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Interrelations of Maternal Expressed Emotion, Maltreatment, and Separation/Divorce and Links to Family Conflict and Children's Externalizing Behavior

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Abstract

Research has documented that maternal expressed emotion-criticism (EE-Crit) from the Five-Minute Speech Sample (FMSS) predicts family conflict and children's externalizing behavior in clinical and community samples. However, studies have not examined EE-Crit in maltreating or separated/divorced families, or whether these family risks exacerbate the links between EE-Crit and family conflict and externalizing behavior. The current study examined the associations between maternal EE-Crit, maltreatment, and separation/divorce, and whether maltreatment and separation/divorce moderated associations between EE-Crit and children's externalizing problems, and EE-Crit and family conflict. Participants included 123 children ($M = 8.01$ years, $SD = 1.58$; 64.2% males) from maltreating ($n = 83$) or low-income, comparison ($n = 40$) families, and 123 mothers ($n = 48$ separated/divorced). Mothers completed the FMSS for EE-Crit and the Family Environment Scale for family conflict. Maltreatment was coded with the Maltreatment Classification System using information from official Child Protection Services (CPS) reports from the Department of Human Services (DHS). Trained summer camp counselors rated children's externalizing behavior. Maltreatment was directly associated with higher externalizing problems, and separation/divorce, but not maltreatment, moderated the association between EE-Crit and externalizing behavior. Analyses pertaining to family conflict were not significant. Findings indicate that maltreatment is a direct risk factor for children's externalizing behavior and separation/divorce is a vulnerability factor for externalizing behavior in family contexts with high maternal EE-Crit. Intervention, prevention, and policy efforts to promote resilience in high-risk

families may be effective in targeting maltreating and critical parents, especially those with co-occurring separation/divorce.

Keywords

expressed emotion; EE-Crit; Five-Minute Speech Sample; maltreatment; divorce; externalizing behavior

Expressed emotion (EE), and particularly, parental criticism (EE-Crit) from the Five-Minute Speech Sample (FMSS), is a well-established predictor of negative family interactions and children's externalizing behavior in clinical and community samples. EE-Crit, a global rating of critical statements and tone, is derived from the FMSS, during which parents are audio-recorded and asked to freely speak about their children and the relationship with them for five minutes (Magaña-Amato, 1993). In clinical, community, and sheltered samples of families, parents with higher levels of EE-Crit are more likely to engage in coercive interactions, display more dyadic negativity, and report higher levels of family conflict (McCarty, Lau, Valeri, & Weisz, 2004; Narayan, Herbers, Plowman, Gewirtz, & Masten, 2012; Simoneau, Miklowitz, & Saleem, 1998; Vostanis & Nicholls, 1995). Higher EE-Crit also predicts more externalizing problems for preschool, school age, and adolescent children (Frye & Garber, 2005; Hirshfeld, Biederman, Brody, Faraone, & Rosenbaum, 1997; McCarty & Weisz, 2002; Nelson, Hammen, Brennan, & Ullman, 2003; Peris & Hinshaw, 2003; Vostanis & Nicholls, 1995). Together, these studies indicate that EE-Crit relates to conflict and externalizing behavior in families with children of varying ages and levels of psychiatric and environmental risk.

Although the FMSS has been used to assess EE-Crit and predict negative family and child behavior across many types of samples, studies have not examined EE-Crit from the FMSS in families where maltreatment or separation/divorce are present. Environments with maltreatment, separation/divorce, or both co-occurring circumstances in addition to EE-Crit would reflect an accumulation of family risk (Cicchetti & Lynch, 1993; Sameroff, Guttman, & Peck, 2003). Although EE-Crit has been extensively studied in clinically-referred, low-income, culturally diverse families (Frye & Garber, 2005; McCarty & Weisz, 2002; Peris & Hinshaw, 2003), some recent studies on EE have indicated that the predictive effects of EE-Crit may be less clear and potentially, more complex in families with very high cumulative risk (Narayan et al., 2012; Narayan, Sapienza, Monn, Lingras, & Masten, 2014). More research is needed to understand the associations between EE-Crit and family and child functioning in home environments with high cumulative risk.

Furthermore, despite the well-established associations between EE-Crit, family conflict, and children's behavior problems, less is known about the family processes or contexts that account for these associations (Cicchetti & Howes, 1991). While EE-Crit is a direct risk factor for children's externalizing behavior in many samples (Frye & Garber, 2005; Hirshfeld et al., 1997; Peris & Hinshaw, 2003), very few studies have examined how vulnerabilities in family environments, including the presence of maltreatment or separation/divorce, may affect or exacerbate relations between EE-Crit and child and family maladjustment. Potentially, in the presence of these family vulnerability factors, such as

maltreatment or separation/divorce, EE-Crit may be especially likely to be related to children's behavior problems. An understanding of the vulnerability factors that account for the effects of EE-Crit on externalizing behavior and family conflict would sharpen understanding of key family processes to target for interventions and preventions to promote resilience in high-risk samples.

The brevity and efficiency of the FMSS have been found to be particularly useful in high-risk, impoverished populations (Narayan et al., 2012, 2014; Sher-Censor, Grey, & Yates, 2013). Such families are in need of methodologically efficient empirical and clinical tools to promote positive child adjustment and family harmony as they tend to have limited time to allocate to basic research or intervention studies (Cicchetti & Manly, 1990; Narayan et al., 2012, 2014). In place of lengthier assessments or interviews, multiple aspects of EE from the FMSS are effective in capturing emotional aspects of the parent-child relationship in low-income and severely impoverished families (Narayan et al., 2012; 2014; Sher-Censor et al., 2013).

