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Variations in Emotional Abuse Experiences among Multiply Maltreated Young Adolescents and Relations with Developmental Outcomes

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Abstract

Objective—Based on the data obtained through Child Protective Services (CPS) case records abstraction, this study aimed to explore patterns of overlapping types of child maltreatment in a sample of urban, ethnically diverse male and female youth ($n = 303$) identified as maltreated by a large public child welfare agency.

Methods—A cluster analysis was conducted on data for 303 maltreated youth. The overall categorization of four types of abuse (i.e., physical, sexual, emotional abuse and neglect) was used to provide a starting point for clustering of the 303 cases and then the subtypes of emotional abuse were broken down in the clusters. The different clusters of child maltreatment were compared on the multiple outcomes such as mental health, behavior problems, self-perception, and cognitive development.

Results—In this study, we identified four clusters of child maltreatment experiences. Three patterns involved emotional abuse. One cluster of children experienced all four types. Different clusters were differentially associated with multiple outcome measures. In general, multiply-maltreated youth fared worst, especially when the cluster involved sexual abuse. Also, sex differences were found in these associations. Boys who experienced multiple types of maltreatment showed more difficulties than girls.

Conclusion & practice implications—These results reiterate the importance of creating more complex models of child maltreatment. Children who have experienced various types of maltreatment are especially in need of more attention from professionals and resources should be allocated accordingly.

As a number of recent publications have noted (e.g., Brassard & Donovan, 2006; Egeland, 2009; Trickett, Mennen, Kim, & Sang, 2009), research on the developmental impact of emotional abuse has lagged behind research on other forms of child maltreatment. Two key reasons for this are, first, that it has been especially difficult to reach consensus about the definition of emotional abuse with resulting difficulties in the operationalization of this construct, a critical factor in scientifically-sound research. Second it seems clear from a number of studies (e.g., Crittenden, 1991; Trickett, et al, 2009) that emotional abuse very often overlaps with other types of child maltreatment and thus it has been especially difficult

to ascertain the impact of emotional abuse, per se. For example, in an examination of case record information on a sample of maltreated urban young adolescents, Trickett and colleagues (Trickett, et al, 2009) found that 76% of emotionally abused youth also experienced neglect and 63% also experienced physical abuse.

Several studies have conducted statistical analyses designed to parse out the impact of emotional abuse from that of other forms of child maltreatment. For example, using regression analyses, Wright, Crawford and Del Castello (2009) found that emotional abuse, as determined through retrospective self report, predicted current symptoms of psychological distress in adults after controlling other child abuse experiences. In another study, Wekerle, Leung, Wall, MacMillan, Boyle, Trocme, and Waechter (2009) found that emotional abuse was a significant predictor of PTSD symptoms as well as victimization and perpetuation of dating violence when controlling for other types of child maltreatment.

Three studies have used other statistical approaches, cluster analysis or latent class analysis, to examine how or whether different profiles of child maltreatment experiences including emotional abuse can be identified and, if so, whether these profiles are associated with different deleterious developmental outcomes. None of these studies (Higgins, 2004; Hazen, Connelly, Roesch, Hough, & Landsverk, 2009; Pears, Kim & Fisher, 2008) were focused on emotional abuse, per se, but included it as one of 5 types of child maltreatment examined. The Higgins (2004) study focused on adults retrospectively reporting on their child maltreatment experiences while the sample for the study by Hazen and colleagues (Hazen, et al, 2009) consisted of adolescents ages 12 to 18 who reported on maltreatment experienced during childhood. In both studies, three clusters or latent classes were identified that were described as identifying different levels of maltreatment (e.g., low, medium, or high) rather than different profiles of types of maltreatment. Although there was not much detail in these articles, it would seem that, like other forms of maltreatment, emotional abuse was distributed across the different latent classes or clusters and thus did not contribute to the identification of a particular cluster or profile. In the third study, the only one to use child protective services (CPS) case record abstraction rather than retrospective self-report, Pears, et al, (2008) found that for preschool-aged foster children a latent class analysis revealed four distinctive profiles in which emotional abuse was highly correlated with all four clusters.

Altogether these studies provide little support for the proposition that emotional abuse, per se, can be linked to particular patterns of maladaptive development. However, for the most part the studies that examined self-reported emotional abuse gave little detail on how the construct was operationalized and thus it is difficult to tell if the studies are measuring the same phenomena. All in all the evidence about this issue is scant.

The present study extends prior research by exploring patterns of overlapping types of child maltreatment using extensive and rich data on maltreatment experiences derived from Department of Children and Family Services (DCFS) case records of a sample of maltreated urban male and female young adolescents. This sample, and the method of case record abstraction, are described in detail later in this article and in two prior publications (Mennen, Kim, Sang, and Trickett, 2010; Trickett, et al, 2009). What is particularly important to note here is that the Trickett, et al (2009) study categorized emotional abuse experiences into four possible types as operationally defined by Brassard and Donovan (2006). Using this classification system it was determined by this case record abstraction that 38% of the sample experienced *spurning*, 82% *terrorizing*, 14% *isolating*, and 31% *exploiting/corrupting*. Most children who experienced emotional abuse had more than one type. The most common co-occurring type of maltreatment was the combination of *spurning* and *terrorizing* (79%). Furthermore this study found that using this classification schema

resulted in the identification of almost 50% of the sample as emotionally abused, a number more than 5 times greater than those identified as emotionally abused at the time of referral to DCFS (and thus to the study). That is, a great majority of the emotionally abused children in this sample were referred to DCFS for other types of maltreatment and thus experienced more than one type of maltreatment.

The research questions addressed in this study are:

1. In this sample of multiply maltreated young adolescents does emotional abuse tend to cluster with certain other types of maltreatment? That is, can distinct patterns of maltreatment -- some involving emotional abuse, some not -- be discerned? If so, is the nature of the emotional abuse similar or different for the different clusters?
2. Are these different clusters or patterns of child maltreatment differentially associated with mental health and behavior problems, self esteem and other aspects of self-perception, and cognitive ability? Are these associations the same for male and female young adolescents?

