The Effects of Community and Family Violence Exposure on Anxiety Trajectories During Middle Childhood: The Role of Family Social Support as a Moderator

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The Effects of Community and Family Violence Exposure on Anxiety Trajectories During Middle Childhood: The Role of Family Social Support as a Moderator

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This 2-year longitudinal study investigated the relations between community and school violence exposure, witnessing intimate partner violence (IPV), family social support, and anxiety, within a sample of 100 school-age children (39% female, \( M_{	ext{age}} = 9.90 \) years). Using multilevel modeling, we found heterogeneity across children in terms of their initial levels of anxiety and their trajectories of anxiety over time. Initial community and school violence exposure and witnessing IPV were both positively associated with initial levels of anxiety. Over time, change in both community and school violence exposure and witnessing IPV positively covaried with anxiety. Further, gender, initial family social support, and change in family social support significantly moderated the effect of change in community and school violence exposure on anxiety.

Children and adolescents are exposed to violence in their families, schools, and communities at a startling rate. Over the last 10 years, researchers have begun to focus on youths’ witnessing of intimate partner violence (IPV) between adults within the family, in particular, as an important form of violence in its own right. IPV refers to multiple behaviors within the family, including physical assault, sexual assault, and psychological abuse; women are overwhelmingly the victims (Catalano, 2006). Although parents typically believe that their children are shielded from exposure to IPV, research findings indicate otherwise. In fact, research suggests that children frequently watch the abuse or hear it, they observe its aftermath (e.g., crying or injuries), and in a sizable percentage of cases they are actually physically involved and may be injured themselves (Edelson, 1999; Fantuzzo, Boruch, Abdullah, Atkins, & Marcus, 1997; Kitzmann, Gaylord, Holt, & Kenny, 2003; Margolin & Gordis, 2000). These findings suggest that witnessing IPV may place children at risk for trauma-related problems.

Children’s witnessing of and victimization by violence in urban communities is quite prevalent in the United States, with the vast majority of children reporting witnessing relatively less severe forms of community violence such as seeing someone arrested or assaulted, and one fourth to two thirds witnessing murder or being beaten or robbed themselves (Buka, Stichick, Birdthistle, & Earls, 2001; Kliwer, Lepore, Oskin, & Johnson, 1998; Luthar & Goldstein, 2004; Youngstrom, Weist, & Albus, 2003). For many children in urban settings, community violence is not an acute event but rather a chronic, enduring part of life (Aisenberg & Ell, 2005; Hill & Madhere, 1996). Exposure to community violence in suburban or rural settings has been less commonly explored. A study of suburban middle school-age children attending a private school found the rate of witnessing and victimization to be similar to that of urban children, though less severe: 70% of the sample reported at least one incident of community violence.
victimization within the past year, defined as being hit, chased, mugged, or wounded (Kuther & Fisher, 1998). Studies of youths’ exposure to community and school violence in rural settings reveal a similar pattern: 32 to 59% reported seeing someone being beaten up at school or in the community; 11 to 13% witnessed someone being shot; and 20 to 40% reported being slapped, hit, or punched at school or in the community (Slovak & Singer, 2002; Sullivan, Kung, & Farrell, 2004).

Witnessing family violence and community violence exposure among children and adolescents do not appear to be randomly distributed events. In fact, there is growing evidence that violence exposure tends to co-occur, with experiences of violence in one context (e.g., the family) linked with experiences of violence in other contexts (e.g., the neighborhood or school; Finkelhor, Ormrod, & Turner, 2007; Hanson et al., 2006; Hughes, Humphrey, & Weaver, 2005; Lynch & Cicchetti, 1998; Mrug, Loosier, & Windle, 2008; Osofsky, Pewers, Hann, & Fick, 1993). For example, findings from the National Survey of Adolescents suggest that witnessing IPV within the family is associated with a 5.4 increase in the odds of witnessing community violence among youths (Hanson et al., 2006). Within families where IPV or child abuse is present, the likelihood of co-occurring violence exposure among the children may be even higher. Results from the Navy Family Study, a longitudinal study of families referred to authorities for IPV or physical abuse of the children, indicated that a majority of the children (69%) reported exposure to more than one type of violence, with 79% of those who witnessed IPV within the family (just less than half of the total sample) also reporting exposure to community violence (Saunders, 2003).

Witnessing IPV and community violence exposure have both been associated with myriad poor outcomes among youth, including internalizing problems such as depression and anxiety, externalizing problems such as aggression, academic problems, posttraumatic stress disorder, drug use initiation, and reduced social competence (Buka et al., 2001; Edelson, 1999; Hill & Madhere, 1996; Kitzmann et al., 2003; Kliwer et al., 2004; Margolin & Gordis, 2000; Sullivan et al., 2004; Wolfe, Crooks, Lee, McIntyre-Smith, & Jaffe, 2003; Youngstrom et al., 2003). Specifically, children’s witnessing of IPV, particularly when they experience high levels of fear and threat during the violent episodes, has been associated with difficulties in emotion regulation, increased physiological arousal coupled with higher cortisol levels, and heightened self-blame which in turn is associated with internalizing problems such as anxiety (Cummings & Davies, 2002; Morris, Silk, Steinberg, Myers, & Robinson, 2007; Saltzman, Holden, & Holahan, 2005). Exposure to community violence among children can lead to the development of intrusive thoughts, which in turn lead to increased risk of developing anxiety or depression symptoms (Kliwer et al., 1998).

In addition, community violence not only affects children but also may have effects on the parents as well, by taxing their resources and supports, creating additional stress, engendering mistrust among neighbors, and eroding the social capital of communities (Aisenberg & Ell, 2005). These effects may in turn negatively affect how parents in these communities interact with their children, thus further contributing to the likelihood of poor outcomes for the children and compounding the direct effects of their exposure to community violence. Finally, internalizing symptoms tend to predict heightened future risk. That is, children in middle childhood diagnosed with one type of anxiety disorder are likely to experience either a second anxiety disorder or another affective disorder, such as depression, with childhood anxiety disorder highly predictive of later anxiety disorder (Grover, Ginsburg, & Ialongo, 2005; Kovacs & Devlin, 1998).

Although the research literature suggests that both exposure to community violence and witnessing IPV are associated with heightened risk for poor outcomes among youths, two critical points are worth noting. First, there is a great deal of heterogeneity in terms of children’s responses to experiencing violence. For example, in Kitzman and colleagues’ (2003) meta-analysis of the research on children’s witnessing of IPV, the authors note that the average effect size found across 118 studies indicates that approximately two thirds of children who had not witnessed IPV, meaning that one third were faring more poorly than comparable children but who had not witnessed IPV, meaning that one third were faring equivalently or better. How can results like these be explained and understood? Second, as already mentioned, emergent research suggests that children’s experiences with violence in the community and in the home are oftentimes positively associated. Thus, it is possible that poor outcomes attributed to one type of violence exposure may in fact be because of experiences with two or more kinds of violence. How can we begin to assess for co-occurring violence exposure and develop an understanding of its complex effects on children?