Families with maltreatment and separation/divorce in addition to low socioeconomic status represent additional types of high-risk populations where family dysfunction, parent-child conflict, and child maladjustment would likely be elevated, and access to resources may be limited (Azar, 2002; Cicchetti & Valentino, 2006; Egeland, Breitenbucher, & Rosenberg, 1980; Gaudin, Polansky, Kilpatrick, & Shilton, 1996). Use of the FMSS to assess and characterize EE in these contexts would provide important insight into the predictive utility of EE-Crit across multiple types of high-risk families, improve understanding about the emotional environment of families with cumulative risks, and facilitate efforts to improve parent-child relationships. The purpose of this study was to extend current findings on the relations between maternal EE-Crit, family conflict and children's externalizing behavior to families where maltreatment and separation/divorce are also present.

EE-Crit, Maltreatment, and Separation/Divorce

Broadly, researchers have noted the lack of studies on EE-Crit in maltreating families (Calam, Bolton, Barrowclough, & Roberts, 2002; Cicchetti & Howes, 1991). One study examined risk for emotional maltreatment and EE from the Camberwell Family Interview (CFI), a lengthier measure of EE, and did not find significant associations between emotional maltreatment and EE-Crit (Calam et al., 2002). To our knowledge, no studies have examined the relations between EE-Crit from the FMSS and different subtypes of maltreatment, including physical abuse and neglect and sexual abuse, in addition to emotional/verbal maltreatment. Although both EE-Crit and maltreatment are predictors of child behavioral maladjustment and coercive family interactions (Azar, 2002; Cicchetti & Valentino, 2006; Miklowitz, 2004; Simoneau et al., 1998), the extent to which EE-Crit is related to maltreatment, or is likely to be higher in maltreating parents, is unclear. Although verbal and physical abuse often co-occur (Barnett, Manly, & Cicchetti, 1993), historically, EE-Crit has not been conceptualized to reflect verbal abuse (Jenkins & Karno, 1992; Vaughn, 1989). Moreover, the extent to which EE-Crit may relate to various subtypes of maltreatment has not been established. Potentially, EE-Crit would be elevated in families

where maltreatment was present, be uniquely associated with specific subtypes of maltreatment, or predict more severe maltreatment (i.e., multiple subtypes).

Conceptually, families where maltreatment occurs in addition to high EE-Crit may be particularly likely contexts to exacerbate elevations in children's behavior problems and family conflict. According to developmental psychopathology and ecological-transactional perspectives, parent and child behaviors are situated within bidirectional relationships, which are nested within families (Bronfenbrenner, 1979; Cicchetti & Lynch, 1993; Fiese & Spagnola, 2007; Sameroff & Seifer, 1983). Family environments provide for a context for parent-child relationships and behaviors to shape subsequent child development and maladaptation (Fiese & Spagnola, 2007; Miklowitz, 2004). The presence of maltreatment would be expected to disrupt multiple levels of family systems, including parent and child behaviors, parent-child relationships, and family harmony (Azar, 2002; Cicchetti & Valentino, 2006).

The presence of both EE and maltreatment could reflect pervasively negative family environments. Historically and contemporarily, EE has been conceptualized as the "emotional temperament of the household," the "emotional communication enacted in family relations, and the "blood pressure of family life" (Kuipers, 1992; Rogosch, Cicchetti, & Toth, 2004; Vaughn, 1989). High EE, such as elevated criticism, reflects the underlying affective climate or atmosphere of the family and is believed to be ongoing, permeating, and detrimental to development (Jenkins & Karno, 1992; Miklowitz, 2004). Parental maltreatment of children, whether frequent but low in severity, or severe but infrequent, is also extremely detrimental and often characterized as an experience that is beyond the range of typical development because it is so harmful (Cicchetti & Valentino, 2006; Manly, Cicchetti, & Barnett, 1994). Maltreatment also often co-occurs with parental contextual stressors, isolation, and low social support, which together would increase the risk of family conflict (Corse, Schmid, & Trickett, 1990; Egeland et al., 1980). Thus, it is likely that family conflict would be particularly high in families where maltreatment and EE-Crit are both present (Davis & Greybill, 1983; Gaudin et al., 1996).

When EE-Crit and maltreatment co-occur, they also would likely be especially harmful to child adaptation. EE-Crit that occurs amidst maltreatment may expose children to a family environment that is particularly low on protective parental influences and further deplete children's regulatory capacities (Cicchetti, Rogosch, Lynch, & Holt, 1993; Hecht & Hansen, 2001; Miklowitz, 2004). Thus, EE-Crit that occurs in the context of maltreatment also would be particularly likely to be associated with increases in children's externalizing behavior.

Studies also have not examined whether EE-Crit from the FMSS is associated with, or affected by parental separation or divorce although theoretically, EE-Crit also would likely be higher in these contexts. Parents who are separated or divorced may be overwhelmed, stressed, or emotionally distressed, and these emotions may spill over to create critical, coercive communication in parent-child relationships and elevate children's externalizing behaviors (Patterson, 1982; Simons, Lin, Gordon, Conger, & Lorenz, 1999; Webster-Stratton, 1990). Generally, divorce is associated with higher family conflict and children's behavior problems (Amato & Booth, 2001; Hetherington, 1979; Lansford et al., 2006).

