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The Effects of Child Abuse and Exposure to Domestic Violence on Adolescent Internalizing and Externalizing Behavior Problems

Carrie A. Moylan[1], **Todd I. Herrenkohl**[1], **Cindy Sousa**[1], **Emiko A. Tajima**[1], **Roy C. Herrenkohl**[2], and **M. Jean Russo**[2]

[1]School of Social Work, University of Washington, Seattle, WA

[2]Center for Social Research, Lehigh University, Bethlehem, PA

Abstract

This study examines the effects of child abuse and domestic violence exposure in childhood on adolescent internalizing and externalizing behaviors. Data for this analysis are from the Lehigh Longitudinal Study, a prospective study of 457 youth addressing outcomes of family violence and resilience in individuals and families. Results show that child abuse, domestic violence, and both in combination (i.e., dual exposure) increase a child's risk for internalizing and externalizing outcomes in adolescence. When accounting for risk factors associated with additional stressors in the family and surrounding environment, only those children with dual exposure had an elevated risk of the tested outcomes compared to non-exposed youth. However, while there were some observable differences in the prediction of outcomes for children with dual exposure compared to those with single exposure (i.e., abuse only or exposure to domestic violence only), these difference were not statistically significant. Analyses showed that the effects of exposure for boys and girls are statistically comparable.

Keywords

Family Violence; Intimate Partner Violence; Child Maltreatment; Adolescent Development; Children's Adjustment

Introduction

Every year an estimated 3.3 million to 10 million children are exposed to domestic violence in their home (Carlson, 1984; Straus, 1992). Studies investigating the prevalence of child abuse find that almost 900,000 children are classified as maltreated by parents and other caretakers (United States Department of Health and Human Services [USDHHS], 2006). Furthermore, different forms of family violence often co-occur, suggesting that many children who witness domestic violence have also directly experienced child abuse (Appel & Holden, 1998; Edleson, 2001; Tajima, 2004). Numerous studies have demonstrated that children exposed to domestic violence and/or child abuse are more likely to experience a wide range of adverse psychosocial and behavioral outcomes (T. Herrenkohl, Sousa, Tajima, R. Herrenkohl, & Moylan, 2008; Sternberg, 2006; Wolfe, Crooks, Lee, McIntyre-Smith, &

Correspondence may be addressed to Carrie A. Moylan, MSW, University of Washington, School of Social Work, 4101 15th Ave NE, Seattle, WA 98105. Phone: (206) 543-5640. Fax: (206) 543-1228. cmoylan@u.washington.edu .
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Jaffe, 2003). Researchers have posited what they call a "double whammy" or dual exposure effect, in which children exposed to both child abuse and domestic violence fare worse with respect to later outcomes than do those exposed only to one form of violence (Herrenkohl et al., 2008; Hughes, Parkinson, & Vargo, 1989). Studies investigating dual exposure have produced mixed results, suggesting the need for further investigation. For example, some studies have found that children doubly exposed to abuse and domestic violence have worse outcomes than others (Hughes et al., 1989; Sternberg, 2006), whereas others find no elevated effect of dual exposure (Sternberg et al., 1993).

This investigation aims to strengthen research on the unique and combined effects of exposure to child abuse and domestic violence on psychosocial outcomes in adolescence. The study also seeks to examine whether gender interacts with abuse and domestic violence exposure in the prediction of youth outcomes.

Relation between Child Abuse and Adverse Psychosocial Outcomes

Numerous studies have demonstrated that experiencing child abuse can lead to a range of internalizing and externalizing behavior problems. For example, research has shown that abused children can exhibit a variety of psychological problems, including anxiety and depression (McLeer, Callaghan, Henry, & Wallen, 1994; McLeer et al., 1998). The effects of being abused persist into adolescence; teens who were abused as children are more likely to experience depression and other internalizing problems (Fergusson, Horwood, & Lynskey, 1996; Widom, 2000; Wolfe, 1999; Wolfe, Scott, Wekerle, & Pittman, 2001). Teens who were abused as children are also more likely to exhibit externalizing behavior problems, such as delinquency and violence perpetration (Fergusson et al., 1996; Fergusson & Lynskey, 1997; Hawkins et al., 1998; R. Herrenkohl, Egolf, & E. Herrenkohl, 1997; McCabe, Lucchini, Hough, Yeh, & Hazen, 2005; Smith & Thornberry, 1995; Widom, 2000; Wolfe, 1999).

