnic composition (54.6% white, non-Hispanic and 45.4% Hispanic). Reasons for nonparticipation included being unavailable for follow-up (53 participants), refusal (22 participants), and failure to keep

scheduled visits for interview on more than 2 occasions (12 participants).

DEMOGRAPHIC VARIABLES

A series of demographic variables was assessed for potential interrelationships with violence exposure. These included race, caretaker's education (as a proxy for socioeconomic status), caretaker's marital status, child's sex, child's age, and country of origin. For the last of these, 3 main groups were considered: US-born, Central or South American and Caribbean immigrants (El Salvador, Colombia, Guatemala, Peru, Honduras, Dominican Republic, Nicaragua, Costa Rica, Panama, Haiti, and Cuba), and other immigrants (Mexico, Puerto Rico, Cape Verde, Portugal, and Italy). These categories were chosen on the basis of previous research showing increased violence exposure among Central American, South American, and Caribbean immigrants (ie, related to political violence, drug trafficking, and socioeconomic conditions) relative to others.^{24,21}

CARETAKER MEASURES

A modified version of the violence exposure survey developed by Richters and Saltzman²⁵ was administered to 412 caretakers. Caretakers reported on their children's ETV (caretaker report of child's ETV). This questionnaire was structured to gather data on ETV (both direct victimization and witnessing violence). The scale was designed to measure specific acts of violence, including hearing gunshots and witnessing slapping, hitting, or punching,

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cluding increased risk for smoking, substance abuse,¹²⁻¹⁴ and violent behavior.¹⁵⁻¹⁷ In this context, the pediatrician's role in screening for violence exposure and potential early identification of children with emotional or behavioral sequelae has been increasingly recognized.^{18,19} Given time limitations and privacy issues, it may not always be practical to screen both the parent(s) and child regarding the child's exposure to violence (ETV). Practitioners may therefore rely solely on parental reports. Caretakers may not be the most accurate reporters, particularly among older children who spend time away from home unsupervised by the parent(s), although little empirical data are available to support this assumption.²⁰

To intervene effectively, pediatricians need to not only be aware of which respondent gives the most reliable information but also understand potential factors that may be associated with increased risk. Violence exposure may have important correlates in ethnically diverse urban populations that pediatricians need to consider. Inner-city primary care settings often include a significant proportion of immigrants to the United States. Recent studies among a community-based sample of ethnically diverse primary care patients²¹ and countries outside the United States that had recently experienced political violence or war²² raise awareness of the need to consider immigration status or country of origin when identifying patients at increased risk for violence exposure.

We examined the concordance between caretaker report and child's self-report of child's ETV in an inner-city preadolescent population. We hypothesized that there would be poor caretaker-child concordance for ETV given that children would report events occurring outside the home not witnessed by the caretaker. We further hypothesized that violence exposure would be higher among immigrant families than US-born participants.

RESULTS

Table 1 outlines the demographic characteristics of the study population. More than half (56%) reported the United States as their country of origin. The majority of caretaker respondents (95%) were the biological mothers, and 35% had less than a high school education.

AGREEMENT BETWEEN CARETAKER REPORT AND CHILD SELF-REPORT OF CHILD'S ETV

Table 2 compares caretaker and child reports of the child's ETV. There was poor agreement between the caretaker's report and children's self-report, with caretakers consistently underestimating the violence exposure reported by their child. Although κ statistics for caretaker-child agreement were higher for more severe events (eg, hearing gunshots [$\kappa=0.22$] and seeing someone shot

beatings, knife attacks, and shootings. Details were obtained, including (1) frequency of exposure and (2) where the violence occurred (eg, at home, at school, or in the neighborhood). Lifetime ETV was considered in these analyses.