Thus, similar to environments of EE-Crit and maltreatment, environments of EE-Crit and separation/divorce may be particularly alienating to children and unsupportive to child adjustment (Emery, 1982; Patterson, 1982). Accordingly, maternal EE-Crit may be especially likely to predict children's externalizing behavior and higher levels of family conflict in contexts of separation/divorce.

The Current Study

The current study extended research on the FMSS to characterize maternal EE-Crit in high-risk, impoverished samples to low-income families with maltreatment and separation/divorce. The first goal was to broadly address whether maternal EE-Crit, maltreatment, and separation/divorce were related. Hypothesis 1 predicted that levels of maternal EE-Crit from the FMSS would be higher in families where maltreatment and separation/divorce were present. The second goal was to specifically address whether maltreatment and separation/divorce were exacerbating risks, i.e., vulnerability factors, in the family environment by examining whether EE-Crit was associated with even higher family conflict and children's externalizing behaviors in contexts where maltreatment or separation/divorce were present. Hypothesis 2 expected that maltreatment and separation/divorce would each moderate the association between EE-Crit and elevations in 2a) family conflict, and 2b) children's externalizing behavior above and beyond main effects of EE-Crit on family conflict and externalizing behavior. The third goal was to assess whether higher interpersonal cumulative risk, including presence of maltreatment, separation/divorce, and high EE-Crit would be associated with higher family conflict and children's externalizing behavior. Hypothesis 3 anticipated that higher cumulative risk would relate to higher levels of family conflict and externalizing behavior.

Methods

Participants

The current participants included 123 families, comprised of mothers and the eldest enrolled child ($M = 8.01$, $SD = 1.58$, range = 5.45–11.02 years; 64.2% males). Families were drawn from a summer day camp research program for school-aged children who had either been maltreated ($n = 83$) or were from demographically comparable low-income, disadvantaged, non-maltreated comparison families ($n = 40$) (Cicchetti & Rogosch, 1997; Cicchetti et al., 1993). In the original day camp sample, approximately two-thirds of the mothers were single (67.7%), unemployed (63.0%), or had three or more children (62.5%), and approximately half (47.7%) had not completed high school. Mothers were predominantly of minority race/ethnicity (44.7% were African-American, and 12.2% were Latina, biracial or multiracial).

Families with records of child maltreatment were recruited from the Department of Human Services (DHS). All cases of maltreatment involved documented maltreatment based on Child Protection Services (CPS) records from the DHS prior to enrollment into the study. For demographic comparability, comparison families with low-SES were recruited. These families, like the maltreating families, had also received Aid to Families with Dependent Children (AFDC) benefits but had no history of maltreatment and had not received preventive DHS services for risk of maltreatment.

Over the course of the present study, families participated in laboratory sessions and home visits, during which maternal interviews and the FMSS were collected. Child data were collected during weeklong summer camp sessions. The purpose of the summer camp was to assess children's social functioning, including their relations with peers and their socioemotional competence in a structured setting (Cicchetti & Manly, 1990; Cicchetti et al., 1993). These assessments provided important information on the effects of maltreatment on age-salient developmental tasks of middle childhood, such as emotional and behavioral regulation and social and interpersonal skills (Cicchetti et al., 1993). The camp setting was similar to a lab setting, where the main goals were to observe children's behavior (not to intervene and change their behavior) in a naturalistic setting that was ecologically valid, and that allowed children to interact with peers and adults and participate in structured activities.

During the week at camp, groups of six to eight children (half from maltreated families and half from low-income comparison families), who were the same sex and in the same age range, spent approximately 35 hours in a group with three counselors. Counselors were research staff or graduate students with at least baccalaureate degrees (the lead counselor of each group had a master's degree) who had received two weeks (80 hours total) of training prior to the start of camp on leading the groups and completing the post-camp assessments.

During the camp, counselors led the children through structured and nonstructured activities over five days. At the end of the week, the counselors completed standardized assessments and questionnaires about the children's social, emotional, and behavioral functioning. Counselors were unaware of children's maltreatment status. At least two of the three counselors independently rated each child's functioning, after which interrater reliability was computed and children's scores were averaged. The institutional review board at the University of Rochester approved all study procedures, and mothers provided informed consent for their study participation and their children's participation. Additional details about the camp procedures and the characteristics of the original comparison samples can be found in Cicchetti and Manly (1990); Cicchetti and Rogosch (1997); and Cicchetti et al. (1993).

Measures

Maternal expressed emotion—EE-Crit was scored from the FMSS (Magaña-Amato, 1993), during which caregivers are instructed to speak about their child and the relationship with him/her for five minutes. EE-Crit is scored on a three-point scale of high EE-Crit, including negative, harsh, or hostile comments or tone expressed about the child (e.g., "He's a spoiled little brat" or "She angers me a lot, real quick"); borderline EE-Crit, including comments that express dissatisfaction with the child's behavior or personality (e.g., "His behavior is irritating" or "Her lack of patience is her biggest drawback"); or low EE-Crit, which is the absence of any of the above. Two raters scored criticism; one rated all FMSS tapes, and one rated a subset of tapes (approximately 30%) for reliability. Interrater agreement (kappa) was good ($\kappa = .73$). Within the current sample, 13.8% ($n = 17$) of mothers expressed high EE-Crit, 31.7% ($n = 39$) expressed borderline EE-Crit, and 54.5% ($n = 67$) expressed low EE-Crit. EE-Crit was conceptualized as a continuous dimension of criticism and was used as a continuous variable in all analyses.

