Journal of Consulting and Clinical Psychology
2003, Vol. 71, No. 2, 339–352

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0022-006X/03/$12.00 DOI: 10.1037/0022-006X.71.2.339

# Child Witnesses to Domestic Violence: A Meta-Analytic Review

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This meta-analysis examined 118 studies of the psychosocial outcomes of children exposed to interparental violence. Correlational studies showed a significant association between exposure and child problems ($\bar{d} = -0.29$). Group comparison studies showed that witnesses had significantly worse outcomes relative to nonwitnesses ($\bar{d} = -0.40$) and children from verbally aggressive homes ($\bar{d} = -0.28$), but witnesses' outcomes were not significantly different from those of physically abused children ($\bar{d} = 0.15$) or physically abused witnesses ($\bar{d} = 0.13$). Several methodological variables moderated these results. Similar effects were found across a range of outcomes, with slight evidence for greater risk among preschoolers. Recommendations for future research are made, taking into account practical and theoretical issues in this area.

In the past several decades, researchers, clinicians, and policymakers have expressed increasing concern that children who witness marital violence may suffer negative consequences even when they are not themselves the target of violence (Osofsky, 1995). However, research on children who witness marital violence is much less extensive than research on children who are the direct victims of physical abuse (Fantuzzo, Boruch, Beriama, Atkins, & Marcus, 1997). Case studies of child witnesses first appeared in the 1970s, with the first empirical studies conducted in the 1980s. Because witnessing domestic violence can terrorize children and significantly disrupt child socialization, many researchers have begun to consider exposure to domestic violence to be a form of psychological maltreatment (McGee & Wolfe, 1991; Peled & Davis, 1995; Somer & Braunstein, 1999).

The focus on child witnesses is important because, relative to the general population, families with documented incidents of domestic violence have a significantly higher number of children in the home, especially children younger than age 5 (Fantuzzo et al., 1997). Other research suggests that physical violence is highest early in the marital relationship, when children are likely to be young (O'Leary et al., 1989). Although many parents report trying to shelter their children from marital violence, research suggests that children in violent homes commonly see, hear, and intervene in episodes of marital violence (Fantuzzo et al., 1997; Holden & Ritchie, 1991; Rosenberg, 1987).

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This research was completed while Noni K. Gaylord, Aimee R. Holt, and Erin D. Kenny were graduate students at the University of Memphis. We thank William Shadish for his invaluable help as consultant to this project and Ze'ev Frankel, Rebecca Lockwood, and Chermaine Tyler for their assistance with data collection.

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The past 20 years have seen a flurry of research on child witnesses to domestic violence, and numerous qualitative reviews of this research have concluded that children's exposure to marital violence is associated with a wide range of psychological, emotional, behavioral, social, and academic problems (e.g., Fantuzzo & Lindquist, 1989; Jaffe, Wolfe, & Wilson, 1990; Kolbo, Blakely, & Engleman, 1996; Margolin & Gordis, 2000; Wolak & Finkelhor, 1998). At this point, there are several benefits to integrating these results using quantitative, meta-analytic procedures. First, although two influential meta-analyses have been conducted on the effects of interparental conflict (Buehler et al., 1997) and marital discord (Reid & Crisafulli, 1990), studies included in these earlier meta-analyses focused on a wide spectrum of conflict resolution strategies that may or may not have involved physical aggression. Second, meta-analysis provides an efficient way to discuss the results of these studies in terms of average effect sizes rather than simply in terms of patterns of statistical significance. Third, meta-analytic techniques allow the researchers to identify moderators of the results in a body of literature.

There are both practical and conceptual reasons to examine moderators of effect sizes. Information about moderators—particularly study characteristics that are found to moderate results—can shape how future research in this area is designed and interpreted. In addition, moderators of effect size may reflect risk factors and protective factors that are important for understanding children's risk and resilience in response to stress. In the current meta-analysis, we examined several classes of factors that may moderate effect sizes in research on child witnesses to domestic violence: (a) factors related to research design and the assessment of domestic violence; (b) the context in which outcomes are assessed (i.e., children's exposure to stressors other than interparental violence); (c) the types of child outcomes assessed and methods for assessing them; and (d) child characteristics such as gender and age, as well as interactions among gender, age, and outcome type.

The first question we asked was whether similar estimates of effect size were obtained from correlational and group-comparison designs and whether effect sizes in group-comparison studies varied significantly depending on the nature of the comparison group. For example, comparisons between child witnesses and children from nonviolent (i.e., neither verbally nor physically

aggressive) homes should produce larger effect sizes than comparisons between child witnesses and children from verbally aggressive homes. We also examined whether effect sizes in studies using the Conflict Tactic Scales (CTS; Straus, 1979), the most widely used questionnaire measure of violence in the family, differed from those in studies that used other methods to assess the presence of domestic violence. In addition, we distinguished studies that assessed children's exposure to domestic violence from those that assumed that children had or had not been exposed to the violence in their home. A common study design in this literature, for example, is the comparison of children residing in a domestic violence shelter (presumed to have been exposed to interparental violence) and children from a community or school population (presumed not to have been exposed to interparental violence). Careful screening procedures should increase the distinctiveness of the two groups and should therefore produce larger effect sizes.

A second class of potential moderators in this body of literature concerns the context in which children are exposed to domestic violence—that is, the adaptiveness and level of resources that characterize the child's family environment (E. M. Cummings, Davies, & Campbell, 2000). Compared with the general population, families characterized by domestic violence are likely to experience higher levels of general stress, including lower income and more frequent moves; violent couples are likely to be younger and less educated, exhibit higher rates of divorce and single parenting, and have more alcohol-related problems (Fantuzzo et al., 1997; Jaffe, Hurley, & Wolfe, 1990; Spaccarelli, Sandler, & Roosa, 1994; Straus, Gelles, & Steinmetz, 1980). Children who witness domestic violence are also at higher risk of experiencing multiple forms of abuse (McGee, Wolfe, & Wilson, 1997), particularly physical abuse (Appel & Holden, 1998; O'Keefe, 1994b). Effect sizes can be expected to vary depending on the extent to which researchers control for these contextual factors in their research. For example, several studies have suggested that children who experience the "double whammy" (Hughes, Parkinson, & Vargo, 1989) of both witnessing and being the target of aggression show worse outcomes than children who witness domestic violence but are not physically abused (Carlson, 1991; Hughes, 1988; McCloskey, Figueredo, & Koss, 1995; O'Keefe, 1994b; Sternberg et al., 1993). Other research has suggested that children in shelters for victims of domestic violence—who have by definition recently experienced the multiple stressors associated with moving out of their home and into a shelter—exhibit more adjustment problems relative to children in the community exposed to similar levels of violence (Fantuzzo & Lindquist, 1989).

