

Profiles of Behavioral Problems in Children Who Witness Domestic Violence

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Unlike previous investigations of shelter-based samples, our study examined whether profiles of adjustment problems occurred in a community-program-based sample of 175 school-aged children exposed to domestic violence. Cluster analysis revealed three stable profiles/clusters. The largest cluster (69%) consisted of children below clinical thresholds for any internalizing or externalizing problem. Children in the next largest cluster (18%) were characterized as having externalizing problems with or without internalizing problems. The smallest cluster (13%) consisted of children with internalizing problems only. Comparison across demographic and violence characteristics revealed that the profiles differed by child gender, mother's education, child's lifetime exposure to violence, and aspects of the event precipitating contact with the community program. Clinical and future research implications of study findings are discussed.

Keywords: comorbidity; domestic violence; children; adolescents; adjustment profiles

Each year, 133–275 million children worldwide witness domestic violence (UNICEF, 2006). In the United States, approximately 15.5 million children live in households experiencing intimate partner violence (McDonald, Jouriles, Ramisetty-Mikler,

Caetano, & Green, 2006). The effects on children of witnessing violence are profound and may include posttraumatic stress disorder (PTSD) and other anxiety disorders, depression, behavioral problems, and impaired cognitive and social functioning (McCloskey & Lichter, 2003; Osofsky, 1999; Robbie Rossman, 2001). Recent meta-analyses indicate that exposure to domestic violence results in significant additional psychopathology among children and adolescents from a public health perspective (Kitzmann, Gaylord, Holt, & Kenny, 2003; Wolfe, Crooks, Lee, McIntyre-Smith, & Jaffe, 2003).

A growing body of research has identified factors that shape the effects of domestic violence on children, and several of these factors have been conceptualized as risk or protective factors for psychopathology related to exposure to traumatic events (La Greca, Silverman, Vernberg, & Prinstein, 1996). For instance, severity and frequency of domestic violence (Edleson, 1999; Grych & Fincham, 1993), as well as children's perceived threat to personal safety and perceived control over the events (Spilsbury et al., *in press*), have been linked to greater child psychopathology. Greater impairment has been reported in younger compared to older children (Fantuzzo, Boruch, Beriama, Atkins, & Marcus, 1997; Hughes, 1988; Tang, 1998), although a "protective" effect of older age is not consistently found (McFarlane, Groff, O'Brien, & Watson, 2003). Child gender also seems important, but research findings have been equivocal: One study found boys more likely than girls to exhibit both internalizing and externalizing problems (Porter & O'Leary, 1980); other research found problems more frequent in girls (Cummings, Pepler, & Moore, 1999; Spaccarelli, Sandler, & Roosa, 1994; Sternberg et al., 1993); some studies found girls more likely to exhibit internalizing and boys externalizing (Yates, Dodds, Alan Sroufe, & Egeland, 2003), or no gender differences (O'Keefe, 1994a). Concerning ethnicity, Black children exposed to domestic violence may exhibit fewer externalizing behaviors and greater social competence compared to White children (O'Keefe, 1994a, 1994b; Spilsbury et al., *in press*). However, the influence of ethnicity on children's responses to domestic violence is understudied.

Unfortunately, research on domestic violence's effects on children has been limited by several methodological problems. One issue is that specific adjustment problems (e.g., depression, conduct disorder, anxiety) have usually been investigated independently, without examining the possible multioccurrence of different types of problems (Grych, Jouriles, Swank, McDonald, & Norwood, 2000). However, children exposed to domestic violence probably experience behavioral problems in multiple domains, with significant individual variation likely (Edleson, 1999). Studying patterns or profiles of psychological adjustment is important because (a) such research may increase theoretical understanding of how domestic violence shapes children's mental health by providing a more complete picture of children's adjustment to this form of violence and (b) the presence of stable adjustment patterns may have important treatment implications for children exposed to domestic violence.