A developmental, risk and resilience perspective is critical in addressing these questions. Bronfenbrenner’s (1979) work on the ecology of human development established the importance of examining child development as a transactional process within the context of multiple, interacting systems such as the family, community, and school. Building on this work, risk and resilience researchers have begun to explore the risks that children face across different systems, as well as the levels of resilience, defined as adaptive, competent functioning in different domains (e.g., emotional, academic, and interpersonal), despite exposure to multiple risks (Luthar, Cicchetti, & Becker, 2000). By examining these
processes in relation to different developmental stages, assessing for categories of risk across different contexts, and elucidating the role of protective factors such as social support in moderating the effects of risk exposure on a variety of outcomes, researchers are developing a better understanding of both co-occurring risks and heterogeneous outcomes among children. In our study, this theoretical foundation provided guidance in terms of the need to examine co-occurring violence exposure across the two systems levels of family and community, the recognition that exposure to violence in these two systems may each be related to increases in children’s anxiety, and the importance of understanding the role that perceived family social support may play, over time, in buffering the effects of violence exposure on anxiety.

As interest has grown both in mapping out the generative mechanisms linking exposure to violence with different predictors and outcomes, and in examining the role of protective factors, researchers have begun to examine the ways in which family-level variables such as family social support may moderate the effects of violence exposure on children’s mental health outcomes. Because almost no studies exist which examine family social support as a moderator of the effects of witnessing IPV on children’s mental health outcomes (for an exception, see El-Sheikh & Elmore-Staton, 2004), the following discussion focuses on family social support in relation to exposure to community violence. Researchers theorize that family social support is critical in helping children exposed to community violence effectively process their experiences: By having a loving, receptive adult or other family member available to talk with about the violence exposure, children can reduce their feeling of threat, make sense of and gain mastery over the experiences, and develop adaptive coping strategies (Kliewer et al., 2004; Overstreet, Dempsey, Graham, & Moely, 1999). These positive changes can in turn contribute to a reduction in the risk of developing anxiety, depression, or posttraumatic stress disorder, relative to children with little or no family social support. In this way, family social support can serve as a protective factor for children exposed to violence: Although support from one’s family cannot eliminate violence in the community, it can act to buffer the effects of the exposure.

Although this understanding of the protective role of family social support has intuitive appeal, research findings indicating the presence of a significant moderating relationship have been somewhat equivocal. The mixed findings may be, at least in part, because of differences in the way that family social support has been conceptualized and measured (e.g., perceived support vs. actual support vs. a proxy for support such as presence of a mother in the home). Some studies have been unable to demonstrate perceived family social support as a significant moderator of the effects of community violence exposure on internalizing symptoms in children but have identified it as a main effect, such that increased support was negatively associated with anxiety (Hill & Madhere, 1996; Kliewer et al., 2004; Youngstrom et al., 2003). Other findings have indicated perceived family social support as a significant moderator of the effects of other types of risk (e.g., a cumulative risk index or earlier anxiety scores), but not community violence exposure, on children’s current internalizing symptoms (White, Bruce, Farrell, & Kliewer, 1998; Youngstrom et al., 2003). In contrast, some researchers have found family social support to be a significant moderator of the effects of community violence exposure on children’s internalizing problems. In their cross-sectional study, Overstreet and colleagues (1999) found that the presence of a mother in the home, conceptualized as a proxy for family social support, moderated the effects of community violence exposure on youths’ depression. Among the children with high levels of community violence exposure, those with their mother present had lower depression scores compared with those without a mother. Kuther and Fisher’s (1998) study indicated that perceived family social support was a significant moderator of the effects of community victimization on levels of distress (a composite including hopelessness and anxiety scores) such that, among the participants who perceived their families as supportive, victimization was not related to severe distress.

Kliewer and colleagues (1998) found that the children in their sample who had high community violence exposure coupled with either low perceived family support or high social strain (defined as being prevented from talking about violence with others because their social network is uncomfortable or resistant to such discussions) had increased levels of intrusive thinking, which in turn predicted increased levels of internalizing symptoms. Finally, Hammack and colleagues (2004) examined the relationships between children’s community violence witnessing and victimization, family-level supports such as maternal closeness and perceived social support, and depression and anxiety, both cross-sectionally and longitudinally. Their findings indicated that, at Time 1, maternal closeness was a significant moderator of the effects of witnessing community violence on school-age girls’ anxiety. Among those girls with high levels of witnessing, those with high maternal closeness had lower anxiety scores compared with those with low maternal closeness. Longitudinally, among girls who experienced high levels of witnessing at Time 1, those who also reported high levels of time with family at Time 1 had lower anxiety scores at Time 2, in comparison to those with high witnessing and low levels of time with family at Time 1. Among the girls, the authors found no
significant moderating effects in terms of community violence victimization, family-level factors, and anxiety; among the boys, they did not find any interactive effects in terms of anxiety, either cross-sectionally or longitudinally. Though the authors did find gender interaction effects in a few models, most of their 32 models revealed no gender effects; they did not speculate on precisely how gender may play a moderating role.

To summarize, these preliminary results suggest at least some sort of positive role for family social support in moderating the effects of community violence exposure on children’s mental health outcomes, more research is needed to further understand the role of family social support. Therefore, the purpose of our study was to examine the relationships between exposure to community and school violence, witnessing IPV, perceived family social support, and anxiety within a diverse, longitudinal sample of school-age children. The following research questions guided the study:

1. What are the effects of exposure to community and school violence and witnessing IPV, initially and over time, on both the children’s initial anxiety and their trajectories of anxiety over time?
2. Does perceived family social support moderate the relationship between community and school violence exposure and increased anxiety, and witnessing IPV and increased anxiety, both initially and over time? If yes, what is the nature of the moderation effect(s)? Are there differences by gender?

Our study makes several important contributions to the research literature. Most of the studies examining community violence exposure among youths have used a cross-sectional approach and focused on community samples of African American adolescents living in large urban areas. This study examined a group of school-age children from a midsized city, living in families in which IPV has occurred, using a longitudinal design with six time points across 2 years. A longitudinal approach with at least three time points is ideal for examining both the patterns of effects of different risks on children’s mental health outcomes and the role of moderating or buffering variables (Willett, Singer, & Martin, 1998). In addition, reflecting the emergent research on co-occurring violence exposure, particularly among children who have witnessed IPV, we examined two types of violence, enabling us to control for exposure to one type as we examined the effects of the other on anxiety. Finally, we defined community violence as including both neighborhood and school-related experiences, in keeping with the school as a key context for preadolescent children (Huston & Ripke, 2006), and we used an expanded definition of family social support that included perceived support from multiple family members, rather than just the mother.

