ARTICLE

Witnessing Violence Among Inner-city Children of Substance-Abusing and Non–Substance-Abusing Women

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Objectives: To determine if children of substance-abusing mothers witness more violence than children of non–substance-abusing (control) mothers, and to determine if children who witness violence have more behavioral problems and higher stress scores than children who do not witness violence.

Design: Cross-sectional research design comparing exposure to violence among children of substance-abusing mothers and control mothers of low socioeconomic status.

Setting: An inner-city pediatric clinic.

Participants: Forty substance-abusing mothers and their children, and 40 non–substance-abusing mothers and their children, examined when the children were 6 years old.

Main Outcome Measures: Maternal report of children's exposure to violence was assessed using the Exposure to Violence Interview and the Conflict Tactics Scale. Maternal report of children's behavior was assessed using the Child Behavior Checklist and the Children's Response to Stress Inventory.

Results: Children of substance-abusing mothers did not witness more violence than the control children ($P>.05$). However, 6-year-old inner-city children in the present study witnessed a high rate of violence: 43% had seen someone beaten up, 13% had seen someone threatened with a knife, and 7% had seen someone stabbed or shot. Children witnessing violence had significantly higher aggressive, delinquent, anxious/depressed, withdrawn, attention, and social problems ($P<.05$) on the Child Behavior Checklist, and higher stress scores ($P=.05$) on the Children's Response to Stress Inventory.

Conclusions: More than half of the 6-year-old inner-city children in the present study witnessed some form of violence. Witnessing violence was associated with more behavioral problems and higher stress scores as assessed through maternal report. Subsequent research should examine the long-term effects of this exposure to violence among young children.

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YOUNG INNER-CITY children are witnessing violence at high rates. One study on the prevalence of witnessing violence among inner-city preschool children found that 10% had witnessed a stabbing or shooting, 18% had witnessed a beating, and 47% had heard gunshots by the age of 5 years.[1] Research with older children found that more than one fourth of urban school-aged children had witnessed a shooting or stabbing[2-5] or seen someone killed.[5,6] Compared with older urban children, younger children witness less severe forms of violence, such as beatings,[7] and are more likely to witness community violence than to be victims.[8-9]

Exposure to violence has a negative effect on the behavior of young children. Children exposed to violence suffer from symptoms associated with posttraumatic stress disorder (PTSD), which include mentally reexperiencing the traumatic event, avoidance, and numbing of responsiveness.[8,10] Other behaviors associated with exposure to violence include increased depression, distress, aggression, anxiety, sleep problems, delinquent behavior, stress, and regression to earlier behaviors.[4,11-18]

Substance abuse in women is frequently associated with violence against these women, including physical abuse and rape.[19-21] What is not clear from this research is if the children of substance-abusing women are more likely to witness violence than children of non–substance-abusing (control) women; this was the primary aim of our study. The second aim was to determine if witnessing violence was associated with more behavioral problems and higher stress among 6-year-old inner-city children.

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SUBJECTS AND METHODS

SUBJECTS

The substance-abusing families in the present study are a subset of families who are part of an ongoing longitudinal cohort study. These families have been followed since the children were born. The recruitment procedures for these families have been reported previously[22] but are summarized here for clarity. The substance-abusing women and their infants were recruited from a university hospital that serves a largely inner-city African American population. Women were eligible for recruitment if they or their infants had a positive urine toxicology screen at birth or if a history of recent drug use was noted in the medical records. Infants who were not discharged into the care of their mothers or who had serious developmental or congenital problems were not eligible for recruitment.

The non–drug-exposed (control) children were identified through medical records and recruited from the same inner-city pediatric clinic where many of the children of the substance-abusing women received care. Control families were eligible for recruitment if they had a 6-year-old child who was born at the same university hospital, was still in the care of its biological mother, had no serious developmental or congenital problems, was full-term (gestational age >36 weeks), and had no indications from birth records or the pediatric clinic charts of drug exposure. Letters explaining the study were sent to all eligible control families (N=91). The first 40 control families recruited into the study were matched to 40 of the substance-abusing families by child's date of birth, child's sex, and maternal education. All children in both groups were currently living with their biological mothers.