To the best of our knowledge, only two studies have investigated patterns of psychological adjustment in children exposed to domestic violence. The first study (Hughes & Luke, 1998) investigated patterns of internalizing problems, externalizing problems, and self-esteem among 58 children ages 6–12 years living in battered women's shelters. Cluster analysis revealed that the children classified in one of five groups: well-functioning (low on internalizing and externalizing and high on self-esteem); "hanging in there" (moderate levels of all three domains); high externalizing, high internalizing with low self-esteem; high externalizing; and high internalizing. This study found no significant differences among groups by whether the children were abused, the frequency with which their mothers were victimized, by child age and gender, or by mother's age. However, mothers of children in the high internalizing (depressed) group were more educated than mothers

of children in the other clusters, and clusters significantly differed by specific violence characteristics: greater duration of abuse, length of time with abusing partner, and verbal aggression from mother to partner were generally associated most strongly with the two groups with high externalizing problems.

The second study (Grych et al., 2000), also investigated clusters of internalizing problems, externalizing problems, and self-esteem among children living in battered women's shelters, but in a larger sample ($N = 228$) of slightly older children (8–14 years of age). Results of this investigation also revealed five groups of children: Approximately one-third of children belonged to a “no problems” group, while remaining groups (11%–21%) were “mild distress” (elevated but below threshold scores on internalizing and externalizing measures), “externalizing only,” “multi-problem-externalizing” (having multiple problems but with externalizing problems predominating), and “multi-problem-internalizing.” The groups did not differ by any demographic characteristic. However, the two “multi-problem” groups were generally associated with greater frequency and intensity of father-to-child and mother-to-child aggression. No differences were found in mother-to-father aggression.

Although these two studies significantly contribute to the field, they have important limitations. Both involved shelter samples, so generalization of their results to the broader population of children exposed to domestic violence is problematic. Also, the Hughes and Luke (1998) study's sample size was small ($N = 58$); the resulting cluster solution contained clusters with few members. Because an obtained cluster solution may potentially reflect idiosyncrasies of the analytic sample instead of externally valid groupings, replication is needed (Grych et al., 2000). Along these lines, a split-sample procedure in cluster analysis is recommended, in which the analytic sample is randomly divided into two subsamples and each subsample is analyzed separately; similar solutions from both subsamples indicate a stable cluster solution (Everitt, 1993). However, the Hughes and Luke (1998) study sample was too small to use a split-sample approach. Also, the sample had little ethnic diversity (86% described as European American).

Building on these two studies, the present study contributes to the scientific literature in three ways. First, unlike the two previously described studies, it assessed whether profiles of adjustment are present among a sample of children generated through a community-service program instead of recruiting uniquely from battered women's shelters. A community-program sample probably better represents the larger population of children exposed to domestic violence, or at least to forms of domestic violence that result in police intervention. Second, unlike the Hughes and Luke (1998) study, the current study's sample represented a greater mix of ethnic backgrounds. Third, and, again, unlike the Hughes and Luke study, the present study's large sample size afforded use of a split-sample approach, thereby permitting assessment of cluster stability and validity, which is necessary for valid application of cluster analytic techniques (Everitt, 1993).

METHOD

Overview

Study participants received crisis intervention services from the community-based Children Who Witness Violence Program (CWWVP). Through the CWWVP, police officers responding to a violent incident witnessed by a child refer the family to mental health specialists trained in treatment of trauma, who in turn provide counseling and

referral to an array of services (e.g., legal, housing) as needed. Program details are available elsewhere (Drotar et al., 2003). All families who consented to receive CWWVP services were also asked if they would like to participate in a study on program outcomes, and virtually all families agreed. Study data were part of the baseline information on families gathered during the mental health specialists' initial meetings with families before intervention. Eleven survey instruments were used, including the Initial Contact Note (summarizes the violent incident that initiated referral to CWWVP), a family background questionnaire, and other measures of distress, trauma symptoms, and behavior problems.

Sample

From March 1999 through January 2003, a total of 1,019 children 8–16 years of age who were exposed to domestic violence participated in the CWWVP. The analytic sample consisted of the 175 children and a parent (typically their mother) for whom complete psychological assessment data were available. Of the 844 children excluded from the analytic sample, in 378 cases (45%) the family stopped CWWVP services before assessments were completed. In 35 cases (4%), the families moved before assessment procedures were completed. Concerning the remaining families excluded from analyses, reasons for the low assessment completion rate included, in decreasing frequency: (a) CWWVP staff's initial focus on families' immediate survival needs (e.g., safety, shelter) and caregiver's distress; (b) caregiver's absence during CWWVP visits. Data are not available to determine the precise contribution of these two reasons to the low completion rate.