METHOD

Participants

The participants were part of a larger, 2-year longitudinal study that examined the lives of women who had experienced IPV, as well as the lives of their children. The larger study (N = 160 families) was designed to evaluate the effectiveness of a 4-month advocacy intervention provided to the women and children. Families were randomly assigned to receive either the advocacy intervention (an assigned advocate for each of the mothers and a psychoeducational support group for the children) or services ordinarily available in the community. Although the intervention was not found to have significant effects on any of the variables examined here, the experimental condition to which families were assigned was included as a control variable. To be eligible for the study, a woman had to have at least one school-age child willing to participate, to have experienced physical violence from a partner during the 4 months prior to enrollment in the study, and to agree to be interviewed six times over 2 years. If a family had more than one child who was interested in participating, a target child was chosen randomly for inclusion in the study. Of the 160 target children, 100 were age 8 or older and were able to complete the full battery of scales at the first interview. This group of older children comprised the sample for our study. Retention rates for this sample (N = 100) were above 80% at each time point: 81%, 84%, 83%, 82%, and 81%. Data were obtained at all six time points for 62% of the children, at five time points for 19%, at four time points for 4%, at three time points for 4%, at two time points for 5%, and at one time point for 6% of the children.

At the family level, 66% of the participating women reported receiving some type of governmental assistance for the family such as Temporary Assistance for Needy Families, Medicaid, or food stamps, with 54% reporting current employment at the time of initial recruitment into the study. At the initial interview, 41% of the women were divorced or legally separated from the assailant, with 7% currently married to the assailant, 11% dating the assailant, and 3% maintaining a friendship with the assailant. Within the sample of target children age 8 or older, 45% were African American at the initial interview. 29% were White, 23% were multiracial, and 3% were Hispanic, 39% were female, 44% were in the intervention group, and the average age at the initial interview was almost 10 years old (M = 9.90, SD = 1.48, age range = 8–12, with one child who turned 13 right before the initial interview included in the sample).

Procedure

Families were recruited from three community-based sites in a midsize Midwestern city: a social services
agency that provided support to women who had experienced IPV following police involvement (42%), a domestic violence shelter (32%), and the county prosecutor’s office responsible for issuing personal protection orders (26%). The initial interview was conducted approximately 2 to 3 weeks after recruitment. To avoid interviewing families in acute crisis, women recruited from the residential shelter were not interviewed until after they had left the shelter. For the children to participate in the study, their mothers had to provide consent and they had to assent to participation. The study was approved by the university’s Institutional Review Board. Interviews with each child were conducted privately in the home by female undergraduate students who had undergone substantial training in conducting child interviews. The interviews were audio-taped, and ranged from an average length of 65 to 97 minutes at each time (SDs = 18–31 min). The children were compensated with their choice of $5 or a toy worth $5 at the initial interview; at all subsequent interviews they chose $10 or a toy worth $10 for their compensation for each interview.

With a small number of cases, the child changed residences during the course of the study (e.g., moved into foster care or to a grandparent’s home). Extensive efforts were made to maintain contact and continue the interview schedule over the 2 years. During the 1st year of the study, follow-up interviews (time points 2, 3, and 4) were scheduled at 4-month intervals to adequately capture the changes following the 4-month intervention period. During the 2nd year of the study, the remaining interviews (time points 5 and 6) were scheduled at 6-month intervals. To characterize this range of time intervals and accurately calibrate change over time, we computed a time variable to reflect the number of months from the initial interview to each subsequent interview; time was centered at zero on the date of the first interview.

Measures

Witnessing IPV. Participants’ exposure to their mothers’ abuse by the assailant during the previous 4 months was assessed using a four-item Child Report of Witnessing IPV scale (Allen, Wolf, Bybee, & Sullivan, 2003). The children were asked if they had seen or heard the assailant yell at their mother (reported at Time 1 by 80%), call her names or say things to make her feel bad (reported at Time 1 by 74%), threaten to hurt her (reported at Time 1 by 59%), or physically hurt her (e.g., grab, slap, punch, or kick her; reported at Time 1 by 58%) since the last time they had been interviewed. Children reported the frequency of their exposure to each item using a 7-point Likert-type scale ranging from 1 (never) to 4 (2 or 3 times per month) to 7 (more than 4 times a week); the items were then averaged. Internal consistency across the six interviews ranged from .78 to .92.

Exposure to community and school violence. Participants’ exposure to violence in their school and community was assessed using a modified version of the Richters and Martinez (1990) “Things I Have Seen and Heard” scale. The original scale included 20 items assessing for witnessed, heard, and experienced community and family violence exposure; for this study, 7 items from the scale that focus on community violence were used, ranging from less severe hearing (e.g., “I have heard guns being shot in my neighborhood,” reported at Time 1 by 55%) to more severe witnessing (e.g., “I have seen someone get stabbed,” reported at Time 1 by 8%) to more severe experiencing (e.g., “I have been beaten up or attacked in my neighborhood,” reported at Time 1 by 12%). In addition to these items, 6 parallel items that assessed participants’ experiences with school violence were included (e.g., “I have seen someone else get beaten up or attacked at school,” reported at Time 1 by 26%, and “I have been beaten up or attacked at school,” reported at Time 1 by 34%). The frequency of participants’ exposure to each type of violence was reported using a 4-point Likert-type scale ranging 1 (never), 2 (a little), 3 (sometimes), and 4 (a lot); scores were averaged across the 13 items. The original scale has demonstrated good test–retest reliability with a sample of young, poor, predominantly African American children (r = .81; Richters & Martinez, 1993). In our study, internal consistency for the modified scale across the six interviews ranged from .65 to .81.

Family social support. Participants’ level of perceived social support from family members was assessed using a modified version of the Seidman et al. (1995) Social Support Microsystem Scale. The original scale assessed for the presence of various people in youths’ lives (e.g., parents, siblings, peers). If the person was present in their lives, they were then asked to indicate how much fun they had with this person and to rate this person’s helpfulness. The question about fun was included to assess for the level of youths’ perceived satisfaction with the provided support, in addition to the instrumental support tapped by the helpfulness question. In our study, participants were asked if six different types of family members, ranging from their mother and father (if he was not the assailant) to their cousins, were important to them. If yes, the participants were then asked to rate each person in terms of how much fun it was to be with the person, and how helpful the person was when the child was sad or upset. The level of fun and
helpfulness for each important support person was assessed using a 4-point Likert-type scale, ranging 1 (not at all), 2 (a little), 3 (somewhat), and 4 (a lot), and averaged to yield a composite score. The original scale demonstrated adequate internal consistency within a diverse sample of 998 school-age children and adolescents (Cronbach’s $\alpha = .75$) and has been commonly used to assess for perceived social support among youths (e.g., Holt & Espelage, 2007; Ozer & Weinstein, 2004). Estimation of internal consistency for the Family Social Support scale was complicated by variability across children in the types of family members that were present in their lives, resulting in nearly all cases having nonapplicable scores on some items. To allow the estimation of Cronbach’s alpha for an overall Family Social Support scale, we adopted a strategy suggested by Enders (2003), using expectation maximum algorithms to estimate likely rating values for nonapplicable items, given the valid ratings that were obtained from each participant. Across the six time points, estimated internal consistency ranged from .67 to .85. Imputation was not used for the substantive analyses. Instead, family social support scores were computed as the mean of the valid, applicable items that were rated by each participant.