Maltreatment—Information on maltreatment was coded with operational criteria from the Maltreatment Classification System (MCS), a reliable, well-validated, and standardized method for classifying maltreatment (Barnett et al., 1993; Cicchetti & Barnett, 1991). The MCS utilizes complete DHS records detailing the investigations and findings of maltreatment in identified families over time. Rather than relying on official designations and case dispositions, the MCS codes all available information from the DHS records, making independent determinations of children's maltreatment experiences. The MCS method is more advantageous than relying directly on the CPS report for maltreatment designations because it allows independent raters to a) review all the information from the DHS record and classify maltreatment according to independent criteria, rather than adopting CPS labels or using reports from different CPS social workers; b) code the records for multiple types of maltreatment, including evidence of less obvious subtypes (e.g., emotional maltreatment, physical neglect), rather than forcing the classification into one type; and c) code the records for frequency, severity, and chronicity of maltreatment (Barnett et al., 1993; Manly et al., 1994).

Presence of maltreatment was coded affirmatively for all children who had DHS records of maltreatment. However, the type of maltreatment (subtype) was coded from the narrative content of the record. These subtype ratings were based on evidence described in the entire narrative content using the following MCS operational criteria (Barnett et al., 1993): *sexual abuse* involved attempted or actual sexual contact between the child and a family member or person caring for the child for purposes of the individual's sexual satisfaction or financial benefit; *physical abuse* involved inflicting a non-accidental physical injury on the child, such as bruises, burns, welts, or broken bones; *physical neglect* involved failure to provide basic needs, such as nutritional, clothing, housing, or medical needs, and lack of age-appropriate supervision, including leaving the child in an unsafe or unclean physical environment or with an inadequate caregiver; and *emotional maltreatment* involved depriving the child's emotional needs, including prohibiting the child's age-appropriate autonomy, thwarting his or her ability to achieve family acceptance or positive regard, and compromising physical or psychological safety of the home environment. Raters were required to meet standards for adequate reliability ($\kappa \geq .80$) prior to coding any participant DHS records. Final interrater reliability coefficients typically ranged from .86 to .98 (Manly, Kim, Rogosch & Cicchetti, 2001).

Many of the maltreated children had experienced multiple subtypes of maltreatment. As a result, a hierarchical system was used to identify a primary subtype designation. Specifically, all children who experienced any sexual abuse were given that primary classification, whereas children who were physically abused but not sexually abused were given the physical abuse designation. Children who were physically neglected but not physically abused were classified as physically neglected, and children who had experienced emotional maltreatment exclusively were classified as emotionally maltreated (Barnett et al., 1993; Cicchetti & Rogosch, 1997). Within the current sample, 83 children had experienced some type of maltreatment (primary sexual abuse = 7, physical abuse = 25, physical neglect = 40, emotional maltreatment = 12; unknown type = 9), and 40 children had never experienced maltreatment (comparison group). Of the 83 children who experienced

maltreatment, 35 experienced one subtype, 34 experienced multiple subtypes, and 14 experienced an unknown number of subtypes. Unknown classifications resulted if the DHS record indicated that the child had been maltreated but there was not enough information in the narrative content of the record to confidently assign a subtype rating or the number of subtypes.

All cases of maltreatment had been screened in by the DHS, but DHS files on all child participants in the current study, including comparison children were reviewed. This procedure served to ascertain that children in the maltreated group had indeed been part of a screened-in CPS investigation, but non-maltreated children had never had any previous history of CPS involvement. Finally, the perpetrator or perpetrators were identified for 67 of the 83 maltreated children. Of these 67 children, 44.8% ($n = 30$) were maltreated only their mothers, 7.5% ($n = 5$) were maltreated only by their fathers, and 47.8% ($n = 32$) were maltreated by multiple people, at least one of who was their biological parent. For 16 children who were maltreated, the identity of the perpetrator was not clearly determined based on the available information in the DHS record.

Separation/divorce—Mothers' marital status was coded based on whether they reported that they had always been single (i.e., single or having never married; $n = 39$), were currently legally married or living with a partner ($n = 36$; legally married, $n = 34$; living with a partner, $n = 2$), or were separated or divorced ($n = 48$; divorced, $n = 22$, legally separated, $n = 14$; not legally separated, $n = 10$; separated by death; $n = 2$). Separation by death/widowed was included with separated/divorced status because both circumstances likely resulted in family stress. Moreover, from the child's perspective, both experiences could have involved loss and a transition from a two-parent to a one-parent family.

Family conflict—During the maternal interviews, mothers reported on family conflict using the Conflict subscale of the Moos Family Environment Scale (FES). The FES has shown good reliability, validity, and internal consistency in high-risk families (Moos, 1990) and has previously been used with maltreating families (Corse et al., 1990; Davis & Graybill, 1983). The Conflict subscale is comprised of nine true-false items (e.g., "We fight a lot in our family" and "Family members sometimes get so angry they throw things"), which showed good internal consistency ($\alpha = .78$) in this sample. Items endorsed positively were summed to yield a total possible score of nine for each family. Raw scores were used in the present analyses.