Comparisons between the analytic sample and the children excluded from the study revealed that the two groups were similar across all demographic characteristics (e.g., child age, sex, ethnicity, and living arrangement; mother's age, education, and employment status), past exposure to violence, and all characteristics of the violent "index" event that brought the family into the CWWVP, except that the analytic sample had (a) smaller average number of children per family than did excluded children (3.0 vs. 3.4, $t_{(788)} = 2.45$, $p = .014$); and (b) smaller number of children per family witnessing the index event than for excluded children (2.9 vs. 3.3, $t_{(1015)} = 2.67$, $p = .008$).

In cases where children experienced multiple violent events over the time period and received CWWVP services on multiple occasions, only data generated from their initial participation were studied. Moreover, in households with >1 child 8–16 years of age, only data from one randomly selected child were included because analyses required independent cases.

Study Measures

Cluster analysis utilized measures of children's externalizing and internalizing problems obtained from instruments used in the CWWVP's standard assessment protocol.

Children's Externalizing Problems. These problems were assessed by the Revised Behavior Problem Checklist, an 89-item, caregiver-completed screener for a range of behavioral disorders/symptoms in children 5–18 years of age (RBPC; Quay & Peterson, 1996). The RBPC measures the presence and severity of a range of problems measured on a three-point scale (1 = no problem, 2 = mild problem, 3 = severe problem) and has demonstrated validity and reliability in diverse populations of children (Lahey & Piacentini, 1985; Short, 1991). Raw scores were transformed into T-scores by age and sex; the clinical

cutoff T-score is 70, defined as two standard deviations greater than the mean (Quay & Peterson, 1996). The RBPC consists of five subscales; its Conduct Disorder and Socialized Aggression subscales were used here because they most closely mapped onto the externalizing domain. The Socialized Aggression subscale encompasses behaviors associated with conduct disorder, but the key feature is the performance of these behaviors in the company of others (e.g., theft, substance abuse, gang activity). The subscales displayed good internal consistency in this sample ($\alpha = .84$ for Socialized Aggression and $\alpha = .94$ for Conduct Disorder).

Children's Internalizing Problems. These problems were measured by the Trauma Symptom Checklist for Children, a 54-item, child-completed measure of posttraumatic stress and related psychological symptoms in children ages 8 through 16 who have experienced a traumatic event (TSCC; Briere, 1996). The measure uses a four-point scale (0 = never, 1 = sometimes, 2 = lots of times, 3 = almost all of the time). Similar to the RBPC, raw scores were transformed into T-scores by age and sex; the clinical cutoff T-score is 65 (1.5 SD; Briere, 1996). The TSCC has six subscales, and we used the three most representative of internalizing problems: Anxiety, Depression, and Posttraumatic Stress. The subscales' internal consistencies were acceptable in this sample ($\alpha = .83$ for Depression; $\alpha = .79$ for Anxiety, and $\alpha = .80$ for Posttraumatic Stress).

Demographic Characteristics. Child age, sex, and ethnicity; mother's age; number of children in the family; and child's living arrangement (living with biological mother and/or father) were either obtained from the caregiver or were noted by CWWVP staff during initial visits to families. Mother's education in years and mother's employment status were used as measures of family socioeconomic status. Less information was available about the father/male partner; therefore, parental demographic data used in the study were limited to mother.

Characteristics of Violent Index Event. Based on information obtained from the Initial Contact Note, the manner in which children witnessed the index event, or type of exposure, was categorized as follows: (a) the child saw or heard the event and was also victimized/assaulted; (b) the child saw or heard the event happen only; (c) the child saw the event's aftermath only. The Initial Contact Note also assessed whether the index event caused an injury requiring medical treatment, whether there was property damage, and whether use of a firearm or knife occurred.