**Anxiety.** The Total Anxiety score of the Revised Children’s Manifest Anxiety Scale was used to assess participants’ anxiety (Reynolds & Paget, 1983). The Revised Children’s Manifest Anxiety Scale was designed to assess anxiety among children and adolescents ages 6 through 19 and is the most widely used self-report measure of youth anxiety (Ryngala, Shields, & Caruso, 2005). The Total Anxiety score consists of 28 yes or no items (scored as 1 or 0, respectively) such as “I am afraid of a lot of things” and “I worry about what’s going to happen,” which are then summed for a total score. The scale has repeatedly demonstrated good test–retest reliability with a sample of elementary school children ($r = .90$ or above) and adequate internal consistency, with alphas averaging above .80 (Reynolds & Paget, 1983). In our study, across the six interviews, Cronbach’s alpha ranged from .80 to .89.

**Analytic Strategy**

The goal of the analyses was to examine the effects of violence exposure (at home and in the broader environment of school and the community), family social support, and the interactions of violence exposure, family social support, and gender on children’s levels of anxiety across six time points over 2 years. We used longitudinal multilevel analysis to estimate these effects, defining individual children as the Level 2 unit of analysis, and repeated measurements or time points nested within each individual as the Level 1 unit of analysis (Snijders, 1996). The analysis was conducted with HLM 6 software using full maximum likelihood estimation to allow statistical comparison of the nested models (Raudenbush, Bryk, & Congdon, 2005). Robust estimation was used to appropriately handle anticipated skew in the measure of anxiety (Raudenbush & Bryk, 2002). Multilevel analysis is well-suited for analyzing longitudinal data, as it provides flexibility in terms of missing data caused by variation in the rate of participation across each time point and it allows for varying intervals between time points (Singer & Willett, 2003). Because Level-1 associations are based on the observations that are available for each individual, cases with partial or mistimed data can be retained in the analysis, with their contribution to the overall solution statistically weighted to reflect the relative number of observations. This is generally preferable, in terms of both power and bias reduction, to deletion of cases with missing values and superior to most methods of missing data imputation (Schafer & Graham, 2002). The general analytic approach was supplemented by pattern mixture modeling (Hedeker & Gibbons, 1997) to examine whether results were significantly affected by the number of observations available for each case. No evidence of such effects was found.

Statistical power for the analyses was estimated using methods developed by Raudenbush and Liu (2000, 2001). With 511 observations across 100 children, power to detect a medium-sized effect ($\gamma = .5$) at $p < .05$ exceeded .95 for within-person associations (e.g., time-varying effects such as change in violence exposure) and .80 for between-person associations (e.g., time-invariant effects such as gender and initial level of violence exposure). Power was lower to detect cross-level interactions (e.g., the interaction of gender and change in violence exposure) and is difficult to estimate given the complexity, but in general appeared to exceed .70 to detect large effects ($\gamma = .8$).

Given that the project was designed to focus on women and children who had recently experienced and witnessed IPV (respectively), and children’s mental health trajectories after this acute event, we chose to analyze the data by time point rather than by children’s initial age. Models were constructed to examine the between-person, within-person, and cross-level effects on children’s anxiety of witnessing IPV perpetrated against their mothers, exposure to community and school violence, and family social support, and the interactions of the violence variables, family social support, and gender (see the appendix for model equations). First, we examined both the initial levels of anxiety and the linear trajectories of change in anxiety over the six time points in an unconditional model in which
both the intercepts and slopes were allowed to randomly vary. Next, we examined the effects of initial between-person variability in the three predictor variables, the interactions of the violence variables and family social support at Time 1, and the interactions of gender, violence, and family social support on the initial levels of anxiety and the linear trajectory of anxiety over time (Level 2 effects). In addition, we added time-varying, or Level 1, predictors to the model of anxiety over time, to assess the effects of within-person change in violence exposure and change in family social support, plus the interactions of change in violence exposure and change in family social support. Finally, we added cross-level interactions of predictors of anxiety over time to examine whether the within-person effects of change in family social support and change in violence exposure were affected by between-person differences on initial levels of family social support and violence exposure. To manage model complexity, we examined cross-level interactions involving initial levels of family social support, witnessing IPV, and exposure to community and school violence in three separate models. As none of the cross-level interactions involving witnessing IPV or exposure to community and school violence approached significance, we focused the remaining analyses on initial level of family social support as a moderator of the effects of subsequent change in family social support. Following standard recommendations for complex multilevel modeling (Raudenbush & Bryk, 2002), interactions that were not statistically significant, were not involved in significant higher order interactions, and did not significantly improve model fit were trimmed from the final models to reduce collinearity and optimize interpretability.

To avoid redundancy within the conditional model and to clearly separate the between-person effects of the predictor variables at the initial time point from the within-person effects of change in the time-varying predictors, we computed deviation scores for each time-varying covariate by subtracting each child’s initial score from subsequent scores. The resulting scores captured the extent of change at each point relative to the initial observation of witnessing IPV, exposure to community and school violence, and family social support. The Level 1 interaction terms were computed as the product of the deviated scores on the violence and family social support variables and reflected the moderating impact of change in family social support on the effect of change in witnessing IPV and exposure to community and school violence, both relative to the initial interview. We grand-mean-centered the continuous between-person (Time 1) predictors (violence exposure and family social support) to aid interpretation and to avoid multicollinearity with the interaction terms. Gender was dummy-coded with boys as the reference category (i.e., scored 0). Because half of the sample was exposed to an advocacy intervention, we controlled for any possible influence of the intervention both as a main effect and in interaction with other predictors, even though no effects were observed on the anxiety scores at any point. Age at the initial interview was included in the conditional model to control for the possibility of an age confound (i.e., mean anxiety scores declined as children got older), although age itself was not a significant predictor of anxiety.