Method

Participants

Our sample included participants in an ongoing longitudinal study of the effects of maltreatment on adolescent development (Trickett, 2000). Maltreated adolescents were referred by the Los Angeles county Department of children and Family Services (DCFS). Each month DCFS developed lists of new cases in the system that met the recruitment criteria: the child (1) had a new substantiated referral (i.e., report of maltreatment) to DCFS in the preceding month for any type of maltreatment; (2) was age 9 to 12 years; (3) was identified as Latino, African-American or Caucasian (non-Latino); (4) resided at the time of the referral to DCFS in one of 10 zip codes in urban Los Angeles County areas. To recruit the comparison sample, school lists of children aged 9–12 years residing in the same 10 zip codes as the maltreated sample were utilized in order to ensure that participating children would have similar neighborhood experiences. Potential caretakers were contacted via postcard and asked to indicate their willingness to participate. Recruitment procedures were approved by the Los Angeles County Department of Children and Family Services (DCFS), the Juvenile Court of Los Angeles County, and the Institutional Review Board of the University of Southern California.

A final sample of 303 maltreated children and 151 comparison youths was recruited and utilized for this study. At the initial assessment (Time 1), the participants ranged in age from 8.8 to 13.5 years ($m=10.9$, $sd=1.3$), were 53% male and ethnically diverse (38% African American, 39% Latino, 12% Biracial, and 11% Caucasian). The maltreatment and comparison groups were similar on major demographic variables such as age, sex, race, and neighborhood characteristics (based on Census block information), but differed with regard to living arrangements. For the comparison youths 93% lived with a biological parent, while for the maltreated youths only 54% lived with a biological parent. The rest lived with a relative (24%) or were in foster care (non-kin) (21%). Among the maltreatment groups, the neglected children were more likely to be placed in out-of-home placements than non-neglected children (41.5% vs. 34.8%). The same tendency was not detected among physical, sexual, or emotional abuse groups.

The parents or caretakers and their children came to the project office where they took part in an assessment that included measures of functioning on many levels, including mental health, social and emotional development, health, and cognitive development. The measures used in this study are described in detail in a later section of this paper. (A more complete

description of the protocol can be found in Gordis, Granger, Susman, and Trickett (2006) and Mennen and Trickett (2007).) Caretakers and children gave consent (assent) for the study which included their permission to access DCFS records on the maltreatment.

Maltreatment experiences of the participating youths

Information about the maltreatment experiences was obtained using the case record abstraction procedures. Detailed information on the abstraction procedures and abstractor training is presented elsewhere (Trickett, et al, 2009; Mennen, et al, 2010). Briefly, trained social work master's degree students and psychology undergraduate students reviewed the DCFS case records and coded the children's maltreatment information. The case files contain detailed information about the current and past episode of maltreatment. Included are notes on the emergency referral information, screener narrative, investigation narrative, contact sheets, and when applicable, court reports that give additional information about the maltreatment and other relevant details such as parental substance abuse, domestic violence, or mental illness.

Based on the Maltreatment Classification System (MCS; Barnett, Manly, and Cicchetti, 1993) as modified by English and LONGSCAN (1997), the Maltreatment Case Record Abstraction Instrument (MCRAI) was developed and utilized for this study in order to explicate the children's detailed information on maltreatment. At the broadest level, the system is comprised of four major forms of child maltreatment (i.e., physical abuse, sexual abuse, emotional abuse, and neglect) and two risk categories (i.e., parental incapacity and substantial risk). Under each category, detailed information of the abuse including specific actions taken, duration, frequency, perpetrator's relationship to the child, age of onset, and other specifics of the abuse is abstracted. For the present study, following the original CPS categorization of maltreatment the four major types of maltreatment were of interest. Operational definitions of each type are as follows: *Physical abuse* involved willful cruelty or unjustifiable corporal punishment inflicted on a child (e.g., beating, causing bruises, broken bones, welts, or medical treatment, hospitalization, etc.); *Sexual abuse* included sexual assault or sexual exploitation inflicted on a child, for example, kissing the child in a lingering and intimate way, fondling of the child's genitals, adult masturbates self while child observes, child's mouth in contact with offender's genitals, penetration; *Emotional abuse* consisted of spurning (e.g., child is blamed for adult problems, verbal abuse), terrorizing (e.g., parent threatens suicide, child subjected to extreme negativity or hostility), isolating (e.g., parent interferes with other relationships, child is confined or isolated), and exploiting/corrupting (e.g., child is forced to assume inappropriate responsibility, child involved in illegal activity); *Neglect* involved care neglect (i.e., failure to provide food, clothing, and hygiene), environmental neglect (failure to provide shelter.), medical neglect, educational neglect, and supervisory neglect.

A unit of data entry was one abuse report per an individual case. As expected, in a maltreatment group, a majority of children had multiple reports to DCFS from birth to the time of participation in the study with a mean of 3.7 reports ($sd=2.7$) and a range from 1 to 16. In addition, multiple forms of maltreatment were the norm among the participating children. Only 25.7% of maltreated children experience one form of maltreatment, while 32.0% of the children experienced more than three forms.

During the data collection process, twenty cases were chosen at random to test inter-rater agreement on the four major types of maltreatment for each referral for each child. This indicated good reliabilities (κ 's): .82, .82, .79, and .75 for physical abuse, sexual abuse, emotional abuse, and neglect, respectively. The agreement of fourteen original emotional abuse question items was slightly lower. For 14 original emotional abuse items, the mean Cohen's *Kappa*'s was .67, ranged from .50 to .73.

Measures

Mental Health/Behavior Problems

Depression: Information on the depressive symptoms was obtained using the Child Depression Inventory (CDI; Kovacs, 1992). The CDI is a 27-item self-report measure having a possible range from 0 to 54. The alpha reliabilities for this measure have been reported to range from .71 to .89 in various samples. The CDI showed good convergent validity with other measures of childhood depression (Kovacs, 1992) and discriminates normal children from those diagnosed with depression (Hodges, 1990; Smith, Mitchell, McCauley, & Calderon, 1990). The total score was used for the current study (27 items; $\alpha=.86$).

