

Exposure to partner violence and child behavior problems: A prospective study controlling for child physical abuse and neglect, child cognitive ability, socioeconomic status, and life stress

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Abstract

Previous research suggests an association between partner violence and child behavior problems. However, methodological shortcomings have precluded the formation of directional conclusions. These limitations include failure to control for the effects of child physical abuse and general life stress, employment of nonrepresentative samples from battered women's shelters, and reliance on a single contemporaneous reporter, usually the mother, for information on both independent and dependent measures. This study used prospective, longitudinal data ($N = 155$) and multiple informants to examine the relation between maternal reports of partner violence in the home and teacher- and youth-report ratings of concurrent and prospective child behavior problems. Hierarchical multiple regression analyses were used to control for the effects of child physical abuse, child physical neglect, socioeconomic status, child cognitive ability, and life stress. The contribution of partner violence to child behavior problems was confirmed for boys' ($n = 81$) externalizing problems and girls' ($n = 74$) internalizing problems. Child developmental status at the time of exposure further influenced these relations. For boys, behavior problems in middle childhood were most strongly related to contemporaneous partner violence, whereas behavior problems among both boys and girls at age 16 were most strongly related to partner violence exposure during the preschool years.

Children who observe partner violence constitute a significant population of at-risk youth. Estimates extrapolated from the National Family Violence Survey (Straus, Gelles, & Steinmetz, 1980) indicate that 3–4 million children

between the ages of 3 and 17 years of age are exposed to interparental physical violence annually (Carlson, 1984). A substantial body of research suggests that exposure to partner violence has a deleterious impact on children's emotional and behavioral development (see Buehler et al., 1997; Davies & Cummings, 1994; Edleson, 1999a; and Grych & Fincham, 1990, for reviews). Correlational data demonstrate that exposure to interparental violence in childhood is associated with concurrent and prospective indices of child behavior problems (Augustyn, Parker, Groves, & Zuckerman, 1995; Emery, 1982, 1989; Grych, Jouriles, Swank, McDonald, & Norwood, 2000; Holden & Ritchie, 1991; Kerig, 1998), although not ev-

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eryone has found this association (Hughes, 1988; Jouriles, Barling, & O'Leary, 1987; Rosenbaum & O'Leary, 1981a).

The majority of this literature has been grounded in the theoretical framework of social learning theory, which posits a strong association between partner violence and later behavior problems through observational learning (Bandura, 1973; Bandura & Walters, 1963). For example, a social learning perspective would hold that male to female violence in the home models aggressor and victim roles, which, in turn, promotes aggressive and undercontrolled behaviors among males and inhibition and overcontrol among females. However, social learning theory provides an incomplete model for examining the relation between exposure to partner violence and child adjustment because it fails to account for the influence of developmental status on this relation. Moreover, social learning theory is limited in its capacity to explain the array of maladaptive patterns that follow from exposure to partner violence.

An organizational model of development provides a broader framework for conceptualizing the impact of partner violence. Within this perspective, development is conceptualized as a hierarchically integrative process, such that experience at each phase and the resulting organization that encompasses it form the foundation for later patterns of adaptation and experiential integration (Sroufe, 1979; Sroufe & Rutter, 1984). In this view, partner violence represents a major perturbation that has the potential to profoundly influence development. The intense stimulation and threat attendant to partner violence is highly arousing and even terrifying for the child witness. The arousing nature of such experiences is intensified because it is completely uncontrollable, perhaps even more so than other stressors such as direct abuse, which may at times be avoided through actions of the child. At any age, especially if chronic, such experiences are emotionally dysregulating. In early childhood, however, when the capacity for emotional regulation is emerging, such experiences may be especially detrimental. Emotional self-regulation is not only the core issue for the preschool period, it is the foundation for negoti-

ating the major issues of all later periods (Sroufe, 1995). For example, sustaining interaction with peers, negotiating conflict, and coordinating close friendships with the demands of the larger group all entail the capacity for flexible emotional regulation (Sroufe, Egeland, & Carlson, 1999). Emotional dysregulation is also at the core of conduct problems and all major psychiatric disorders (Cole, Michel, & O'Donnell, 1994). Thus, serious compromising of emotional regulation may have a cascading effect, ultimately affecting wide areas of functioning. All of this is in addition to the indirect effects on the child that occur due to compromised caregiver responsiveness to the child's needs in the face of their own distress.

Within an organizational framework, early experience provides a foundation for subsequent adaptations such that it may influence later adjustment above and beyond more temporally proximal experiences (Sroufe, Carlson, Levy, & Egeland, 1999; Sroufe, Egeland, & Kreutzer, 1990). Thus, exposure to partner violence during early childhood is expected to have a stronger and more enduring negative effect on future adaptation than later exposure experiences, both for the reasons outlined above and because of the child's strong identification with the parent at this age. In support of this hypothesis, several studies have found that exposure to partner violence has a particularly strong impact on infants and preschoolers (Fantuzzo, Boruch, Beriama, Atkins, & Marcus, 1997; Fantuzzo et al., 1991; Hughes, 1988; Hughes & Barad, 1983; Stagg, Wills, & Howell, 1989). However, other studies have found more prominent behavioral and emotional problems among school-aged children who have been exposed to partner violence (Carlson, 1990; Hughes, Parkinson, & Vargo, 1989). Although there is some evidence that the relation between partner violence and children's behavioral adjustment may vary as a function of the child's developmental status at the time of exposure, the findings to date have been equivocal. Moreover, the question of whether the timing of exposure affects the relation between partner violence and prospective, rather than concurrent, adaptation remains to be addressed.

Studies exploring gender differentials in the impact of partner violence on children's behavioral adjustment are similarly disparate. The dominant belief in the family violence literature is that boys are more vulnerable than girls to the impact of stressful life events (Jaffe, Wolfe, Wilson, & Zak, 1986; Zaslow & Hayes, 1986). In support of this assertion, Porter and O'Leary (1980) found that marital conflict was positively correlated with boys' behavior problems across a range of externalizing and internalizing disorders but was not related to girls' behavior, even though the girls came from more discordant family environments. These data are consistent with other studies demonstrating stronger negative effects of partner violence on boys' adjustment than on girls' adaptation (Hughes & Barad, 1983; Reid & Crisafulli, 1990). Adult retrospective reports further suggest that males are at greater risk for negative developmental sequelae following childhood exposure to domestic violence than are females (Carlson, 1984; Rosenbaum & O'Leary, 1981b). In contrast, several investigations found that girls are at higher risk than males for manifesting internalizing and externalizing behavior problems following exposure to marital violence (Cummings, Pepler, & Moore, 1999; Holden & Ritchie, 1991; Spaccarelli, Sandler, & Roosa, 1994). Still, other studies suggest equally deleterious consequences for boys and girls (Carlson, 1990; Fantuzzo et al., 1991; Grych et al., 2000; Grych, Seid, & Fincham, 1992; Hughes et al., 1989; Katz & Gottman, 1993; Kerig, 1998; O'Keefe, 1994; Sternberg et al., 1993).