RESULTS

Descriptive Statistics and Bivariate Correlations

At the initial time point, participants’ average level of witnessing IPV, exposure to community and school violence, and anxiety were at their peak. Each of these variables declined on average at each subsequent time point (see Table 1). For example, the initial level of witnessing IPV during the prior 4 months, on average, was 2.69 (SD = .86); by Time 6, approximately 2 years later, the average level had decreased to 1.32 (SD = .54). Similarly, the initial average level of anxiety was 10.93 (SD = 6.05); by Time 6, the average level of anxiety was 6.79 (SD = 4.55). The average level of family social support, in contrast, remained consistent across all six time points, ranging from an initial level of 3.47 (SD = .36) to a final level of 3.43 (SD = .40). There were no significant gender differences in the levels of

<table>
<thead>
<tr>
<th>Variable</th>
<th>Time 1&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Time 2&lt;sup&gt;b&lt;/sup&gt;</th>
<th>Time 3&lt;sup&gt;c&lt;/sup&gt;</th>
<th>Time 4&lt;sup&gt;d&lt;/sup&gt;</th>
<th>Time 5&lt;sup&gt;e&lt;/sup&gt;</th>
<th>Time 6&lt;sup&gt;f&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Witnessing Psychological and Physical Abuse (IPV)</td>
<td>2.69 (0.86)</td>
<td>1.63 (0.65)</td>
<td>1.48 (0.70)</td>
<td>1.40 (0.62)</td>
<td>1.38 (0.65)</td>
<td>1.32 (0.54)</td>
</tr>
<tr>
<td>Exposure to Community and School Violence</td>
<td>1.64 (0.46)</td>
<td>1.57 (0.43)</td>
<td>1.44 (0.34)</td>
<td>1.48 (0.36)</td>
<td>1.48 (0.36)</td>
<td>1.44 (0.35)</td>
</tr>
<tr>
<td>Family Social Support</td>
<td>3.47 (0.36)</td>
<td>3.48 (0.40)</td>
<td>3.40 (0.51)</td>
<td>3.37 (0.46)</td>
<td>3.42 (0.47)</td>
<td>3.43 (0.40)</td>
</tr>
<tr>
<td>Anxiety</td>
<td>10.93 (6.05)</td>
<td>9.69 (6.56)</td>
<td>8.73 (5.84)</td>
<td>7.63 (5.69)</td>
<td>7.40 (5.46)</td>
<td>6.79 (4.55)</td>
</tr>
</tbody>
</table>

<sup>Note</sup>: IPV = Intimate Partner Violence.

*<sup>a</sup>N = 100; *<sup>b</sup>N = 81; *<sup>c</sup>N = 84; *<sup>d</sup>N = 83; *<sup>e</sup>N = 82; *<sup>f</sup>N = 81.
witnessing IPV, exposure to community and school violence, or family social support at any time point. Although children’s average level of witnessing IPV declined over time, prevalence remained high across the six time points.

At the initial time point, 93% of the sample reported recently witnessing psychological or physical abuse of their mother; by Time 6, 41% reported recent witnessing. Prevalence of exposure to community and school violence remained consistently high across the study, with rates ranging from 88% to 95%. Witnessing IPV was positively correlated with exposure to community and school violence at Times 1, 4, 5, and 6 ($r = .26-.37, p < .05$). Child’s age showed a modest negative correlation with family social support at Times 2, 4, 5, and 6 ($r = -.23 to -.35, p < .05$) and was negatively associated with witnessing IPV at Times 2 and 5 ($r = -.22 and -.24, p < .05$). Finally, exposure to community and school violence was negatively correlated with family social support at Time 6 ($r = -.23, p < .05$). Anxiety was positively associated with witnessing IPV at Times 1, 2, 4, 5, and 6 ($r = .22-.28, p < .05$), and with community and school violence exposure at Times 1, 2, 3, 4, and 5 ($r = .22-.41, p < .05$), with marginally significant correlation at Time 6 ($r = .21, p = .06$). No other associations among the variables were significant.

The Unconditional Model: The Effect of Time in Predicting Anxiety

We first examined initial levels and trajectories of change in anxiety in an unconditional model containing only time. Children varied significantly in their initial levels of anxiety, as indicated by the significant variance of the random intercept ($\sigma_{00} = 27.71, p < .001$). On average, children’s trajectories of anxiety significantly decreased over the six time points at a rate of .17 units per month ($\gamma_{10} = -.17, p < .001$), or approximately 4 points on the anxiety scale over the 2-year follow-up period. However, there was significant variability in anxiety trajectories across children, indicated by the significant variance of the random slopes ($\sigma_{10} = .04, p < .001$). Finally, across children, anxiety trajectories over time were negatively correlated with initial levels of anxiety, indicating that anxiety declined more rapidly among children with higher initial levels of anxiety (Tau correlation = -.68, $p < .01$).

The Conditional Model: Between-Person, Within-Person, and Cross-Level Effects on Anxiety of Witnessing IPV, Exposure to Community and School Violence, and Family Social Support

Model fit was significantly improved by adding the violence exposure and family support variables at Levels 1 and 2, LR $\chi^2(11) = 97.49, p < .001$. Model fit was further improved by the addition of cross-level interactions of gender and initial levels of family social support as moderators of the influence of change in exposure to community and school violence, change in family social support, and their interaction, LR $\chi^2(10) = 19.35, p < .05$.

Results of estimating the final conditional model are presented in Table 2. As can be seen in the first section of the table, initial level of anxiety was significantly associated with between-person differences in both witnessing IPV and exposure to community and school violence. At the initial interview, children with a 1-unit higher score on witnessing IPV had, on average, a 1.03-unit higher score on anxiety ($\gamma_{03} = 1.03, p < .05$), whereas children with a 1-unit higher score on exposure to community and school violence had, on average, a 4.02-unit higher score on anxiety ($\gamma_{04} = 4.02, p < .001$). Initial anxiety was significantly associated neither with between-person differences in family social support nor with the interaction of gender and family social support. Controlling for these influences on anxiety at the initial time point, the effect of time remained significant, with anxiety decreasing significantly ($\gamma_{10} = -.13, p < .001$). Preliminary analyses examined the possibility that between-person differences in gender, age, and initial levels of violence exposure and family social support may have affected subsequent trajectories of anxiety over time. However, none of these interactions with time were significant, and to reduce complexity, they were trimmed from the final model.

There were significant within-person effects on anxiety related to changes in violence over time (see the second section of Table 2). On average, change in children’s exposure to community and school violence was positively associated with anxiety ($\gamma_{20} = 4.38, p < .001$), as was the change in their witnessing IPV ($\gamma_{30} = .61, p < .05$). A 1-unit increase in exposure to community and school violence was associated with a 4.38-unit increase in anxiety, and a 1-unit increase in witnessing IPV was associated with a 0.61-unit increase in anxiety. Children reported greater anxiety when their levels of witnessing IPV or exposure to community and school violence increased.