Anxiety: The Multidimensional Anxiety Scale for Children (MASC; March, Parker, Sullivan, Stallings, & Conners, 1997) was administered to obtain the children's self-reported level of anxiety symptoms. The MASC is a 39-item self report scale designed for 8- to 17-year olds and has four subscales such as physical symptoms, social anxiety, harm avoidance, and separation anxiety. The scale has been reported having good internal consistencies range from .70 to .89 and discriminant validity (March et al., 1997). For this analysis, the total score was used (39 items; $\alpha=.91$) with a possible range from 39 to 156.

Posttraumatic Stress Disorder symptoms: The Youth Symptom Survey Checklist (YSSC; Margolin, 2000) was administered to obtain the participants' Posttraumatic Stress Disorder (PTSD) symptoms. The YSSC is a 17-item self report measure of the PTSD symptoms such as hyperarousal (e.g., had strange feelings in your body such as breaking out into a sweat or your heart beating fast), avoidance/numb (e.g., felt that you were not interested in things you used to enjoy doing), and re-experiencing (e.g., had bad dreams or nightmares). The total score is used for this analysis (39 items; $\alpha=.88$) and can range from 17 to 68. Margolin, Vickerman, Oliver, and Gordis (2010) report that an arousal subscale of the YSSC had an internal consistency reliability of .85 in a community sample. Higher scores on this subscale were associated with youth experiencing physical marital aggression and community violence.

Aggression: The participants' aggression was measured using a self-report measure, the *Youth Self Report* (YSR; Achenbach & Edelbrock, 1983) at Time 1. This study used the composite measure of 21 items comprising the aggression subscale ($\alpha=.79$) from the original 120 items based on factor analyses (for details, see Trickett, Noll, Reiffman, & Putnam, 2001). The YSR manual reports considerable evidence of validity and test-retest reliability for the items of these devices.

Self-perception

Global self worth/self esteem: A self-report measure of perceived competence was obtained with the What I am Like: Self-Perception Profile for Adolescents questionnaire (WIAM; Harter, 1988). The original measure assesses eight domains of competency, but only the 6 subscales relevant for this study were administered including scholastic, social, athletic, behavioral, friendship, and self acceptance. The WIAM has a highly interpretable factor structure and considerable evidence of construct validity across various populations. Internal reliability scores are adequate ranging from .71 to .84. (Harter, 1985). The total score of the six subscales, an index of global self worth or self esteem, was used for this study (30 items, $\alpha=.87$). Scores on this scale can range from 30 to 120.

Positive and negative body image/mastery: Two subscales of the Self-Image Questionnaire for Young Adolescents (SIQYA; Petersen, Schulenberg, Abramowitz, Offer, & Jarcho, 1984) *body image* and *mastery/coping* were administered. This self report

measure is designed for children ages for 11 to 15 and these subscales were selected because of their particular relevance for young adolescents. The scale has displayed an internal reliability of $\alpha=.85$ overall and for females and males respectively $\alpha=.81$ and $\alpha=.77$. Validity was established through factor analysis and through correlations with other measures of self-image (Petersen et al., 1984). Based on a factor analysis which indicated that the positive items of the two subscales formed a factor as did the negative items of the two subscales, reminiscent of the factors of positive and negative affect identified by Watson, Clark, and Tellegen (1988), two linear composites were formed: *positive body image/mastery* (SIQYA+) (e.g., “I am proud of my body”, “feel that I am able to make decisions”; 10 items, $\alpha=.73$) and *negative body image/mastery* (SIQYA-) (e.g., “I am not satisfied with my weight”, “I feel that I have no talent whatsoever”; 11 items, $\alpha=.80$). This latter subscale was reverse scored so that a high score indicated lack of ascribing to negative characteristics of self.

Cognitive Development—The participants completed the Peabody Picture Vocabulary Test Revised (PPVT; Dunn & Dunn, 1997), which is a widely-used measure of receptive vocabulary. PPVT scores in early childhood have been shown to be correlated with literacy outcomes in young adulthood (Baydar, Brooks-Gunn, & Furstenberg, 1993). This scale correlates approximately .7 with the Full Scale of the Wechsler Intelligence Scale for Children (Wechsler, 1974). The manual (Dunn & Dunn, 1997) for the test provides considerable information about the standardization sample and good evidence of test-retest reliability. The tables provided in the manual were used to derive an age-based standard score which were used for this analysis.

Results

Cluster Analysis

A cluster analysis was run on 303 cases, each with four items indicating types of maltreatment that the cases had experienced (physical abuse, sexual abuse, emotional abuse, neglect). In order to test stability and replicability of the clustering method, a process of splitting the data in half randomly and comparing clustering across the two groups was implemented (McIntyre & Blashfield, 1980). A hierarchical cluster analysis using Ward's method on the first random half of data ($N=145$) was done with four clusters indicated as the optimal splitting point according to the agglomeration schedule and dendrogram. The second random half of the data ($N=158$) was clustered with a k-means analysis with a 4 cluster solution. The clustering solution for the k-means analysis was applied to the first group to provide a cluster association based on the second process. Then the cluster results from the two methods are compared for agreement with Cohen's Kappa, $\kappa = 0.599$ ($df=144$, $p < 0.001$).

The results of the distribution of these results, reordered to reflect our focus on emotional abuse, are then given in Table 1, with a graphical depiction given in Figure 1. The first cluster had 33% physical abuse and 62% neglect (and no emotional or sexual abuse) and is labeled as No EA. The second cluster was marked by 100% emotional abuse and 66% physical abuse and labeled EA+PA. The third cluster was indicated by 100% of cases that experience both emotional abuse and neglect, with a majority of cases also having physical abuse (59%) and is labeled EA+PA+NE. The fourth cluster had 100% sexual abuse and majority levels of emotional abuse (62%), physical abuse (58%), and neglect (73%) (labeled EA+PA+NE+SA). Figure 1 also indicates the number of males and females in each cluster. A Chi square test was done to see if cluster membership and ethnicity were independently related. The results indicate that there is evidence for dependence between cluster membership and ethnicity (Chi Sq (9)=20.4, $p < 0.05$). Analysis of the standardized residuals shows the only significant difference to be that white youth are more likely to be

overrepresented in the No EA cluster (std. res. = 2.5) as compared with youth of other ethnicities.

