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The Impact of Community Violence Exposure on Anxiety in Children of Mothers with Depression

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Abstract

The dual risk of exposure to community violence and maternal depression has potentially negative effects on children. This study examined whether social skills served as a protective factor for the impact of community violence exposure on anxiety within children of African American mothers with depression. Multiple regressions showed that community violence exposure was associated with less anxious coping but more physical symptoms. Findings support that younger children who view themselves as being socially skilled also exhibit higher levels of anxious coping. Implications addressing the importance of age, physical symptoms of anxiety, and anxious vigilance for interventions are discussed.

Keywords

community violence; anxiety; maternal depression; African Americans

Community violence exposure is a prevalent problem for many populations, with African American children being particularly at risk. Extensive research has shown that community violence exposure has significant deleterious effects on children's psychological adjustment, such as anxiety (Margolin & Gordis, 2000). There is mixed evidence concerning whether a child's age impacts his/her level of community violence exposure or psychological adjustment (Stein, Jaycox, Kataoka, Rhodes, & Vestal, 2003). Children exposed to both community violence and maternal depression may experience a cumulative risk for psychological disorders. In spite of the risks associated with community violence exposure, some children demonstrate adaptive outcomes. Identification of child factors that may attenuate the negative effects of community violence exposure is critical to inform intervention efforts.

Community Violence Exposure

Community violence is commonly experienced by children of all ages. Children who are impoverished, ethnic minority, or reside in urban neighborhoods have an increased likelihood of community violence exposure (Aisenberg & Herrenkohl, 2008; Stein et al., 2003). In a sample of 8- to 12-year-old children, 51% reported being slapped, punched or hit, whereas 70% witnessed violent acts such as these (Kliewer, Lepore, Oskin, & Johnson, 1998). In a study of inner-city high school students referred for mental health care, 93% knew a victim of violence, 77% witnessed violence, and 47% were victimized in their lifetime (Weist, Acosta, & Youngstrom, 2001).

There is mixed evidence concerning whether older children experience community violence at higher rates than younger children (Stein et al., 2003). Some studies have shown that increased age has been associated with greater community violence exposure (Aisenberg & Herrenkohl, 2008; Selner-O'Hagan, Kindlon, Buka, Raudenbush, & Earls, 1998; Weist et al., 2001). Bell and Jenkins (1993) found that although there was not a linear relationship between violence exposure and age among 7- to 15-year-old youth, older youth reported more victimization than younger youth. It has also been suggested that young adolescents may be more vulnerable to negative outcomes associated with violence exposure than older adolescents (Schwab-Stone et al., 1999).

Community violence is a chronic and cumulative stressor that has potential effects on children's health, school performance, and social functioning (Aisenberg, Trickett, Mennen, Saltzman, & Zayas, 2007; Jenkins & Bell, 1997; Pynoos, Steinberg, & Wraith, 1995). Negative outcomes associated with community violence exposure include general distress, anxiety symptoms, posttraumatic stress, and depressive symptoms (Cooley-Quille, Boyd, Frantz & Walsh, 2001; Fitzpatrick, 1993; Gorman-Smith & Tolan, 1998; Hawkins & Radcliffe, 2006; Martinez & Richters, 1993). Others include aggressive or delinquent behaviors and increased risk for substance abuse and dependence (Kilpatrick et al., 2000; Ruggiero et al., 2004). Among all these negative outcomes, there is substantial research documenting increased anxiety symptoms in children exposed to community violence (Cooley-Quille et al., 2001; Finkelhor, Ormrod, & Turner, 2007; Guerra, Huesmann, & Spindler, 2003).

Exposure to Community Violence and Maternal Depression

Similar to exposure to community violence, exposure to maternal depression has been shown to have serious psychological effects. Children of depressed mothers are at risk for depressive, anxiety, and behavioral disorders (Goodman & Gotlib, 1999). In a nationally representative study of kindergarten children, those exposed to both community violence and maternal depression had more negative effects on their cognitive ability and behavior compared to having only one risk factor (Silverstein, Augustyn, Cabral, & Zuckerman, 2006). A few studies have shown that maternal depression mediates the relationship between community violence exposure and child behavioral problems (Aisenberg et al., 2007; Linares et al., 2001). Given the negative effects associated with maternal depression and community violence exposure, this dual risk has potentially harmful effects.