Children's externalizing behavior—On the last day of summer camp, counselors completed the Teacher Report Form (TRF; Achenbach & Edelbrock, 1986) based on observations and interactions with the children over the course of the week. This study utilized the Externalizing Behavior subscale, which contains 0–2-point questions (*Not True*, *Sometimes/Somewhat True*, *Often True*) about aggressive or delinquent behavior. Interrater reliability on the Externalizing subscale ranged from .84 to .95. T-scores were derived from raw scores. T-scores from multiple counselors about the same child were averaged.

Control variables—A number of demographic control variables were used, including child sex and age upon enrollment, and maternal race. Race was dichotomized into racial/

ethnic minority ($n = 70$; all minorities were either African American, Latina, biracial, or multiracial) or non-minority ($n = 49$, non-Latina, Caucasian). Four mothers did not report their race.

Data Analytic Plan and Missing Data

Analyses corresponding to the first hypothesis used t-tests and ANOVA tests to examine whether maternal EE-Crit was associated with the presence of any maltreatment, specific maltreatment subtypes, or presence of separation/divorce. Correlational tests examined whether higher EE-Crit related to the number of children's maltreatment subtypes. The association between any maltreatment and separation/divorce also was examined with chi-square tests.

Given the small sample size and the small cell size of each maltreatment subtype, and the observation that almost half of the children ($n = 34$) who had been maltreated had experienced multiple types of maltreatment, analyses corresponding to the second hypotheses (moderation analyses) used a dichotomous variable for any maltreatment as the moderator. Marital status also was dichotomized into separated/divorced ($n = 48$) versus single or married/cohabiting ($n = 75$). For each outcome variable, (family conflict and externalizing behavior), analyses were conducted and are reported in the following steps: 1) two separate regression analyses of the main and moderating effects of a) separation/divorce and b) maltreatment with EE-Crit were conducted; and 2) a subsequent regression analysis that included all three main effects (EE-Crit, separation/divorce, and maltreatment) and both interactions (EE-Crit $\times$ separation/divorce and EE-Crit $\times$ maltreatment). The purpose of the subsequent regression was to reduce risk of Type 1 error associated with multiple testing and to determine whether any significant results held while simultaneously accounting for both types of family risks, separation/divorce and maltreatment.

Finally, two additional regression analyses were conducted that examined the effects of interpersonal cumulative risk (presence of maltreatment, separation/divorce, and maternal EE-Crit) on family conflict and externalizing behavior. A cumulative risk composite (score of 0 to 3) was created for each child that summed the presence of any maltreatment, separation/divorce, and borderline or high EE-Crit (as previous studies have included borderline EE-Crit with high EE-Crit when dichotomizing this variable; Hirshfeld et al., 1997).

All analyses involving family conflict included maternal race as the covariate, and all analyses pertaining to child externalizing behavior included maternal race, and child sex and age as the covariates. Maternal race was included because previous studies have found that links between maternal EE and family and child adjustment may differ in Caucasian versus ethnic minority families (Jenkins & Karno, 1992). All variables in the current study were considered to be theory-driven. Independent variables were assessed at the same time as the dependent variables, rather than prospectively. Thus, results and interpretations are bound to the limitations that all variables are cross-sectional.

Given that the dependent variables in the regression analyses had moderately non-normal distributions, all regression analyses were performed using bootstrapping (500 samples) and

corresponding bootstrapped p-values in SPSS version 22. The presence of any influential cases was examined using Cook's d greater ($> 4/n$; Cook & Weisberg, 1982; Rawlings, 1988). Using this criterion, no cases were identified as significantly influencing the patterns of findings.

The amount of missing data across the entire dataset was less than 1% (Table 1), with the exception of maltreatment subtype ($n = 9$) and number of subtypes ($n = 14$). Rather than trying to estimate to what extent a child had been maltreated, these cases were excluded from the analyses pertaining to the first hypothesis, as has been done in previous analyses with this sample (Cicchetti & Rogosch, 1997). In all regression analyses, the only variables missing any data were race ($n = 4$ missing), family conflict ($n = 3$) and externalizing behavior ($n = 2$). Given the very minimal amount of missing data in the regressions, analyses for missing data were not deemed necessary. All regression analyses used pairwise deletion to maximize the amount of cases included in the analyses, but a comparison of the findings using pairwise versus listwise deletion revealed that the pattern of results was the same with either method.

Results

Bivariate correlations, descriptive statistics, and percentages of missing data are displayed in Table 1. Regarding Hypothesis 1, mean levels of maternal EE-Crit did not significantly differ with the presence of any maltreatment, $t(1, 121) = .73, p = \text{n.s.}$; by maltreatment subtype, $F(4, 113) = .37, p = \text{n.s.}$; or with the number of subtypes of maltreatment, $r = .14, p = \text{n.s.}$ Mean levels of EE-Crit also did not differ with the presence of separation/divorce, $t(1, 121) = 1.52, p = \text{n.s.}$, although maltreatment was significantly associated with separation/divorce status, $\chi^2(1, 123) = 17.53, p < .01$.

To address Hypothesis 2a, family conflict was regressed onto the covariates in the first step, maternal EE-Crit and separation/divorce in the second step, and the interaction of EE-Crit and separation/divorce in the third step. Results indicated that the main effects and interactions were not significant. This regression was repeated with separation/divorced replaced by maltreatment, and again, the main effects and interactions were not significant, nor were they significant when all three main effects (EE-Crit, separation/divorce, maltreatment) and both interactions were all included together.