The subtypes of emotional abuse were further broken down in the clusters as spurning, terrorizing, isolating, and exploiting/corrupting. (See Trickett, et al, (2009) for detailed definitions and examples.) These subtypes were compared for significant differences in subtype endorsements across clusters using a one way ANOVA, with Tukey's Post Hoc test of group differences (See Table 2 and Figure 2). The three clusters that had instances of emotional abuse were compared on the relative levels of endorsements for each emotional abuse subtype. Spurning was significantly different between 2 groups, where EA+PA+NE had more endorsements than EA+PA+NE+SA ($F_{2,191} = 4.3$, $p = 0.015$; $D = 0.22$). Terrorizing was significantly different among two clusters, where EA+PA+NE had more endorsements than EA+PA+NE+SA ($F_{2,191} = 13.5$, $p < 0.001$; $D = 0.31$). Also, exploiting/corrupting showed a significant difference between clusters with EA+PA significantly lower than EA+PA+NE ($F_{2,191} = 5.9$, $p = 0.003$; $D = -0.30$). There was no significant difference for the isolating subtype among the clusters. In sum, the EA+PA+NE cluster had significantly more instances of spurning and terrorizing than the EA+PA+NE+SA cluster and more instances of exploiting/corrupting than the EA+PA cluster.

Next, in order to test whether the number of separate reports to DCFS in this sample was equal across the clusters, a one way ANOVA was carried out. The clusters were used as the grouping factor and the number of reports to DCFS as the dependent variable. The overall test of significance found significant differences in number of reports among groups ($F_{3,299} = 26.9$, $p < 0.001$). Tukey's Post Hoc test of group differences found that the means for clusters EA+PA+NE and EA+PA+NE+SA clusters ($m = 5.04$ and $m = 4.62$ respectively) were significantly higher than those of No EA and EA+PA clusters ($m = 2.32$ and $m = 3.00$ respectively).

MANCOVA for Total Maltreatment Group versus Comparison Group

First, a MANCOVA was done with the maltreated group versus the comparisons on the outcome variables with covariates (group \times sex \times depression, anxiety, PTSD symptoms, aggression, self-esteem, positive and negative body image/mastery, cognitive development; covarying age). The maltreatment group as a whole was compared to the comparison group on the multiple dependent variables: depression (CDI); anxiety (MASC); PTSD symptoms (YSSC); aggression (YSR); self-esteem (WIAM); positive and negative body image/mastery (SIQYA+ and SIQYA-); and cognitive development (PPVT). This was done so that it would be possible to determine whether the later analyses using the cluster groupings could discern associations between child outcomes and profiles of child maltreatment not discernable using the overall maltreatment classification. The grouping was further broken down by sex to examine the possible mean differences between males and females. A multivariate analysis of covariance (MANCOVA) allowed us to examine multiple outcomes for group differences simultaneously with the effects of covariates accounted for. Here the dependent variable scores were tested for group differences with age accounted for as a covariate. Bonferroni corrected pairwise comparisons were used to test for significant group differences.

The results of the MANCOVA indicated that the covariate, age, was multivariate significant indicating that there are differences in the means due to age of the child, which was taken into account for the subsequent multivariate tests. The grouping of comparison versus maltreated was multivariate significant, as was the sex of the child, and the interaction between group and sex. The univariate results of the MANCOVA analysis indicate that age adjusted the mean of the anxiety scores, and negative body image/mastery significantly. Table 3 summarizes the results of the effects of the main effects of sex and group and

interaction between group and sex. The main effect of group was significant for cognitive development, self-esteem and negative and positive body image/mastery, with the comparison group scoring higher on all of these scales. The main effect of sex was significant for anxiety, self-esteem, and negative and positive body image/mastery. Males had higher scores than females on self-esteem and negative and positive body image/mastery. Females had higher scores for anxiety. The interaction of group by sex was significant for depression, cognitive development, aggression, and negative and positive body image. Depression scores for comparison males were lower than comparison females, and the opposite was true for maltreated males and females. Males outperformed females on the cognitive development scale in the comparison group, but females did better than males in the maltreated group. Comparison males scored higher on the positive body image/mastery than females but the maltreated females scored higher than maltreated males. Again comparison males scored higher than females on the negative body image/mastery but this difference disappears for the maltreated group. For the aggression interaction, comparison females score higher than males and maltreated males score higher than females.

In sum, overall the maltreatment group was found to have lower scores on the measures of cognitive development, self esteem, and self-perceptions of body image/mastery. Males had higher scores than females on all the self perception measures and lower scores than females in anxiety, consonant with much prior research on sex differences in early adolescence. Five sex by group interactions were found with males in the comparison group higher than their female counterparts on cognitive development and positive body image/mastery but females higher on these domains than males in the maltreatment group. On the other hand, comparison group females were higher in depression and aggression than comparison males but maltreated males scored higher than maltreated females on these domains.

MANCOVA with Cluster Groupings and Sexr Main Effects

Next, a two way MANCOVA was done in which the factors were defined as sex and groups based on clustering (cluster \times sex \times depression, anxiety, PTSD symptoms, aggression, self-esteem, positive and negative body image/mastery, cognitive development, covarying age). We ended up with 10 groups with the smallest groups having an $N = 15$. As indicated in Table 4, for the main effect of group, there were significant mean differences in cognitive development, self-esteem and aggression scores. The Bonferroni corrected pairwise comparisons indicate that the cognitive development scores were higher for the comparison group over clusters No EA, EA+PA+NE, and EA+PA+NE+SA ($p < .01$), but not EA+PA, and no other comparisons were significant. On the self-esteem scale comparison the largest difference was between the comparison group and the EA+PA+NE cluster ($D = 5.6$, $p = 0.11$). The mean of the aggression scale was significantly different between the EA+PA+NE+SA cluster and both the EA+PA cluster and the comparison group. The mean of EA+PA+NE+SA cluster is 3.3 units higher than that of the comparison group and 3.1 higher than the EA+PA cluster ($p < 0.05$ for both). These main effects for cluster groupings are illustrated in Figure 3. Note that in this figure, for the four dependent variables on the left, a higher score means more problems, whereas, for the four dependent variables on the right, a higher score means more positive development.