Relation Between Domestic Violence Exposure and Adverse Psychosocial Outcomes

Exposure to domestic violence in childhood has been linked to a similar set of outcomes, including low self-esteem, social withdrawal, depression, and anxiety (Edleson, 1999; Fantuzzo, Boruch, Beriama, Atkins, & Marcus, 1997; Graham Bermann, 1998; Hughes, 1988; Lichter & McCloskey, 2004; Litrownik, Newton, Hunter, English, & Everson, 2003; McCloskey, Figueredo, & Koss, 1995; McCloskey & Lichter, 2003; Moffitt & Caspi, 2003; Sudermann & Jaffe, 1997); and aggression, violence, and delinquency (Herrera & McCloskey, 2001; Lichter & McCloskey, 2004; Litrownik et al., 2003; McCloskey & Lichter, 2003; Sudermann & Jaffe, 1997). In a recent meta-analysis of studies that examined the relationship between domestic violence exposure in childhood and adolescent internalizing and externalizing behaviors, Evans, Davies, and DiLillo (2008) found significant mean-weighted effect sizes of .48 (SE=.04) for internalizing behaviors and .47 (SE=.05) for externalizing behaviors, indicating moderate associations between exposure and both outcomes.

Evidence of a "Double Whammy" Effect

Several studies have investigated the dual exposure hypothesis. Hughes (1988) found that children who were direct victims of abuse and exposed to domestic violence had higher externalizing and internalizing scores than did those who only witnessed domestic violence (DV). However, Sternberg et al. (1993) report contrasting findings. Theirs was a study of 110 children, 8 to 12 years of age. Analyses compared children who: (a) were direct victims of child abuse only; (b) had been exposed to domestic violence only; and (c) were victims of both abuse and domestic violence exposure. The study also included a no-violence comparison group. Results showed that children in the no-violence comparison group

reported lower levels of depression and internalizing and externalizing behaviors than those in any of the three violence exposure groups. However, those who were doubly exposed to child abuse and domestic violence were no more likely than the children in the abuse-only or DV-only groups to experience these outcomes.

Sternberg, Baradaran, Abbot, Lamb, and Guterman (2006) conducted what they describe as a mega-analysis in which they pooled raw data on age, gender, behavior problems, and violence exposure from 15 studies, resulting in a dataset of 1,870 subjects ages 4 to 14 years. They used regression analyses to investigate unique and combined effects of child abuse and domestic violence on externalizing and internalizing behaviors, measured by the Child Behavior Check List (Achenbach, 1991a). The authors found that the children who were dually exposed to child abuse and domestic violence were consistently at higher risk for internalizing problems than child abuse victims, domestic violence witnesses, and those who had not been exposed. In fact, they found that abused witnesses were 187% more likely to have internalizing problems than those in a no-violence control group, 117% more likely than child abuse victims, and 38% more likely than witnesses of domestic violence. Children ages 4 and 9 years of age who were doubly exposed to abuse and domestic violence also were at higher risk for externalizing behavior, although this dual exposure effect did not hold for children who were 10 to 14 years of age.

Although these studies provide some evidence of an additive effect on outcomes of abuse and domestic violence exposure, patterns in the data are not uniform and there is a need for longitudinal analyses that extend into later adolescence. Analyses need also to account for other co-existing risk factors.

Gender Differences

Support is mixed with respect to gender differences in effects of witnessing domestic violence, being the direct victim of abuse, or both. Kitzmann, Gaylord, Holt, and Kenny (2003) conducted a meta-analysis using 118 studies of psychosocial outcomes related to domestic violence exposure. The authors found comparable effect sizes for boys and girls, and no evidence of gender-by-outcome interactions. Wolfe et al. (2003) also conducted a meta-analysis using 41 studies on effects of exposure to domestic violence and came to similar conclusions.

However, other studies have found that gender moderates the effects of violence exposure. For example, Evans et al. (2008) reported that effect sizes of externalizing behavior problems were significantly higher for boys exposed to domestic violence than for girls also exposed. Other studies have shown boys to be at higher risk of externalizing problems in adolescence after being abused in childhood (Graham-Bermann & Hughes, 2003; Widom, 1998). Another study, however, found that girls exposed to domestic violence were at higher risk than boys for both externalizing and internalizing behaviors, including depression (Sternberg et al., 1993). Heyman and Slep (2002) investigated both fathers and mothers and found an association between childhood exposure to violence and later abuse of their children. For mothers, only exposure to multiple forms of violence during childhood was associated with an increased risk of abuse toward their children.

Given the mixed and sometimes contrasting findings on gender differences in exposure effects, there is a need for more well-designed studies on the issue (Herrenkohl et al., 2008; Widom, 1998). We examine gender as a potential moderator in the current study.