To address Hypothesis 2b, children's externalizing behavior was regressed onto the covariates in the first step, EE-Crit and separation/divorce in the second step, and the interaction of EE-Crit and separation/divorce in the third step. Results revealed a significant interaction of EE-Crit by separation/divorce for children's externalizing behavior ($\beta = .25, p < .05$). Further probing the significant interaction indicated that the simple slope of maternal EE-Crit on children's externalizing behaviors was significant when separation/divorce was present (slope = .39, $p < .01$), but not when divorce/separation was absent (slope = .00, $p = \text{n.s.}$). Regarding the effects of maltreatment, children's externalizing behavior was regressed onto the covariates in the first step, EE-Crit and maltreatment in the second step, and the interaction of EE-Crit and maltreatment in the third step. There was a significant main effect

of maltreatment for children's externalizing behavior ($\beta = .28, p < .01$), but the main effect of EE-Crit and the interaction of EE-Crit and maltreatment were not significant.

Then, a subsequent regression was conducted to jointly examine the influences of maltreatment and divorce/separation for EE-Crit and children's externalizing behaviors in one omnibus test (Table 2). Externalizing behavior was regressed onto the covariates in step one, EE-Crit, maltreatment, and separation/divorce in the second step, and the interactions of EE-Crit by maltreatment and EE-Crit by separation/divorce in the third step. Consistent with the individual interaction tests above, results indicated a significant main effect of maltreatment ($\beta = .22, p < .05$) and a significant interaction of EE-Crit by divorce/separation ($\beta = .33, p < .05$). This model accounted for approximately 19% of the variance in children's externalizing behavior. The simple slope of EE-Crit on children's externalizing behaviors continued to be significant only when separation/divorce was present (slope = .21, $p < .01$), but not when divorce/separation was absent (slope = .16, $p = \text{n.s.}$) (Figure 1).

Finally, analyses pertaining to interpersonal cumulative risk (Hypothesis 3) were conducted. Within the current sample, 23 (18.7%) children had all three risk factors (presence of maltreatment, separation/divorce, and borderline or high EE-Crit), 36 (29.3%) had two risk factors, 46 (37.4%) had one risk factor, and 18 (14.6%) children had no risks in their family. Two separate linear regressions were conducted to examine the effects of cumulative risk on family conflict and externalizing behavior, after controlling for the covariates. Results indicated that the interpersonal cumulative risk composite was not a significant predictor of family conflict, but it was a significant predictor of externalizing behavior ($\beta = .29, p < .01$). A follow-up ANCOVA with pairwise contrasts was conducted to determine whether mean levels of externalizing behavior differed when children had none, one, two, or three interpersonal cumulative risks. The ANCOVA of cumulative risk as a predictor of externalizing behavior was significant, $F(3, 110) = 4.13, p < .01, \eta^2 = .10$. Adjusted means on externalizing behavior generally were in the expected direction for zero risk items ($M = 50.01, SD = 10.12$), one risk ($M = 56.32, SD = 10.23$), two risks ($M = 56.23, SD = 9.97$), and all three risks ($M = 61.49, SD = 10.29$), with the exception that children with one or two risks had comparable levels of externalizing behavior. Pairwise contrasts with Bonferroni-corrected alphas ($\alpha' = .05/6$) indicated that children who had all three interpersonal risks had significantly higher levels of externalizing behavior than children who had zero interpersonal risks.

Discussion

Grounded in developmental psychopathology and ecological-transactional perspectives (Bronfenbrenner, 1979; Cicchetti & Lynch, 1993; Cicchetti & Valentino, 2006; Fiese & Spagnola, 2007; Sameroff & Seifer, 1983), the current study aimed to identify the relations between maternal EE-Crit, maltreatment, and separation/divorce, and the processes by which maternal EE-Crit was associated with externalizing behavior and family conflict in families where maltreatment or separation/divorce were present. Although a wealth of studies have documented that EE-Crit from the FMSS relates to elevations in parent-child conflict and children's externalizing behavior in middle-class and low-income samples (Hirshfeld et al., 1997; McCarty & Weisz, 2002; Nelson et al., 2003; Peris & Hinshaw,

2003; Vostanis & Nicholls, 1995), much less is known about how risk factors within the family context affect the processes by which EE-Crit relates to child and family adjustment.

The first hypothesis, which specified that maternal EE-Crit and maltreatment would be related, was not supported. Maternal EE-Crit was not significantly associated with the presence of maltreatment, specific maltreatment subtypes, or a higher number of maltreatment types. This finding is consistent with a previous study that EE-Crit from the CFI was not related to risk for emotional maltreatment (Calam et al., 2002). Maternal EE-Crit and maltreatment may be relatively orthogonal developmental constructs. Potentially, maternal EE-Crit is not associated with the type or extent of maltreatment within families, nor is it a proxy for maltreatment. Current findings suggest that maternal EE-Crit does not appear to be a unique feature of maltreating families.

As a secondary finding to the first hypothesis, maltreatment did co-occur with separation/divorce. These findings are consistent with past research that parenting in isolation is a risk factor for child maltreatment, potentially due to the absence of a co-parent and low interpersonal support (Cicchetti & Howes, 1991; Corse et al., 1990; Egeland et al., 1980; Hecht & Hansen, 2001). Of note, this association was correlational, which precludes the ability to detect whether separation/divorce preceded maltreatment or vice-versa. Potentially, in families where maltreatment is present, environments of high anger and rejection, and low support and cohesion may negatively affect parental and family relationships (Corse et al., 1990; Davis & Graybill, 1983), thereby potentiating the risk for separation or divorce. Alternatively, separation or divorce may be precipitating factors for heightened stress and risk for maltreatment (Egeland et al., 1980). Finally, maltreatment and separation/divorce may be mutually influential.