Protective Factors for Community Violence Exposure

The field has recently begun examining protective factors for children exposed to community violence. Although community violence exposure poses an increased risk of psychological maladjustment, not all exposed children exhibit negative outcomes. A child's positive relationships with parents, ability to discuss violent events experienced with others, and capacity to regulate feelings have been shown to be protective factors on psychological functioning for children exposed to community violence (Kliewer et al., 2004; Ozer & Weinstein, 2004). Additionally, anxiety has been shown to attenuate the risk for witnessing

violence for aggressive adolescent males, which may be the result of anxious symptoms inhibiting males' exploration into harmful settings where community violence exposure may occur (Boyd, Cooley, Lambert, & Jalongo, 2003). Even with the current research on protective factors, our understanding is limited.

Good social skills have been identified as a potential protective factor for children experiencing adversity (Luthar, Cicchetti, & Becker, 2000). Nevertheless, there is a paucity of studies that have examined social skills as a protective factor for children exposed to community violence. A few studies have looked at poorer social skills as a negative consequence of community violence exposure. For example, in a sample of inner-city school children, community violence exposure predicted social difficulties with peers (Schwartz & Proctor, 2000). It has been postulated that the same social skills that assist children in coping with the effect of community violence exposure are likely to be associated with success in other important domains (Margolin & Gordis, 2000).

The study of protective factors that help children cope with community violence exposure has been identified as a research need in the field (Feerick & Prinz, 2003). The purpose of the current study was to examine the main and moderating effect of social skills on at-risk children who were exposed to community violence. Specifically, the study investigated the impact of community violence exposure and social skills on anxiety outcomes in children of African American mothers who were experiencing depression. It was hypothesized that greater exposure to community violence will increase anxiety. Good social skills were hypothesized to decrease anxiety symptoms. It was expected that social skills would also moderate the effects of the association between community violence exposure and anxiety symptoms. This sample of children is faced with multiple risks and, thus, it is important to gain knowledge about potential factors that lessen the impact of community violence exposure.

Method

Participants

Participants included 63 children of African American mothers with depression. Their ages ranged from 7 to 14 with a mean age of 11.2 ($SD = 2.2$) years. Their grades ranged from second to tenth with a mean grade of 5.71 ($SD = 2.2$). Fifty-nine percent ($n = 37$) of the sample was female. The majority of the children's race was described by their mothers as only African American (90%; $n = 57$), and the remaining 10% ($n = 6$) was described as bi-racial. Five percent ($n = 3$) of the sample also had Latino ethnicity. Sixty-three percent ($n = 40$) of the participants lived in households where they received public assistance. Seventy-three percent ($n = 46$) of the children lived in single parent households, and the remaining lived in two parent (9.5%, $n = 6$) or extended family households (17.5%, $n = 11$).

Procedure

This investigation was part of a larger study examining the transmission of depression between African American mothers and their offspring. Mothers were eligible for the study if they: (a) were African American; (b) had a primary current or past-year psychiatric diagnosis of Major Depressive Disorder, Dysthymic Disorder, or Depressive Disorder, Not Otherwise Specified; and (c) were the primary caregiver of a school age child who resided at least part-time with them. Ineligibility criteria included: (a) history of psychotic or bipolar disorder; (b) current or past year diagnosis of substance dependence; and (c) documented mental retardation. The only exclusion criterion for children consisted of documented mental retardation. Mothers participated in a diagnostic screening interview to determine their eligibility for the study. If the mother was determined to be eligible, she and one of her children participated in an assessment, which consisted of a battery of questionnaires read aloud by research staff. Both

mother and child received \$20 to complete the assessment, which lasted approximately 1.5 hours. Written consent was collected from the mother and assent was collected from the child. This study was approved by the Institutional Review Boards of the Children's Hospital of Philadelphia, the University of Pennsylvania, and the Philadelphia Department of Public Health.