For the sex factor there were significant mean differences in anxiety and aggression scores. The anxiety scores were lower for males ($D = -4.6$, $p < 0.05$) and the aggression scores were higher for males ($D = 2.2$, $p < 0.01$). We also find the interaction between cluster groupings and sex was multivariate significant for depression, aggression, and positive body image/mastery. On the depression score females scored higher than males in the comparison group, but in the EA+PA and EA+PA+NE+SA clusters the relationship is flipped where females scored lower than males. Figure 4(a) provides a visual depiction of this where the male mean scores are shown to be higher for these two clusters and lower for the comparison

group. The interaction on aggression scores showed no mean difference across groupings for all females and for four of the five male groups. The males that are in the EA+PA+NE+SA cluster had a higher aggression score than all other groups. Figure 4(b) shows that the female mean scores were relatively level and the males are the same except for the EA+PA+NE+SA cluster. In the comparison group and EA+PA males had higher scores than females on the positive body image/mastery scale, but females had higher scores than males in the EA+PA+NE cluster (Results graphically shown in Figure 4(c)).

In sum, the main effects from this MANCOVA indicate higher levels of cognitive development, for the comparison group as compared with all the cluster groupings except EA+PA; higher self esteem for the comparison group as compared with one cluster – EA+PA+NE; and lower aggression scores for the comparison group and the EA+PA cluster as compared to the EA+PA+NE+SA cluster. The three significant sex by group interactions indicated that although males had lower depression scores and higher positive body image/mastery scores than females in the comparison group, this relationship changes in the EA+PA and EA+PA+NE+SA clusters where males had higher depression scores than females and for positive body image/mastery for the EA+PA+NE cluster where females had higher scores than males. Similarly, males in the EA+PA+NE+SA cluster had the highest scores in aggression, significantly higher than for females in all groupings and males in the remaining three clusters and the comparison group.

Discussion

In this study we identified four clusters of child maltreatment experiences, which is similar to the Pears, et al (2008) finding, although the detailed characteristics of each cluster differed somewhat. The EA+PA+NE+SA and EA+PA+NE patterns are common to both studies, but the EA+PA cluster was not identified by Pears and colleagues nor did they identify any cluster without emotional abuse. These differences may be due in part to some methodological differences between the studies. Although both studies used CPS or DCFS case records abstraction, Pears and colleagues used severity scores of five different maltreatment types (i.e., physical, sexual, emotional abuse, supervisory and care neglect) while this study used presence or absence of four different types of maltreatment. Developmental and contextual effects may account for some of these differences as well. The Pears et al (2008) sample consisted of preschool age children, all in foster care and mostly white, from a medium sized city. Our sample ranged in age from 9 to 12, half were living with their biological parents, most were African American or Latino, and they resided in inner-city regions of a very large metropolis. It is not clear how comparable the severity and chronicity of the maltreatment experiences of these two sample are.

In some ways also our findings are similar to the two other studies that clustered maltreatment experiences (Higgins, 2004; Hazen, et al, 2009) in which the resultant groupings were identified as indicating different levels of maltreatment (i.e., low, medium, or high). In this study, the youths who experienced more types of maltreatment (i.e., those in the clusters, EA+PA+NE and EA+PA+NE+SA) fared worst, reporting more externalizing problems, lower self-esteem and less optimal cognitive development. On the other hand, youth in the two clusters with fewer -- only two -- forms of maltreatment, the EA+PA cluster and the NO EA cluster (who experience PA and NE only) for the most part showed lower levels of problems and in a number of instances were not distinguishable from comparison group youth. It is increasingly acknowledged that adults having experienced multiple types of abuse report more physical as well as psychological difficulties (Higgins, & McCabe, 2000; Moeller & Backman, 1993). Experiencing multiple types of maltreatment, sometimes labeled poly-victimization experiences, have been found to be an important determinant of trauma symptoms (Finkelhor, Ormrod, & Turner, 2007). It is still unclear,

however, to what degree this is the function of the sum of number of different types of abuse or of the particular patterns of abuse or neglect experienced. While not definitive, the results of this study suggest that when carefully and operationally defining different forms of child maltreatment, differential effects can be discerned.

These results also indicate the complexity of determining severity of emotional abuse, or for that matter, of other types of maltreatment. The emotional abuse experienced by the cluster labeled EA+PA+NE had the greatest frequency of the subtypes, terrorizing and spurning, often considered especially insidious (Brassard & Donovan, 2006). So one might consider these youth the most seriously emotionally abused and, in fact, they have lowest self esteem and, for boys, lowest positive body image/mastery. On the other hand, all the youth in the EA+PA+NE+SA cluster, while potentially experiencing milder emotional abuse, experienced sexual abuse. And this group has the highest levels of aggression, especially the boys who also show elevated depression.

The sex differences found in this study are particularly interesting and important. Much research has indicated that the experience of physical abuse, which in this sample characterizes all four clusters, is a better predictor of internalizing symptoms for girls than for boys, with boys showing higher rates of externalizing problems (McGee, Wolfe, & Wilson, 1997; Trickett & McBride-Chang, 1996). This study presented a different picture. Across both depressive symptoms and externalizing behavior outcomes, boys who experienced multiple types of maltreatment (including both emotional and physical abuse) showed more difficulties than girls. That is to say, the multiply maltreated male youth in this study, and especially those whose experiences included sexual abuse, were especially adversely affected. We speculate that that after abuse or neglect is disclosed, girls get more help than boys because they are viewed as more vulnerable, and as a result become better able to cope with the associated distress. Clearly, these findings indicate that a more fine-tuned examination of sex differences among maltreated children and adolescents is warranted.

Utilizing the case records abstraction procedure, this paper found considerable complexity in children's maltreatment experiences which has potential to advance our understanding of the nature of children's maltreatment experiences. However, limitations of this approach also need-s to be noted. Case records abstraction relies heavily on the CPS documents, which may not provide comprehensive information of the maltreatment experiences. For example, maltreatment may not accurately or comprehensively reported to authorities; the child may not disclose the abuse to caseworkers; or sometimes a worker may fail to document the abuse-related evidence. For these cases, the information in the case records may minimize or underestimate the abuse experiences despite efforts to reconstruct the abuse incidents. In Time 3 (approximately 2–3 years after the initial interviews) the authors conducted extensive trauma interviews with the participating youths and obtained their self-report on their own abuse experiences. We expect that the self-reported maltreatment data will provide a more comprehensive picture of the children's abuse experiences.