One interpretation of these seemingly contradictory data posits that the gender differential among child witnesses of partner violence is of a qualitative, rather than quantitative, nature with girls being predisposed to develop *internalizing* problems and boys being at greater risk for later *externalizing* disorders (Emery, 1982; Moffitt & Caspi, 1998). Support for this assertion derives from experimental studies showing that boys report more anger in response to observing hostile exchanges between adults, whereas girls report more fear and distress (Hennessy, Rabideau, Cicchetti, & Cummings, 1994). In addition,

several studies found that boys display increased aggression and externalizing behaviors in response to witnessing interparental violence, whereas girls are more apt to exhibit emotional distress or depression (Crockenberg & Covey, 1991; Sternberg et al., 1993).

In sum, the extant literature suggests that there is a negative association between exposure to partner violence and children's behavioral adjustment. Furthermore, age and gender appear to influence this relation, though studies have yielded equivocal findings with regard to their specific effects. While providing a useful departure point for the current investigation, prior research addressing the relation between exposure to partner violence and child behavior problems is constrained by a multitude of methodological limitations that may contribute to the inconsistent patterns of observed data reviewed thus far.

First, the majority of research addressing the impact of partner violence on children's adjustment derives from retrospective accounts of mothers and children in battered women's shelters (see Fantuzzo et al., 1997; Fantuzzo & Lindquist, 1989; and Spaccarelli et al., 1994, for discussion). Participants from shelter-based samples are likely to be nonrepresentative of the larger population of children exposed to partner violence with respect to the severity of abuse, family income, social and kinship support, and other factors (Edleson, 1999a; Kashani & Allan, 1998). Studies comparing child witnesses of partner violence from shelter and community samples indicate that children residing in shelters exhibit higher levels of social, emotional, and behavioral impairment, independent of family violence variables (Fantuzzo et al., 1991; Jouriles, Norwood, McDonald, Vincent, & Mahoney, 1996; Wolfe, Zak, Wilson, & Jaffe, 1986). Furthermore, these children exhibit some spontaneous reduction in behavior problems upon returning home, suggesting that the crisis events surrounding shelter placement may account for some of the variance in child behavior problems (Wolfe et al., 1986).

Second, the extant research may be confounded by shared method variance, which results from reliance on a single informant, usually the mother, to report on both independent

measures of children's exposure to partner violence and outcome measures of children's behavioral adjustment (Edleson, 1999a; Fantuzzo & Lindquist, 1989; see Sternberg, Lamb, & Dawud-Noursi, 1998, for discussion). Maternal reports may distort the intensity of children's behavior problems, depending on the mother's defensiveness, desire for help, or psychological distress (Hughes, 1988). Concerns related to shared method variance are particularly salient when interpreting findings from shelter-based samples. The crisis events precipitating a woman's flight from home likely result in extreme emotional duress, which may interfere with her ability to accurately report on either the nature of violence within the family or her children's behavioral and emotional adjustment (Hughes et al., 1989; Spaccarelli et al., 1994; Sternberg et al., 1993). Therefore, the use of multiple informants is the most effective, though underutilized, technique to assess the relation between partner violence and children's adjustment (Grych & Fincham, 1990; Sternberg et al., 1998).

Third, research in this area is limited by a pervasive reliance on indices of violence exposure as univariate predictors of later child pathology (Jouriles et al., 1987). Families affected by partner violence often experience multiple jeopardies under the strains of poverty, female-headed households, child physical abuse, low levels of parental education, and residential instability (Fantuzzo et al., 1997; Spaccarelli et al., 1994). Concomitant stressors of this nature may contribute independently to children's adjustment problems and/or mediate the effects of partner violence on children's adaptation (Spaccarelli et al., 1994). For example, Wolfe and colleagues found that reported marital conflict failed to predict child behavior problems when the effects of maternal stress (i.e., disruption and change in the mother's life) were statistically controlled (Wolfe, Jaffe, Wilson, & Zak, 1985). The importance of controlling for the role of other stressors with appropriate comparison groups and statistical techniques is supported by research showing a cumulative negative impact on children's adaptation as a function of exposure to multiple stressors (Rutter, 1985; Sameroff, in press).

Finally, parent-child aggression, though often proposed as a mediator of the observed association between partner violence and child behavior problems (Hughes, 1988; Jouriles et al., 1987), is rarely controlled in these studies. Children in families reporting high levels of partner violence are more likely to be abused, physically or otherwise, by one or both parents (for reviews, see Appel & Holden, 1998; Edleson, 1999b; McCloskey, Figueredo, & Koss, 1995; Moffitt & Caspi, 1998). Parent reports of parent-child aggression are more strongly correlated with child behavior problems than are reports of partner violence (Jouriles et al., 1987). Further, abused child witnesses of partner violence exhibit higher rates of problem behaviors than either non-abused child witnesses or comparison children (Hughes, 1988). Even if not directly victimized by parent-child aggression, children in homes characterized by partner violence may be more vulnerable to emotional and physical neglect as a consequence of parental unavailability, which may contribute to later maladjustment (Erickson & Egeland, 1996). Thus, it is critically important that research in this area consider the variance in child behavior problems that is explained by other life stressors, particularly child physical abuse and neglect (Cummings, 1998; Widom, 1989).

Using data from a prospective, longitudinal study of firstborn children of low-income mothers, the current study examined several methodological issues heretofore not systematically addressed. First, the sample was derived from a community-based population that was selected independently of partner violence status. Second, this investigation employed multiple informants, thereby eliminating the distorting influence of shared method variance. Finally, the variance in child behavior problems that may be accounted for by other risk and experiential factors, including child physical abuse and neglect, child cognitive ability, socioeconomic status, and life stress, was statistically controlled in order to examine the unique contribution of exposure to male to female partner violence to children's behavioral adjustment.

This investigation examined the contribu-

tion of maternal reports of male to female partner violence in the home (hereafter referred to as partner violence) to children's contemporaneous and prospective behavior problems, independent of other known risks to child development. First, correlational analyses were conducted to examine the relation between childhood exposure to partner violence during two time periods (preschool and middle childhood) and outcome measures of children's behavioral adjustment, as rated by teachers in middle childhood (Grades 1–3) and by teachers' and youth's self-report in adolescence (age 16). Second, multiple regression analyses were used to examine whether exposure to partner violence in the home made an independent contribution to the prediction of children's externalizing and internalizing behavior problems, while statistically controlling for other demographic and experiential factors that have been found to contribute to child behavior problems, including child physical abuse and neglect (Eckenrode, Laird, & Doris, 1993), child cognitive ability (Lynam, Moffitt, & Stouhamer-Loeber, 1993), socioeconomic status (SES; Guerra, Huesmann, Tolan, Van Acker, & Eron, 1995), and life stress (Pianta, Egeland, & Sroufe, 1990). In addition, the extent to which exposure to partner violence during the preschool period (18–64 months) predicted later behavior problems above and beyond more proximal exposure experiences in middle childhood (Grades 1–3) was examined by entering the preschool exposure variable last in the regression models. An alternative regression model would enter the variables chronologically to assess whether early exposure remained significant after the entry of later exposure. However, the preschool exposure variable was entered into the final step of the regressions in order to directly test our hypothesis that early experiences of partner violence in the home have a significant effect on child behavioral adjustment above and beyond more temporally proximal exposure experiences. Finally, all analyses were run on male and female subsamples to examine gender differences in the relations between witnessing partner violence and children's internalizing and externalizing behavior problems.