Measures

The Children's Report of Exposure to Violence (CREV; Cooley, Turner, & Beidel, 1995) is composed of 29 items that are scored and rated on a 5-point Likert scale. It assesses frequency of lifetime exposure to community violence through four modes: media, reported or heard about, witnessed, and direct victimization. The CREV has good 2-week test-retest reliability ($r = .75$), internal consistency ($\alpha = .78$), and construct validity (Cooley et al., 1995). The total lifetime score was used in the present study.

The Multidimensional Anxiety Scale for Children (MASC; March, Parker, Sullivan, Stallings, & Conners, 1997) is a 39-item self-report instrument that measures a broad range of anxiety symptoms in youth. Items are scored using a 4-point Likert scale. The MASC has strong test-retest reliability (.70 to .93 during a 3-month interval), internal consistency (interclass correlations from .60 to .90), and ample evidence of convergent and divergent validity with both clinic and community samples (e.g., March et al., 1997; March, Sullivan, & Parker, 1999). The MASC total, Physical Symptoms scale, and Anxious Coping subscale T-scores were used in the present study. The Physical Symptoms scale includes items related to feelings of tense and restlessness (e.g., I feel tense or uptight, I feel restless and on edge) and somatic/autonomic arousal (e.g., I have trouble getting my breath, I feel sick to my stomach). The Anxious Coping subscale includes items related to harm avoidance behaviors (e.g., I keep my eyes open for danger, I stay away from things that upset me).

The Social Skills Rating System (SSRS; Gresham & Elliott, 1990) assesses children's social skills (i.e., cooperation, assertion, responsibility, empathy, and self-control). SSRS has child-report and parent-report measures for developmental levels. For child-report, there are 34 items for children in grades 3 through 6 (elementary level) and 39 items for children in grades 7 through 12 (secondary level). Norms have been established for males and females in grades 3-12. It has good internal consistency ($\alpha = .83$) and adequate four-week test-retest reliability ($r = .68$). For parent report, there are 52 items for children in grades K through 6 (elementary level) and 55 items for children in grades 7 through 12 (secondary level). Parent report measures for children from kindergarten to 12th grade demonstrate adequate reliability and validity (Gresham & Elliott, 1990). For purposes of the present study, total standard scores were aggregated across elementary and secondary levels for both child and parent reports. The use of the standard score is based on normative data by gender and grade and provides an equivalent metric across the multiple versions of the SSRS (Gresham & Elliott, 1990).

Data Analytic Plan

The goals of the analyses were to examine the effects of community violence exposure on child's anxiety and the moderation of this effect by social skills. Preliminary analyses were based on descriptive statistics entailing percentages of participants exposed to specific types of community violence and means and standard deviations of lifetime violence exposure, child and parent report of social skills, total anxiety, anxious coping and physical symptoms. Bivariate associations among study variables (see Table 1) and potential confounding variables (i.e., age and gender) were analyzed with Pearson correlations. A sequence of multiple linear regressions was performed separately for Anxious Coping and the Physical Symptoms of the MASC as the dependent variables. The MASC total score was not used because, in the analyses undertaken, it was not correlated with community violence exposure. Parent report of child's

social skills was not used in the regression analyses because it was not correlated with either dependent variable, leaving the child report of social skills as the variable used. Gender was not used in the regression analyses because it was not correlated with community violence exposure ($r = .11$, $p = .39$) and thus was not a confounder (see Rothman & Greenland, 1998). Significant Pearson correlations supported the addition of child's age to the regression analyses (see Table 1). To assess confounding and moderation by child social skills and age of the community violence effect on each dependent variable, the independent variables were entered separately in the following order: (a) community violence exposure, (b) child report of social skills, (c) child's age, (d) the interaction of community violence exposure and child report of social skills to test for moderation, (e) the interaction of community violence exposure and age, and (f) the interaction of child social skills and age. The first interaction involving the moderation of the effect of community violence exposure by child social skills was an a priori analysis, whereas the latter two interactions were post hoc exploratory analyses to test for confounding and moderation of effects by child's age. This step-wise strategy is based on the standard assessment of confounding of the covariate-outcome association by age that is well known in the epidemiological literature (see Rothman & Greenland, 1998).