INSTRUMENTS

The children's exposure to violence outside the home was assessed using the Modified Exposure to Violence Interview (Betsy Groves, MSW, written communication, 1997). The Exposure to Violence Interview has been used with a similar inner-city population.[1] The interview consists of 42 forced-choice and open-ended questions. Mothers were asked how frequently in the last year their child had seen the following types of violence: yelling, beating (kicking, punching, or slapping), someone being threatened with a knife, stabbing, shooting, rape, or other. The frequency of each type of violence was rated on a 5-point scale, from never (0) to more than 5 times (4). If the child had witnessed an act of violence, the mothers were asked for more information about the act. First, mothers were asked the relationship between the people engaged in the violent act (mother, father, aunt, uncle, neighbor, stranger, etc) and the study child. Second, the mothers rated the degree of injury to the people involved in each violent act on a 4-point scale, from no injury (0) to death (3). Third, the mothers rated behavioral changes in the child after he or she witnessed the violent act on an 8-point scale, from no changes (0) to clinging to the mother (7). Finally, the mothers rated how witnessing the violent act affected their child on a 5-point scale, from not at all (0) to severely (4).

Violence in the home was assessed using the Conflict Tactics Scales (CTS).[23] The CTS is a 19-item standardized questionnaire that assesses methods used by the mother and her partner during the last year to settle problems. Each item is rated on a 5-point scale, from never (0) to more than 5 times (4). The CTS is composed of 4 subscales for both the mother and her partner: verbal reasoning, verbal aggression, minor violence, and major violence. Because this research was concerned with violence, only the minor and major violence data are presented here. The minor violence subscale includes throwing an object, pushing or shoving, and slapping. The major violence subscale includes kicking or hitting with fists, hitting with an object, beating up, choking, threatening with a knife or gun, and using a knife or gun.

Child behavior was assessed using the Child Behavior Checklist (CBCL).[24] The CBCL is a 113-item questionnaire used to assess children's behavioral and emotional problems. Each item is rated on a 3-point scale, from not true (0) to sometimes true (1) to often true (2). The behaviors are summed to form 7 subscales: aggressive behavior, delinquent behavior, somatic problems, withdrawn, anxious/depressed, thought problems, and social problems. Each subscale score was then converted to a T score (mean=50, SD=10). Higher scores on each subscale mean worse behavior.

Child stress was assessed using the Children's Response to Stress Inventory: Interview With Parents (Linda Mayes, MD, written communication, 1995). The Children's Response to Stress Inventory is a 28-item questionnaire that assesses stress-related behaviors. The mother rates each behavior as not true (0), maybe (1), or true (2). The items are summed to create a total stress score; higher scores mean more stress.

A general questionnaire was used to obtain demographic data, socioeconomic data, and number and ages of other children in the household. Finally, drug use was assessed with a form that asked the mothers about both their current and past use of cigarettes, alcohol, heroin, cocaine, marijuana, amphetamines, barbiturates, tranquilizers, and hallucinogens.

PROCEDURE

Mothers who agreed to participate in the present study signed a consent form approved by the Institutional Review Board of the University of Maryland in Baltimore. Research assistants who were unaware of the group status of the mothers (drug or control) conducted the evaluation visit in a pediatric clinic. As part of the 6-year clinic evaluation, the mothers completed measures on the child's exposure to violence, child behavior, and child stress. Demographic data and maternal report of drug use were also collected at the visit. To control for differences in reading ability, all questions were read to the mother. Mothers were paid on completion of the clinic evaluation visit and given bus tokens to get home. Only data relevant to this article are reported here.

STATISTICAL ANALYSIS

All data analyses were conducted with SPSS 10.0 for Windows (SPSS Inc, Chicago, Ill). Demographic data were compared with analysis of variance (ANOVA) and the c^2 test. Data

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on maternal report of drug use and children's exposure to violence were also compared using the χ^2 test. Because there was a significant group difference in maternal age at the birth of the target child, it was used as a covariate when child behavior and stress variables were examined. Multivariate analysis of covariance (MANCOVA) was used to analyze group differences on the CBCL. Analysis of covariance (ANCOVA) was used to analyze group differences in the stress score from the Children's Response to Stress Inventory.

RESULTS

A total of 80 mothers (40 substance-abusing, 40 control) and their 6-year-old children participated in this study. Five control mothers reported heroin or cocaine use sometime after the target child was born; therefore, their data were dropped before the analyses were done. Demographic data for the control and substance-abusing families are presented in **Table 1**. Substance-abusing mothers were significantly older at the birth of the target child ($P<.01$) and had significantly more children ($P=.02$) than control mothers. Most mothers in both groups were single, African American, and receiving public assistance.

Maternal report of drug use for both groups is presented in **Table 2**. Significantly more mothers in the drug group reported using cigarettes ($P<.01$), alcohol ($P=.05$), and marijuana ($P<.01$) in their lifetime than control mothers.