Method

Participants

Participants were drawn from the Minnesota Parent–Child Project, a 25-year longitudinal study of developmental adaptation in a sample of young mothers living in poverty ($M = 20.5$ years, $SD = 3.74$) and their firstborn children (see Egeland, 1991; for complete sample data, see Egeland & Brunquell, 1979). The original sample of primiparous mothers ($N = 267$) was recruited in 1975–1977 from the Minneapolis Public Health Clinic, where they were receiving prenatal care. Of 190 participants at 18 months when the current investigation began, 82% ($N = 155$; 81 males, 74 females) were also available at every assessment throughout the preschool and school years and constitute the sample used in this study.

The total sample of mothers was 83% Caucasian; 12% African American; and 5% Latino, Asian, or Native American. Approximately 15% of the children were of mixed racial heritage. The families were identified as at-risk for parenting problems due to poverty (100%), single motherhood (62%), and low maternal educational attainment (40% had not completed high school). There were no significant differences between the current participants and those not included in these analyses with respect to relevant demographic variables.

Procedures

Extensive data were collected at several points in time using multiple informants and assessment procedures, including psychological tests, interviews, questionnaires, and direct observations of child behaviors and mother–child interactions. In the first year, home visits were conducted six times, and there was an additional lab visit at 12 months. After the 1st year, home visits were conducted every 6 months until 64 months (except at 36 months), annually thereafter through Grade 3, and at several time points throughout adolescence. Detailed information was obtained from teacher interviews, teacher ratings and behavior checklists, and school files at the end of first, second, and third grades and when the

Table 1. *Partner violence rating scale*

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0. No evidence of family violence.
 1. Slight evidence of violent interaction between parent and any individual other than partner or evidence of violent interaction among extended family members, past or present.
 2. Rare (has not occurred more than twice) mild form of violent interaction (this includes a single shove that occurs in an episode that is quickly terminated).
 3. Mild form of violent interaction that has occurred on more than two occasions.
 4. More severe form of interaction that occurs on one occasion only and is not repeated. The interaction may result in a mild form of injury for the mother that does not require medical attention, and the mother does not seek shelter. The mother may remain in this relationship or may terminate it, but episodes of violence are not repeated with this partner or with subsequent partners.
 5. More severe form of violent interaction that has occurred on more than one occasion between mother and partner(s). The interaction elicits fear and may include mild injury for the mother, not requiring medical attention.
 6. Severe form of violent interaction. This interaction is of a chronic nature and can easily, and often does, result in injury to the mother. Medical attention may be required and shelter placement may follow.
 7. Most severe form of violent interaction. This interaction has the potential for serious injury to the mother and, if it occurs, should require medical attention, police intervention, and/or shelter placement. It is frequently accompanied by threats to the mother's life.
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participants were 16 years old. Measures used in the current analyses assessed the level of male to female partner violence in the home as reported by the mother, child physical abuse and neglect, child cognitive ability, SES, mother-reported life stress, and teacher and youth self-report ratings of child behavior problems.

Independent measures

Partner violence ratings. The degree of mother-reported male to female partner violence in the home was rated using an 8-point scale that was developed to reflect the frequency and severity of physical violence directed toward the mother by her partner in the home (see Table 1). Partner violence ratings were based on information from face to face interviews with the biological mother and on items pertaining to physically violent behavior between adults in the child's home taken from the Life Events Scale (LES, see description below). The partner violence ratings were made by trained coders after a comprehensive review of all the interview and life stress data in a given time period. Because there were no specific questions probing the presence or nature of partner violence in the home, information about physically violent behavior between the adults in the home was coded

whenever it was mentioned in the face to face interviews or on the LESs. Thus, the partner violence ratings were based on spontaneous maternal disclosures of partner violence in the home. In this poverty sample, biological fathers and other male caregivers were not consistent participants in the children's lives. Because neither biological fathers nor father figures were available for study in this sample, the partner violence ratings are based on maternal report of male to female partner violence only.

To increase the reliability of the partner violence ratings, they were summed across several interviews during each of two age periods. The preschool rating was based on semistructured interviews and LESs administered at 18, 24, 30, 42, 54, and 64 months. The middle childhood exposure rating consisted of data from semistructured interviews and LESs administered at the end of first, second, and third grades. Interrater reliability was calculated at each time point on the basis of 50 ratings that were completed by two graduate research assistants. Pearson *r* calculations for interrater reliability ranged from .93 to .99.

Child maltreatment history. Sample participants have been classified into maltreatment groups at three time periods, infancy (birth–

24 months), preschool (24–64 months), and middle childhood (Grade 6; Egeland, 1997). Current analyses employed the second of these classifications because it most closely coincides with the partner violence ratings and is the most valid of the available classifications. Child physical abuse and neglect were coded dichotomously (present/absent) for each participant on the basis of information from several sources, including home observations, extensive interview data, and child protection records. All sources of information were available for each participant in the current sample ($N = 155$). Using all the available data, a team of project staff conferenced and classified families into one or more of the maltreatment groups. Despite the subjectivity of this case conference approach, there was nearly perfect agreement among staff members regarding maltreatment classification.

Physical abuse was operationalized as parental acts that resulted in physical damage to the child (i.e., bruises, cuts, burns). Physical neglect was classified as incompetent and irresponsible management of the child's day to day care, inadequate nutritional or health care, and dangerous home environments due to insufficient supervision by a primary caregiver. All cases of child physical abuse ($n = 14$) had been referred to child protection services or were under the care of child protection services at some point prior to the physical abuse rating. Children who were classified as neglected ($n = 14$) had been, or were currently, under the care of either the public health nurse or child protection services. Two of the participants in this sample were classified as both physically abused and neglected.