Results

Descriptive Statistics and Correlations among Study Variables

Means, standard deviations, and Pearson correlations of all study variables are presented in Table 1. All children (100%; $n = 63$) reported exposure to community violence within their lifetime. Specifically, 100% ($n = 63$) experienced media violence, 91.5% ($n = 57$) heard about violence, 83% ($n = 55$) witnessed violence, and 54% ($n = 34$) were victimized. Males and females had similar levels of total lifetime exposure to community violence.

Tests of Moderated Effects

Tables 2 and 3 present the results of each sequence of multiple regressions and the variables entered at each step; the percentage of variance accounted for at each step; and the amount of change in R^2 at each step. Table 2 shows that community violence exposure was negatively and marginally associated with anxious coping ($B = -.16$, $SE = .09$; $p = .09$). When child report of social skills was added into the model with community violence exposure, social skills were positively associated with anxious coping and the main effect of community violence exposure became significant ($B = -.18$, $SE = .08$; $p = .04$). When child's age was added into the model with community violence exposure and social skills, age was negatively associated with anxious coping and the effect of community violence exposure on anxious coping was lost ($B = -.07$, $SE = .09$; $p = .44$). Hence, age may be a confounder of the relationship between community violence exposure and anxious coping. The interaction between social skills and community violence exposure was not significant, indicating that social skills do not moderate the community violence-anxious coping association. The interaction between age and community violence exposure was not significantly associated with anxious coping ($p = .52$), suggesting that age is only a confounder but not a moderator of the community violence-anxious coping association.

Additionally, Table 2 shows that the interaction between age and child report of social skills was significant ($B = -.08$; $SE = .04$; $p = .05$), indicating child's age is a moderator of the social skills-anxious coping association. The plot of this significant interaction (see Figure 1) revealed a stronger relation between anxious coping and social skills for younger children but a weaker relation between the two variables for older children. It appears that younger children who view themselves as being socially skilled also exhibit higher levels of anxious coping.

Table 3 displays the regression analyses showing that community violence exposure and child's age exhibited significant associations with physical symptoms, while social skills did not. Community violence exposure was positively associated ($B = .25$, $SE = .08$; $p < .01$), whereas child's age was negatively associated with physical symptoms of anxiety ($B = -2.06$, $SE = .75$; $p = .01$). Age in this case does not appear to be a confounder of the community violence-physical association. In addition, neither social skills nor age moderated the community violence-physical symptoms association (p 's $> .30$).

Discussion

There is a paucity of research concerning community violence exposure of children of mothers with depression. This study sought to contribute to the empirical evidence on these at-risk children and the factors that may protect them from experiencing higher levels of anxiety due to community violence exposure. The findings demonstrated partial support for social skills affecting anxiety outcomes in children of depressed mothers who were exposed to community violence.

The findings showed that children who view themselves as having high levels of social skills also view themselves as having high levels of anxious coping. In this sample, this was particularly the case for younger children, who exhibited less community violence exposure and more anxiety coping. Generally, anxious coping is considered a negative outcome and an unproductive way of coping with normal situations. The results suggested that anxious coping might be an adaptive way to deal with dangerous and violent environments by increasing caution to avoid unsafe situations. Two related studies showed that anxiety attenuated the association between acting aggressively and witnessing community violence for middle school boys (Boyd et al., 2003; Lambert, Ialongo, Boyd, & Cooley, 2005). Lambert et al. (2005) recommended that cultural context must be considered in interpreting anxiety as a protective factor for community violence exposure because optimal anxiety level and adjustment may vary depending on a child's culture and environment.