All in all, the results of this study provide empirical support for creating more complex models of child maltreatment, based on multiple forms and experiences of maltreatment, rather than, as has been mostly the case to date, simple models based on one form of child maltreatment. Such complex models based not only on multiple forms of maltreatment and variations within those forms, but also on the different ways in which these experiences may affect male and female children, can provide a better profile of possible developmental issues that, in turn, can have important clinical relevance. Professionals working with abused children need to understand that these children are likely to have long experiences of various kinds of maltreatment and need comprehensive assessments of these abuse experiences.

Children who have experienced various types of maltreatment are especially in need of more attention from professionals and resources should be allocated accordingly.

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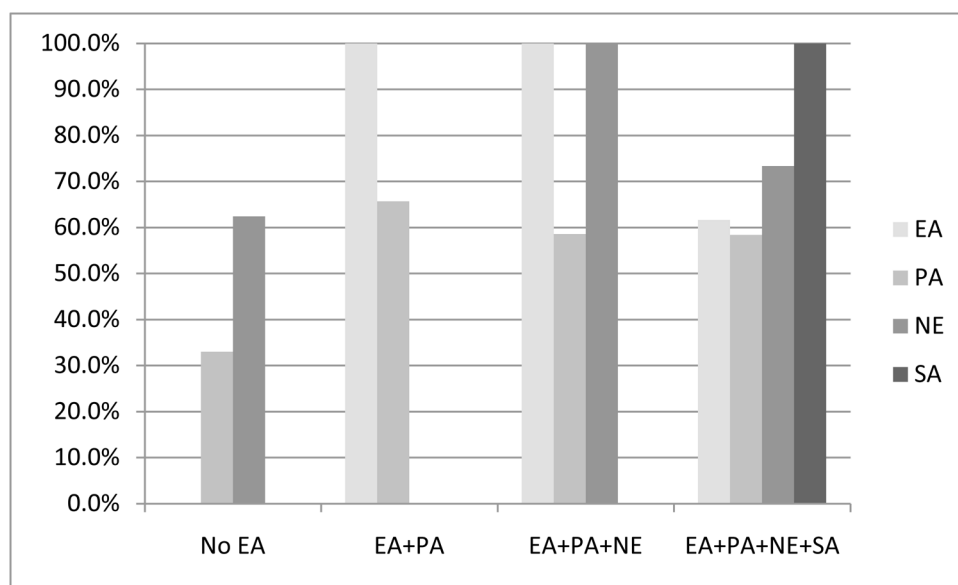


Figure 1.
Percentage of participants with endorsement of each type of abuse (Physical Abuse, Sexual Abuse, Emotional Abuse, and Neglect).

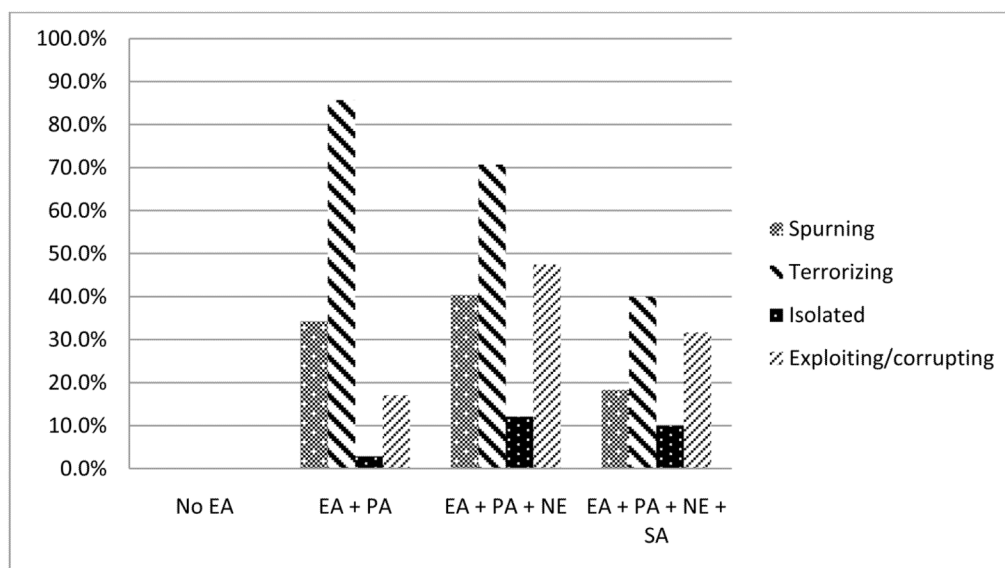


Figure 2. Percentage of participants that endorse each subtype of Emotional Abuse (EA). All 4 subtypes are endorsed in each cluster where EA is present.