The third class of moderators we examined concerns the assessment of child outcomes. Social learning models have emphasized child witnesses' risk for aggression, whereas models of trauma have emphasized children's risk for problems with anxiety and other symptoms associated with posttraumatic stress. More holistic approaches have used broadband measures of child psychopathology (e.g., measures of internalizing and externalizing problems) to document a wide range of problems in children exposed to domestic violence. Qualitative reviews to date have concluded that exposure to interparental physical aggression is associated with significant disruptions in all of these areas. By treating outcome category as a potential moderator in our analyses, we were able to determine whether outcomes were significantly worse for one or more of these outcomes, relative to others. We also tested whether effect sizes varied significantly across several categories of children's specific emotional, cognitive, and behavioral reactions to simulated or hypothetical episodes of interadult conflict. These specific outcome variables have been especially useful in tests of Grych and Fincham's (1990) cognitive–contextual model and Davies and Cummings's (1994) emotional security hypothesis, both of which posit that the effects of interparental conflict are shaped in part by children's reactions to the conflict. The question of who reports on child outcomes is also potentially important for understanding moderators in this body of research, as some research has shown a tendency for mothers in battered women's shelters to rate their children more negatively than do teachers and shelter staff (Hughes & Barad, 1983a).

Finally, an adequate understanding of the effects of domestic violence on children requires attention to the moderating effects of child characteristics, including temperament, coping strategies, gender, and age (E. M. Cummings, 1998). Of these, the latter two have received the most attention in research on domestic violence. Boys and girls may react differently to conflict (E. M. Cummings, Iannotti, & Zahn-Waxler, 1985), and children's reactions to conflict do change with age (E. M. Cummings et al., 2000), but no clear pattern of gender or age differences has yet emerged in research on the outcomes of child witnesses to domestic violence. The issue is complicated in part by the possibility that some gender differences may be more apparent at certain age levels. Research on children's resilience in response to a range of stressors (not limited to domestic violence) suggests that age and gender may interact to moderate children's risk in response to stress, with boys at higher risk during childhood and girls at higher risk during adolescence (Masten, Best, & Garmezy, 1990). In addition, gender and age differences may be more apparent in terms of children's specific emotional and cognitive reactions to conflict than in terms of broadband adjustment problems (E. M. Cummings, 1998).

## Method

### *Literature Search*

Multiple sources were used to identify studies for the current meta-analysis including (a) studies identified in more than 20 qualitative reviews on the effects of witnessing marital violence; (b) reference lists from the studies cited in these reviews; (c) reference lists of other published articles and books on the more general topic of family violence; and (d) nearly 1,400 abstracts identified in computer searches of the PsycINFO database (http://www.apa.org/psycinfo/) and Dissertation Abstracts (http://newfirstsearch.oclc.org), with boolean combinations of multiple keywords and the names of prominent researchers in this field used as search terms. The final set of 118 studies that met our selection criteria (described later) consisted of 84 journal articles, 5 book chapters, and 29 theses or dissertations.

Several terms need to be defined for purposes of this review. First, the term *domestic violence* has been used to refer to a wide range of behaviors including physical, sexual, and psychological abuse, shown by both adults and children in the context of family life. In the current article, we use the term *domestic violence* more specifically to refer to incidents of physical aggression (including slapping, pushing, punching, kicking, choking) between adults or parent figures in the family. We use the terms *interparental violence* and *marital violence* synonymously, although these specific terms do not apply to all families. Second, *exposure* and *witnessing* refer to children's awareness of adults' physical aggression toward each other. Children can be aware of parents' physical aggression by seeing or hearing

violent interactions, but also by hearing stories about the violence and by seeing evidence of the abuse (for example, bruises on the mother's body). In the studies included in the current meta-analysis, child exposure was most commonly defined in terms of the child seeing or hearing a violent exchange between parents or parent figures. In some cases, this awareness was assessed by the researchers, and in other cases, it was assumed.

Studies included in the current meta-analysis met the following selection criteria: (a) The study reported empirical data; thus, case studies and qualitative studies were excluded. (b) The study examined the effects of witnessing interadult physical aggression in the home. Other measures of exposure to aggression—such as exposure to verbal aggression, parent–sibling aggression, or community violence—were excluded from the current analyses. (c) The study reported on psychosocial outcomes, including psychological (e.g., self-esteem), emotional and behavioral (e.g., depression, anxiety, and aggression), social (e.g., social competence), and academic (e.g., achievement scores). Outcomes related to physical health (e.g., motor development), intelligence (e.g., IQ scores), parenting competence, and general family functioning were not considered. (d) The study examined the association between interadult physical aggression and child psychosocial outcomes either in (i) correlational or multiple regression analyses or (ii) group comparisons, in which a group of child witnesses was compared with one or more control groups. Studies were excluded if group formation was based on a dimension other than exposure to domestic violence (for example, studies in which rates of exposure to domestic violence were compared in groups of delinquent vs. nondelinquent children). (e) The study sample was restricted to children. Adolescent samples that included 19-year-olds were included if most of the sample was 18 or younger, but college samples of 19-year-olds were excluded. (f) The study was published in 2000 or earlier. (g) The study was reported in English.

### *Coding Procedures*

A coding manual (available from the authors) was developed to guide coding of variables pertaining to characteristics of the study, the samples, measures, statistical analyses, and effect sizes (a total of 179 variables). About half of the studies were coded by one rater, and about half were coded by two raters, with consensus discussions used to resolve differences. Interrater reliability showed percentage agreement ranging from 92% to 100%, with a mean of 96%. For correlation studies, individual effect sizes were recorded as correlation coefficients, which were then converted to Cohen's *d* statistic using formulas based on Hedges and Olkin (1985). For group comparison studies, individual effect sizes were recorded as Cohen's (1988) *d* statistic, computed using Shadish, Robinson, and Lu's (1997) Effect Size analysis software.

## Results

The 118 studies identified in our literature search were published between 1978 and 2000. Of the 118 studies, 61 studies reported comparisons between witnesses and nonwitnesses; 7 reported comparisons between witnesses and children exposed to interparental verbal aggression; 8 reported comparisons between witnesses and physically abused children; 18 reported comparisons between witnesses and physically abused witnesses; and 70 reported correlational data. The sum of these numbers is greater than 118 because nearly half the studies incorporated more than one type of design, for example by examining both correlational and group-comparison data or by using multiple comparison groups.