As part of CWWVP procedures, the index event's overall level of potential stress/trauma was assessed by the Dimensions of Stressful Events Scale (DOSE; Fletcher, 1996). The DOSE contains 25 items corresponding to specific dimensions of a potentially traumatic event (e.g., whether there was a death, number of victims, level of threat experienced by child). The CWWVP worker completed the DOSE with input from the child and/or caregiver. Most DOSE items utilize a dichotomous or three-point scale, and item scores are summed to produce a total score. A higher score reflects greater likelihood that the event will lead to a traumatic response in children. Complete DOSE information was available for a subsample of 60 children in the analytic sample. Comparison of the subsample with DOSE data to the rest of the analytic sample ($n = 115$) revealed no significant differences in child or family demographic characteristics, previous exposure to violence, or characteristics of the index event. The only exception was that no index event in the DOSE subsample involved a knife or gun, whereas 16% of the events without DOSE data involved one of these weapons ($\chi^2 = 9.77, p = .002$).

Previous Exposure to Community Violence. Previous exposure to violence was measured by parent completion of a modified "Things I Have Seen and Heard" Scale (Richters &

Martinez, 1993), which assesses the frequency of observing 15 different situations (e.g., people being killed, stabbings) using a three-point scale (0 = never, 1 = once, 2 = twice or more). Item scores are summed to produce an overall score.

Data Analysis

Cluster analysis was used to develop profiles or patterns of adjustment because of the method's ability to simultaneously account for multiple measures of adjustment (i.e., conduct disorder, socialized aggression, anxiety, depression, and posttraumatic stress in this study). Per Grych et al. (2000), we randomly assigned children into one of two independent subsamples and analyzed each subsample separately, a technique that allows for cross-validation of the cluster solution (Everitt, 1993). As described by Grych et al. (2000), the sequence of a hierarchical clustering method (permits determination of the number of clusters but does not allow for reassignment of participants once assigned to a cluster) followed by a nonhierarchical method (allows for reassignment of cases after initial assignment to a cluster but does not provide a way to determine the number of clusters present) takes advantage of each method's strengths (Brewer, Moore, & Hiscock, 1997). We used the subscales' T-scores to avoid the effects of variable scaling on cluster analysis (Borgen & Barnett, 1987).

Per Grych et al.'s (2000) procedure, after randomly dividing the sample in half, a cluster analysis using Ward's (1963) minimum variance hierarchical method was performed on the first subsample to determine the number of clusters present in the subsample. Ward's technique is preferred by many researchers because it maximizes cluster homogeneity (Hughes & Luke, 1998). Determining the number of clusters was based on comparison of the pseudo F (Calinski & Harabasz, 1974), pseudo t^2 (Duda & Hart, 1973), and Cubic Clustering Criterion (Sarle, 1983), as well as examination of all individual cases composing the cluster. Next, a second cluster analysis was conducted on the first subsample utilizing the nonhierarchical K-means technique. In this technique, the number of clusters is specified by the investigator; here, we used the number determined by the Ward method. Following the K-means analysis, the membership of cases in clusters produced by each method was compared: High percentage of cases falling into the same cluster provided evidence of cluster stability and validity.

The Ward and K-means cluster analyses were then conducted on the second subsample, and results were compared to the solution obtained with the first subsample, thereby allowing assessment of the cluster solution's overall validity. Given confidence that the cluster solution was valid, we performed Ward's hierarchical method on the entire sample ($N = 175$), and the percentage of cases that clustered together in each subsample solution and the total sample were compared to assess the similarity of the overall solution with that obtained from each subsample. Finally, we compared demographic and violence characteristics across clusters to determine whether clusters differed along these dimensions. To conduct the comparisons, chi-square, analysis of variance, and Kruskal-Wallis tests were used for categorical, continuous-normal, and continuous, non-normally distributed data, respectively. Analyses were conducted in SAS 9.1 and SPSS 13.0.

RESULTS

Sample Characteristics

Child participants' mean age was 11.0 ($SD = 2.4$ years; Table 1). The sample was sex-balanced (48% girls). Half of the participants were Black (52%), and one-third (34%) were

White. On average, participants belonged to families having 3.0 ($SD = 1.5$) children. Most children lived with their biological mothers (89.8%). Child participants' mothers averaged 34.4 ($SD = 5.9$) years of age and 12.4 ($SD = 2.4$) years of education. Nearly three-quarters of mothers were employed. Most children (79.8%) saw or heard the index event precipitating family contact with the CWWVP, and 12% of children were also directly victimized. Over one-quarter (26%) of index events involved an injury, and 10% involved a knife or firearm.