The results showed that community violence exposure significantly and positively predicted anxiety-related physical symptoms. Another study showed that both mother and child report of neighborhood violence was associated with child physical symptoms in 6- to 11-year-old African American children and this association appeared stronger than the association with internalizing symptoms (Jones, Foster, Forehand, & O'Connell, 2005). A study in African American adolescents found that anxiety-related physical symptoms significantly predicted overall anxiety six months later and the authors recommended examining whether community violence exposure plays a role in the expression of physical symptoms (Kingery, Ginsburg, & Alfano, 2007), which the current study addressed.

In the current study, age demonstrated significant relations with community violence exposure, anxiety, and social skills. The age range of 7-14 years spans three developmental periods, which may explain the potency of age in this study. For example, age confounded the association between community violence exposure and anxious coping in the regression model. In another study, Weist et al. (2001) found that age significantly predicted violence exposure in clinically referred adolescents. Little is known about whether children's reactions to violence vary according to age or developmental status (Horn & Trickett, 1998). Our findings suggest that older children might become desensitized to community violence exposure, whereas younger children might develop physical symptoms and a vigilant coping style. One possible explanation is that older children have learned to shut down their vulnerable feelings (e.g., anxiety, fear, hurt) in order to establish a higher status among peers and to better cope with any violent threat.

Similar to the finding of a lack of an age-adjusted association between community violence exposure and total anxiety symptoms, other studies have found a lack of a direct relation between violence exposure with internalizing problems and emotional distress (Cooley-Quille, Turner, & Beidel, 1995; Farrell & Bruce, 1997). It has been argued that children may become desensitized to community violence and, thus, do not exhibit psychological reactions (Cooley et al., 2001). However, the present results suggest that anxiety can be manifested in multiple forms and that future research should carefully examine the types and intensity of anxiety that community violence exposure impacts.

Unlike the variable of child report of social skills, the variable of parent report of child social skills was not correlated with anxiety symptoms. In addition, parent and child report of social skills were not correlated. This lack of findings may reflect method variance in parent and child reports. Additionally, mothers with depression have been reported to have a reporting bias, such as an overreport of children's behavior problems (Chilcoat & Breslau, 1997); this factor could influence the association between child and parent report of similar and different domains.

There are several limitations to the current study. The sample size is relatively small, although we were able to achieve statistically significant main effects and interactions in our regression and correlation models. Additionally, because there is no control group of children of non-depressed mothers, this study cannot compare the impact of community violence exposure on children with and without exposure to maternal depression. Nevertheless, the sample is unique, being that there is a dearth of research on community violence exposure of children of clinically depressed mothers. Another limitation is that community violence exposure and anxiety were assessed by child-report alone. In this regard, the use of a clinical interview to assess children's anxiety diagnoses would have strengthened our understanding of anxiety outcomes in the sample. Although the assessments used in this study are common for the field and parent report of social skills was gathered, future studies should use multiple-reporter and multiple-method assessments.

Implications for Interventions

These findings have implications for interventions aimed at children exposed to community violence. Age-appropriate interventions should be developed to meet the needs of children at different developmental stages. The impact of community violence exposure likely varies depending on a child's age, and therefore interventions must be developmentally appropriate for a child in regards to both their exposure and their response. In addition, anxiety-related physical symptoms emerged as a response to community violence exposure, and therefore should be addressed in interventions. Strategies such as relaxation training and increasing awareness about physical responses to anxiety are commonly used in cognitive-behavioral interventions for anxiety and may be effective with children experiencing anxiety in response to community violence exposure. These strategies have been successfully included as components within interventions aimed at community violence exposed school children that demonstrated decreases in anxiety and posttraumatic stress (Cooley, Boyd, & Grados, 2004; Stein, Jaycox, Kataoka, Wong, et al., 2003). For adolescents who have learned to cope with community violence exposure by desensitizing their negative emotional response, interventions that focus on emotional regulation or posttraumatic stress may find increasing awareness of physical symptoms particularly helpful to access traumatic experiences. Furthermore, interventions should be flexible to allow for heightened, but non-clinical levels of anxiety that may prompt children to avoid certain areas, activities, peer groups, and behaviors that put them at further risk for community violence exposure or its consequences, such as homicide. Finally, interventions for community violence exposure will likely include children who have also been exposed to maternal depression and therefore the impact of maternal

depression on their psychological functioning and response to interventions may need to be addressed.