Study sample sizes ranged from 21 to 3,780. Individual effect sizes were based on sample or subsample sizes ranging from 6 to 3,047, with a median of 56. Several of the larger sample sizes came from four group-comparison studies in which data from a group of child witnesses were compared with data reported as part of the outcome measure's published norms; the normative samples that were used as comparison groups were often quite large. Excluding these studies, sample sizes for individual effect sizes ranged from 8 to 1,457, with a median 49.

### *Preliminary Analyses*

Together, the 118 studies generated 2,261 effect sizes that were used in the current data analysis. In cases where the researchers reported results both with and without statistical controls, we included the effect size that used statistical controls. In cases where results were reported simply as "not statistically significant," we estimated the effect size conservatively to be zero (Lipsey & Wilson, 2001).

Across all studies, individual effect sizes ranged from −8.93 to 1.63. Because the distribution of these effect sizes was negatively skewed, we checked for the presence of outliers. The purpose of meta-analysis is to arrive at a reasonable summary of the quantitative findings in a body of research studies, and this purpose is not well served when the analyses include extreme effect sizes that are notably discrepant from the majority of those found in the literature (Lipsey & Wilson, 2001). We used guidelines provided by Emerson and Strenio (1983) to identify outliers, defined as values smaller than $F_L - (1.5)d_F$ or larger than $F_U + (1.5)d_F$, where $F_L$ and $F_U$ denote the lower and upper fourths (values closely related to the lower and upper quartiles) and $d_F = F_U - F_L$, known as the fourth spread (closely related to the interquartile range). Using this method, we identified 113 of the 2,261 effect sizes as statistical outliers. We then recoded these extreme values to more moderate values that better represented the range of values found in the body of literature, a process called *Windsorizing* (Lipsey & Wilson, 2001). In this case, using Emerson and Strenio's (1983) approach, extreme negative values were recoded as $d = -1.41$ and extreme positive values were recoded as $d = .84$, values corresponding to the outlier cutoffs in this set of effect sizes. The final set of effect sizes, including the Windsorized values, remained negatively skewed but was assumed to be more representative of the literature than the non-Windsorized values.

### *Overall Average Study-Level Effect Size*

The first step in the analyses was to calculate the weighted least squares (WLS) average effect size for each of the 118 studies. These average effect sizes were weighted by a function of sample size (Hedges & Olkin, 1985). We then calculated an overall average effect size across all 118 studies and tested whether this value was significantly different from zero. In this and in all further analyses, we used random effects models for significance testing. As opposed to fixed effects models, which limit inferences to the specific sample of studies included in the meta-analysis, random effects models are useful for generalizing to the entire population of studies from which the selected studies are drawn (Rosenthal, 1995). The average study-level effect sizes ranged from $\bar{d} = -1.38$ to $\bar{d} = 0.54$, with an overall average of $\bar{d} = -0.29$, $N = 118$, $SE = 0.03$. This value was significantly different from 0 at $p < .01$, with a 95% confidence interval of −0.34 to −0.24.

Next a test of homogeneity of variance was used to assess the amount of nonrandom variation in the set of study level effect sizes (Hedges & Olkin, 1985). If the set of effect sizes is not homoge-

neous, then factors other than random variation are assumed to be contributing to variability in the results. The test of homogeneity was rejected, with $Q(117) = 180.31$, $p < .01$. This suggests that the overall average study level effect size should be interpreted with caution and that possible moderators should be tested to identify the sources of nonrandom variation.

### *Moderators Related to Study Design*

*Correlational versus group-comparison studies.* We calculated the WLS average effect size for five groups of studies, reflecting each of five types of study design identified in this body of literature. Table 1 shows the average study level effect size and its confidence interval, for each type of study design. Three of the five study designs produced negative effect sizes that were statistically different from zero at $p < .05$: studies comparing witnesses and nonwitnesses, studies comparing witnesses and children from homes characterized by interparental verbal aggression, and correlational studies. The two other study designs produced positive effect sizes that were not statistically different from zero: studies comparing witnesses and victims of physical abuse, and studies comparing witnesses and abused witnesses.

A test of homogeneity was rejected for effect sizes from studies comparing witnesses and nonwitnesses, $Q(6) = 90.10$, $p < .01$, but not for effect sizes from any of the four other study designs. The variability of effect sizes in studies comparing witnesses and nonwitnesses suggested that there may be other variables moderating effect size in this set of studies. The homogeneity of effect sizes in studies using the four other designs suggests that it would be more difficult to identify moderators of effect size in those sets of studies.

The average effect sizes in the five sets of studies did differ from each other, $Q_b(4) = 63.57$, $p < .01$. After accounting for variation due to study design, other variation could be attributed to random error, $Q_w(159) = 132.60$, $p = .94$. Post hoc tests showed that effect sizes from the five study designs formed two clusters. The two negative effect sizes based on group-comparison designs were not significantly different from each other. Correlational studies also produced a negative average effect size that was significantly smaller than the average effect size in studies comparing witnesses and nonwitnesses, but not significantly different from the average effect size in studies comparing witnesses and children from verbally aggressive homes. The two positive effect sizes also were not significantly different from each other, but each was significantly different from the average effect size found in the three other study designs.

Table 1
*Average Study-Level Effect Sizes Found in Five Types of Study Design*

| Study design | *n* | $\bar{d}$ | *SE* | 95% CI |
|---|---|---|---|---|
| Witnesses vs. nonwitnesses | 61 | −.40* | .04 | −.47, −.33 |
| Witnesses vs. witnesses of verbal aggression | 7 | −.28* | .13 | −.52, −.02 |
| Witnesses vs. physically abused children | 8 | .15 | .11 | −.05, .36 |
| Witnesses vs. physically abused witnesses | 18 | .13 | .07 | .01, .26 |
| Correlational studies | 70 | −.29* | .03 | −.35, −.23 |

*Note.* In group comparison studies, negative effect sizes indicate that child witnesses had poorer outcomes relative to the comparison group; in correlational studies, negative effect sizes indicate that greater exposure to interparental violence was associated with poorer outcomes. Witnesses = children exposed to interparental violence. CI = confidence interval.
* The average study-level effect size is significantly different from zero, at $p < .05$.

*Assessment of domestic violence.* Three variables related to the assessment of domestic violence were examined as possible moderators of effect size. First, studies that used the CTS to assess interparental aggression were compared with those that used other methods of assessment. This variable was found to moderate results only in correlational studies, in which effect sizes from studies that used the CTS to assess interparental violence, $\bar{d} = -0.34$, $n = 48$, $SE = 0.04$, $p < .01$, were significantly larger than those that used other methods, $\bar{d} = -0.20$, $n = 24$, $SE = 0.05$, $p < .01$, with $Q_b(1) = 3.84$, $p < .05$. Second, studies that assessed child exposure to violence (i.e., asked whether the child had seen or heard the violence, $n = 75$) were compared with those that simply assumed exposure based on the presence of domestic violence in the home ($n = 46$). This variable did not moderate the results in any of the five study designs.