The first part of the second hypothesis predicted that separation/divorce and maltreatment would moderate or exacerbate the association between EE-Crit and family conflict. This hypothesis was not supported. EE-Crit was not associated with higher levels of family conflict. These findings are contrary to past research that has found links between EE-Crit and parent-child and family conflict (McCarty et al., 2004; Simoneau et al., 1998). Of note, one study found that EE-Crit specifically predicted family conflict when children had conduct disorder as opposed to an emotional disorder (Vostanis & Nicholls, 1995). Potentially, the strength of the association between EE-Crit and family conflict varies depending on the quality of child psychopathology or other unmeasured child, parent, or family factors. Although not analyzed here, it is possible that clinical levels of child behavior problems, rather than mother-driven risks, such as EE-Crit or maltreatment, would have been significant contributors to family conflict.

The second part of the second hypothesis predicted that both maltreatment and separation/divorce would be vulnerability factors and exacerbate the association between EE-Crit and children's externalizing behavior. Maltreatment was a direct risk factor for externalizing behavior regardless of the level of EE-Crit, but it did not interact with EE-Crit to relate to higher levels of externalizing behavior. This finding is consistent with previous studies that maltreatment is a direct and robust risk factor for children's behavioral dysregulation (Cicchetti & Rogosch, 1997; Cicchetti & Valentino, 2006). Conversely, separation/divorce

was a significant moderator of maternal EE-Crit and externalizing behavior. Higher levels of maternal EE-Crit were related to higher elevations in children's externalizing behavior, specifically when mothers were separated or divorced. However, in families where mothers were not separated or divorced, the association between EE-Crit and externalizing behavior was not significant.

Consistent with the divorce literature, family environments with histories of discord and separation may engender higher levels of maternal stress, criticism, and coercive parent-child behavior, which may contribute to children's externalizing behavior (Amato & Booth, 2001; Hetherington, 1979; Lansford et al., 2006; Patterson, 1982). In the current study, children were particularly vulnerable to externalizing behavior if their mothers were critical of them and were also separated or divorced. Thus, elevated EE-Crit in the context of separation or divorce may be a particularly salient risk factor for children's externalizing behavior. It is possible that children of separated, divorced, or widowed mothers may be more strongly affected by EE-Crit because of dual risks: their families have experienced negative transitions or loss, and children do not have a second parent to buffer the expression of criticism in the family environment.

These findings illustrate the importance of considering characteristics of the family context when evaluating the relations between risk factors and child outcomes. Broadly, this study documented that the strength of the association between EE-Crit and children's elevated externalizing behavior may vary according to the presence of specific vulnerability factors in the family context. The lack of main effects of EE-Crit on externalizing behavior and family conflict in the current study may be inconsistent with past research (e.g., Frye & Garber, 2005; Hirshfeld et al., 1997; Peris & Hinshaw, 2003) because of the high level of cumulative risk in this sample. These inconsistencies also may be due to the scarcity of studies that have examined whether variations in marital status affect associations between EE-Crit and externalizing behavior.

Finally, part of the third hypothesis also was supported, such that higher interpersonal cumulative risk of EE-Crit, maltreatment, and separation/divorce was significantly associated with higher child externalizing behavior, but not family conflict. As suggested above, there may be other, unmeasured characteristics that would have been stronger contributors to family conflict. Children's externalizing behavior, however, was significantly, although modestly, affected by higher levels of EE-Crit and the presence of maltreatment and separation/divorce. These findings indicate a dose-response relationship of higher interpersonal cumulative family risk and higher levels of child maladjustment (Garnezy, 1983; Rutter, 1999). Despite low SES in all families in this sample and generally high levels of cumulative risk, with almost one-third of children having at least two risks and almost one-fifth of children having all three interpersonal risks, children with no interpersonal risks were found to have significantly lower levels of externalizing behavior than children with all three interpersonal risks.

Generally, the cumulative risk items originated within the children's families. When maltreatment occurs within the family, evident by the finding that the majority of perpetrators in the current sample were children's biological parents, and is further

compounded by the presence of elevated EE-Crit and separation/divorce, children likely face a family environment that is low on positive parental resources and detrimental to their adaptive development (Cicchetti & Howes, 1991; Cicchetti & Lynch, 1993; Cicchetti & Valentino, 2006; Miklowitz, 2004). Findings from the current study speak to the need to consider cumulative risks within high-risk, economically disadvantaged families when evaluating children's behavioral adjustment and designing intervention, prevention, or policy efforts to improve family functioning.

Broadly, these findings also highlight the utility of the FMSS to characterize EE-Crit as a factor that affects externalizing problems in very high-risk families. This study extends the use of the FMSS as a brief, effective tool in disadvantaged, impoverished and ethnically-diverse families (Narayan et al., 2012, 2014, Sher-Censor et al., 2013) to families where maltreatment and separation/divorce also are present in addition to poverty. Future studies should continue to make use of this efficient approach in samples where participants may have limited time to participate in lengthy measures of parent-child or family functioning.