CHILD SELF-REPORT MEASURES

Children who were 8 years or older ($n=171$) answered the questionnaire on violence exposure that was parallel to that answered by the adult caretaker.²⁶ Six children responded to the self-report version when their primary caretaker did not keep the appointment for the parent-report version after 3 or more attempts; thus, 165 caretaker-child pairs were included in these analyses. Two-week test-retest reliability in a random sample of 11 children was 0.64; test-retest reliability was 0.97 with removal of 1 outlier. Children younger than 8 years were administered the more age-appropriate "Things I Have Seen and Heard"²⁷ and will be reported on elsewhere.

ANALYSES

Responses to the violence exposure questionnaire were summarized into a continuous ETV score by means of Rasch modeling techniques.²⁸ Rasch analysis is a method for obtaining a continuous objective measure of ETV from ordered category responses obtained on the questionnaire. Violent events were ordered on the basis of their level of severity (lowest to highest). Next, a generalization of the Rasch model was used to account for greater frequency of ETV. For example, instead of answering yes or no to the question of whether the child has seen someone knifed, the

response can be summarized as "no," "yes, just once," or "yes, more than once." A higher score on the Rasch violence scale thus indicates both greater severity of violence exposure (witnessing a knifing or shooting compared with pushing or shoving) and more frequent exposure, which can be an indicator of more chronic violence exposure. Rasch models were fit by means of statistical software WINSTEPS.²⁹ Goodness of fit was demonstrated on the basis of 2 fit statistics (ie, mean-square infit statistic=1.09 and the mean-square outlier statistic=10.5) indicating good fit.

All other analyses used SAS statistical software (SAS Institute Inc, Cary, NC; version 6.12). Caretaker-child agreement was quantified with the κ statistic. This statistic, introduced by Cohen,³⁰ indicates perfect agreement if equal to 1.0. If equal to 0, then agreement shown occurs by chance. The higher the value is, the stronger the agreement. Values less than 0 occur, although they are rare, if agreement is weaker than that expected by chance. The κ statistic ranges from values of 1.0 (perfect agreement) to -1.0 (complete disagreement). Values of κ greater than 0.75 are considered to indicate high agreement, 0.40 to 0.75 represent moderate agreement, and less than 0.40 indicate poor agreement.^{30,31} The κ statistic compares caretaker-child response to "ever" or "never" exposure to the violent event. The Rasch summary score (continuous measure of severity and frequency) of caretaker report of child's ETV and child's self-reported ETV were examined by means of the Spearman correlation. More detailed analyses of the interrelationships among the sociodemographic factors and ETV were approached with a series of linear regression models, which allowed for the control of multiple factors at once.

[$\kappa=0.39$]), these were still poor. Notably, 4 children reported witnessing a knifing that was unknown to the caretaker reporter, with 3 of these children reporting more than 1 witnessed knifing.

COMPARISON OF CARETAKER-CHILD AGREEMENT BASED ON LOCATION

The **Figure** compares the caretaker's report and child's self-report of the frequency of the child's exposure to selected violent events based on where the event had occurred. Lack of agreement appears to be related to the location of the child's ETV, with caretakers reporting more violence exposure at home or closer to home, and children reporting more exposure at school, in the park, or in the neighborhood. Similar trends were seen related to rare events, including witnessing a stabbing or seeing someone shot (ie, children reported witnessing these events away from home, in the neighborhood, or at school, while the caretakers reported these events only when they had occurred near home). Notably, some events were experienced in the participant's country of origin. In an open-ended response category for where the event(s) occurred, these participants reported experiencing violence both before immigration to the United States and when traveling back to their country of origin after migration. It was not an unusual practice for caretakers to send their

children to their native countries for an extended visit with relatives or a noncustodial parent.

CORRELATION OF CARETAKER'S AND CHILD'S REPORT OF CHILD'S ETV

Not surprisingly, the overall Rasch model summary scores (severity and frequency) for caretaker report and child self-report of the child's ETV were not significantly correlated ($r=0.12$).