In the group comparison studies, we also examined whether effect sizes varied depending on whether researchers assessed exposure to domestic violence in the comparison group. In fact, researchers did assess domestic violence in the comparison group in nearly all studies comparing witnesses and children from high conflict homes, physically abused children, and physically abused witnesses. However, studies comparing witnesses and nonwitnesses were much less consistent in the use of screening procedures for the comparison group, and in this set of studies, those that used more careful screening procedures obtained effect sizes that were significantly smaller than those obtained in studies that used less careful procedures, $\bar{d} = -0.34$, $n = 47$, $SE = 0.04$, $p < .01$, compared with $\bar{d} = -0.55$, $n = 15$, $SE = 0.07$, $p < .01$, with $Q_b(1) = 5.94$, $p < .05$. The direction of this difference was unexpected, as more careful screening was expected to increase, rather than decrease, differences between groups.

### *Moderators Related to Multiple Stressors*

*Populations from which samples were drawn.* We examined whether effect sizes varied depending on the type of sample in which child witnesses were identified: shelters for victims of domestic violence, community or school samples, community or school samples that could be considered at risk because of exposure to some stressor other than domestic violence (e.g., poverty, parental divorce, community violence), and clinical samples (in which either the child or the mother was receiving services). In the four group-comparison study designs, we limited these analyses to studies that drew both groups from similar populations, for example, studies that compared witnesses identified in the community and nonwitnesses identified in the community. In these studies, average effect size did not vary significantly depending on the population from which the samples were drawn. However in correlational studies, sample source did moderate effect size, $Q_b(3) = 13.03$, $p < .01$. Post hoc analyses showed that effect sizes in correlational studies using samples of community children, $\bar{d} = -0.22$, $n = 14$, $SE = 0.08$, communities at risk, $\bar{d} = -0.32$, $n = 8$,

$SE = 0.14$, and clinical samples, $\bar{d} = -0.38$, $n = 5$, $SE = 0.14$, were all significantly different from zero at $p < .01$, whereas the average study-level effect size from correlational studies using samples of children in domestic violence shelters, $\bar{d} = 0.12$, $n = 9$, $SE = 0.10$, was not significantly different from zero.

In the group comparison studies, we also asked whether effect sizes varied depending on whether the group of witnesses and the comparison group were drawn from similar or dissimilar populations. Across all comparison-group designs, we found that effect sizes obtained in studies in which both groups were drawn from similar populations, $\bar{d} = -0.12$, $n = 55$, $SE = 0.05$, were significantly smaller than those obtained in studies in which groups were drawn from dissimilar populations, $\bar{d} = -0.39$, $n = 47$, $SE = 0.05$, $Q_b(1) = 15.56$, $p < .01$. However, this result was not replicated when each of the four sets of comparison-group studies was considered separately. Therefore, it is possible that this result actually reflects a confound between study design and researchers' choice to draw witnesses and comparison group children from similar populations. In studies comparing witnesses and physically abused children, and in studies comparing witnesses and physically abused witnesses (designs that generated nonsignificant, positive effect sizes), researchers nearly always drew the two groups from similar populations. By contrast, in studies comparing witnesses and nonwitnesses, and in studies comparing witnesses and children from homes with interparental verbal aggression (designs that generated significant, negative effect sizes), researchers drew the two groups from similar populations in only about half the cases. However, within this latter group of studies, effect sizes were not significantly different in studies that did and did not draw the two groups from similar populations.

*Use of exclusion criteria, matching, and statistical controls.* We compared studies that did and did not use exclusion criteria, matching, or statistical controls to address possible confounds due to each of the following: (a) general stress, (b) socioeconomic status (SES; including income, parents' education level, and family size), (c) mother's marital status and marital stability, (d) recent or frequent moves or homelessness, (e) parent age, (f) parent substance abuse problems, and (g) child physical abuse. We found very little evidence that effect sizes were moderated by the use of controls for these possible stressors when each was considered in isolation. However, this null result was likely influenced by the small number of studies that used any of these techniques to control for these confounds: 32% controlled for mothers' marital status; 18% controlled for SES; 14% controlled for the presence of child physical abuse; less than 10% controlled for general stress, moving, or parent age; and 0% controlled for parent substance abuse problems. To address this problem, we calculated a summary score to represent how many of these variables had been controlled for. These scores could have ranged from 0 to 7, but the highest score was 4. The correlation between this score and study-level effect size was significant in studies comparing witnesses and nonwitnesses, with $r = .28$, $p < .02$, but not in other study designs. Because most effect sizes were negative, a positive correlation here means that the more stressors that were controlled for, the closer the effect size was to zero. In studies that controlled for none of these stressors, $\bar{d} = -0.46$, $n = 29$, $SE = 0.05$, $p < .01$; for one stressor, $\bar{d} = -0.37$, $n = 19$, $SE = 0.07$, $p < .01$; for two stressors, $\bar{d} = -0.38$, $n = 13$, $SE = 0.09$, $p < .01$; for three stressors, $\bar{d} = -0.20$, $n = 9$, $SE = 0.11$, $p = .07$; and in studies controlling for four stressors, $\bar{d} = -0.16$, $n = 1$, $SE = 0.22$, $p = .50$.

### *Moderators Related to Outcomes*

*Types of outcomes.* First, we compared average study-level effect sizes for six categories of general adjustment: internalizing problems, externalizing problems, other psychological problems, total psychological problem scores, social competence, and academic problems. Decisions about categorization were guided by the factor structure of the widely used Child Behavior Checklist (CBCL; Achenbach & Edelbrock, 1991). For example, any measure of somatic complaints was classified as "internalizing" because somatic complaints are part of the internalizing factor on the CBCL, whereas any measure of attention problems was classified as "other psychological problems" because attention problems are part of the "other psychological problems" factor on the CBCL. A test of homogeneity was not rejected, $Q_b(5) = 9.99$, $p = .08$, meaning that across all studies, effect sizes for these six measures of general adjustment were not significantly different from each other. Tests of homogeneity also were not rejected when analyses were conducted separately for studies using each of the five study designs. Table 2 shows the average study-level effect sizes for each category of general adjustment, separately for each study design.