Strengths, Limitations, and Future Directions

To our awareness, this was the first study to examine EE-Crit, derived from the FMSS, as a potential correlate of family conflict and child externalizing behavior in families where maltreatment and separation/divorce were present. In addition to identifying separation/divorce as a moderator, which exacerbated links from EE-Crit to children's externalizing behavior, this study utilized multiple informants across independent, moderator, and dependent variables. These included maternal reports of marital status and family conflict, counselor reports of externalizing behavior, and DHS/CPS information, rated by independent coders, for maltreatment. Furthermore, although mothers were the source of EE-Crit, they likely were unaware of what the FMSS was measuring due to the open-ended prompt (Magaña-Amato, 1993).

This study also possessed limitations. The overall variance accounted for in the final moderation model for externalizing behavior was modest, which suggests that many other factors also influence children's behavior in their social contexts. Maltreatment subtype was coded from the narrative content in the DHS records, which was limited for a small subset of participants. Potentially, more available or detailed content would have provided information about which type or types of maltreatment these participants had experienced. In addition, the relatively small sample size may have hindered the ability to detect variations in EE-Crit across maltreatment subtypes; for example, it is possible that associations between EE-Crit and emotional abuse or other subtypes may have been detected within a larger sample.

In addition to measurement and sample size issues, there were design limitations. The cross-sectional nature of the sample precluded tests of directionality or analyses to inform understanding about longitudinal or reciprocal change over time. All predictors were conceptually, rather than longitudinally defined, so the current results must be considered within the constraints of the cross-sectional data. Accordingly, this study was unable to determine whether or how EE-Crit, maltreatment, separated/divorced status and children's externalizing behavior may have been causally related. This study also did not incorporate

measurement of other important aspects of family functioning, including maternal psychopathology or stress, or child perceptions of maternal EE-Crit. Camp counselors only knew children for approximately one week, which is less than the recommended time for the TRF (Achenbach & Edelbrock, 1986). In response to these limitations, future studies should examine the longitudinal effects of maternal EE-Crit, maltreatment, and changes in marital status on children's externalizing behavior across multiple stages of child development. Future research also could continue to examine the moderators or vulnerabilities that account for the pathways between maternal EE-Crit, or other aspects of negative parenting, and child and family maladjustment in very high-risk families.

In conclusion, the main findings of the current study were that maternal EE-Crit from the FMSS and maltreatment were not significantly related, but maltreatment was directed associated with elevations in children's externalizing behaviors, as was the interaction of EE-Crit and separated/divorced marital status. Maltreatment, EE-Crit, and separation/divorce may weave a web of stress in which family risk factors extend to children's adjustment problems in their subsequent social contexts. The current findings could inform intervention and prevention efforts and social policies to reduce child maladjustment in economically disadvantaged families by focusing not only on reducing risk for maltreatment but also improving maternal EE towards children, particularly in families who have undergone separation and divorce.

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Figure 1. Simple Slopes of EE-Crit and Children's Externalizing Behavior by Separation/Divorced Accounting for Co-Occurring Maltreatment

Note. The simple slope of EE-Crit on externalizing behavior was significant when separation/divorce was present (bolded line, slope = .21, $p < .01$), but not when separation/divorce was absent (dashed line, slope = .16, $p = n.s.$).

Table 1

Bivariate Correlations Between All Variables

Variable	1	2	3	4	5	6	7	8
1. Child Sex (Male)	--							
2. Child Age	.00	--						
3. Maternal Race (Caucasian)	-.12	.06	--					
4. EE-Crit	.03	.03	.10	--				
5. Maltreatment	-.08	.14	.10	.07	--			
6. Separated/Divorced	-.06	.20*	.25**	.11	.38**	--		
7. Child Externalizing Behavior	-.07	-.01	.13	.19*	.30**	.22*	--	
8. Family Conflict	.16	.08	.11	.18	.12	.10	.13	--
Mean (% if ordinal)	64.2%	8.01	41.2%	.59	67.5%	39.0%	56.32	3.96
Standard Deviation	NA	1.58	NA	.72	NA	NA	10.30	2.15
Amount of Missing Data	0	0	4	0	0	0	2	3

*
 $p < .05$ **
 $p < .01$

Table 2

Hierarchical Linear Regression of Children's Externalizing Behavior

Step/Variable	B	SE	β	R ²	F	R ²
Step 1				.02	.73	.02
Child Sex (Male)	-.84	2.00	-.04			
Child Age	.01	.62	.00			
Maternal Race (Caucasian)	2.67	1.97	.13			
Step 2				.13	2.79	.11**
Child Sex (Male)	-.33	1.92	-.02			
Child Age	-.35	.61	-.05			
Maternal Race (Caucasian)	1.64	1.93	.08			
EE-Crit	2.19	1.31	.15			
Maltreatment	5.85	2.14	.27**			
Separation/Divorce	1.36	2.14	.06			
Step 3				.19	3.20	.06*
Child Sex (Male)	-.47	1.87	-.02			
Child Age	-.31	.59	-.05			
Maternal Race (Caucasian)	1.86	1.90	.09			
EE-Crit	4.21	2.66	.29			
Maltreatment	4.81	2.12	.22*			
Separation/Divorce	1.75	2.09	.08			
EE-Crit x Maltreatment	-6.84	3.33	-.41			
EE-Crit x Separation/Divorce	7.22	2.79	.33*			

* $p < .05$