Cluster Analysis—Subsample 1

Results of Ward's method on the first subsample ($n = 85$) revealed a three-cluster solution. The largest cluster consisted of two-thirds of the children ($n = 57$; 67%) and had mean T-score values below the clinical threshold for all externalizing (Conduct Disorder, Socialized Aggression) and internalizing (Anxiety, Depression, Posttraumatic Stress) subscales. Examination of the individual cases making up the cluster revealed that 95% of children were below clinical thresholds for all externalizing and internalizing subscales. We labeled this cluster as "Under clinical cutoffs."

The second-largest cluster ($n = 18$; 21%) showed mean values of the two externalizing subscales above clinically significant cutoffs, and examination of individual cases revealed that 17 out of 18 children were above the clinical threshold for at least one of the externalizing subscales. However, while none of the mean T-scores for the internalizing subscales reached clinical significance, one-third of the children constituting the cluster were above the clinical threshold for at least one of the internalizing subscales. Therefore, we named this cluster as "Externalizing with or without internalizing" problems.

TABLE 1. Demographic and Index Event Characteristics of Sample ($N = 175$)

Characteristic	<i>n</i> (%) Unless Otherwise Noted
Demographic	
Child age, mean (SD) years	11.0 (2.4)
Female sex	84 (48.0)
Ethnicity	
Black	91 (52.0)
White	60 (34.3)
Other	13 (7.4)
Unknown	11 (6.3)
Living with biological mother ($n = 147$)	132 (89.8)
Mother's age, mean (SD) years	34.4 (5.9)
Mother's education, mean (SD) years ($n = 127$)	12.4 (2.4)
Mother employed ($n = 145$)	108 (74.5)
Children in family, mean (SD) ($n = 132$)	3.0 (1.5)
Index event	
Type of exposure	
Only saw aftermath	13 (8.0)
Saw/heard event	130 (79.8)
Also victimized	20 (12.3)
Injury requiring treatment ($n = 144$)	38 (26.4)
Use of firearm or knife ($n = 158$)	16 (10.1)
Property damage ($n = 144$)	16 (11.1)

In the third and smallest cluster ($n = 10$; 12%), mean T-score values for each of the three internalizing subscales surpassed the clinically significant threshold, while externalizing subscales' mean T-scores were well under clinical thresholds. All 10 children composing this cluster were above the clinical threshold for at least one internalizing problem, and 8 children were above cutoffs for two internalizing problems. No child showed a clinically significant T-score for an externalizing problem. Thus, we labeled this cluster as "Internalizing only."

Follow-up nonhierarchical (K-means) cluster analysis of the first subsample specifying a priori a three-cluster solution revealed identical counterparts to the nonhierarchical method, with very similar means and standard deviations. Moreover, 92% of cases grouped in Ward's hierarchical method remained together in the K-means method, thereby suggesting that the three-cluster solution displayed stability.

Cluster Analysis—Subsample 2

Hierarchical analysis of the second subsample ($n = 90$) reproduced the three-cluster structure found in the first subsample: The largest cluster ($n = 42$; 47%) showed mean T-scores below clinical cutoffs for all five subscales, and no individual case showed a clinically significant score. The second largest cluster ($n = 34$; 38%) exhibited elevated mean T-scores for externalizing problems, with three cases also meeting clinical cutoffs for an internalizing problem. The smallest cluster ($n = 14$; 16%) showed mean T-scores for internalizing problems that were either above clinical cutoffs or were elevated, and all children composing the cluster surpassed clinical cutoffs for at least one internalizing problem. Nonhierarchical K-means cluster analysis of subsample 2 with an a priori, specified three-cluster solution again reproduced the hierarchically obtained cluster solution, and 91.1% of cases retained the same cluster grouping.

Cluster Analysis—Entire Sample ($N = 175$)

Given the consistency of the three-cluster solutions in each subsample, we reran the hierarchical cluster analysis on the entire combined sample. As expected, a three-cluster solution was obtained (Table 2). The largest cluster ($n = 121$; 69%), once again labeled "Under clinical cutoffs," showed mean T-scores well below clinical thresholds for any internalizing or externalizing problem, and 115 of these children (95%) had no subscale score above clinical threshold for any domain.