Because the specific outcomes of aggression (an example of externalizing) and posttraumatic stress disorder (PTSD; an example of internalizing) have been given such extensive attention in this body of literature, we examined effect sizes for these two outcomes in some detail. Results showed that across all studies, effect sizes for aggression were significantly lower than those for other forms of externalizing behaviors (not including aggression), $\bar{d} = -0.14$, $n = 35$, $SE = 0.06$, $p < .05$, compared with $\bar{d} = -0.35$, $n = 86$, $SE = 0.04$, $p < .01$, with $Q_b(1) = 8.16$, $p < .01$. By contrast, effect sizes for PTSD were higher than those for other forms of internalizing behaviors (not including PTSD), $\bar{d} = -0.51$, $n = 12$, $SE = 0.09$, $p < .01$, compared with $\bar{d} = -0.33$, $n = 86$, $SE = 0.03$, $p < .01$, a difference that showed a trend toward statistical significance at $p < .06$. When directly compared, the effect sizes for aggression were found to be significantly smaller than those for PTSD, $Q_b(1) = 9.76$, $p < .01$.

Next, we compared average study-level effect sizes for six categories of children's specific responses to simulated or hypothetical episodes of interadult conflict, typically assessed in laboratory settings: negative affect–distress, negative cognitions–attributions, withdrawal, aggression, intervening in the conflict, and positive cognitions–adaptive coping. Again, across all studies, a test of homogeneity was not rejected, with $Q_b(5) = 2.65$, $p = .75$, meaning that effect sizes for these six categories were not significantly different from each other. Tests of homogeneity also were not rejected when analyses were conducted separately for studies using each of the five study designs. Table 3 shows the average study-level effect sizes for each category of specific response to conflict, separately for each study design.

Although effect sizes for measures of general adjustment were more often significantly different from zero than effect sizes for children's specific responses to conflict, a test of homogeneity showed that the average study-level effect size for general adjustment measures, $\bar{d} = -0.29$, $n = 110$, $SE = 0.03$, $p < .01$, was not

Table 2
*Average Study-Level Effect Sizes for Six Types of Psychosocial Adjustment*

| Outcome type | Witnesses vs. nonwitnesses | | | Witnesses vs. witnesses of verbal aggression | | | Witnesses vs. physically abused children | | | Witnesses vs. physically abused witnesses | | | Correlational studies | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | *n* | $\bar{d}$ | *SE* | *n* | $\bar{d}$ | *SE* | *n* | $\bar{d}$ | *SE* | *n* | $\bar{d}$ | *SE* | *n* | $\bar{d}$ | *SE* |
| Internalizing | 47 | −.50* | .06 | 3 | −.36 | .21 | 12 | .10 | .08 | 5 | −.11 | .13 | 49 | −.35* | .04 |
| Externalizing | 45 | −.43* | .06 | 5 | −.35* | .17 | 12 | .14 | .08 | 7 | .23* | .09 | 51 | −.31* | .04 |
| Other psychological problems | 33 | −.35* | .07 | 3 | −.53* | .22 | 8 | .06 | .09 | 4 | −.01 | .14 | 23 | −.17* | .06 |
| Total psychological problems | 11 | −.27* | .11 | 0 | — | — | 4 | .09 | .11 | 2 | .23* | .12 | 6 | −.37* | .11 |
| Social problems | 15 | −.38* | .09 | 2 | .31 | .30 | 2 | −.09 | .16 | 2 | −.08 | .17 | 11 | −.23* | .11 |
| Academic problems | 18 | −.52* | .09 | 0 | — | — | 6 | .10 | .12 | 2 | .33 | .24 | 17 | −.45* | .07 |

*Note.* In group comparison studies, negative effect sizes indicate that child witnesses had poorer outcomes relative to the comparison group; in correlational studies, negative effect sizes indicate that greater exposure to interparental violence was associated with poorer outcomes. Witnesses = children exposed to interparental violence. Dashes indicate no data were available.
* The average study-level effect size is significantly different from zero, at $p < .05$.

significantly different from the average study-level effect size for measures of specific responses to conflict, $\bar{d} = -0.28$, $n = 27$, $SE = 0.06$, $p < .01$, with $Q_b(1) = 0.06$, $p = .80$. This same pattern of results was replicated in all five study designs.

*Report of child outcomes.* We compared effect sizes on the basis of mothers' reports of child outcomes, children's self-reports, and assessments based on others' reports. Results showed that this variable did moderate effect sizes in one of the five study designs, namely comparisons between witnesses and nonwitnesses, with $Q_b(2) = 7.89$, $p < .02$. In this set of studies, effect sizes based on mothers' reports of child outcomes, $\bar{d} = -0.44$, $n = 43$, $SE = 0.05$, $p < .01$, were significantly larger than those based on child self-reports, $\bar{d} = -0.24$, $n = 32$, $SE = 0.05$, $p < .01$. The average study-level effect size based on others' reports fell between these other effect sizes, $\bar{d} = -0.35$, $n = 12$, $SE = 0.09$, $p < .01$, and was not significantly different from either.

## *Moderators Related to Child Characteristics*

Finally, we examined child gender and age as well as interactions between these variables and outcome type, as possible moderators of effect size. Analyses involving interactions were conducted using WLS regression equations in which two variables and their interaction were entered as predictors of effect size.

*Child gender.* Across all studies, study-level effect size for all-girl samples, $\bar{d} = -0.25$, $n = 38$, $SE = 0.05$, $p < .01$, for all-boy samples, $\bar{d} = -0.29$, $n = 46$, $SE = 0.05$, $p < .01$, and for mixed-gender samples, $\bar{d} = -0.29$, $n = 88$, $SE = 0.03$, $p < .01$, were not significantly different from each other. This same pattern of results was found in each of the five sets of studies, $Q_b(2) = 0.67$, $p = .71$.

*Gender × Outcome interactions.* Gender did not interact with outcome type to predict overall effect size in any of the study designs we examined when considering either the six categories of general psychosocial adjustment or the six categories of specific responses to interadult conflict.