Addition of cross-level interactions to the model revealed a significant four-way interaction of gender, initial level of family social support, change in family social support, and change in exposure to community and school violence ($\gamma_{35} = 16.99, p < .05$). Further examination of this interaction, using strategies and tools developed by Preacher, Curran, and Bauer (2006) revealed a relatively simple effect for girls and a more complex picture for boys. For girls, change in family social support had a significant negative effect on
TABLE 2  
Conditional Multilevel Model Predicting Anxiety Over Time: Between-Person, Within-Person, and Cross-Level Effects

<table>
<thead>
<tr>
<th>Fixed Effect</th>
<th>Estimate</th>
<th>SE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between-Person Effects on Initial Anxiety ($b_0$)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\gamma_{00}$: Intercept</td>
<td>12.62***</td>
<td>2.75</td>
</tr>
<tr>
<td>$\gamma_{01}$: Age</td>
<td>-0.24</td>
<td>0.26</td>
</tr>
<tr>
<td>$\gamma_{02}$: Gender</td>
<td>1.18</td>
<td>0.89</td>
</tr>
<tr>
<td>$\gamma_{03}$: Condition</td>
<td>0.60</td>
<td>0.86</td>
</tr>
<tr>
<td>$\gamma_{04}$: Witnessing IPV at Time 1</td>
<td>1.03*</td>
<td>0.50</td>
</tr>
<tr>
<td>$\gamma_{05}$: Exposure to Community and School Violence at Time 1</td>
<td>4.02***</td>
<td>0.98</td>
</tr>
<tr>
<td>$\gamma_{06}$: Family Social Support at Time 1</td>
<td>1.19</td>
<td>1.57</td>
</tr>
<tr>
<td>$\gamma_{07}$: Gender \times Family Social Support at Time 1</td>
<td>-2.06</td>
<td>2.32</td>
</tr>
<tr>
<td>Linear Trajectory of Change in Anxiety ($\beta_1$)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\gamma_{10}$: Intercept (slope)</td>
<td>-0.13***</td>
<td>0.03</td>
</tr>
<tr>
<td>Within-Person and Cross-Level Time-Varying Effects on Anxiety Over Time</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$\gamma_{20}$: Change in Exposure to Community and School Violence ($\beta_2$)</td>
<td>4.38***</td>
<td>0.90</td>
</tr>
<tr>
<td>$\gamma_{21}$: Gender</td>
<td>0.33</td>
<td>1.23</td>
</tr>
<tr>
<td>$\gamma_{22}$: Condition</td>
<td>-2.13</td>
<td>1.12</td>
</tr>
<tr>
<td>$\gamma_{23}$: Family Social Support at Time 1</td>
<td>0.90</td>
<td>2.12</td>
</tr>
<tr>
<td>$\gamma_{24}$: Gender \times Family Social Support at Time 1</td>
<td>-4.21</td>
<td>3.09</td>
</tr>
<tr>
<td>$\gamma_{25}$: Change in Witnessing IPV ($\beta_3$)</td>
<td>0.61*</td>
<td>0.28</td>
</tr>
<tr>
<td>$\gamma_{26}$: Change in Family Social Support ($\beta_4$)</td>
<td>-0.11</td>
<td>0.92</td>
</tr>
<tr>
<td>$\gamma_{27}$: Gender</td>
<td>-2.52*</td>
<td>1.27</td>
</tr>
<tr>
<td>$\gamma_{28}$: Family Social Support at Time 1</td>
<td>-2.23</td>
<td>1.52</td>
</tr>
<tr>
<td>$\gamma_{29}$: Gender \times Family Social Support at Time 1</td>
<td>-3.74</td>
<td>2.16</td>
</tr>
<tr>
<td>$\gamma_{30}$: Change in Change in Family Social Support ($\beta_5$)</td>
<td>-3.74</td>
<td>2.16</td>
</tr>
<tr>
<td>$\gamma_{31}$: Gender</td>
<td>2.80</td>
<td>2.59</td>
</tr>
<tr>
<td>$\gamma_{32}$: Family Social Support at Time 1</td>
<td>-10.43***</td>
<td>3.05</td>
</tr>
<tr>
<td>$\gamma_{33}$: Gender \times Family Social Support at Time 1</td>
<td>16.99*</td>
<td>7.12</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Random Effect</th>
<th>Estimate</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\sigma_{00}$: Intercept variance</td>
<td>20.88***</td>
<td>4.57</td>
</tr>
<tr>
<td>$\sigma_{10}$: Slope variance</td>
<td>0.03***</td>
<td>0.17</td>
</tr>
<tr>
<td>$\varepsilon$: Residual variance</td>
<td>11.69</td>
<td>3.42</td>
</tr>
</tbody>
</table>

Note: IPV = Intimate Partner Violence.
*p < .05; **p < .01; ***p < .001.

anxiety (simple slope = -2.42, p < .01), such that a 1-unit increase in family social support was associated with a 2.42 point reduction in anxiety, regardless of the effect of change in exposure to violence. For boys, the effect of change in family social support depended on both change in exposure to violence and initial level of family social support. For boys with initially high support, when that support subsequently declined, an increase in exposure to community violence was strongly associated with higher anxiety (simple slope at $M + 1$ SD on initial support and $M - 1$ SD on change in support = 8.00, p < .001). However, when initially high support subsequently increased, an increase in exposure to community violence was not significantly associated with anxiety (simple slope at $M + 1$ SD on both initial support and $M + 1$ SD change in support = 1.42, p < .40). These simple slopes were significantly different from each other ($t = -3.38$, p < .001). For boys with initially low support, an increase in exposure to community violence was significantly associated with higher anxiety, both when support increased (simple slope at $M - 1$ SD on initial support and $M + 1$ SD on change in support = 4.23, p < .05) and when support declined (simple slope at $M - 1$ SD on initial support and $M - 1$ SD on change in support = 4.35, p < .01). A plot of the simple slopes at $M \pm 1$ SD for both boys and girls can be found in Figure 1.

Finally, although model fit was significantly improved by incorporating the between-person, within-person, and cross-level effects of witnessing IPV, exposure to community and school violence, family social support, and gender, the variances of both the random intercept and slope remained significant in the final model, indicating that variability across children in initial anxiety ($\sigma_{00} = 20.88$, p < .001) and in anxiety trajectories over time ($\sigma_{10} = .03$, p < .001) was not completely accounted for by the set of explanatory variables.
DISCUSSION

This study longitudinally examined the relationships between exposure to community and school violence, witnessing IPV, family social support, and anxiety within a diverse sample of school-age children from families in which IPV had recently occurred. The results support the contention that children in these families are not shielded from the abuse between adults occurring within the home. Almost all of the children (93%) reported recent witnessing IPV at Time 1. By Time 6, the rate of recent witnessing had declined but was still relatively high (41%). This decline in the rate of witnessing makes sense, given that the mothers in the sample were recruited into the study at Time 1 based on their recent IPV, and some had left their abusive partners by the end of the study. Prevalence of exposure to community and school violence remained high over the 2 years, with between 88% and 95% of the sample reporting at least some exposure at each time point.