The next largest cluster ($n = 31$; 18%) had mean T-scores above clinical thresholds for the externalizing problems. Similar to the makeup of this cluster in the subsample analyses, most cases ($n = 28$) surpassed the T-score threshold for at least one of the externalizing subscales, and the three cases that did not all had elevated scores (> 64). Again, over one-third ($n = 11$; 40%) of cases with a clinically significant externalizing score also surpassed the clinical threshold for an internalizing subscale. Thus, we again labeled this cluster as "Externalizing with or without internalizing."

The third cluster ($n = 23$; 13%) showed clinically significant mean T-scores for the Anxiety and Depression subscales, as well as a mean score for Posttraumatic Stress just below clinical significance. Examination of the individual cases composing this cluster revealed that all 23 cluster members surpassed the threshold T-score for at least one of the internalizing subscales; 16 met the threshold for two, and 8 for all three subscales. None met the threshold score for an externalizing subscale, so the cluster was again labeled "Internalizing only."

TABLE 2. Externalizing and Internalizing Scores for Each Cluster (N = 175)

Cluster	Internalizing (TSCC)			Externalizing (RBPC)	
	Anxiety	Depression	Posttraumatic	Conduct	Socialized
	Mean (SD) IQR	Mean (SD) IQR	Stress Mean (SD) IQR	Disorder Mean (SD) IQR	Aggression Mean (SD) IQR
Under clinical cutoffs (n = 121)	47.8 (8.4) 42.0–54.0	46.3 (7.8) 40.0–52.0	47.3 (7.6) 41.0–53.0	53.1 (7.4) 48.5–59.0	50.9 (7.3) 44.0–57.0
Externalizing ± internalizing (n = 31)	52.6 (10.0) 46.0–57.0	54.2 (11.6) 43.0–64.0	54.2 (9.8) 47.0–62.0	72.5 (8.2) 66.0– 80.0	70.7 (8.1) 64.0– 80.0
Internalizing only (n = 23)	73.0 (5.6) 69.0–76.0	68.1 (13.5) 57.0– 79.0	64.3 (7.0) 58.0– 68.0	56.7 (6.3) 51.0–61.0	51.0 (6.2) 45.0–57.0

Note. Scores > clinical thresholds are bolded. IQR = Interquartile Range. Trauma Symptoms Checklist (TSCC) clinical cutoff = 65. Revised Behavior Problem Checklist (RBPC) clinical cutoff = 70.

As a final check for cluster stability, we calculated the percentage of children who were clustered together in both subsamples with that of the total sample. There was 95% agreement in cluster membership between subsample 1 and the total sample, but only 73% agreement between subsample 2 and the total sample. However, examination of the 24 cases that “changed” membership between the subsample and total sample cluster analyses revealed that most of them (n = 23) had “moved” from the “Externalizing with or without internalizing” cluster in subsample 2 to the “Under clinical cutoffs” group in the total sample analysis. None of these children had a T-score above clinical threshold for any externalizing or internalizing problem. We therefore felt confident in their membership in the “Under clinical cutoffs” cluster.

Overall, the consistency in hierarchical and nonhierarchical cluster solutions for both subsamples as well as the overall sample suggested that the three-cluster solution was stable.

Demographic and Violence Characteristics Across Clusters

Comparison of family and child demographic characteristics across the three clusters revealed two significant differences. First, compared to boys, girls were underrepresented in the “Under clinical cutoffs” cluster (40.5%) and overrepresented in the “Externalizing with or without internalizing” (67.7%) and “Internalizing only” (60.9%) clusters ($\chi^2_{(2)} = 9.10, p = .011$). Second, mothers of children in the “Internalizing only” subgroup had greater schooling (median years = 13.5, interquartile range [IQR] = 12.0–14.9) than the “Under clinical cutoffs” (median years = 12.0, IQR = 12.0–13.0) and “Externalizing with or without internalizing” (median years = 12.0, IQR = 11.0–14.0), Kruskal-Wallis $\chi^2_{(2)} = 8.64, p = .013$. The three clusters did not significantly differ on any other demographic variable. Comparison of violence characteristics across the adjustment clusters revealed that children in the “Under clinical cutoffs” cluster had less reported lifetime exposure to