INFLUENCE OF SOCIODEMOGRAPHIC FACTORS ON ETV REPORTS

One potential reason for poor concordance or lack of correlation may be that there are different factors determining caretaker and child accuracy on the ETV standardized survey. To assess internal validity of the measure, we examined the relationship between the sociodemographic factors and report of the child's ETV for each informant. In univariate analyses, the sociodemographic factors were related in the expected directions, corroborating previous research.³² Girls reported significantly ($\beta \pm SD$, -10.1 ± 4.6 ; $P=.03$) less violence exposure than boys. Children were likely to report higher violence exposure as they got older ($\beta \pm SD$, 3.1 ± 2.4 ; $P=.2$ calculated for a 1-year increase in age)—a relationship that was not significant, which may

be due to the relatively narrow age range in our sample (8-13 years). Caretaker's report of being divorced or widowed was significantly ($\beta \pm SE$, 12.6 ± 6.0 ; $P = .04$) associated with increased violence exposure among the children compared with married caretaker status. There was a trend for lower caretaker educational level to predict higher violence in the children, although this was not significant. Notably, these associations were qualitatively similar, but not significant, for caretaker report of child's ETV (data not shown for simplicity). Discordance did not seem to be related to validity across informants.

MULTIVARIATE PREDICTORS OF CHILD'S SELF-REPORTED ETV

Predictors of the level and frequency of the child's self-reported ETV are shown in **Table 3**. Country of origin was the strongest predictor of child's self-reported ETV after adjusting for all other covariates (ie, child's age and sex and caretaker educational status and marital status). Subjects who had immigrated had higher violence exposure scores than those born in the United States. Divorced and widowed caretaker status also remained a significant predictor of child's ETV.

COMMENT

These data demonstrate poor caretaker-child concordance on reports of the child's witnessed violence or victimization in this preadolescent inner-city primary care population. From a clinical perspective, pediatricians need to be aware of such discordance when incorporating screening protocols for assessing risk of ETV among children and youth in their practices. These data suggest that, although parents may be ready sources of clinical information, they may significantly underestimate ETV among older children. Child self-report of ETV should be obtained in the preadolescent age group.

These data corroborate other studies demonstrating that assessment of children's ETV may result in differing results depending on the informant.³² Indeed, a consistent finding in the epidemiology of childhood ETV is the relative discordance between parent-child report of violence exposure.^{5,32-35} Richters and Martinez³³ investigated violence reports in 111 parent-child dyads from the first and second grades and 54 from the fifth and sixth grades of the same school. Child reports were similar to their parents', with more children reporting witnessed violence (97%) than victimization (59%); however, more children reported victimization than their parents did (69% vs 44%; $P < .05$).^{10,25,26} Similarly, Howard and colleagues³⁴ concluded that caretakers underestimated child victimization 58% of the time overall and 75% among children older than 12 years. It has been postulated that such discordance is, in part, related to children experiencing events outside of the supervision of their caretakers; however, to our knowledge, this has scarcely been formally examined.

In this sample, many events witnessed by children but not reported by caretakers occurred outside of the child's home environment. This may be related to lack of direct caretaker supervision away from home. Moreover, caretakers' knowledge of events that occur outside the home

Table 1. Sample Characteristics of 165 Caretaker-Child Pairs

Characteristic	Finding
Child's age, y	
Range	8-13
Mean \pm SD	9.27 \pm 0.98
Child's race, No. (%)	
White	95 (58)
Hispanic	66 (40)
Black	3 (2)
Other	1 (1)
Child's sex, No. (%)	
Female	81 (49)
Male	84 (51)
Caretaker relationship to child, No. (%)	
Biological mother	156 (95)
Biological father	5 (3)
Grandmother	2 (1)
Legal guardian	2 (1)
Caretaker age, y	
Range	26.1-59.5
Mean \pm SD	36.3 \pm 5.63
Caretaker's marital status, No. (%)	
Married	107 (65)
Single, not living with significant other	12 (7)
Single, living with significant other	15 (9)
Separated/divorced, not living with significant other	26 (16)
Separated/divorced, living with significant other	1 (1)
Widowed, not living with significant other	0
Caretaker's education, No. (%)	
Some high school or less	57 (35)
High school graduate	66 (40)
Some college	40 (25)
Country of origin, No. (%)	
United States	93 (56)
El Salvador	22 (13)
Colombia	11 (7)
Mexico	8 (5)
Guatemala	7 (4)
Peru	7 (4)
Honduras	4 (2)
Puerto Rico	3 (4)
Italy	1 (1)
Other*	8 (5)

*One each from Dominican Republic, Nicaragua, Cuba, Costa Rica, Panama, Haiti, Cape Verde, and Portugal.