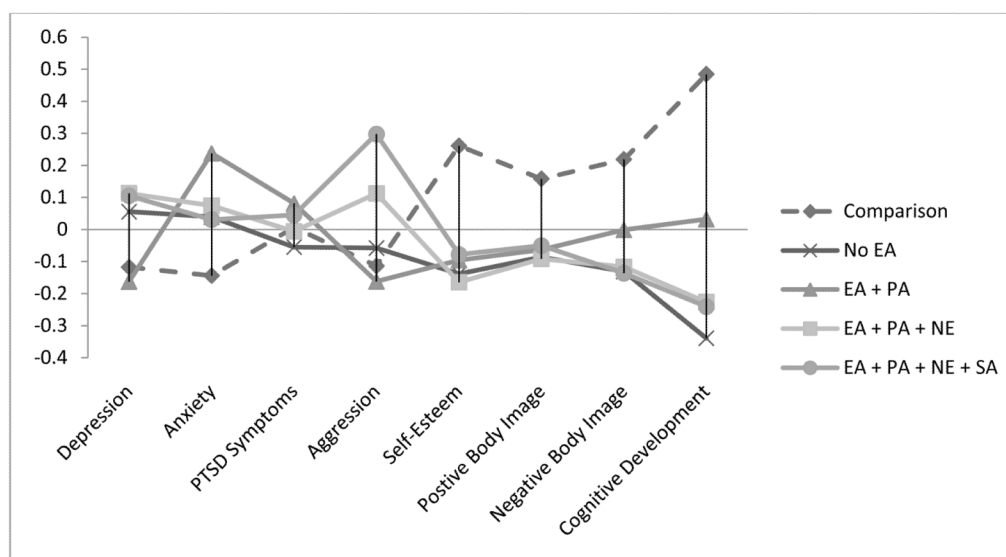
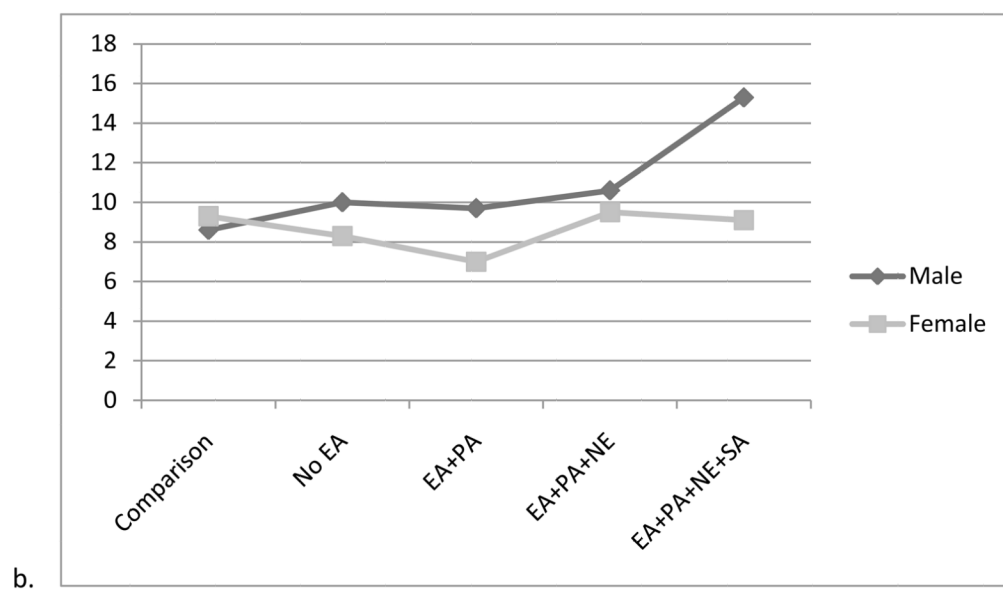
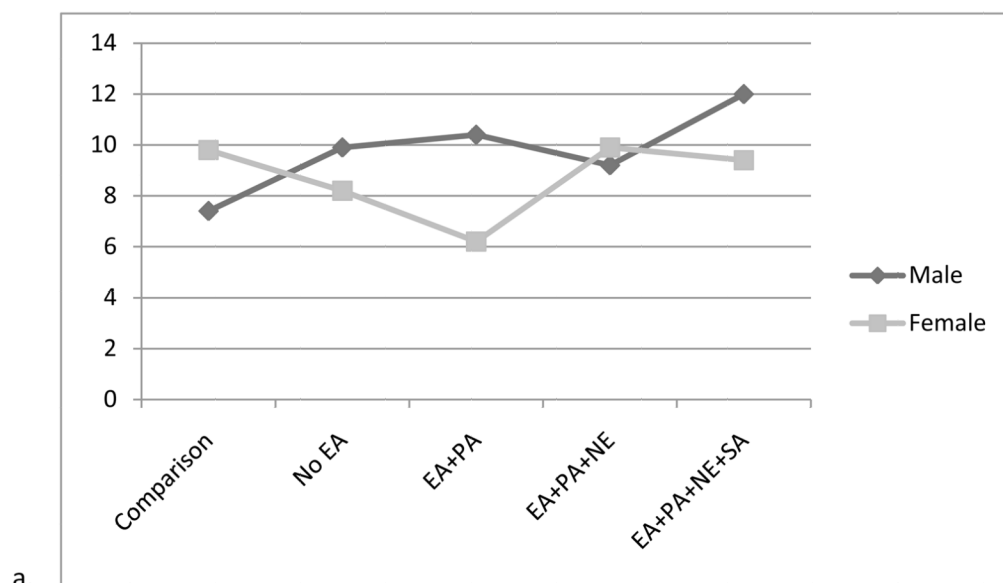


Figure 3.

Z-scores on dependent variables by group association. Group mean scores are computed from overall Z-score for entire sample. Each line indicates a different grouping based on comparisons and clusters. For the four dependent variables on the left, a higher score means more problems, whereas for the four dependent variables on the right, a higher score means more positive development.



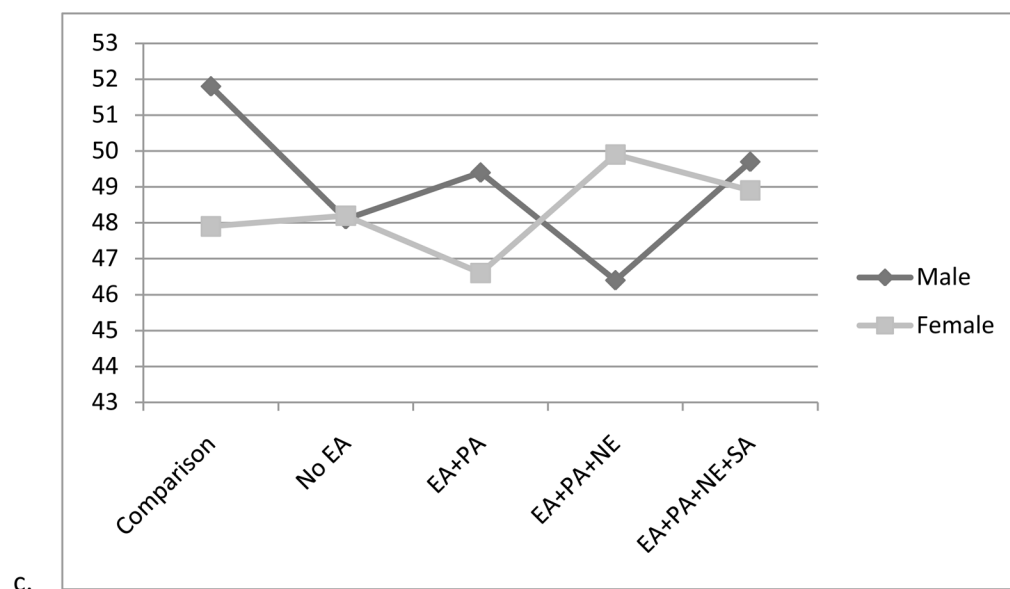


Figure 4.