Objectives and Rationale

In summary, the current study examines several outcomes in adolescence with known links to child adversity -- a range of internalizing and externalizing behaviors, depression, and delinquency. We hypothesize that: (1) violence exposure will increase a child's risk for these outcomes, and (2) youth exposed to both child abuse and domestic violence will show an elevated risk for these outcomes over either type of abuse alone. Finally, we explore the role of gender as a possible moderator of childhood exposure on later outcomes in adolescence. The gender-balanced sample and longitudinal design of the current study allow tests of developmental relationships that are not possible in studies with cross-sectional data or in studies with only one gender.

Method

Sample

Data are from the Lehigh Longitudinal Study, a prospective study of children and families begun in the 1970s to examine developmental consequences of child maltreatment. Participants were recruited from several settings in a two-county area of Pennsylvania: child welfare abuse and protective service programs, Head Start classrooms, day care programs, and private (middle income) nursery school programs. Three waves of data were collected at key developmental points for children (preschool, school age, and adolescence), and a fourth adult wave of the study is now underway.

An initial assessment of children and their families was completed in 1976-1977, when children were of preschool age.3 Children then ranged in age from 18 months to 6 years. The second wave of data collection occurred between 1980 and 1982, when the children were between 8 and 11 years of age. The third assessment was completed in 1990-1991, when the children ranged from age 14 to 23 (average age: 18 years). In this assessment, 416 (91%) of the original sample of 457 children were reassessed. The full longitudinal sample includes 457 children from 297 families: 144 children from child welfare abuse programs, 105 from child welfare protective service programs, 70 from Head Start, 64 from day care programs, and 74 from nursery school programs. The present analyses are conducted using data from the 416 individuals assessed across all three waves of data collection.

The full sample contains 248 (54%) males and 209 females. One child was assessed in 52% (n=155) of the families; two children were assessed in 43% (n=128) of the families; three or four children were assessed in 5% (n=14) of the families. The racial breakdown of the full sample is: 80.7% (n=369) White, 11.2% (n=51) more than one race, 5.3% (n=24) Black or African American, 1.3% (n=6) American Indian/Alaska Native, 0.2% (n=1) Native Hawaiian or Other Pacific Islander, and 1.3% (n=6) unknown. The ethnic composition is: 7.1% (n=33) Hispanic or Latino, 91.5% (n=381) Not Hispanic or Latino, and 1.3% (n=6) unknown. These percentages were consistent with the makeup of the two-county area at the time the original sample was drawn. Eighty-six percent of children were, at the time of initial assessment, from two-parent households. Sixty-three percent of families had incomes below $700 per month in 1976-1977.

Of the 416 participants assessed in adolescence, 229 (55.0%) are males, 81.5% (n=339) are White, 11.7% (n=49) are more than one race, 5.0% (n=21) are Black or African American, 1.4% (n=6) are American Indian/Alaska Native, and 0.2% (n=1) is Native Hawaiian or Other Pacific Islander. By the time of the adolescent assessment, four participants had died:

[3]The middle income nursery school group was added to the sample somewhat later, in 1979-1980, to increase the socioeconomic diversity of participants.

two children in the child welfare abuse group, one in the child welfare neglect group, and one child in the middle-income group. The percentage lost to attrition varied somewhat across groups: child welfare abuse (13.9%), child welfare neglect (10.5%), Head Start (7.1%), day care (4.7%), and middle income (8.1%), although these percentages overall did not differ significantly ($\chi 2 > .05$). Further tests for comparability between attriters and non-attriters found no differences on other key variables, including childhood SES, physically abusive discipline, and exposure to domestic violence.

Data for the preschool and school-age assessments are from interviews with parents. Interviewers collected information about a range of family and child variables, including parents' interpersonal violence and child disciplining practices. Data for the adolescent assessment are from face-to-face interviews and individually administered questionnaires with parents and youth. The adolescent youth survey provides information on parenting practices, youth behavior, youth psychological functioning, and youth school experiences. All phases of the study were reviewed and approved by the Institutional Review Board at Lehigh University. Consent and assent (for children and adolescents) was obtained from study participants during all waves of data collection.

Measures

Violence exposure—The dichotomous child abuse variable used in this analysis consists of information gathered about severe physical disciplining from three different data sources: (a) official records of substantiated abuse cases; (b) mothers' reports (used prospectively) of their disciplining of their preschool and school-age children; and (c) adolescents' retrospective reports of those same discipline practices used by mothers (Herrenkohl, Tajima, Whitney, & Huang, 2005). Severe physical disciplining was assessed with self-reports from mothers and adolescents and includes: biting a child; slapping so as to bruise a child; hitting a child with a stick, paddle or other hard object; or hitting a child with a strap, rope, or belt. Those who were disciplined with two or more severe physical discipline practices were considered to have been maltreated. A threshold of two or more incidents was set to eliminate isolated cases of severe physical discipline from an otherwise non-abusive parent. Individuals for whom there was agreement in the prospective parent report and retrospective adolescent report were added to those identified by official records as abuse victims. This procedure allows us to take advantage of the multiple sources of data available in the study. By requiring evidence of abuse on both the prospective and retrospective self-report measures before identifying a child as a victim of abuse, we lessen the potential measurement bias that can be introduced by using a single data source (Herrenkohl et al., 2005; Tajima, Herrenkohl, Huang, & Whitney, 2004). In addition, requiring cross-informant agreement increases the likelihood that violence exposure did occur. Although this may underestimate the number of exposed children by excluding cases for which abuse or DV exposure was identified by only one source, we can be more certain that those who are included are not falsely classified. This produced 174 subjects that had experienced child abuse (42% of the sample).