The percentage of children in both groups who witnessed violence outside the home is presented in **Table 3**. Two control children heard a shooting but did not see it. One child heard multiple shootings; the other child heard a friend get shot. Although these children were not included in the group of children who witnessed a shooting, they were included as children who witnessed violence, because they had seen other violent acts. Children of substance-abusing mothers were not more likely to see violence outside the home than children of control mothers. Almost 38% of the children in both groups witnessed someone being beaten up, 9% witnessed someone being threatened with a knife, and 7% witnessed someone being stabbed or shot outside the home.

The data from the CTS are presented in **Table 4**. Five drug-abusing mothers and 5 control mothers had not been involved in a relationship for more than a year; therefore, their data were not included in the analyses. There were no significant differences between substance-abusing women and control women in their use of violence. There were no significant differences between partners of substance-abusing women and partners of control women in their use of violence. Regardless of drug use, 40% of the mothers had used minor violence and 25% had used major violence against their partners during the last year. In addition, 28% of the partners had used minor violence and 23% had used major violence against the mothers during the last year.

Finally, some of the children witnessed violence that could not be placed in the previous categories. One drug-exposed child witnessed multiple episodes of organized dogfights in which the animals were hurt. A control child witnessed a neighbor jumping naked out the second-story window with her infant in her arms when drug dealers burst into her house.

Table 1. Demographic Data on the Study Population

	Drug-Abusing Mothers (n = 40)	Control Mothers (n = 35)
Mean ± SD maternal age at birth of target child, y	29.4 ± 5.0	24.4 ± 6.0*
Mean ± SD maternal education, y	11.3 ± 1.3	11.6 ± 1.1
Mean ± SD maternal age at first pregnancy, y	19.6 ± 5.6	19.4 ± 5.0
Mean ± SD No. of children	3.8 ± 1.8	2.9 ± 1.5†
Characteristics, %		
Single	90.0	77.1
African American	90.0	97.1
Unemployed	60.0	42.9
With siblings older than target child in home	65.0	65.7
Father/boyfriend in home	32.5	28.6
No. receiving assistance		
Aid to Families With Dependent Children	42.5	34.3
Food stamps	60.0	71.4
Medical assistance	77.5	80.0

*P<.01.
†P<.05.

To determine which children had witnessed violence, data from both the Exposure to Violence Interview and the CTS were examined. If mothers reported on the Exposure to Violence Interview that their child had witnessed violence (beating, threatening with a knife, stabbing, shooting, rape, or other violence) or on the CTS that minor violence (throwing objects, pushing, or slapping) or major violence (kicking, hitting with objects, beating, choking, threatening with a knife or gun, stabbing, or shooting) had occurred between the mother and her partner, the children were placed in the "witnessing violence" group. If on both measures the mothers reported that the child had not witnessed violence, they were placed in the "no violence" group.

A MANCOVA was conducted to examine the effects of witnessing violence on child behavior. Maternal age at the target child's birth was used as a covariate. The overall MANCOVA was significant ($P=.05$). Data from the CBCL are presented in **Table 5**. Children who witnessed violence had significantly higher aggressive, delinquent, withdrawn, anxious/depressed, attention, and social problems ($P<.05$ for all) than children who did not witness violence. An ANCOVA was run to examine the effects of witnessing violence on child stress. Data from the Children's Response to Stress Inventory are also presented in Table 5. Children who witnessed violence had significantly higher stress scores ($P=.04$) than children who did not.

COMMENT

The data in the present study indicate that children of substance-abusing mothers were not more likely to wit-

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Table 2. Maternal Report of Drug Use in Lifetime*

	Drug-Abusing Mothers (n = 40)	Control Mothers (n = 35)	Odds Ratio (95% CI)
Alcohol†	87.5	68.6	1.28 (0.99-1.64)
Cigarettes‡	90.0	40.0	2.25 (1.48-3.42)
Cocaine‡	90.0	. . .	. . .
Heroin‡	72.5	. . .	. . .
Marijuana‡	80.0	40.0	2.0 (1.29-3.09)
Amphetamines†	12.5	. . .	. . .
Barbiturates	2.5	. . .	. . .
Hallucinogens†	12.5	. . .	. . .

*Data are presented as percentage. Ellipses indicate that the value was not defined; CI, confidence interval.
†P<.05.
‡P<.01.

Table 3. Percentage of Children Witnessing Violence Outside the Home*

Type of Violence	Drug-Abusing Mothers (n = 40)	Control Mothers (n = 35)	Odds Ratio (95% CI)
Beating	45.0	31.4	1.43 (0.78-2.60)
Threatening with knife	7.5	11.4	0.66 (0.16-2.73)
Stabbing	. . .	2.9	. . .
Shooting	7.5	5.7	1.31 (0.23-7.40)
Any violent act	60.0	42.9	1.40 (0.88-2.21)

*Ellipses indicate that the value was not defined; CI, confidence interval.