Child cognitive ability. The Wechsler Intelligence Scale for Children—Revised (WISC-R; Wechsler, 1974) was administered to each participant in third grade to assess intelligence or mental capacity. The WISC-R demonstrates high test–retest ($r = .95$) and split-half ($r = .96$) reliabilities for the entire scale with populations of children ages 6–16 years (Wechsler, 1974). The Vocabulary, Similarities, and Block Design subtests were administered as an abbreviated version of the entire scale. These three subscales adhere to estab-

lished criteria for research use (Salvia & Ysseldyke, 1985), correlate highly with full-scale IQ scores, and have adequate reliability and validity (Sattler, 1988). Prorated IQ scores were derived with Sattler's (1988) formula and used in these analyses.

SES (Grades 1–3). Household SES was assessed in Grades 1, 2, and 3 as the mean of z scores from multiple sources of information. At all three time points, parents' occupational status was classified using the revised Duncan Socioeconomic Index (Duncan, 1961; Stevens & Featherman, 1981) and mother's level of education was obtained. In Grade 3, a maternal report of household income was collected in addition to the other two measures. SES indices based on z -score means were transformed into t scores to produce positively scaled distributions for these variables at each time point. The t scores from Grades 1, 2, and 3 were averaged to form the composite index of SES used in the current analyses.

LES. Life stress was assessed using a modified version of the 40-item Life Events Inventory (Cochrane & Robertson, 1973) with items added and deleted to increase its relevance to the project sample (Egeland & Deinard, 1975). The resultant 39-item LES was designed to assess the amount of social and economic stress experienced by the family. Life stress data were collected during each of 10 semi-structured maternal interviews between 12 months and third grade. The interviewer asked whether each event (e.g., job loss, death of a family member) had occurred since the preceding assessment. Positive responses were probed further to enable independent, trained coders to rate the severity of each stressor on a 3-point scale reflecting the extent to which the event was disruptive to the family's functioning (Egeland, Breitenbucher, & Rosenberg, 1980; Pianta & Egeland, 1990).

Each LES item was weighted for severity based on established criteria that specified the frequency of the experience since the last assessment and the extent to which the event involved a person with whom the mother had a close relationship. For example, if the par-

participant indicated that "someone in the family was convicted of a violation," the response would be weighted as follows: (0) there was no consequence besides a warning or parking ticket; (1) a household member was convicted of speeding or other moving violation *or* a family member on whom the mother is not dependent and who does not reside in the home committed a more serious violation (i.e., drunk driving, burglary); (2) a household member was convicted of a moderate violation (i.e., drunk driving) that led to hardship (i.e., loss of license); and (3) a conviction of a more serious crime (i.e., weapon possession, assault) that was committed by someone on whom the mother was dependent for support (i.e., boyfriend, mother's parents). Across all items, the mean interrater agreement was .86.

At each time point, a total weighted life stress score was computed by summing the number of items checked on the scale, with the weights assigned according to the severity of each stressor. The current analyses were conducted using a composite life stress score, which was calculated by summing across standardized *z* scores at each time point. Any LES items pertaining to violence in the home that were used to inform the partner violence ratings were *not* included in this composite.

Dependent measures

Internalizing and externalizing behavior problems. During interviews conducted with teachers when the participants were in first, second, and third grades, and when the participants were 16 years old, teachers completed the Child Behavior Checklist: Teacher's Report Form (TRF; Achenbach & Edelbrock, 1986). The Child Behavior Checklist (CBC) is designed to assess children's behavior problems and social competence and has demonstrated high reliability and validity (Achenbach, 1991a, 1991b). The checklist consists of 118 behavioral descriptions, which are rated by the teacher as *not true* (0), *somewhat or sometimes true* (1), or *very true or often true* (2). Eight subscale scores, an internalizing score, an externalizing score, and a total problem score are derived from the TRF. Teacher

participation in this study was outstanding. Of over 500 teachers asked to contribute CBC data, only one declined to participate.

At the time of the 16-year interview, participants completed the Youth Self Report (YSR; Achenbach, 1991c), which is the CBC corollary that allows adolescents to report on their own problem behaviors. The YSR yields the same subscale and broadband scores as the TRF. The broadband externalizing and internalizing scales from the TRF and YSR were used for analyses in this study.

Raw scores were transformed into *t* scores, and two composite behavior problem ratings were calculated for each participant. Then, *t* scores from the TRF were summed across Grades 1, 2, and 3 as an indicator of behavior problems in middle childhood. TRF and YSR scores from the 16-year assessment were averaged to yield an adolescent behavior problem rating.

The current study incorporated both self- and teacher-report information at age 16 in an effort to obtain a maximally reliable and valid reflection of adolescent behavioral adjustment. It has been suggested that adolescents may produce a more accurate behavioral picture through self-reports than do outside informants, particularly with respect to internalizing problems (Jensen et al., 1999). Although low correlations between multiple informants on the CBC have been interpreted as indicating unreliability, Achenbach and colleagues note that the low correlations observed across different informants reflect the contribution of unique, but valid, information by each reporter (Achenbach, McConaughy, & Howell, 1987).

Results

Descriptive findings

The mean and standard deviation for each independent predictor and behavioral outcome are presented in Table 2. Males and females were compared on each measure to examine gender differences. Males and females obtained comparable scores on all measures, with one exception. Ratings of partner vio-

Table 2. Descriptive characteristics of the total sample and gender comparisons for males and females

Variable	Total Sample (<i>N</i> = 155)		Males (<i>n</i> = 81)		Females (<i>n</i> = 74)		<i>t</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
1. WISC-R	104.07	16.12	103.93	16.86	104.23	15.37	-0.12
2. Socioeconomic status	49.59	9.06	49.20	9.07	50.02	9.09	-0.56
3. Life stress	5.41	2.37	5.37	2.19	5.46	2.57	-0.251
4. Child physical abuse	0.09	0.29	0.10	0.30	0.08	0.28	0.381
5. Child neglect	0.09	0.29	0.09	0.28	0.10	0.30	-0.176
6. PV rating (middle childhood)	0.45	1.00	0.31	0.69	0.60	1.25	-1.75
7. PV rating (preschool)	0.45	0.79	0.32	0.63	0.60	0.92	-2.28*
8. Internalizing (Grades 1-3)	53.70	7.93	54.45	8.32	52.88	7.45	1.24
9. Internalizing (age 16)	53.19	7.23	52.71	7.09	53.72	7.40	-0.86
10. Externalizing (Grades 1-3)	55.62	8.93	56.35	8.89	54.81	8.97	1.07
11. Externalizing (age 16)	57.20	7.94	56.67	7.44	57.78	8.47	-0.87

Note: WISC-R, Wechsler Intelligence Scale for Children—Revised; PV rating, partner violence rating.
* $p < .05$.

lence during the preschool period were consistently higher for females, $t(153) = -2.28$, $p < .05$.

Partner violence was a prominent risk in this sample. During the preschool period (18–64 months), 12% of the mothers reported mild partner violence in their primary relationship (i.e., a rating of 3 or lower on the partner violence rating scale; see Table 1) and 25% reported more severe levels of partner violence in the home (i.e., a rating of 4 or higher on the partner violence rating scale; see Table 1). During the middle childhood years (Grades 1–3), 5% of the mothers reported mild partner violence in their primary relationship and 16% reported more severe levels of partner violence in the home.