The dichotomous domestic violence exposure variable used here includes three types of moderately severe domestic violence behaviors by either parent: physical violence (hitting, punching, kicking), threats to do physical harm, and breaking things. The measure of domestic violence exposure combines reports from parents during the preschool assessment and adolescents' retrospective reports. Again, to take advantage of various data sources and to limit potential measurement error, we required agreement between prospective parent and retrospective adolescent self-reports. In cases where parental reports and adolescent reports differed in their responses about whether domestic violence behaviors had occurred, the case was coded conservatively (i.e., the participants were coded as not having been exposed),

except in cases where information about domestic violence was missing in one source, in which case the existing data source was used as the only indicator of DV exposure. These procedures resulted in 197 cases classified as having witnessed domestic violence (47% of the analysis sample).

Using the dichotomous child abuse and domestic violence exposure variables, the sample was then split into four mutually exclusive groups: (a) no violence exposure group (n=134, 32% of sample), (b) child abuse only group (n=73, 18%), (c) domestic violence only group (n=96, 23%), and (d) a dual exposure group comprised of those children who were abused and exposed to domestic violence (n=101, 24%).

Adolescent psychosocial functioning and behavior—To assess adolescent psychosocial functioning and behavior, we used items from the Achenbach Youth Self Report (YSR) (Achenbach, 1991b) completed by youth participants in the adolescent wave of the study. Subscales of the internalizing and externalizing composite scales were scored and used in the reported analyses. *Withdrawn* behavior includes seven items, such as shy/timid, would rather be alone, and secretive (M=4.24, SD=2.42; alpha=.62). *Somatic complaints* includes 10 items, such as feeling overtired, stomach aches, and aches/pains (M=2.69, SD=2.68; alpha=.74). *Anxious/depressed* symptoms include 16 items, such as feels unloved, feels worthless, and nervous/tense (M=6.82, SD=5.41; alpha=.87). The *delinquent behavior* subscale includes 12 items, such as steals at home, sets fires, and lacks guilt (M=5.14, SD=3.07; alpha=.70). *Aggressive behavior* consists of 20 items, including argues, disobedient at school, and mean to others (M=10.11, SD=5.85; alpha=.85). The total *externalizing behavior* scale combines the delinquent and aggressive behavior subscales (M=15.25, SD=8.18). *Internalizing behavior* combines the withdrawn, somatic complaints, and anxious/depressed subscales (M=13.75, SD=9.05).

In addition to the YSR scales, we included two additional outcomes: the first is depressive symptoms measured by the Beck Depression Inventory (BDI) (Beck, Rush, Shaw, & Emery, 1979). The BDI combines scores on 21 items (M=10.65, SD=7.99). The second is a general measure of delinquency. *Delinquent acts* is a count of the number (out of 39 possible types) of delinquent acts self-reported by adolescents (M=10.84, SD=7.73). This scale was originally developed for the National Youth Survey and is widely used in studies of youth behavior and development (Elliott, 1987). These final two outcomes were added to analyses so as not to rely exclusively on variables derived from a single standardized instrument and to allow cross-validation of results on two key constructs of interest: depression and delinquency.

Covariates—*Gender* (0=male, 1=female; 55% of sample are male) was included as a control, and was also examined as a potential moderator of abuse and childhood exposure to domestic violence. To account for other predictors of internalizing and externalizing behaviors in youth, we developed a composite measure of risk factors (*parent personal problems* and *external constraints)* (Herrenkohl & Herrenkohl, 2007). Race and age of youth were also included in the risk scale to capture demographics known to be associated with higher scores on our outcome constructs: *Parent personal problems* included responses to survey items about current stressors in the family, as reported by parents at the time. These included unfulfilled ambitions, lack of privacy, problems with people outside the family, health problems among family members, and loneliness (range of 0 to 9 with M=2.92, SD=2.11). *External constraints*, also derived from responses from parents on current stressors, includes items such as crime in the neighborhood, lack of home conveniences, physical remoteness, crowding in the home, and crowding in the neighborhood (range of 0 to 9, with M=1.85, SD=1.71).