Table 4. Percentage of Mothers and Their Partners Using Violence Inside the Home

	Drug-Abusing Mothers (n = 35)	Control Mothers (n = 30)	Odds Ratio (95% CI)*
Mother to partner			
Minor violence	37.1	43.3	0.86 (0.47-1.55)
Major violence	20.0	30.0	0.67 (0.28-1.57)
Partner to mother			
Minor violence	22.9	33.3	0.69 (0.31-1.51)
Major violence	17.1	30.0	0.57 (0.23-1.42)
Any minor violence	40.0	46.7	0.86 (0.49-1.49)
Any major violence	28.6	36.7	0.78 (0.39-1.58)

*CI indicates confidence interval.

Table 5. Group Means and SDs for Child Behavior Checklist and Stress Scores

	Children Witnessing No Violence (n = 28)	Children Witnessing Violence (n = 47)	Mean Difference (95% CI)*
Child behavior†			
Aggressive‡	44.8 ± 5.8	52.3 ± 10.6	−7.5 (−11.5 to −2.9)
Delinquent‡	44.8 ± 5.5	52.4 ± 10.9	−7.6 (−11.1 to −2.5)
Somatic problems	48.5 ± 9.2	49.9 ± 9.9	−1.4 (−5.4 to 3.8)
Withdrawn§	45.5 ± 6.6	51.3 ± 9.5	−5.8 (−9.3 to −1.2)
Anxious/depressed‡	45.6 ± 6.2	51.3 ± 9.2	−5.7 (−9.2 to −1.4)
Attention‡	45.2 ± 5.9	51.8 ± 10.7	−6.6 (−10.7 to −1.9)
Social problems‡	45.6 ± 6.3	52.1 ± 11.0	−6.5 (−11.0 to −1.8)
Thought problems	47.0 ± 7.7	50.9 ± 10.2	−3.9 (−8.2 to 0.8)
Child stress§			
Total stress score‖	18.2 ± 6.0	22.0 ± 8.2	−3.8 (−7.3 to −0.2)

*CI indicates confidence interval.
†T scores from the Child Behavior Checklist.[24]
‡P<.01.
§Total score from the Children's Response to Stress Inventory.[24]
‖P<.05.

ness violence than children of control mothers. Regardless of maternal substance abuse, 38% of the 6-year-old children had witnessed someone getting beaten up, 9% had witnessed someone being threatened with a knife, and 7% had witnessed a stabbing or shooting in the neighborhood. These results are similar to those of other studies[9] in which exposure to violence is reported separately for younger and older children. Many studies on children's exposure to violence group all children together regardless of age.[2,3]

The data in the present study indicate a high level of violence between adults in the home. Twenty-five percent of the mothers reported using major violence and 40% reported using minor violence against their partners. This supports previous research[9] that found a similar rate of minor and major violence among an inner-city population. Subsequent research needs to determine if violence witnessed in the home has different behavioral effects on young children than violence witnessed in the community.

Among the 6-year-old children in the present study, witnessing violence was associated with more behavioral problems and stress. Similar to other studies,[6,13,15,17] children who witnessed violence had significantly higher aggressive, delinquent, anxious/depressed, withdrawn, and stress scores than children who did not witness violence. Thus, witnessing violence had a detrimental effect on the young children's behavior.

The results in the present study must be interpreted with caution. First, the sample size was small. However, the percentage of children witnessing violence was similar to other studies. Second, only 42% of the control families who were mailed letters participated in the study. Thus, the sample of control families may not be representative of all non–drug-abusing inner-city families. Third, exposure to violence was based on maternal report. Previous research indicates discrepancies in reporting between parents and their young children[8]; parents may report lower rates than their children. There have also been questions about how truthful young children are and whether they discriminate between violent acts they have actually witnessed and those that they have only heard about.

Another limitation was the use of the CBCL to measure behavior in a sample that included drug-exposed children. Previous research indicates that school-aged children exposed to drugs in utero have more behavioral problems as measured by the CBCL than control children.[25] However, analyses in the present study indicated no significant differences between drug-exposed and control children on any CBCL scale or on the total stress score. Finally, half of the drug-exposed children (n=20)

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were involved in an intervention during the first 2 years of life. Among the drug-exposed children, analyses revealed no significant differences on the CBCL and Stress Inventory between children who received the intervention and those who did not.

In summary, more than 60% of the 6-year-old inner-city children in the present study had seen someone beaten up, threatened with a knife, stabbed, or shot. Witnessing violence was associated with more behavior problems and higher stress among the children. More longitudinal research is needed to examine the long-term effects of witnessing violence at such a young age.

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