violence (median score 9.0, IQR = 6.0–12.5) compared to children in the “Externalizing with or without internalizing” (median score 12.0, IQR = 8.0–17.0) and “Internalizing only” (median score = 12.0, IQR = 9.5–18.0) clusters (Kruskal-Wallis $\chi^2_{(2)} = 8.48, p = .014$). Similarly, for the subsample of children with the DOSE assessment, the traumatic stress of the index event that initiated the referral to the CWWVP was less for the “Under clinical cutoffs” cluster (median score 21.0, IQR = 18.8–25.3) compared to children in the “Externalizing with or without internalizing” (median score 27.0, IQR = 24.5–27.5) and “Internalizing only” (median score = 25.0, IQR = 22.0–32.5) clusters (Kruskal-Wallis $\chi^2_{(2)} = 8.48, p = .014$). Clusters did not significantly differ in terms of the number of children witnessing the index event, whether there was an injury requiring treatment, or the children’s type of exposure to the index event. Small cell sizes precluded analysis for cluster differences by weapon use or property damage during the index event.

DISCUSSION

This study is the first to our knowledge to investigate profiles of adjustment in an ethnically mixed sample of children generated through a community service program, which is likely more representative of children exposed to domestic violence than previously studied shelter populations. Three distinct adjustment profiles were detected, and the study’s split-sample approach provided evidence of the profiles’ validity. Two profiles were characterized by symptoms of psychological maladjustment: One group of children had externalizing problems with or without internalizing problems, and a second, smaller group had internalizing problems only. These results are somewhat consistent with previous research on shelter-based samples, which found similar maladjustment profiles plus an additional one consisting of children with externalizing symptoms only (Grych et al., 2000; Hughes & Luke, 1998). However, the current study did not find an adjustment profile characterized uniquely by externalizing symptoms.

One notable similarity between our results and those of the two previous studies among shelter-based children (Grych et al., 2000; Hughes & Luke, 1998) is that the largest profile consisted of children who appear to be functioning without clinically significant levels of an adjustment problem. This finding underscores the importance of the nature of the exposure to violence in the development of adjustment problems: Children who clustered together because of a lack of clinically significant levels of adjustment symptoms were characterized by lower past exposure to violence as well as a less traumatic index event. The presence of a large group of children exposed to domestic violence but without clinically significant symptomatology also supports the idea of resilience among children exposed to domestic violence. Study findings are consistent with other research showing that only a relatively small proportion of the many children exposed to potentially traumatic events develop clinical or subclinical PTSD (Copeland, Keeler, Angold, & Costello, 2007). Resilience has been conceptualized as positive adaptation, adjustment and recovery, or maintenance of positive adjustment in the context of significant adversity (Luthar, Cicchetti, & Becker, 2000; Masten, 1994). Our study results and those from the two previous investigations (Grych et al., 2000; Hughes & Luke, 1998) suggest that ongoing protective processes may work to maintain psychological health among a substantial number of children in domestic violence settings.

From a developmental perspective, the lack of early intervention for youth exhibiting various symptom clusters is troublesome because such symptoms, especially coupled

with chronic environmental adversity, may not only cause problems during childhood but may also lead to psychopathology, including PTSD, later in life (Koenen, Moffitt, Poulton, Martin, & Caspi, 2007). Other theoretical work has reviewed child-intrinsic factors (e.g., appraisal/response to danger, resistance, vulnerability) and the broader social ecology of the child, which can often mediate the response to traumatic stress (e.g., Pynoos, Steinberg, & Piacentini, 1999; Pynoos, Steinberg, & Wraith, 1995). Moreover, the ongoing research emphasis on neurobiological and neuroanatomical processes (e.g., De Bellis, 2001, 2005; Gunnar, Fisher, & the Early Experience, Stress, and Prevention Network, 2006) in youth exposed to traumas and adverse events highlights both protective factors promoting resilience and risk factors for psychopathology that might be modifiable through preventive or intervention strategies.

Unlike previous research with shelter-based samples (Grych et al., 2000; Hughes & Luke, 1998), the current study found gender differences in adjustment profiles that are congruent with reports of more frequent externalizing and internalizing problems among girls (Cummings et al., 1999; Spaccarelli et al., 1994; Sternberg et al., 1993). However, studies have collectively produced such disparate results that no firm conclusion should probably be made about gender differences in children's psychological adjustment in domestic violence settings. Further study, including research across various types of trauma, is needed to understand how child gender shapes domestic violence's effects.