As a preliminary step in the analysis, parent personal problems, external constraints, race, and age were entered simultaneously into a logistic regression model with any violence exposure (including domestic violence, child abuse, or both exposures) as the outcome. All four of these variables were found to be significantly predictive of violence exposure. The scores of the regression model then were used to calculate a total predicted probability value for each participant. Using this predicted risk composite score technique for regression adjustment allowed us to control parsimoniously for other variables related to child abuse and domestic violence (Bauer et al., 2006; D'Agostino, 1998). The mean of this *predicted risk composite* was 0.64, with a SD=0.18.

Analysis

Regression models were conducted using the MPlus structural modeling program (Muthén & Muthén, 2004), which maximizes the case-wise likelihood of the model parameters and allows for nested data in hypothesized model. The violence exposure groups were entered as a set of dummy variables with gender entered simultaneously as a covariate. Models were run first without the risk composite, and then again with that measure added to determine whether relationships between violence exposure and the outcomes persisted after accounting for other known risk factors for the outcomes in question. Models were also run to test whether gender moderated the effect of violence exposure on the outcomes by adding interaction terms for gender and the violence exposure variables. None of the gender interaction terms were statistically significant, indicating that the models should be estimated, and assumed to be comparable, for boys and girls together. However, to account for possible gender differences in levels of the predictors and outcomes, gender was added as a free-standing covariate in the analyses.

Results

Examination of Effect of Violence Exposure on Later Outcomes

Table I shows the distribution of cases across the violence exposure groups (none, child abuse only, domestic violence only, and dual exposure) as well as the gender distribution of cases within the groups. Table II shows the means and standard deviations for each of the outcome variables for the full analyses sample, and for males and females separately.

As a first step, regression models were conducted to test whether violence exposure, represented by the three exposure groups, predicted the internalizing and externalizing outcome variables after accounting for gender. In these models, non-exposed youth served as the reference category to which those in the abuse, domestic violence, and dual exposure groups were compared (Table III).

As shown in Table III, gender was significantly predictive ($p < .05$) of all the outcomes except for the BDI; although gender was only marginally significant ($p < .10$) in the models for withdrawn behavior and aggressive behavior. Coefficients for gender in the models with the internalizing variables show that being female increases the risk for internalizing symptoms. For externalizing behaviors, the opposite appears true: males are at higher risk; although, for adolescent aggression, no gender effect was shown.

Results of Table III also show that each of the violence exposure groups (compared to those not exposed) is predictive of at least some of the outcomes after accounting for child gender. Child abuse only was predictive of higher scores on the withdrawn scale of the YSR, depression measured by the BDI, and delinquency. This variable was also marginally predictive of the YSR total internalizing scale, the anxious/depressed subscale of the YSR, and externalizing. DV exposure is significantly related to YSR withdrawn scores, BDI

depression, and delinquency; DV exposure is marginally predictive of total internalizing behaviors and anxious/depressed symptoms. Compared to non-exposure, dual exposure in children is associated with all tested outcomes.

Results of Table IV are for these same outcomes, with the composite risk score added to the models. Again, the objective was to test for exposure effects after accounting for gender and other known risk factors. Results suggest that the risk composite is predictive of YSR withdrawn behavior scores, higher scores on the BDI, and higher delinquency, as measured by the Elliot scale. Gender remained a significant predictor of many tested outcomes. In none of the models, after accounting for risks of the composite measure, was abuse only or DV exposure only predictive of youth outcomes (when no violence exposure served as the reference category). Dual exposure, however, remained significantly predictive of all the externalizing outcomes and some internalizing behaviors: anxious/depressed and BDI depression. Dual exposure was also marginally significantly predictive of somatic complaints.

Evidence for the "Double Whammy" Effect

To examine whether dual exposure increases the risk of outcomes more than individual forms of exposure (Hypothesis 2), models were re-run with the dual exposure group as the reference to which youth in the abused only and domestic violence only groups were compared. Results suggest that only in models for depression (as measured by the BDI) and delinquency (Elliott) was child abuse only or domestic violence only significantly lower on the outcomes compared to dual exposure. Results of these models without and with the risk composite measure are shown in Table V (nonsignificant results are not shown). The results for delinquency show that domestic violence only is significantly lower than dual exposure before, but not after, adding the risk composite measure to the model. For the BDI, dual exposure was significantly more strongly associated than abuse or domestic violence exposure before and after accounting for other risks.