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Figure 1.
Plot for Interaction of Child Report of Social Skills and Age on Anxious Coping

Table 1
Correlations, Means and Standard Deviations of Study Variables

Variables	1	2	3	4	5	6	7
1. Age	----						
2. MASc total score (T scores)	-.42**	----					
3. MASc Physical Symptoms (T scores)	-.15	.73**	----				
4. MASc Anxious Coping (T scores)	-.42**	.55**	.23	----			
5. CVE	.49**	.00	.35**	-.24	----		
6. SSRS-P standard score	-.03	-.09	-.12	.23	-.17	----	
7. SSRS-C standard score	-.10	.18	.06	.43**	.08	.11	----
Mean (M)	11.19	49.23	49.63	55.55	28.54	89.05	101.80
Standard Deviation (SD)	2.12	18.03	11.18	12.21	17.56	15.90	19.17

Note. MASc = Multidimensional Anxiety Scale for Children, CVE= Community Violence Exposure, SSRS-P = Social Skills Rating System-Parent Report, SSRS-C= Social Skills Rating System-Child Report.

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p < 0.01 two tailed

Table 2
Multiple Regressions of Anxious Coping

Variable	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
	B(SE)	p	B(SE)	p	B(SE)	p	B(SE)	p	B(SE)	p	B(SE)	p
CVE	-0.16(0.09)	0.09	-0.18(0.08)	0.04	-0.07(0.09)	0.44	0.34(0.44)	0.44	0.48(0.70)	0.49	-0.64(0.89)	0.47
SSRS-C			0.28(0.08)	0.00	0.25(0.07)	0.00	0.35(0.13)	0.01	0.36(0.13)	0.01	1.11(0.40)	0.01
AGE					-2.03(0.77)	0.01	-2.18(0.79)	0.01	-1.89(1.39)	0.18	6.03(4.23)	0.16
CVE × SSRS-C							-0.00(0.00)	0.35	-0.00(0.00)	0.34	0.00(0.01)	0.67
CVE × AGE									-0.01(0.04)	0.80	0.03(0.04)	0.52
SSRS-C × AGE											-0.08(0.04)	0.05
R^2	0.05		0.25		0.34		0.35		0.35		0.40	
ΔR^2			0.20		0.09		0.01		0.00		0.05	

Note. MASC= Multidimensional Anxiety Scale for Children, CVE= Community Violence Exposure, SSRS-C= Social Skills Rating System-Child Report.

Table 3

Multiple Regressions of Physical Symptoms

Variable	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
	B(SE)	p	B(SE)	p	B(SE)	p	B(SE)	p	B(SE)	p	B(SE)	p
CVE	0.25(0.08)	0.00	0.25(0.08)	0.00	0.35(0.08)	0.00	0.08(0.43)	0.86	0.62(0.67)	0.36	0.59(0.88)	0.51
SSRS-C			0.02(0.07)	0.76	-0.01(0.07)	0.90	-0.08(0.13)	0.54	-0.06(0.13)	0.64	-0.03(0.40)	0.93
AGE					-2.06(0.75)	0.01	-1.95(0.77)	0.01	-0.80(1.33)	0.55	-0.53(4.21)	0.90
CVE × SSRS-C							0.00(0.00)	0.51	0.00(0.00)	0.67	0.00(0.00)	0.71
CVE × AGE									-0.04(0.04)	0.29	-0.04(0.04)	0.37
SSRS-C × AGE											-0.00(0.04)	0.95
R^2	0.15		0.16		0.26		0.27		0.28		0.28	
ΔR^2			0.00		0.11		0.01		0.02		0.00	

Note. MASC= Multidimensional Anxiety Scale for Children, CVE= Community Violence Exposure, SSRS-C= Social Skills Rating System-Child Report.