Group membership by sex means for outcome variables are shown for three significant interactions of MANCOVA results. 4(a) shows the interaction of males and females over group association for mean scores on the depression outcome, 4(b) shows the group differences for the mean scores of the aggression scale, and 4(c) shows the difference between groups on the mean scores for the positive body image/mastery scale.

Table 1

Four Cluster Overall Solution

	No EA	EA+PA	EA+PA+NE	EA+PA+NE+SA
EA	0.0%	100.0%	100.0%	61.7%
PA	33.0%	65.7%	58.6%	58.3%
NE	62.4%	0.0%	100.0%	73.3%
SA	0.0%	0.0%	0.0%	100.0%
N _{male}	44	18	49	40
N _{female}	65	17	50	20

Table 2

Emotional Abuse Subtype Distributions

	No EA	EA+PA	EA+PA+NE	EA+PA+NE+SA
Spurning	0.0%	34.3%	40.4%	18.3%
Terrorizing	0.0%	85.7%	70.7%	40.0%
Isolation	0.0%	2.9%	12.1%	10.0%
Exploit	0.0%	17.1%	47.5%	31.7%
N	109	35	99	60

Table 3

Estimated Group Means and Standard Errors For Outcome Variables

	Comparison Male	Comparison Female	Maltreat Male	Maltreat Female	Group	Sex	Group * Sex
<i>Mental Health/Behavior</i>							
CDI	7.4 (.77)	9.8 (.99)	10.0 (.62)	8.8 (.62)			*
MASC	43.8 (2.2)	50.9 (2.9)	47.2 (1.8)	51.5 (1.8)		**	
YSSC	32.3 (1.2)	34.5 (1.5)	33.2 (.97)	32.6 (.96)			
YSR	8.6 (.65)	9.3 (.84)	10.9 (.53)	8.7 (.52)			*
<i>Self-Perception</i>							
WIAM	88.5 (1.7)	83.9 (2.2)	82.2 (1.4)	81.0 (1.3)	**	<i>a</i>	
SIQYA+	51.8 (.91)	47.9 (1.2)	47.9 (.74)	48.7 (.73)	<i>a</i>	<i>a</i>	**
SIQYA-	49.1 (1.3)	42.9 (1.7)	43.9 (1.1)	42.7 (1.1)	*	**	<i>a</i>
<i>Cognitive Development</i>							
PPVT	97.0 (2.1)	89.5 (2.7)	78.8 (1.7)	81.6 (1.7)	***		*
N	90	61	152	151			

Notes: Values are the mean scores for each group followed by standard errors in parentheses.

a, $p < 0.1$;

*

, $p < 0.05$;

**

, $p < 0.01$;

$p < 0.001$. Main effects of group and sex significance are indicated on the right side of the table, followed by the interaction. Bonferroni pair-wise correction used for significance tests of group differences.

Table 4

Multivariate Estimates and Standard Errors of Outcomes

Comparison		No EA	EA+PA	EA+PA+NE	EA+PA+NE+SA	Group	Sex	Group *	Sex
<i>Mental Health/Behavior</i>									
CDI	Male	7.4 (.77)	9.9 (.95)	10.4 (1.8)	9.2 (1.1)	12.0 (1.7)			
	Female	9.8 (.99)	8.2 (1.1)	6.2 (1.7)	9.9 (1.1)	9.4 (1.2)			*
MASC	Male	43.8 (2.3)	47.0 (2.8)	52.9 (5.2)	46.0 (3.3)	45.5 (5.0)			
	Female	50.9 (2.9)	52.4 (3.4)	52.5 (5.1)	50.6 (3.2)	51.3 (3.6)			<i>a</i>
YSSC	Male	32.3 (1.2)	32.9 (1.4)	38.3 (2.8)	31.3 (1.7)	34.0 (2.7)			
	Female	34.5 (1.5)	32.9 (1.8)	29.2 (2.7)	32.4 (1.7)	34.1 (1.9)			
YSR	Male	8.6 (.64)	10.0 (.80)	9.7 (1.5)	10.6 (.93)	15.3 (1.4)		*	
	Female	9.3 (.83)	8.3 (.96)	7.0 (1.4)	9.5 (.91)	9.1 (1.0)		***	*
<i>Self-Perception</i>									
WIAM	Male	88.5 (1.7)	81.9 (2.1)	81.7 (3.9)	82.4 (2.4)	83.4 (3.8)			
	Female	83.9 (2.2)	81.4 (2.5)	83.6 (3.8)	78.9 (2.4)	81.8 (2.7)		<i>a</i>	
SIQYA+	Male	51.8 (.91)	48.1 (1.1)	49.4 (2.1)	46.4 (1.3)	49.7 (2.0)			
	Female	47.9 (1.2)	48.2 (1.4)	46.6 (2.0)	49.9 (1.3)	48.9 (1.4)		<i>a</i>	*
SIQYA-	Male	49.1 (1.3)	44.5 (1.7)	45.6 (3.1)	44.0 (1.9)	39.8 (3.0)			
	Female	42.9 (1.7)	41.7 (2.0)	44.8 (3.0)	42.9 (1.7)	42.6 (2.1)		**	
<i>Cognitive Development</i>									
PPVT	Male	96.9 (2.1)	76.0 (2.6)	82.7 (4.9)	81.1 (3.1)	78.6 (4.8)		***	
	Female	89.5 (2.7)	79.8 (3.2)	90.1 (4.8)	79.4 (3.0)	82.2 (3.4)			
N _{male}		90	44	18	49	40			
N _{female}		61	65	17	50	20			

Notes: Values are the mean scores for each group followed by standard errors in parentheses.

a, $p < 0.1$;*, $p < 0.05$;**, $p < 0.01$;

p < 0.001. Main effects of group and sex significance are indicated on the right side of the table, followed by the interaction. Bonferroni pair-wise correction used for significance tests of group differences.