Discussion

As hypothesized, children exposed to violence (either child abuse, domestic violence, or both) had higher levels of externalizing and internalizing behavior problems in adolescence than those exposed to neither form of violence. Youths who had both witnessed domestic violence and had been direct victims of child abuse (i.e., dual exposure) were more consistently at risk for the entire range of internalizing and externalizing behavior problems investigated than those who experienced only one form of violence exposure. In fact, dual violence exposure was predictive of higher scores on all nine outcomes addressed in this study, while experiencing child abuse alone or domestic violence alone was significantly predictive of only some of the outcomes. A direct comparison of dual and single exposures found that for two outcomes-- delinquency and depression measured by the BDI—scores were higher for those with both abuse and domestic violence exposure. The effect of dual exposure on depression was maintained after accounting for other risks in the family and surrounding environment.

These models accounted for the effect of gender, which itself emerged as a strong main effect predictor of all outcomes except depression. Females scored higher than males on internalizing behaviors, whereas males scored higher on externalizing behaviors. However, gender did not appear to moderate the effects of exposure on the outcomes examined. This finding differs from that of the study by Sternberg et al. (1993), in which girls were found to be at increased risk for both internalizing and externalizing behavior problems. However, their study utilized a slightly younger sample, had a smaller number of study participants, and used different statistical procedures than those used here, making it difficult to compare

results directly. Additionally, Evans et al. (2008) found that that boys exposed to domestic violence were at a higher risk for externalizing behavior problems than were their female counterparts. However, several other reviews and primary research studies documented no evidence of gender moderation for outcomes similar to those we examined (Kitzmann et al., 2003; Sternberg, 2006; Wolfe et al., 2003). Because our sample contains youth who range in age during adolescence, findings of this study extend those presented earlier on gender differences.

Here, we investigated whether one or both forms of exposure predicted later outcomes after accounting for other risk factors and demographics. Previous studies have shown that children who are abused and exposed to violence between caregivers are often exposed to a variety of other risk factors known to increase internalizing and externalizing behaviors in adolescence (Herrenkohl et al., 2008). However, rarely are these risk factors taken into account when investigating developmental outcomes related to family violence. Evidence from this study suggests that, while correlated risks account partially for the effects of violence exposure on several outcomes, for several internalizing and externalizing behaviors of adolescence, dual exposure (compared to no exposure) predicts higher frequency scores, whereas single forms of exposure (compared to no exposure) are not necessarily statistically distinguishable. For depression, at least, as measured by the BDI, dual exposure is more strongly associated with the outcome than is abuse or DV exposure alone, after taking into account other risks.

While results of our study appear to show some limited evidence of a dual exposure effect (i.e., an elevation in risk associated with exposure to abuse and domestic violence together), our study also showed that for certain--arguably most-- outcomes, single exposure and dual exposure are statistically indistinguishable. That is, while dual exposure appears to increase (from no exposure) the variety and/or frequency of certain adverse behaviors in adolescence, the extent of that increase is not consistently more than for single exposure (to abuse only or domestic violence only). Similar to our results, two studies conducted by Sternberg and colleagues failed to find consistent double whammy or dual exposure effects. In one study, these researchers found no dual exposure effects, even for depression (Sternberg et al., 1993). In another study, dual exposure effects appeared dependent on age and were not particularly evident for adolescents—the focus of our study (Sternberg, 2006). It is possible that as youth progress through the challenging developmental stages of adolescence, those exposed to multiple forms of violence are more likely to experience higher levels of depression. It is also possible that the effect of dual exposure associated with depression in particular would be accounted for by other variables not tested in our regression models. In any case, further research is clearly needed to determine whether a dual exposure effect truly is evident, whether effects change with development, and whether effects are somewhat or not at all dependent on gender.

Potential limitations of our study include a limited measure of domestic violence exposure, based on behaviors of a moderate variety. Our measure included only a small number of domestic violence items for respondents to endorse, and the items measured moderately-severe behaviors such as hitting, pushing, kicking and threatening. However, the items we used are comparable to the way that domestic violence was operationalized in the National Violence Against Women Survey (Tjaden & Thoennes, 2000) and National Family Violence Surveys (Straus & Gelles, 1990). Further, these moderately severe acts have been found to co-occur with more severe acts of violence, including acts that lead to physical injury (Tajima, 1999). We were also limited by our inability to determine precisely how often and over what period of time exposure occurred.

The study may also be limited by the method used to group and study exposure effects (e.g., group classifications with moderate group sizes). Even larger samples and other statistical techniques to account for within-category differences on tested outcomes may be needed to further investigate the complicated interplay of violence exposure and long-term outcomes.