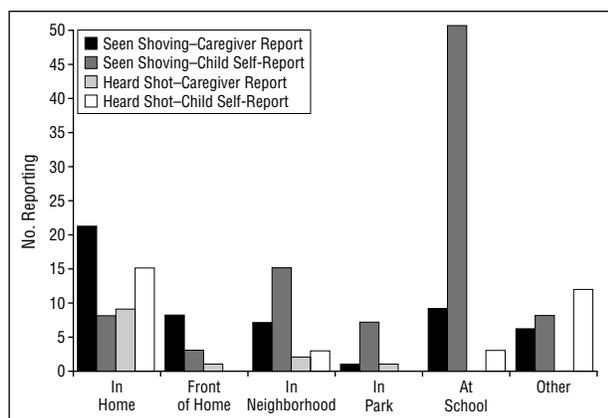
requires communication from their children. Reasons for lack of communication around ETV between caretakers and their children were not directly assessed in this study. It has been postulated that the child may not report events to their parents for fear of social restrictions or because of desensitization to community violence.²⁰

Lack of agreement in caretaker-child report of ETV has been associated with increased youth perpetration of violence, increased alcohol and other drug use, and decreased psychosocial functioning. Other research has linked low parent-child agreement with higher levels of childhood ETV³⁴⁻³⁷ behavioral problems,^{15,16,36,38} and childhood distress symptoms.^{10,11,17,20,35,36} Conversely, Ceballos and colleagues³⁵ found that higher caregiver-child agreement regarding a child's ETV was related to improved psychological functioning in the child. Less attention has been paid to factors that might help explain the discordance and mediate the relationship between poor agreement and behavioral and psychological sequelae in youth. Further research to evaluate such factors may inform more effective interventions in the clinical setting.

Table 2. Comparison of Caretaker's Report and Child's Self-report of Child's Violence Exposure

Witnessed Violence Questions	Caretaker, No. (%)	Child, No. (%)	κ (95% Confidence Interval)
Child ever seen anyone shoved, kicked, punched	52 (32)	101 (61)	0.11 (-0.02 to 0.24)
Child knew who was shoved, kicked, punched*	44 (85)	69 (68)	
Child witnessed >1 shoving	28 (54)	60 (59)	
Child seen anybody stabbed	5 (3)	9 (5)	-0.04 (-0.07 to -0.02)
Child knew who was stabbed	5 (100)	4 (44)	
Child witnessed >1 stabbing	0	3 (33)	
Child heard gunshots	13 (8)	34 (21)	0.22 (0.05 to 0.40)
Child heard shots more than once	5 (38)	13 (38)	
Child witnessed a shooting	2 (1)	3 (2)	0.39 (-0.16 to 0.04)
Child knew who was shot	2 (100)	1 (33)	
Child witnessed emotional abuse of primary caretaker	57 (35)	44 (27)	0.13 (-0.03 to 0.28)

*Indented categories calculated for percentage of those who had reported discrete event (shoving, stabbing, hearing shots, and shooting).



Comparison of caretaker's report and child's self-report of child's exposure to violence (frequency and location). In the "Other" category, the majority were outside of the child's neighborhood, and 5 gunshots were heard when in Central or South America.