These community violence exposure rates are consistent with the research literature on exposure among adolescents living in large urban centers, suggesting that at least some younger children living in midsize cities (i.e., those at higher risk because of family violence) are being exposed to community violence at unacceptably high rates.

We found that witnessing IPV and exposure to community and school violence were positively associated at most of the time points: Times 1, 4, 5, and 6. The co-occurrence of these two types of violence parallels findings in the research literature suggesting that youths’ violence exposure across different contexts is not randomly distributed (Finkelhor et al., 2007; Hanson et al., 2006; Saunders, 2003). Our longitudinal findings support the contention that youths’ witnessing of family violence is intimately connected over time to their exposure to community and school violence. Perhaps the negative conditions and stress associated with violent communities exacerbates interpersonal conflict within
the family, contributing to an increased likelihood of intimate partner violence which the child is then exposed to, as other researchers have found (Overstreet & Braun, 2000). In addition, IPV has economic consequences for mothers that are likely to have negative implications for the safety of their children’s neighborhood and school environments (Adams, Sullivan, Bybee, & Greeson, 2008). Alternatively, perhaps violence in the home places the child at risk for exposure to community violence via its effects on the child’s behavior and peer relationships (Salzinger, Ng-Mak, Feldman, Kam, & Rosario, 2006). For the school-age children in these families, exposure to co-occurring, enduring risks in more than one context likely heightens the risk of poor developmental outcomes, including mental health problems, disrupted academic progress, and difficulty transitioning to adolescence (Huston & Ripke, 2006; Lynch & Cicchetti, 1998; Margolin & Gordis, 2000).

However, we did find evidence of heterogeneity within the sample in terms of children’s level of anxiety, both initially and over time. Specifically, scores on anxiety at Time 1 varied significantly across children, as did their trajectories of anxiety over time (though on average, anxiety declined over time). This finding is in congruence with the available literature, which suggests that children are very likely to differ from one another in terms of their response to violence exposure, based on the child’s level of development, the type and severity of violence, and the availability of supports (Luthar, Goldstein, 2004; Lynch & Cicchetti, 1998; Margolin & Gordis, 2000; Wolfe et al., 2003). In addition, research indicates that families characterized by IPV are likely to have other challenges such as more frequent moves and higher levels of general stress, relative to families with no IPV present; it is likely that children’s levels of anxiety will vary in relationship to the presence of these contextual factors as well (Kitzmann et al., 2003).

Our findings revealed significant relationships between each type of violence and anxiety, both at Time 1 and over time. At the initial time point, when the children’s average level of recent witnessing of IPV was at its peak, we found that witnessing was positively associated with initial anxiety, after controlling for exposure to community and school violence. Likewise, exposure to community and school violence at Time 1 was positively associated with initial anxiety, after controlling for witnessing IPV. Although we did not find any relationships between the initial levels of either violence variables and the linear trajectories of anxiety over time, we did find that changes in children’s witnessing of IPV, relative to their initial witnessing, and changes in children’s exposure to community and school violence, relative to their initial exposure, were both positively associated with anxiety over time.

These results support the research literature on the positive associations between witnessing IPV and exposure to community and school violence, and children’s internalizing symptoms such as anxiety, and offer one of the few longitudinal examinations of these relationships among children (Edelson, 1999; Kitzmann et al., 2003; Kliwer et al., 2004; Kuther & Fisher, 1998; Margolin & Gordis, 2000). Notably, within the current sample, between-person differences in initial levels of witnessing IPV and exposure to community and school violence were not significant predictors of the linear trajectory of anxiety over time. Instead, continued relatively high levels of each type of violence were linked to anxiety scores across the six time points. This suggests that school-age children’s acute experiences with violence may not necessarily lead to elevated levels of anxiety over time, unless their exposure continues unabated.

The goal of this study was not only to examine the relationships between children’s witnessing IPV, exposure to community and school violence, and anxiety, but also to assess the role of family social support as a moderator of the effects of the children’s experiences with both types of violence on their level of anxiety. We also sought to examine how these relationships potentially differed by gender. Our results reveal a protective role for family social support on the effects of change in community and school violence exposure on anxiety over time, though this role differed by gender. Among girls, we found significant main effects for both change in exposure to community and school violence, and change in family social support, on anxiety over time. Specifically, for girls in the study, anxiety level was positively associated with change in exposure and negatively associated with change in family social support. Initial level of support was unrelated to the relationship between change in support, change in exposure, and anxiety over time. In other words, girls’ anxiety level was lower when support was increasing (averaging across change in exposure) and higher when exposure was increasing (averaging across change in support), regardless of the initial level of support. This type of main effect of change in family social support, in which the negative association with anxiety over time was consistent across all levels of exposure, can be characterized as simply protective or “promotive.” That is, its presence played a compensatory or ameliorative role for the girls, regardless of the change in their exposure to community and school violence (Fraser, Kirby, & Smokowski, 2004; Luthar, Cicchetti, & Becker, 2000).

Among the boys, we found that the level of initial family social support moderated the interaction between change in family social support, change in exposure to community and school violence, and anxiety over time. Further, change in exposure was most strongly
positively related to anxiety for those boys with high initial support that subsequently declined. The drop in support, after initially high levels, may have made the boys especially vulnerable as violence exposure increased, or perhaps their family’s declining support reflected larger challenges facing the family, which in turn were linked to increased anxiety over time. It is also possible that, as these boys aged and their exposure to community violence increased, they began withdrawing from their families and thus received less perceived support, which in turn affected their anxiety levels. In contrast, change in exposure was not significantly related to anxiety among the boys with high initial support that increased over time. Finally, change in exposure was moderately related to anxiety for the boys who reported low initial support, regardless of whether support increased or decreased over time. The lack of association between change in exposure and anxiety over time among the boys with high initial support that subsequently increased can be characterized as a buffering or protective-stabilizing effect, in which relatively high levels of the protective factor(s) are associated with reduced or stable effects on the outcome variable, particularly as the level of the risk factor increases (Gore & Eckenrode, 1996; Luthar et al., 2000).