A cutoff point of $t = 63$, which corresponds to the 90th percentile, was used to identify clinical levels of externalizing and internalizing symptoms on the TRF and YSR. During the middle childhood period (Grades 1–3), 23% of the total sample obtained scores in the clinical range for externalizing problems and 11% obtained scores in the clinical range for internalizing problems. At the time of the adolescent reporting (age 16), 21% of the total sample obtained scores in the clinical range for externalizing problems and 8% obtained

scores in the clinical range for internalizing problems.

Relations among independent and dependent measures

Pearson r correlations between all variables are shown in Table 3. There were a number of significant associations among the predictor variables themselves, as well as between the independent measures and the dependent behavioral ratings. All the predictor variables, except for child cognitive ability, were correlated significantly and in the expected direction with one or both indices of partner violence in the home; r values (155) ranged from $-.21$ to $.45$. There were modest relations between preschool exposure to partner violence and both externalizing, $r(155) = .26$, $p < .01$, and internalizing, $r(155) = .17$, $p < .05$, behavior problems at age 16.

Gender differences in these relations were present, but complex. As seen in Table 4, exposure to partner violence in middle childhood was related to contemporaneous reports of boys' externalizing behavior problems in middle childhood; $r(81) = .29$, $p < .01$. Interestingly, exposure to partner violence in the preschool period was associated with boys'

Table 3. Bivariate correlations among independent predictors and child outcomes for the total sample (N = 155)

Variable	1	2	3	4	5	6	7	8	9	10
1. WISC-R	—									
2. Socioeconomic status	.42**	—								
3. Life stress	-.02	-.15	—							
4. Child physical abuse	-.14	-.13	.16*	—						
5. Child neglect	-.34**	-.29**	.11	.06	—					
6. PV rating (middle childhood)	-.11	-.21*	.28**	.14	.26**	—				
7. PV rating (preschool)	-.05	-.14	.44**	.18*	.02	.45**	—			
8. Internalizing (Grades 1–3)	-.09	-.17*	.10	.18*	.02	.01	.06	—		
9. Internalizing (age 16)	-.09	-.15	.13	.02	.13	.12	.17*	.16	—	
10. Externalizing (Grades 1–3)	-.04	-.13	.21**	.29**	.07	.11	.06	.45**	.11	—
11. Externalizing (age 16)	-.04	-.08	.18*	.10	-.03	.13	.26**	.15	.47**	.42**

Note: WISC-R, Wechsler Intelligence Scale for Children—Revised; PV rating, partner violence rating.
* $p < .05$. ** $p < .01$.

externalizing behavior in adolescence; $r(81) = .31$, $p < .01$. There were no significant associations between boys' exposure to partner violence in both time periods and either contemporaneous or prospective ratings of internalizing behavior. Conversely, girls' exposure to partner violence in the preschool period was positively related to teacher ratings of internalizing behaviors in adolescence; $r(74) = .29$, $p < .05$ (see Table 4). However, there were no significant associations between girls' exposure to partner violence in both time periods and either contemporaneous behavior problem ratings in middle childhood or externalizing behaviors in adolescence.

Gender differences were further supported by comparing the strength of the relations between exposure to partner violence and boys' and girls' behavior problems. Specifically, the relation between exposure to partner violence in middle childhood and contemporaneous externalizing behavior was stronger for boys than for girls, $z(155) = 1.64$, $p < .05$. The correlation between exposure to partner violence in early childhood and externalizing behavior at age 16 was not significantly different between boys and girls. Exposure to partner violence during early childhood was, however, more strongly related to internalizing behavior problems at age 16 among girls than among boys, $z(155) = 2.01$, $p < .02$.

Analyses identifying the unique effects of partner violence in the home

Hierarchical multiple regression analyses of externalizing and internalizing child behavior problem ratings in middle childhood and adolescence were conducted on the predictor variables to examine the unique contribution of exposure to partner violence to contemporaneous and prospective child behavioral outcomes.¹ The seven predictor variables were entered hierarchically in the following order: the WISC-R score, the composite socioeconomic index for Grades 1–3, the cumulative life stress score, the child physical abuse score, the child neglect score, the middle childhood partner violence exposure rating (Grades 1–3), and the preschool partner vio-

1. The correlations between the TRF and YSR were low for ratings of externalizing, $r(143) = .30$, and internalizing, $r(143) = .16$, behaviors. However, these r values are consistent with interrater agreement in other studies (see Achenbach et al., 1987, for review). In follow-up analyses that employed adolescent outcome measures based on either the TRF or YSR alone, the data followed the expected pattern. Using the TRF alone, the adolescent findings for externalizing behavior were strengthened but the internalizing outcomes became nonsignificant. In contrast, using the YSR alone, the adolescent findings for internalizing behavior were strengthened but the externalizing outcomes became nonsignificant.

Table 4. Correlations among independent predictors and outcomes for males ($n = 81$, below diagonal) and females ($n = 74$, above diagonal)

Variable	1	2	3	4	5	6	7	8	9	10	11
1. WISC-R	—	.49**	-.03	-.18	-.44**	-.04	-.06	.02	.09	-.08	.14
2. Socioeconomic status	.37**	—	-.14	-.15	-.30**	-.19	-.20	-.22	-.12	-.11	.00
3. Life stress	-.01	-.16	—	.14	.08	.27*	.45**	.14	.19	.24*	.14
4. Child physical abuse	-.10	-.12	.19	—	-.10	.22	.21	.19	.01	.16	-.03
5. Child neglect	-.25*	-.29**	.14	.19	—	.22	-.02	.01	-.04	.02	-.22
6. PV rating (middle childhood)	-.23*	-.3**	.31**	.05	.37**	—	.50**	.05	.07	.03	.09
7. PV rating (preschool)	-.05	-.096	.43**	.17	.07	.29**	—	.13	.29*	.05	.21
8. Internalizing (Grades 1–3)	-.17	-.11	.058	.17	.03	.00	.04	—	.10	.41**	.08
9. Internalizing (age 16)	-.24*	-.19	.059	.04	.28*	.18	-.03	.22*	—	.20	.58**
10. Externalizing (Grades 1–3)	-.01	-.14	.18	.40**	.16	.29**	.12	.48**	.03	—	.37**
11. Externalizing (age 16)	-.06	-.17	.23*	.23*	.17	.19	.31**	.24*	.36**	.48**	—

Note: WISC-R, Wechsler Intelligence Scale for Children—Revised; PV rating, partner violence rating.
* $p < .05$. ** $p < .01$.

lence exposure rating (18–64 months). The independent predictors were entered individually to examine the influence of specific contextual variables that have emerged as salient contributors to children's behavioral adjustment in previous research. As described previously, the preschool partner violence rating was entered in the final step of each model to determine whether exposure in early childhood predicted behavior problems in middle childhood and adolescence above and beyond more temporally proximal partner violence exposure in middle childhood. Separate multiple regressions were conducted to predict internalizing behavior and externalizing behavior problems in Grades 1–3 and at age 16. Only regression analyses yielding significant findings are reported in tabular form.