A strength of our study is the combination of prospective parent reports and retrospective reports from adolescents about their experiences growing up. However, our procedure for combining the two data sources provides a conservative estimate of the number of children exposed to one or the other form of violence. Thus, analyses may underestimate the numbers of children in the three exposure groups. Even still, the percentage of children exposed to violence in this study is relatively high and consistent with findings of other studies, particularly those based on high-risk samples (Herrenkohl et al., 2008). Finally, while analyses account for important correlates of family violence, other covariates may exist. Further research may benefit from controlling for additional risk factors and demographic characteristics of children and their families, such as early childhood behavior problems, housing transitions, social support, and socio-economic status.

Conclusion

This study identified different patterns of relationships between violence exposure and internalizing and externalizing behavior outcomes. While all violence-exposed groups showed higher levels of the outcomes compared to the no-violence-exposure group, only those in the dual exposure group were at higher risk after accounting for other risk factors. While not a classic double whammy or dual exposure effect, this finding suggests there may be increased vulnerability for those children exposed to both domestic violence and child abuse. Evidence of a more typical double whammy effect emerged only for youth depression. Thus, perhaps the most important conclusion to be garnered from this study is that the relationship between violence exposure and later adolescent outcomes is more complicated than the literature would suggest. Results underscore the need to disentangle the unique and combined effects of child abuse and domestic violence exposure in children, and to examine these effects in the context of other known risk factors. Failure to account for dual violence exposure may lead researchers to overstate, or understate, the risk of later problems in youth associated with child abuse or domestic violence exposure alone.

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Table I

Number of cases in full sample, violence exposure groups, and gender sub-samples

	None	Child Abuse	Domestic Violence	Dual Exposure	Total
Male	74	50	51	46	221
Female	60	23	45	55	183
Total	134	73	96	101	404

Table II

Mean and standard deviation of outcomes for the violence exposure groups and both genders

	None	Child Abuse	Domestic Violence	Dual Exposure	Males	Females
Internalizing	11.82	13.81	14.29	15.99	12.43	15.35
YSR	(7.80)	(9.41)	(9.36)	(9.87)	(7.95)	(10.03)
Withdrawn	3.74	4.51	4.43	4.59	4.05	4.48
YSR	(2.35)	(2.69)	(2.35)	(2.38)	(2.39)	(2.43)
Somatic	2.35	2.43	2.82	3.20	2.10	3.39
complaints *YSR*	(2.43)	(2.68)	(2.79)	(2.91)	(2.20)	(3.03)
Anxious/	5.73	6.86	7.04	8.20	6.28	7.48
depressed *YSR*	(4.66)	(5.24)	(5.67)	(6.07)	(4.90)	(5.93)
Depression	8.38	10.67	10.68	13.74	10.29	11.08
Beck	(6.42)	(6.80)	(8.07)	(9.61)	(7.43)	(8.62)
Externalizing	13.55	15.72	15.34	17.09	16.11	14.22
YSR	(7.59)	(7.29)	(8.81)	(8.62)	(8.35)	(7.87)
Delinquent	4.61	5.44	5.16	5.60	5.63	4.55
behavior *YSR*	(2.85)	(2.91)	(3.43)	(3.08)	(3.20)	(2.81)
Aggressive	8.94	10.28	10.18	11.49	10.48	9.67
behavior *YSR*	(5.57)	(5.31)	(6.03)	(6.26)	(5.90)	(5.78)
Delinquency	8.53	12.32	10.79	12.87	13.35	7.79
Elliot	(6.93)	(6.81)	(7.84)	(8.68)	(8.12)	(5.98)

Table III

Regression models accounting for gender, compared to the no violence exposure group

	β	S.E.	p<		β	S.E.	p<
Internalizing (YSR)				**Externalizing (YSR)**			
Gender-female	2.78	0.9	**	Gender-female	-2.06	0.78	**
Child abuse	2.36	1.27	+	Child abuse	1.88	1.11	+
DV	2.35	1.23	+	DV	1.84	1.26	
Dual exposure	3.84	1.21	**	Dual exposure	3.71	1.11	***
Intercept	10.54	0.73	***	Intercept	14.47	0.82	***
Withdrawn (YSR)				**Delinquency (YSR)**			
Gender-female	0.43	0.24	+	Gender-female	-1.12	0.28	***
Child abuse	0.82	0.38	*	Child abuse	0.67	0.45	
DV	0.66	0.33	*	DV	0.58	0.48	
Dual exposure	0.8	0.31	**	Dual exposure	1.09	0.39	**
Intercept	3.54	0.22	***	Intercept	5.11	0.31	***
Somatic complaints (YSR)				**Aggression (YSR)**			
Gender-female	1.25	0.27	***	Gender-female	-0.95	0.58	+
Child abuse	0.27	0.36		Child abuse	1.2	0.81	
DV	0.43	0.34		DV	1.26	0.86	
Dual exposure	0.72	0.35	*	Dual exposure	2.61	0.82	**
Intercept	1.79	0.22	***	Intercept	9.37	0.59	***
Anxious/depressed (YSR)				**Delinquency (Elliot)**			
Gender-female	1.2	0.54	*	Gender-female	-5.74	0.72	***
Child abuse	1.28	0.72	+	Child abuse	2.95	1.07	**
DV	1.27	0.75	+	DV	2.37	0.94	*
Dual exposure	2.34	0.74	**	Dual exposure	4.83	1.07	***
Intercept	5.2	0.47	***	Intercept	11.13	0.74	***
Depression (Beck)							
Gender-female	0.5	0.79					
Child abuse	2.34	1.03	*				