*Child age.* The correlation between average age of the sample and the study-level effect size was found to be nonsignificant in all five study designs. When we compared study-level effect sizes produced in preschool-only samples (ages 5 and under), middle-childhood-only samples (ages 6–12), and adolescent-only samples (ages 13 and older), effect sizes were found to be significantly different from zero in all three groups, but not significantly dif-

Table 3
*Average Study-Level Effect Sizes for Six Types of Specific Responses to Interadult Conflict*

| Outcome type | Witnesses vs. nonwitnesses | | | Witnesses vs. witnesses of verbal aggression | | | Witnesses vs. physically abused children | | | Witnesses vs. physically abused witnesses | | | Correlational studies | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | *n* | $\bar{d}$ | *SE* | *n* | $\bar{d}$ | *SE* | *n* | $\bar{d}$ | *SE* | *n* | $\bar{d}$ | *SE* | *n* | $\bar{d}$ | *SE* |
| Negative affect/distress | 11 | −.50* | .11 | 2 | −.45* | .21 | 3 | .04 | .18 | 0 | — | — | 9 | −.22* | .07 |
| Negative cognitions | 8 | −.30* | .13 | 1 | .13 | .42 | 4 | .14 | .17 | 0 | — | — | 6 | −.20* | .09 |
| Withdrawal | 5 | −.27 | .17 | 2 | −.32 | .21 | 1 | −.18 | .38 | 0 | — | — | 4 | −.14 | .18 |
| Intervention | 4 | −.27 | .17 | 1 | −.84* | .25 | 4 | −.06 | .14 | 0 | — | — | 2 | −.42* | .10 |
| Aggression | 3 | −.37 | .21 | 2 | −.38 | .21 | 0 | — | — | 0 | — | — | 4 | −.46* | .17 |
| Positive coping | 6 | −.25 | .16 | 1 | .00 | .42 | 3 | −.32 | .23 | 0 | — | — | 6 | −.13 | .11 |

*Note.* In group comparison studies, negative effect sizes indicate that child witnesses had poorer outcomes relative to the comparison group; in correlational studies, negative effect sizes indicate that greater exposure to interparental violence was associated with poorer outcomes. Witnesses = children exposed to interparental violence. Dash indicates no data were available.
* The average study-level effect size is significantly different from zero, at $p < .05$.

ferent from each other, $Q_b(2) = 1.65$, $p = .44$. For preschool samples, $\bar{d} = -0.34$, $n = 73$, $SE = 0.03$, $p < .01$; for middle-childhood samples, $\bar{d} = -0.31$, $n = 39$, $SE = 0.05$, $p < .01$; and for adolescent samples $\bar{d} = -0.25$, $n = 10$, $SE = 0.07$, $p < .01$. This same pattern of results was replicated in each of the five study designs.

*Age × Outcome interactions.* We identified no interactions between age and outcome type when considering either the six categories of general adjustment or the six categories of specific responses to conflict, in any of the five study designs. This was true both when considering average age of the sample and when considering results from age-specific samples (i.e., preschool-only, middle-childhood-only, and adolescent-only samples).

*Gender × Age interactions.* Gender did not interact with age to predict overall average study-level effect size in any of the five study designs when we considered either mean age of the sample or age categories (as used previously).

*Gender × Age × Outcome interactions.* Finally we examined the interaction of gender and age as a predictor of each of the six categories of general adjustment and each of the six categories of specific responses to interadult conflict. This type of analysis was often not possible either because of a high reliance on mixed-gender samples in this literature or because of the relatively small number of studies examining specific responses to interadult conflict. In two of the five study designs there was minimal evidence that the size of the Gender × Age interaction varied depending on outcome category. In both cases the interaction effect was evident when considering the interaction between gender and average age of the sample, but not when considering the interaction between gender and the categorical variable used to describe age-specific samples (preschool vs. middle childhood vs. adolescence). However, the age-group data are referenced later as a way of clarifying the interaction effects that were found.

In studies comparing witnesses and nonwitnesses, the regression model using gender, average sample age, and the interaction of these two variables as predictors was significant when outcomes were defined in terms of negative affect–distress in response to hypothetical interadult conflict, $Q_r(3) = 21.06$, $p < .01$, but was not significant in the prediction of any other outcomes (either measures of general adjustment or other measures of specific responses to conflict). To interpret the significant beta weight associated with the interaction variable, $\beta = 26.42$, $p < .05$, we examined effect sizes that were found in samples of boys and samples of girls that fell into specific age ranges. Results suggested that the significant interaction between gender and average sample age was due to higher risk among preschool girls. Differences between child witnesses and the comparison group on measures of negative affect–distress in response to hypothetical interadult conflict were statistically significant in samples of preschool girls, $\bar{d} = -0.83$, $n = 3$, $SE = 0.30$, $p < .02$, but not in samples of preschool boys, $\bar{d} = -0.29$, $n = 3$, $SE = 0.35$, $p = .42$, or in samples of girls in middle childhood, $\bar{d} = -0.52$, $n = 2$, $SE = 0.49$, $p = .30$, although these three effect sizes were not significantly different from each other, with $Q_b(2) = 1.26$, $p = .53$. (No studies of witnesses vs. nonwitnesses examined this outcome in boy-only samples in middle-childhood or adolescent samples.)

In correlational studies, the regression model using gender, average sample age, and the interaction of these two variables as predictors was significant when outcomes were defined in terms of problems with social competence, $Q_r(3) = 11.29$, $p < .02$, but was not significant in the prediction of any other outcomes (either other general adjustment measures or specific responses to hypothetical conflict). To interpret the significant beta weight associated with the interaction variable, $\beta = -6.53$, $p < .01$, we again examined effect sizes that were found in samples of boys and samples of girls that fell into specific age ranges. The association between exposure to domestic violence and problems in social competence was statistically significant in samples of preschool girls, $\bar{d} = -0.50$, $n = 3$, $SE = 0.22$, $p < .05$, but not in samples of preschool boys, $\bar{d} = -0.48$, $n = 2$, $SE = 0.31$, $p = .13$, middle-childhood girls, $\bar{d} = 0.33$, $n = 1$, $SE = 0.23$, $p = .15$, adolescent girls, $\bar{d} = 0.02$, $n = 1$, $SE = 0.11$, $p = .89$, or adolescent boys, $\bar{d} = 0.14$, $n = 1$, $SE = 0.09$, $p = .12$. (No correlational studies examined this outcome in boy-only samples in middle childhood.) In this case the effect sizes did vary significantly across these five types of samples, with $Q_b(4) = 11.56$, $p < .05$. Post hoc analyses showed that the mean effect size for preschool-girl samples was significantly larger than all other groups except preschool boys.