As suggested by the correlations for the total sample, there were no significant contributions of exposure to partner violence in the home to behavior problems in middle childhood. However, regression analyses with the total sample revealed a unique contribution of exposure to partner violence in the preschool years to externalizing behavior problems at

age 16 (see Table 5). This predictive relation was above and beyond the influences of child cognitive ability, family economic status, life stress, child directed abuse and neglect, and more temporally proximal exposure to partner violence in middle childhood ($\Delta R^2 = .03$, $p = .04$). Notably, early exposure to partner violence was one of only two variables to contribute significant predictive strength to behavior problems at age 16, the other variable being life stress ($\Delta R^2 = .03$, $p = .04$). Together, the predictors in the model accounted for 8% of the variance in externalizing behavior at age 16. Moreover, in follow-up analyses we found that, rather than being attenuated, this predictive relation appeared even more robust when the TRF score from middle childhood was added to the model. When child behavior problems in Grades 1–3 were controlled, the contribution of preschool partner violence exposure to the remaining variance in externalizing behavior in adolescence was strengthened ($\Delta R^2 = .04$, $p = .01$).

Independent regression analyses on male and female subsamples confirmed and strengthened the associations revealed by the zero-

Table 5. Hierarchical multiple regression of externalizing behavior at age 16 on independent predictors for the total sample (N = 155)

Step	Predictor	B	SEB	β	R ²	ΔR^2	p Value
1.	WISC-R	.02	.04	.04	.00	.00	.62
2.	Socioeconomic status	-.10	.08	-.12	.01	.01	.20
3.	Life stress	.57	.27	.17	.04	.03	.04*
4.	Child physical abuse	2.04	2.26	.07	.05	.01	.37
5.	Child neglect	-1.55	2.39	-.06	.05	.00	.52
6.	PV rating (middle childhood)	.74	.68	.09	.06	.01	.28
7.	PV rating (preschool)	2.05	.97	.20	.08	.03	.04*

Note: SEB, standard error of B; WISC-R, Wechsler Intelligence Scale for Children—Revised; PV rating, partner violence rating.

* $p < .05$. $F(7, 147) = 1.91$, $p < .07$

Table 6. Hierarchical multiple regression of externalizing behavior in Grades 1–3 on independent predictors for boys (n = 81)

Step	Predictor	B	SEB	β	R ²	ΔR^2	p Value
1.	WISC-R	-.00	.06	-.01	.00	.00	.96
2.	Socioeconomic status	-.16	.12	-.16	.02	.02	.19
3.	Life stress	.66	.46	.16	.05	.03	.15
4.	Child physical abuse	11.21	3.14	.38	.19	.14	.00***
5.	Child neglect	2.06	3.52	.07	.19	.00	.56
6.	PV rating (middle childhood)	3.63	1.49	.28	.25	.06	.02*
7.	PV rating (preschool)	-.59	1.64	-.04	.25	.00	.72

Note: SEB, standard error of B; WISC-R, Wechsler Intelligence Scale for Children—Revised; PV rating, partner violence rating.

* $p < .05$. *** $p < .001$. $F(7, 73) = 3.47$, $p < .003$.

order correlations. Contemporaneous exposure to partner violence in middle childhood predicted boys' externalizing behavior in Grades 1–3 above and beyond the variance explained by the other predictor variables ($\Delta R^2 = .06$, $p = .02$; see Table 6). However, preschool exposure to partner violence, as assessed from 18 to 64 months, did not add to this relationship. The other predictor variables in the model explained a total of 19% of the variance in boys' externalizing behavior in middle childhood, with child physical abuse making the largest contribution ($\Delta R^2 = .14$, $p = .00$). Still, exposure to partner violence in middle childhood explained an additional 6% of the variance. Together, these predictors accounted for 25% of the variance in externalizing behavior problems during the middle childhood period.

As was evident in the bivariate correlations, regression analyses of boys' behavior

problems at age 16 on the predictors confirmed that preschool exposure to partner violence accounted for boys' externalizing behavior in adolescence better than the more temporally proximal middle childhood exposure variable (see Table 7). Exposure to partner violence in the preschool period accounted for 4% of the variance in boys' externalizing behavior at age 16 ($\Delta R^2 = .04$, $p = .06$), with the other predictors explaining an additional 12% of the variation. Again, this relation became even more pronounced when the level of teacher-reported problem behaviors in middle childhood was added to the model ($\Delta R^2 = .05$, $p = .02$).

As suggested by the bivariate correlations, these analyses revealed a qualitatively different pattern of predictive relations for girls (see Table 8). Exposure to partner violence in the preschool years accounted for significant unique variance in girls' internalizing behav-

Table 7. Hierarchical multiple regression of externalizing behavior at age 16 on independent predictors for boys (n = 81)

Step	Predictor	B	SEB	β	R ²	ΔR^2	p Value
1.	WISC-R	.03	.05	-.06	.00	.00	.62
2.	Socioeconomic status	-.14	.10	-.17	.03	.03	.16
3.	Life stress	.71	.38	.21	.07	.04	.07†
4.	Child physical abuse	4.48	2.76	.18	.10	.03	.11
5.	Child neglect	2.30	3.09	.09	.11	.01	.46
6.	PV rating (middle childhood)	1.01	1.36	.09	.12	.01	.46
7.	PV rating (preschool)	2.81	1.45	.24	.16	.04	.06†

Note: SEB, standard error of B; WISC-R, Wechsler Intelligence Scale for Children—Revised; PV rating, partner violence rating.

†p < .10. F (7, 73) = 1.96, p < .07.

Table 8. Hierarchical multiple regression of internalizing behavior at age 16 on independent predictors for girls (n = 74)

Step	Predictor	B	SEB	β	R ²	ΔR^2	p Value
1.	WISC-R	.05	.06	.09	.01	.01	.43
2.	Socioeconomic status	-.17	.11	-.21	.04	.04	.11
3.	Life stress	.50	.34	.17	.07	.03	.14
4.	Child physical abuse	-.40	3.21	-.02	.07	.00	.90
5.	Child neglect	-.81	3.37	-.03	.07	.00	.81
6.	PV rating (middle childhood)	.06	.77	.01	.07	.00	.94
7.	PV rating (preschool)	2.48	1.19	.31	.13	.06	.04*

Note: SEB, standard error of B; WISC-R, Wechsler Intelligence Scale for Children—Revised; PV rating, partner violence rating.