Study limitations should be noted. First, most children in the CWWVP lacked complete TSCC and RBPC data and were, therefore, excluded from analyses. Excluded children belonged to families with greater average number of children than the analytic sample and with more children who witnessed the index event precipitating contact with the CWWVP. Most likely, more children witnessed the event because the families were larger. Thus, study results may be more representative of smaller families. Second, except for child victimization during the index event (for which we found no difference among clusters), the level of study children's victimization from community violence or maltreatment is unknown. Substantial numbers of children who witness domestic violence are likely maltreated (Cox, Kotch, & Everson, 2003; Edleson, 1999). Absent additional measures of victimization by maltreatment or community violence, caution is warranted in attributing associations between violence and adjustment problems observed in this study solely to domestic violence.

Our findings have implications for future research. First, further study is needed of children living in domestic violence settings without clinically significant symptomatology in order to understand the processes keeping these children below clinical thresholds. The ability to identify which children are likely resilient or especially vulnerable to exposure to domestic violence would both enhance theoretical knowledge about resilience and help target often-limited resources to the children most in need. Such investigation should include complete psychosocial assessment of children's functioning (e.g., academic, social) to more fully assess differences in children's psychological profiles, thereby enabling investigators to gauge whether the "resilience" observed in a large number of this study's children is observed in other domains.

Also, future research should investigate adjustment patterns among younger children, including infants, because traumatic symptomatology in younger children may present with unique features (Scheeringa, 2004). Along these lines, longitudinal study of adjustment patterns would permit assessment of their temporal stability across developmental stages. The better understood the symptomatology and sequelae of younger children exposed to domestic violence, as well as the trajectory of psychopathology over time, the more likely

the development and provision of effective, efficient services. Future research should also broaden the range of predictors/correlates that differentiate adjustment profiles, including measures of exposure to specific forms of violence, in order to identify constellations of factors that predict specific adjustment pattern(s), which might help clinicians anticipate the specific intervention(s) needed.

Research on the efficacy of interventions targeting specific clusters of symptoms or problems would also be beneficial. Questions about the selection and timing of treatment of comorbid psychological problems remain largely unanswered (Rohde, Clarke, Lewinsohn, Seeley, & Kaufman, 2001). Some investigators propose broad-band, multimodal, or integrated treatment strategies (Danielson et al., 2006; Newman, Moffitt, Caspi, & Silva, 1998; Rohde et al., 2001). Such interventions may take a “modular” approach: Specific interventions are selected from a pool of interventions based on the child’s problems and needs. On the other hand, cognitive behavioral therapy with children with anxiety disorders, including PTSD, has significantly improved not only their anxiety disorders but also a range of other comorbid problems (Cohen, Deblinger, Mannarino, & Steer, 2004; Kendall, Brady, & Verduin, 2001). Unfortunately, the comparative effectiveness of a single treatment approach versus multiple or modular approaches has not been assessed among children exposed to domestic violence who manifest clusters of symptoms. Clearly, treatment of multiple symptoms needs more research.

Our findings also have clinical implications. First, results linking profiles of clinically significant symptoms to increased exposure to violence highlight the need for early assessment of the exposure level to help identify those children at greater risk for psychological maladjustment. Second, the presence of multiple adjustment profiles underscores that children respond to domestic violence differently, so assessment procedures should be comprehensive enough to detect a range of specific behavioral problems or profiles potentially present. Such assessment would permit clinicians to target specific interventions for specific profiles of maladjustment (or resilience). Targeting is critical to provide efficient, effective services: Empirically supported treatment for children with internalizing problems differs from that for children with externalizing problems (Weisz, 2004). Thus, children in the two “maladjusted” profiles in this study would likely benefit from different forms of treatment, and treatment for either of these profiles would likely differ greatly from effective interventions supporting the most common profile of children in the study—those potentially “resilient” children, who are functioning below clinical thresholds. In fact, specific treatment approaches or algorithms could be developed for individual adjustment profiles; for example, children in the “Internalizing only” group could receive standard, evidence-based therapy for internalizing problems, while the “Under clinical cut-offs” group’s intervention could focus more on family problems and less so on the child. In short, comprehensive assessment followed by targeted intervention will enable children to obtain the services that are most warranted.

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