## Discussion

Numerous qualitative reviews have concluded that children who witness interparental violence are at risk for a range of adjustment problems. In the current review we used meta-analytic statistical techniques to estimate the extent of these problems, defined in terms of average effect size. Studies comparing child witnesses and nonwitnesses, studies comparing child witnesses and children exposed to interparental verbal aggression, and correlational studies all showed a significant association between exposure to interparental violence and child outcomes. The average study-level effect size across these three sets of studies was $\bar{d} = -0.34$, a value that translates into an average $\bar{r} = 17$. An effect size of this magnitude indicates that about 63% of child witnesses were faring more poorly than the average child who had not been exposed to interparental violence. Notably, however, this result also means that about 37% of the child witnesses showed outcomes that were similar to, or better than, those of nonwitnesses. We also integrated the results of a smaller number of studies comparing child witnesses and children who were physically abused as well as studies comparing child witnesses and children exposed to both interparental violence and physical abuse. Effect sizes in these two sets of studies were nonsignificant, suggesting that children from these three groups showed similar levels of adjustment problems.

The results of this meta-analysis on the effects of witnessing interparental violence complement those of two other meta-analyses on the effects of marital conflict on children. Buehler et al. (1997) integrated the results of 68 studies on the association between children's internalizing and externalizing problems and a range of conflict management styles expressed by married or divorced parents. Their results showed $\bar{d} = 0.35$ for studies examining the association between an overt conflict style (physical and/or verbal aggression) and child outcomes, with a positive effect size indicating worse child outcomes. The average effect size for other forms of destructive conflict, such as arguing, withdrawal, avoidance, and covert hostility, was $\bar{d} = 0.22$. Reid and Crisafulli (1990) also published a meta-analysis of 33 studies on the association between children's externalizing problems and interparental discord (both conflict and relationship dissatisfac-

tion) in samples of married families. Their average study-level effect was reported as an average $\bar{r}$ of .16, a value that can be translated into an average $\bar{d}$ of 0.32.

In the current meta-analysis, two pieces of evidence suggest that the effects of witnessing interparental violence may be even greater than the effects of witnessing other forms of destructive conflict. First, studies comparing children witnesses and nonwitnesses produced a larger average study-level effect size, $\bar{d} = -0.40$, than those reported by Buehler et al. (1997) and Reid and Crisafulli (1990). However, average study-level effect sizes were calculated differently in these three meta-analyses and so cannot be directly compared. Therefore the second piece of evidence may be more relevant. Our meta-analysis included a small number of studies that directly compared children who witnessed interparental violence and children who witnessed only parents' verbal aggression. Effect sizes from these studies suggest that children who witness interparental violence show significantly worse outcomes than those who witness other forms of destructive interparental conflict, $\bar{d} = -0.28$.

Meta-analytic statistics also allowed us to test for possible moderators of effect size in this body of research. Several of the moderators we identified concerned measurement issues. For example, in correlational studies higher but more consistent effect sizes were obtained using the CTS compared with other methods for assessing interparental violence. The restricted range and lower reliability of other measures, including nonstandardized interviews, questionnaires based on few items, and information obtained from court records, may result in attenuated estimates of the association between interparental violence and child outcomes. The use of the CTS did not moderate results in group-comparison designs, presumably because the continuous-scale scores from the CTS were used to make categorical (yes–no) decisions about group assignment, creating a restricted range of scores. In addition, group comparison studies that used more careful screening procedures to identify violent and nonviolent families produced more conservative, and more consistent, estimates of effect sizes. Surprisingly, however, careful assessment of children's exposure to the violence did not moderate results, perhaps because all children living in homes in which mothers report interparental violence can be assumed to have been exposed to the violence to some degree.

In studies comparing witnesses and nonwitnesses, effect sizes based on mothers' reports of child outcomes were significantly larger than those based on child reports. There are several possible explanations for this result, including the possibility that mothers' ratings are inflated because of their own distress (Hughes & Barad, 1983a), that child witnesses minimize their self-report ratings because of defensiveness or denial (Rossman & Rosenberg, 1992), or that effect sizes are inflated because of shared method variance, with mothers being the most common source of information both about the violence and about child outcomes.

Interestingly, outcome type did not moderate effect size, meaning that similar estimates of effect were obtained for a range of child problems. Researchers in this field have long been interested in the risk for aggression and other externalizing behaviors in children exposed to family violence, but in recent years there has been increased attention to children's internalized distress. Notably, the current results suggest that exposure to interparental violence is associated with children's internalizing and externalizing problems to a similar degree. In addition, although qualitative reviews in this area have found less consistent evidence for social and academic problems in this population—in part because these outcomes have been studied less extensively—our results showed that effect sizes for these outcomes were of similar magnitude as those found for internalizing and externalizing.

We also examined effect sizes for measures of children's specific cognitive, behavioral, and emotional responses to simulated or hypothetical episodes of interadult conflict. These outcomes have been assessed in more recent research, much of it designed to test Grych and Fincham's (1990) cognitive–contextual model or Davies and Cummings's (1994) emotional security hypothesis. As a group, effect sizes based on these specific measures did not differ from those based on measures of general adjustment. Relative to other children, children exposed to interparental violence showed higher negative affect and more negative cognitions in response to simulated or hypothetical interadult conflict and were more likely to report that they would intervene or show aggression in response to conflict. There was less consistent evidence that witnesses were more likely to withdraw or show less positive coping, perhaps because these responses are more difficult to assess. However, although effect sizes for these two outcomes were not statistically significant, they were not significantly smaller than effect sizes for other classes of specific responses.

Two possibilities are suggested by the results showing that effect size was not moderated by outcome type. One possibility is that children show multiple problems in response to interparental violence—that is, a child exposed to domestic violence is likely to show a range of behavioral, social, and academic problems. Another possibility is that children exposed to domestic violence show individual differences in the expression of problems, differences that are masked in many group analyses (Grych, Jouriles, Swank, McDonald, & Norwood, 2000). For example, internalizing and externalizing problems tend to be correlated (Achenbach & Edelbrock, 1991), but studies rarely distinguish children who show only internalizing or externalizing problems from those who show both.

We also examined several factors related to the child as possible moderators of effect size. We were interested, first, in the question of whether child witnesses would show especially poor outcomes when they were exposed to other stressors in addition to interparental violence. There was limited support for this idea. Children who were exposed to interparental violence as well as physical abuse did not show significantly worse outcomes than children exposed only to interparental violence, suggesting that violence anywhere in the family may be sufficient to disrupt child development. In addition, in group-comparison studies, effect sizes obtained in general community samples were similar to those obtained in clinical samples, samples of children from domestic violence shelters, and samples of children from communities at risk because of stressors such as poverty or neighborhood violence. In correlational studies, effect sizes from studies of shelter children were actually smaller than those found in other samples, perhaps because of the restricted variability in scores reflecting shelter children's exposure to domestic violence. However, we did find that studies that used exclusion criteria, matching, or statistical covariation to control for the presence of multiple stressors produced smaller effect sizes than studies that did not control for these variables, suggesting that multiple stressors may have a cumulative

impact on the expression of adjustment problems in children exposed to interparental violence.