*p < .05. F (7, 66) = 1.42, p < .22.

ior problems at age 16 ($\Delta R^2 = .06$, $p = .04$). Although the other predictor variables in the model explained 7% of the variance in girls' internalizing behavior at age 16, only the contribution of preschool exposure to partner violence was significant, accounting for an additional 6% of the variance. When the factor of behavior problems in middle childhood was controlled, the contribution of preschool exposure to partner violence remained the same ($\Delta R^2 = .06$, $p = .05$). After entering the other predictor variables into the model, exposure to partner violence in the home at both time points was not significantly associated with girls' behavior problems in middle childhood or with externalizing behaviors in adolescence.

Discussion

Consistent with previous research (Appel & Holden, 1998; Fantuzzo et al., 1997; Spaccarelli et al., 1994), bivariate correlations re-

vealed a substantial degree of overlap among partner violence and other risk factors. The correlations between exposure to partner violence and child behavior problems, though modest, were consistent with earlier work showing a negative relation between witnessing partner violence and child behavioral adjustment (Augustyn et al., 1995; Emery, 1982, 1989; Grych et al., 2000; Kerig, 1998). However, only the associations between exposure to partner violence during the preschool period and child behavior problems at age 16 attained significance in the total sample.

Effects of child gender and developmental status were also apparent, though the relations were again modest. Boys' exposure to partner violence in middle childhood was positively associated with contemporaneous reports of externalizing problems in Grades 1–3, whereas boys' exposure during the preschool period was significantly associated with externalizing problems in adolescence. For girls, expo-

sure to partner violence in the preschool period was positively related to internalizing problems at age 16. This qualitative gender difference is consistent with prior work showing a stronger association between witnessing partner violence and externalizing problems among boys but internalizing symptoms among girls (Crockenberg & Covey, 1991; Emery, 1982; Hennessy et al., 1994; Moffitt & Caspi, 1998; Sternberg et al., 1993).

Although the correlations between exposure to partner violence and child behavior problems were modest, these relations survived a rigorous test. When one controls for factors such as general life stress, which may itself be influenced by partner violence (i.e., relocation, work problems, divorce), some non-extraneous variance is sacrificed. Moreover, the true significance of these associations is made more salient when one considers that these relations were observed by different reporters and span extended time periods. As discussed by Grych and colleagues, shared method variance may have contributed to overestimation of the relation between partner violence and child adjustment in the existing literature (Grych et al., 2000). The use of multiple informants in this study mitigated these confounding effects and likely attenuated the strength of obtained correlations. In addition, the use of multiple informants across large time periods (i.e., from maternal reports in preschool to behavior problem ratings at age 16) further decreased the chances of obtaining strong correlations.

The current findings may also have been attenuated by partner violence data that likely underestimated the true prevalence in this sample. The ratings of male to female partner violence were based on maternal disclosures of partner violence in face to face interviews and LES; however, the participants were not directly queried about the presence and nature of partner violence in the home. Furthermore, the ratings do not account for the possible presence of reciprocal or mother-initiated partner violence in the home. Finally, we had to assume that the target child was exposed to the male to female violence in the home. Thus, our findings may be less robust either due to contamination, either of the nonvio-

lence sample with nonreporters or of the child witness sample with nonwitnesses.

Multiple regression analyses confirmed the relations between childhood exposure to partner violence and both concurrent and prospective child behavior problems. Gender differences were indicated by significant differences at the level of the bivariate correlations, as well as in the hierarchical regression analyses, with stronger contributions of witnessing partner violence to boys' externalizing problems and to girls' internalizing behaviors. These data suggest that partner violence in the home is equally deleterious to the behavioral adjustment of boys and girls. However, the manifestation of these behavior problems may vary by gender (Crockenberg & Covey, 1991; Sternberg et al., 1993).

Child developmental status further influenced these relations with middle childhood exposure making a unique contribution to contemporaneous behavior and preschool exposure relating more strongly to adolescent behavioral adjustment. Although the preschool partner violence rating consisted of more assessments, over shorter time periods, and across a longer period of developmental change than the middle childhood rating, it is not likely that the predictive contribution of the preschool rating to the adolescent outcomes reflects a methodological artifact because the preschool rating did not predict behavior problems in middle childhood above and beyond contemporaneous partner violence exposure.

Contemporary perspectives on development emphasize the disproportionate influence of early experience on later adaptation (Sroufe, 2000). As demonstrated in this study, regulatory capacities can be influenced at all stages of development. However, it is during early childhood that emotional self-regulation capacities and strategies first emerge and are especially sensitive to experiential influence. In the context of the early caregiving environment, the child develops her or his first prototypes for self-regulation and expectations of relationships. These, in turn, form the foundation for both concurrent and later adaptive strategies. Early exposure to partner violence in the home is expected to have an especially

powerful and enduring impact on later adaptation because it influences the formation of the organizational foundation on which subsequent development is predicated. Exposure to partner violence during the middle childhood period may serve as a stressor that interferes with contemporaneous adaptation, but it is not likely to fundamentally compromise core emotion regulation capacities or to warp the child's perception and negotiation of the social world more broadly.

In sum, partner violence in the early caregiving environment may forecast vulnerabilities in future adaptive strategies because it instantiates patterns of self-regulation and behavioral expression on the part of the child that elicit negative and unsupportive reactions from others. Further, witnessing partner violence in later developmental periods may compromise the child's contemporaneous adaptation as was found in the middle childhood years. Partner violence disproportionately affects young families (Hughes & Fantuzzo, 1994), especially those with infants and preschool age children (Belsky & Rovine, 1990; Edleson, 1999a; Fantuzzo et al., 1997). The current findings provide compelling evidence that such experiences have an enduring deleterious impact on children's behavioral adjustment.

Strengths and limitations of the study

The design of the current study adds to the extant literature on children exposed to partner violence in several ways. In contrast to the majority of studies in this area, which employ concurrent ratings of partner violence and child behavior problems, the longitudinal, prospective design of this investigation enables the formation of directional conclusions, as well as the examination of both acute and long-term effects of exposure to partner violence in childhood. It is striking that the role of exposure to partner violence in the home during the preschool period would have been deemed negligible if the current study had not extended into adolescence. Indeed, these data suggest that there are times in development when contemporaneous experience may overshadow the latent, but significant, influence

of early experience on adaptation. It is only through prolonged developmental analysis that the complex relations between early experience and later adaptation can be fully understood.

The current data derive from a community-based sample that was followed using multiple informants and methods. Thus, the problems pertaining to shelter samples (Fantuzzo et al., 1997; Kashani & Allan, 1998) and to shared method variance (Edleson, 1999a; Fantuzzo & Lindquist, 1989; Sternberg et al., 1998) were mitigated, if not wholly avoided. The significant contribution of partner violence in the home to later behavior problems, despite these rigorous controls, speaks to the powerful influence of this risk factor on child development.