	β	S.E.	p<		β	S.E.	p<
DV	2.37	1.07	*				
Dual exposure	5.27	1.17	***				
Intercept	8.13	0.7	***				

+ p<0.1

* p<.05

** p<.01

*** p<.001

Table IV

Regression models accounting for gender and risk composite measure, compared to the no violence exposure group

	β	S.E.	p<		β	S.E.	p<
Internalizing (YSR)				**Externalizing (YSR)**			
Predicted risk	0.09	3.05		Predicted risk	0.08	2.75	
Gender-female	0.16	0.89	**	Gender-female	-0.12	0.77	*
Child abuse	0.07	1.34		Child abuse	0.06	1.24	
DV	0.09	1.29		DV	0.08	1.34	
Dual exposure	0.15	1.32	*	Dual exposure	0.16	1.24	*
Intercept	0.87	1.85	**	Intercept	1.5	1.66	**
Withdrawn (YSR)				**Delinquency (YSR)**			
Predicted risk	0.18	0.75	**	Predicted risk	0.06	1	
Gender-female	0.1	0.23	*	Gender-female	-0.18	0.28	**
Child abuse	0.08	0.38		Child abuse	0.07	0.48	
DV	0.08	0.33		DV	0.07	0.5	
Dual exposure	0.07	0.32		Dual exposure	0.13	0.45	*
Intercept	2.11	0.48	**	Intercept	1.46	0.62	**
Somatic complaints (YSR)				**Aggression (YSR)**			
Predicted risk	-0.01	0.88		Predicted risk	0.08	1.98	
Gender-female	0.23	0.27	**	Gender-female	-0.07	0.57	
Child abuse	0.04	0.38		Child abuse	0.05	0.91	
DV	0.07	0.35		DV	0.07	0.93	
Dual exposure	0.12	0.39	+	Dual exposure	0.16	0.91	*
Intercept	0.7	0.56	**	Intercept	1.33	1.18	**
Anxious/depressed (YSR)				**Delinquency (Elliot)**			
Predicted risk	0.07	1.85		Predicted risk	0.21	2.08	**
Gender-female	0.11	0.54	*	Gender-female	-0.35	0.69	**
Child abuse	0.07	0.77		Child abuse	0.08	1.13	
DV	0.08	0.8		DV	0.08	0.96	
Dual exposure	0.15	0.81	*	Dual exposure	0.18	1.07	**

	β	S.E.	p<		β	S.E.	p<
Intercept	0.72	1.15	**	Intercept	0.75	1.29	**
Depression (Beck)							
Predicted risk	0.12	2.34	*				
Gender-female	0.04	0.78					
Child abuse	0.07	1.06					
DV	0.09	1.14					
Dual exposure	0.23	1.22	**				
Intercept	0.61	1.46	**				

+ p<0.1

* p<.05

** p<.01

*** p<.001

Table V

Regression models comparing to the dual exposure group (“double whammy” evidence)

Delinquency (Elliot)				Depression (Beck)			
	β	S.E.	p<		β	S.E.	p<
Before adding risk covariate				**Before adding risk covariate**			
Gender-female	-5.74	0.72	***	Gender-female	0.5	0.79	
Child abuse	-1.89	1.22		Child abuse	-2.94	1.29	*
DV	-2.47	1.11	*	DV	-3	1.34	*
None	-4.83	1.07	***	None	-5.27	1.17	***
Intercept	15.96	1.01	***	Intercept	13.4	1.04	***
After adding risk covariate				**After adding risk covariate**			
Predicted risk	9.06	2.08	***	Predicted risk	5.5	2.34	*
Gender-female	-5.49	0.69	***	Gender-female	0.65	0.78	
Child abuse	-1.6	1.21		Child abuse	-2.75	1.29	*
DV	-1.76	1.09		DV	-2.57	1.31	*
None	-3.2	1.07	**	None	-4.29	1.22	***
Intercept	8.99	1.9	***	Intercept	9.17	1.99	***

+ p<0.1

* p<.05

** p<.01

*** p<.001