We found little evidence that effect sizes were moderated by child gender or age, and tests for Gender × Age interactions were limited because of the small number of studies that conducted analyses separately for boys and girls in specific age groups. However, we did find evidence of a Gender × Age interaction in the prediction of two outcomes—children's negative affect in response to simulated or hypothetical episodes of interadult conflict, and problems in social competence. In both cases, effect sizes were statistically significant in samples of preschool girls but not in samples of boys or girls in other age groups. However, although effect sizes for these outcomes were not statistically significant in groups of preschool boys, in neither case was the effect size for preschool girls significantly larger than the effect size for preschool boys. Therefore these results might better be interpreted as a greater risk for preschoolers, both boys and girls, on these outcomes. If this finding is substantive, it may reflect very-young children's greater risk because of their limited understanding of conflict and less developed strategies for coping with it. However, these results have to be interpreted with caution because of the small number of studies on which they are based. It is possible that other child characteristics, such as temperament or strategies for coping, may be more salient than gender or age in the prediction of child outcomes. However, these child variables were rarely examined in this literature.

Overall, the results of the current meta-analysis provided robust evidence that exposure to interparental aggression is associated with significant disruptions in children's psychosocial functioning, at least in the short term. However, as Fantuzzo et al. (1997) note, gaps and inadequacies in this body of research make it difficult to draw definitive conclusions from these results. We offer five suggestions for continued research on children who witness interparental violence.

First, we suggest increased attention to distinguishing mild or moderate forms of physical aggression from more severe examples of violence (Emery, 1989; Emery & Laumann-Billings, 1998). Up to a third of couples who show interparental aggression are so classified because of behaviors such as pushing, throwing objects, or grabbing the other person, but a much smaller percentage engage in more serious acts of violence such as choking, beating, or kicking the partner (Straus & Gelles, 1990). In many of the studies included in the current meta-analysis, these more extreme forms of violence were not distinguished from milder forms of aggression, for example, cases where there might have been one instance of pushing or grabbing some time during the past 12 months.

Second, we suggest increased attention to identifying the processes by which interparental aggression affects child development. The distinction between mild and severe forms of aggression may be especially helpful in this regard. Less severe forms of aggression may be more similar to other forms of destructive interparental conflict such as intense arguing, stonewalling, withdrawal, and avoidance, and as such would be expected to be associated with the same kinds of general adjustment problems seen in children exposed to these other types of destructive interparental conflict. The processes of these effects may also be similar to those that have been identified in research on marital conflict, including direct effects due to children's behavioral and emotional dysregulation (E. M. Cummings, 1998; Davies & Cummings, 1994) and indirect effects due to disruptions in parenting (Fauber, Forehand, Thomas, & Wierson, 1990; Kitzmann, 2000). More severe forms of aggression, however, may involve unique stressors that are not part of children's experience of most marital conflict. Violence that involves threatened or actual injury or death is more likely to be traumatic for children exposed to it and, thus, more likely to be associated with dissociation, re-experiencing, and other symptoms of posttraumatic stress. Although the processes of these effects may be similar to those for milder forms of aggression, the expression of these processes is likely to be more extreme, in the form of terrorizing, gross lack of socialization, isolation, and lack of emotional attention (McGee & Wolfe, 1991). As such, the processes associated with the effects of severe violence may be more similar to those identified in research on child abuse and neglect than those identified in research on marital conflict.

Third, we suggest increased attention to the assessment of children's specific cognitive, emotional, and behavioral responses to interadult conflict. Experimental, laboratory designs have proven particularly useful for studying responses to simulated or hypothetical conflicts, although research on children's responses to conflict in naturalistic settings will also be useful. Such measures are important for testing current theoretical models of the effects of destructive interparental conflict, including violence. For example, although Grych and Fincham's (1990) cognitive–contextual model and Davies and Cummings's (1994) emotional security hypothesis differ in emphasis, the two models share the assumptions that children react to the meaning of marital conflicts, not just their occurrence, and that this meaning is shaped by children's appraisals and emotional responses to the conflict (E. M. Cummings, 1998). These appraisals and emotional responses have been conceptualized both as mediators and moderators of the association between interparental conflict and children's adjustment (El-Sheikh & Harger, 2001), and individual differences in these response styles may help explain the wide range of adjustment problems documented in children who witness interparental aggression.

Fourth, we suggest increased attention to outcome measures that would identify children's subclinical distress as well as resilience in the face of family violence (Cicchetti & Lynch, 1995; McGee & Wolfe, 1991). Not all children exposed to domestic violence show maladjustment (Grych, Jouriles, et al., 2000; Hughes & Luke, 1998). However, the absence of serious adjustment problems does not necessarily mean that child witnesses are unaffected by the violence, because children may experience subclinical distress or other mild problems that put them at greater risk for psychological or interpersonal problems later (E. M. Cummings, 1998; Graham-Bermann, 1998). For example, children who witness domestic violence may show inappropriate attitudes about violence as a means of resolving conflict, a greater willingness to use violence themselves, and stronger beliefs about being responsible for their parents' violence (Jaffe, Hurley, & Wolfe, 1990). Other children may show resilience, defined not just as the absence of pathology, but also as the presence of competence in the face of stressors associated with interparental aggression. Thus it will be important in future research to assess children's stage-salient competencies in developmental tasks such as attachment, peer relations, and successful adaptation to school (McGee & Wolfe, 1991).

Fifth, we suggest an increased reliance on more complex methodologies, appropriate for testing more complex models of the association between interparental aggression and child outcomes. For example, multivariate statistical techniques such as structural equation modeling would be useful for identifying the unique effects of exposure to violence. The studies included in the current meta-analysis were remarkable for their lack of attention to possible confounds due to stressors other than interparental aggression. Less than 20% controlled for SES, less than 10% controlled for general stress, and amazingly, 0% controlled for parent substance abuse. Using structural equation modeling, researchers could test models that take into account multiple co-occurring stressors as well as protective factors that may interact with interparental aggression to increase or decrease children's risk for adjustment problems. Longitudinal designs—used in only 6% of the studies identified in this meta-analysis—also will be important for disentangling the effects of age- and time-related variables. Among the studies in the current review, less than 3% assessed length of exposure to domestic violence, and assessment of time since exposure tended to be global in nature, most commonly reported as "within the last year." Such information is critical for understanding the developmental processes associated with both adjustment and maladjustment among children exposed to interparental aggression (National Research Council, 1993).

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Received July 30, 2001
Revision received October 22, 2001
Accepted April 1, 2002 ■

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