Additional contributions were made by the structure of the data analyses in this investigation. As suggested by prior research (Cummins et al., 1999; Osborne & Fincham, 1996), all analyses were run separately on male and female subsamples in order to explore putative gender differences. In addition, this study offers one of the first explorations of the influence of child age, both at the time of exposure to partner violence and at contemporaneous and prospective follow-ups, on the relation between partner violence and child behavior problems. Most studies have not explored the influence of developmental status on the effects of witnessing partner violence (Fantuzzo & Lindquist, 1989); moreover, the few investigations that have done so only explored this factor with respect to the age of the child at the time of exposure (Carlson, 1990; Fantuzzo et al., 1997; Fantuzzo et al., 1991; Hughes, 1988; Hughes & Barad, 1983; Hughes et al., 1989; Stagg et al., 1989). Finally, hierarchical multiple regression analyses were used to partial out the contributions of other demographic and experiential factors to child behavior problems, which have confounded much of the extant research in this area. Thus, the current findings distinguish the effects of exposure to partner violence in the home from those of its associated risks such as poverty, child physical abuse and neglect, and life stress.

Nevertheless, this investigation suffers from

significant limitations, many of which reflect the constraints inherent in any secondary analysis. First, these analyses were limited to maternal reports of male to female partner violence occurring in the home. Therefore, these data preclude the possibility of examining the effects of either reciprocal or mother-initiated partner violence (see Archer, 2000, for a review). Second, we had to assume that the children were exposed to the partner violence occurring in their home at some point in time. Third, the available data did not permit us to explore the possibility that the child's relationship to the perpetrator and the number of violent partners to whom the child was exposed affects these relations. Future research in this area should examine these variables, as both have been found to influence the relation between partner violence and children's adjustment (Osofsky, 1995; Wolak & Finkelhor, 1998). Similarly, the qualitative features of the partner violence in the home were not examined here, though substantial evidence indicates that the frequency (Jouriles et al., 1996; Porter & O'Leary, 1980), intensity (Jouriles, Murphy, & O'Leary, 1989), content (Osborne & Fincham, 1996), and resolution (Cummings, Pellegrini, Notarius, & Cummings, 1989) of the violence to which children are exposed are important factors. Fourth, the extensive data collected on each subject precluded the recruitment and retention of a larger sample, which likely would have rendered the current findings even more compelling. Finally, the limited sample size constrained our capacity to employ more comprehensive developmental designs.

Undoubtedly, the current model likely oversimplifies the complex relations among partner violence, child abuse, neglect, poverty, life stress, and children's behavioral adjustment. Other contributors to pathological family relations such as parental mental illness and parental substance abuse should be incorporated into future investigations. Similarly, these analyses fail to highlight the reciprocal influences among different forms of familial dysfunction such that domestic violence likely contributes to other risk factors (i.e., parental psychopathology, unemployment, child neglect) and vice versa. Ultimate-

ly, however, the analyses employed herein clearly demonstrate the unique contribution of exposure to partner violence in childhood to contemporary and prospective child behavior problems.

Implications for future research and intervention

Exposure to partner violence in the home is associated with, and may initiate a developmental pathway toward, behavioral maladaptation. It is important, however, that a substantial proportion of children who were exposed to partner violence in the home during early and/or middle childhood did not display clinically significant behavior problems, suggesting that some factors may mitigate the negative effects of partner violence in the home. Additional research is needed to identify the factors that contribute to adaptive outcomes, despite prior exposure to interparental violence. For example, potential protective influences may include adaptive parent-child relationships (e.g., secure attachment; Pianta et al., 1990) and active coping strategies (Edleson, 1999a).

As others have suggested (e.g., Spaccarelli et al., 1994), we support the adoption of a process-oriented, multilevel approach to future investigations in this area with the aim of elucidating the mechanisms that mediate the relation between exposure to partner violence and child behavior problems. In accordance with Bergman and Magnusson's (1997) person-oriented approach to the study of individual adaptation over time, we encourage researchers to recognize that the mechanisms that mediate the association between partner violence and child behavior problems may be differentially salient for individual children or groups of children (i.e., boys vs. girls). Finally, research in this area should be grounded within the framework of developmental psychopathology, which aims both to identify the antecedents of particular developmental pathways and to explore the factors that mediate persistence and desistance on these trajectories (Sroufe et al., 1999). Future investigations conducted within this framework will contribute greatly to our understanding of the pro-

cesses that mediate observed associations between partner violence in the home and children's behavioral adjustment.

Several processes have been identified as possible mediators of the relation between partner violence in the home and child adjustment problems. These include interference with the development of empathy and prosocial behaviors (Fantuzzo et al., 1991), the undermining of children's emotional security (Davies & Cummings, 1994) and affect regulation (Gottman & Fainsilber-Katz, 1989; Grych & Fincham, 1993), the negative effect of partner violence on parent-child relationships (e.g., attachment security, Kashani, Daniel, Dandoy, & Holcomb, 1992, disciplinary practices, Crockenberg & Covey, 1991; McCloskey et al., 1995; emotional availability, Osofsky, 1995), the traumatic stress resulting from exposure to partner violence (Pynoos & Eth, 1986), and the modeling and tacit normalization of aggressive approaches to problem solving (Bandura, 1973; Dodge, 1986; McNeal & Amato, 1998). However, additional research is needed to explore the validity of these hypotheses.

These findings further suggest that gender and age must be considered as important influences on the relation between partner violence and children's adjustment. Cognitive-contextual theorists suggest that children's understanding and cognitive appraisals of partner violence may moderate the relation between exposure to violence and child adjustment (Grych & Fincham, 1990; Kerig, 1998). Similarly, children's beliefs in their

self-efficacy and perceived control in coping with family violence may influence their adjustment (Rossman & Rosenberg, 1992). Gender and developmental status likely influence children's understanding of and attributions about male to female partner violence, which may, in turn, have an impact on their behavioral outcomes. However, this assertion is also in need of further empirical testing.

Perhaps most important, these data indicate that exposure to partner violence in the home makes a unique contribution to children's behavior problems. Moreover, the negative effects of witnessing male to female partner violence in childhood are long term and vary according to child gender and developmental status. In this study, the level of partner violence in the home was more consistently related to children's concurrent and prospective behavioral adjustment than cognitive ability, SES, life stress, or child physical abuse and neglect. These findings strongly suggest that future research efforts may be profitably directed toward this heretofore underappreciated threat to children's adjustment. Evidence indicates that exposure to violence in the family of origin (Grych et al., 2000) and behavioral disturbances in adolescence (Magdol, Moffitt, Caspi, & Silva, 1998) may contribute to the perpetration of violence later in adulthood. Thus, it is critically important to elucidate the antecedents, correlates, and developmental consequences of childhood exposure to partner violence in order to develop and implement effective and appropriate intervention and prevention initiatives.

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