In terms of understanding the mechanism by which family social support may buffer the effect of community and school violence exposure on anxiety within the current sample of children, perhaps the perceived social support they received from their family members helped them to process their experiences with community and school violence, thus reducing their feelings of threat, as several researchers have noted (Kliwer et al., 2004; Overstreet et al., 1999). Speculatively, this “meaning making” and threat reduction may then have facilitated lower levels of anxiety in the children, despite their community violence exposure. This result is notable, as our study is the first, to our knowledge, to examine family social support within families in which IPV has occurred. Although we did not find that family social support played a protective role in moderating the effects of witnessing IPV on either boys’ or girls’ anxiety, we did find evidence that these families are capable of providing support to their children in response to their ongoing experiences with community and school violence. In addition, our findings highlight the importance both of exploring intragroup differences and of examining these complex moderating relationships over time.

Limitations of the Study

Although the findings from our study enhance our understanding of the effects of violence exposure on school-age children’s anxiety and highlight the protective role of family social support, the study has several limitations. First, because we used a nonprobability sample of children from families that had recently experienced intimate partner violence, and we tested an intervention, the generalizability of our results is not known. In particular, it is possible that the ability to detect interaction effects involving IPV may have been limited by restriction of range, although the sample showed substantial variability in the extent of IPV witnessed, both at Time 1 and across time. It is likely that sample size also posed limitations on the power to detect small to medium cross-level interactions. Although our findings are interesting and add to the literature, they need to be replicated with larger community-based samples of families who have not been recruited based on their recent experiences with IPV. Second, our study relied on child reports of their experiences with violence, their perceived levels of family social support, and their symptoms of anxiety. Mean scores on family social support were relatively high compared with published reports concerning somewhat older youths (e.g., Seidman et al., 1995). However, in our sample, change in family social support was variable and normally distributed at each time point, suggesting that the measure was adequate to capture within-child change in support. In addition, because of Institutional Review Board constraints, we did not assess for any type of child maltreatment (e.g., physical abuse, sexual abuse, or neglect). Given what is known about the likelihood of child maltreatment co-occurring with IPV within families (Kitzmann et al., 2003), it is reasonable to assume that at least some of the children had experiences with maltreatment. We do not know to what degree these experiences were influencing their level of anxiety, and the exclusion of child maltreatment is certainly a limitation. Finally, our analysis did not include any contextual variables that may influence children’s anxiety (e.g., life stressors, multiple family moves, etc.).

Implications for Research, Policy, and Practice

Our study has some interesting implications for researchers as well as practitioners. Future research efforts should focus on examining co-occurring violence exposure among children, especially preadolescent children, to better understand the ways in which different types of violence exposure affect mental health outcomes such as anxiety. Given that our model was not able to fully account for the variability across children in initial anxiety levels and anxiety trajectories over time, future areas of study should explore other possible predictors. For example, the synergistic effects of different forms of violence exposure, such as the interaction of witnessing IPV and community violence exposure,
and the effects of cumulative violence exposure over time coupled with the effects of acute exposure, should be explored. Group-based (Nagin, 2005) or growth mixture modeling (Muthén, 2004) might augment this line of work by allowing examination of risk and protection mechanisms among children that differ on their trajectories of violence exposure. In addition, future work might examine the distinct relationships between children’s community violence witnessing, victimization, and mental health outcomes. The emphasis on family social support as a possible moderator of the effects of violence exposure on children’s outcomes should continue, with special attention paid to patterns of risk moderation, including the role of gender; the potential mechanisms by which support shapes various outcomes among children; cross-level effects; and the ways that high-risk families, such as those in which IPV has occurred, may nevertheless be able to offer crucial support to their children. Whenever possible, longitudinal designs with at least three time points should be employed to best capture the patterns of the relationships between co-occurring risks, protective factors, and outcomes over time. Multilevel modeling, with its capacity to simultaneously examine the effects of initial and time-varying predictors, and their interactions, on child outcomes, should be pursued. Practitioners working with children and families in urban settings, especially in their work with families in which IPV has occurred, must be cognizant of the likelihood of co-occurring violence exposure among the children, and the protective role that perceived social support from family members may play. Finally, the design, evaluation, and dissemination of effective interventions for children who have experienced chronic, co-occurring violence exposure is critical to access their individual- and family-level protective factors, reduce the effects of violence exposure, and enhance their optimal development.

REFERENCES


Unconditional model: The effect of time in predicting anxiety

\[ Y = \beta_0 + \beta_1 (\text{INTMO}) + \varepsilon \] (Residual variance),
\[ \beta_0 = \gamma_{00} \text{ (Intercept)} + \sigma_{00} \text{ (Intercept variance)}, \]
\[ \beta_1 = \gamma_{10} \text{ (Slope)} + \sigma_{10} \text{ (Slope variance)}. \]

Conditional model: Between-person, within-person, and cross-level effects on anxiety of witnessing IPV, exposure to community and school violence, and family social support

\[ Y = \beta_0 + \beta_1 (\text{INTMO}) + \gamma_{20} \text{ (ECSV)} + \gamma_{30} \text{ (WIPV)} + \gamma_{40} \text{ (FSS)} + \gamma_{50} \text{ (ECSV x FSS)} + \varepsilon \] (Residual variance),
\[ \beta_0 = \gamma_{00} \text{ (Intercept)} + \gamma_{01} \text{ (Age)} + \gamma_{02} \text{ (Gender)} + \gamma_{03} \text{ (Condition)} + \gamma_{04} \text{ (WIPV)} + \gamma_{05} \text{ (ECSV)} + \gamma_{06} \text{ (FSS)} + \gamma_{07} \text{ (Gender x FSS)} + \sigma_{00} \text{ (Intercept variance)}, \]
\[ \beta_1 = \gamma_{10} \text{ (Slope)} + \sigma_{10} \text{ (Slope variance)}, \]
\[ \beta_2 = \gamma_{20} \text{ (Slope)} + \gamma_{21} \text{ (Gender)} + \gamma_{22} \text{ (Condition)} + \gamma_{23} \text{ (FSS)} + \gamma_{24} \text{ (Gender x FSS)}, \]
\[ \beta_3 = \gamma_{30} \text{ (Slope)}, \]
\[ \beta_4 = \gamma_{40} \text{ (Slope)} + \gamma_{41} \text{ (Gender)} + \gamma_{42} \text{ (FSS)} + \gamma_{43} \text{ (Gender x FSS)}, \]
\[ \beta_5 = \gamma_{50} \text{ (Slope)} + \gamma_{51} \text{ (Gender)} + \gamma_{52} \text{ (FSS)} + \gamma_{53} \text{ (Gender x FSS)}. \]

Where INTMO = the time interval in months, ECSV = exposure to community and school violence; WIPV = witnessing psychological and physical abuse; FSS = family social support; ECSV x FSS = the interaction of exposure to community and school violence with family social support; Age = child’s age at Time 1; Gender = child’s gender; Condition = child’s membership in either the intervention or comparison group; and Gender x FSS = the interaction of gender with family social support.