Rates of crime and violence (or the lack of it) have been considered as indicators of collective well-being, social relations, or social cohesion within a community and society.^{39,40} Therefore, it is often the case that both caretakers and children living in the same environment (eg, neighborhood or community) are likely to be at risk for increased ETV. In the context of shared exposure to chronic violence, children may choose not to report events to their caretaker to protect their families from further emotional pain (or vice versa). That is, children and their caretakers may avoid talking to each other about exposures for fear of reminding or upsetting each other.²² Future studies need to consider such shared exposures as a potential mediating factor for poor caretaker-child concordance in violence reporting. Correlates of the caretaker's own violence exposure such as psychological comorbidity (eg, depression or anxiety) may influence their reaction to their child's ETV and child's distress.²²

These data also suggest interethnic differences in frequency of ETV when country of origin was considered. This might be anticipated given that immigration to the United States is often related to socioeconomic and political forces linked to violence exposure in other countries. More recent immigrants may also be at greater socioeconomic disadvantage relative to their US-born counterparts and consequently be more likely to live in communities burdened by greater poverty and higher crime rates. Immigrant chil-

Table 3. Predictors of Child's Self-report of Exposure to Violence

Predictor	Multivariate Analyses*	
	$\beta \pm SE$	P Value
Child's age†	2.9 ± 2.4	.22
Female sex (child)	-8.6 ± 4.7	.07
Caretaker education		
Some college	...‡	...
High school graduate	3.1 ± 5.8	.60
Less than high school	0.39 ± 6.3	.95
Marital status		
Married
Single	3.1 ± 6.6	.60
Divorced/widowed	14.6 ± 6.2	.02
Country of origin		
United States
Central/South America and Caribbean§	6.2 ± 5.1	.22
Other	18.0 ± 8.1	.03

*Race not included in multivariate model given collinearity with country of origin.

†Age entered as a continuous variable; β coefficient is calculated for a 1-year increase in child's age.

‡Ellipses indicate referent group.

§El Salvador, Colombia, Guatemala, Dominican Republic, Peru, Honduras, Nicaragua, Costa Rica, Panama, Cuba, and Haiti.

||Mexico, Puerto Rico, Italy, Cape Verde, and Portugal.

dren may visit their native country after migration, where they may be more likely to encounter violence. As continued waves of immigrants change the face of urban America, pediatricians must be aware of these potential ethnic and cultural influences on violence exposure.^{41,42}

Caretakers' marital status may also be an indicator of increased risk of ETV for youth. In the current study, children from households where caretakers reported being divorced or widowed experienced higher rates of violence. This finding has been demonstrated in earlier studies as well.²¹

An important limitation in this study is the relatively small sample size. This did not allow us, for example, to examine whether occurrence of violence near home or away from home statistically predicted worse caretaker-child agreement. Small numbers in migration status (country of origin or ethnicity) required collapse into broad categories, which limits meaningful comment on sociocultural explanations for the observed associations. Fu-

What This Study Adds

Violence exposure and violent injuries are a serious threat to the health of children and youth in the United States. Our research has demonstrated poor caretaker-child agreement on the child's exposure to violence (ETV) in this pre-adolescent urban sample. Children frequently experience violence away from home and outside the supervision of their caretakers. These data support the observation that multiple informants will provide the most information regarding a child's ETV and should include child self-reports. In addition, we need to recognize important correlates such as migration status (country of origin or ethnicity), which may be related to increased frequency of ETV. Often, immigrants have experienced trauma related to political violence before migration or when they travel back to their native country. Caretakers' marital status (ie, being divorced or widowed) may also be an indicator of increased risk of ETV for youth.

ture studies with larger sample sizes that also include other ethnic backgrounds (Southeast Asians, Middle Easterners, etc) may further this line of research.

Clinically, these data suggest that intervention strategies around youth ETV in the pediatric primary care setting should include assessment of the child independent of caretaker report. In addition, future studies of potential mediating factors to explain the poor concordance may help us develop more effective interventions. Potential important mediating factors might include caretakers' own experience with violence and psychological distress symptoms, child psychological distress, family dynamics, poverty, and other social supports in the community.

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Corresponding author and reprints: Rosalind J. Wright, MD, MPH, Channing Laboratory, 181 Longwood Ave, Boston, MA 02115 (e-mail: rosalind.wright@channing.harvard.edu).

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