Special Article - Depression among Children and Adolescents

Depression in Childhood and Early Adolescence: Parental Expressed Emotion and Family Functioning

Tompson MC[1]*, O Connor EE[1], Kemp GN[1], Langer DA[1] and Asarnow JR[2]

[1]Department of Psychological and Brain Sciences, Boston University, USA

[2]Department of Psychiatry and Biobehavioral Sciences, University of California Los Angeles, USA

*Corresponding author: Tompson MC, Department of Psychological and Brain Sciences, Boston University, 648 Beacon Street, 4th Floor, Boston, USA

Abstract

Across development depression is associated with impairments in interpersonal and family functioning. In turn, these impairments may predict a more negative depression course and outcome. This study examined family functioning and parental Expressed Emotion (EE) among depressed youth during middle childhood and early adolescence and their relationship to demographic and clinical factors. Data were drawn from pretreatment evaluations of 132 depressed youth ages 7-14 and their families enrolled in a randomized clinical trial comparing family to individual treatment for youth depressive disorders. Families completed semi-structured diagnostic interviews, self-report measures of family functioning, and the *Five Minute Speech Sample* EE measure. High parental EE was more common in one-parent, as opposed to two-parent families, and early adolescent youth were more likely than pre-adolescent youth to have high critical EE parents. Severity and chronicity of child depression, child comorbidity, functional impairment, and maternal depressive symptoms were not associated with parental EE. Parental high EE overall and critical EE in particular were associated with reports of higher conflict and lower cohesion by both parents and children when compared to low parental EE. Similar patterns of associations were evident for youth across pre-adolescent and early adolescent developmental periods. Single parent status may be an indicator of greater family stress; and higher levels of critical EE may reflect the higher levels of parent-child conflict characteristic of the transition from late childhood to early adolescence. Among youth with depression parental EE appears to reflect potentially important impairments in family functioning.

Keywords: Depression; Youth; Family; Family functioning; Expressed emotion

Introduction

Depression is relatively rare prior to adolescence with 1-3% of children suffering from Major Depressive Disorder (MDD) and slightly higher rates of children meeting criteria for dysthymic (DD) and minor depressive disorders (for review, see) [1]. Prevalence increases in early adolescence, and by age 18 approximately 20 percent of youth in the U.S. are likely to have suffered from a depressive episode [2]. Early onset depression is characterized by high levels of chronicity and severity [3], relapse and social impairment [4-6], increased risk for subsequent manic episodes [7], drug/alcohol abuse, suicide [8], and recurrence in adulthood [9]. By understanding factors contributing to the development and maintenance of depression in childhood, increasingly effective treatments can be developed and preventive efforts undertaken.

Given the centrality of the family in the developmental context of middle and late childhood, understanding the impact of family functioning on youth depression may be particularly important during this developmental period [10]. Using a variety of methods, a number of family characteristics have been examined in relation to youth depression. In studies utilizing self-report measures, depressed children and their parents report high levels of stress and negative life events [11,12], low family cohesion [13,14], high levels of coercion, control [15], conflict [13,16], and parental rejection/ hostility [17]. Some of these studies suggest that difficulties in family functioning may precede symptoms and increase risk for symptom exacerbation [18]. However, the relationship between depression and family functioning is likely bidirectional. Depressive symptoms may contribute to lower parent-child relationship quality [19] and higher parent–child conflict [20], fueling family stress and contributing to problems with family functioning.

Parental Expressed Emotion (EE) - an index of the degree to which parents express critical (CRIT) and/or Emotionally - Over Involved (EOI) attitudes during an individual interview or speech sample-has also been examined among youth with depression. EE is thought to be an index of the relational quality of family members and may contribute to more negative clinical outcomes through increasing stress on patients [21,22]. High EE ratings suggest not merely a greater number of negative descriptive statements but greater *negative emotional reaction* on the part of the parent. High family EE predicts poorer outcomes in a variety of psychiatric disorders in adults, particularly among individuals with mood disorders [21]. Although statistically significant relationships between EE ratings and clinical characteristics (such as symptom severity) are not consistently found by researchers using cross-sectional analyses, EE ratings may be important in prospectively predicting relapse and clinical course [21,22].

Among depressed youth, high parental CRIT has been found to prospectively predict a) relapse and/or non-recovery in 7-14 year olds in the year following inpatient hospitalization [23], b) lower social functioning and higher persistence of depression among outpatient youth with depression [24], and c) more depressive episodes among depressed youth and youth at risk due to family history [25]. Overall, these early data suggest that high parental EE, particularly CRIT, may be associated with a more negative course among youth with depressive disorders. Although rates of high parental overall EE and CRIT may be higher among youth with depression compared to normal controls and youth with other forms of psychopathology [26,27], not all youth with depression have high EE or high CRIT parents. By identifying factors associated with risk, we can more specifically target both acute treatment and prevention of recurrence. In a study of 7-14 year old depressed inpatients, the likelihood of high parental EE, particularly CRIT, was found to be associated with chronicity (greater than one year) of illness and comorbidity with disruptive behavior disorders [26]. In a study of outpatient depressed youth, overall functional impairment was found to be a general risk factor for high parental EE [27].

Another possible risk factor for high EE may be parental psychopathology, although the studies are mixed in this regard. Extensive literature documents the negative impact of maternal depression on child psychopathology, as well as maternal interactional behavior and parenting [28], and it is possible that maternal depression could be linked to higher levels of parental EE [29]. Although parental psychopathology has been found to be unrelated to parental EE among parents of adult bipolar patients [30], in a study of pre-adolescent youth, mothers with a history of depression were found to have twice the rate of high overall EE and high CRIT specifically than were mothers without a history of depression [31]. Similarly, in a study of youth with behavior problems, current maternal depressive symptoms were associated with higher maternal CRIT [29].

Age and gender may predict depressive symptoms and disorders, and careful attention must be paid to the possible role of both factors in moderating the relationship between family factors and youth depression. During the developmental shift from late childhood to early adolescence, normative reductions in positive emotions, increases in negative emotions [32] and intensification in parent-child negativity and conflict [33] are evident. Complicating these developmental trends, gender differences in depression emerge between 12 and 14 years of age when rates of depression for girls rise more steeply than those for boys [1]. These important changes have potentially strong implications for family interactions and relationships.

Although EE is thought to be a measure of the family environment, few studies have examined its association with family members' own perceptions of their family's functioning. These few do suggest that high EE relatives are perceived of as more critical than low EE relatives among adults with schizophrenia [34] and depression [21]. However, the relationship between observed EE and family members' self-reported measures of family functioning has rarely been assessed. Understanding the association between parental EE and self-report indices of family functioning in depressed youth would assist in providing information on the most appropriate targets for interventions aimed at enhancing parent-child relationships and support. Given the emphasis of EE measures on assessing relative criticism, we would anticipate that high parental EE, particularly CRIT, would be associated with perceptions of greater conflict and less family cohesion among family members.

Current study

In this study we sought to understand the association between parental EE, child clinical characteristics, maternal depressive symptoms, and family functioning among pre- and early-adolescent youth with depressive disorders. First, we examined the association between parental EE and demographic and clinical characteristics. We hypothesized that, compared to low parental EE, high parental EE, particularly CRIT, would be associated with chronicity, functional impairment, externalizing comorbidity and maternal depressive symptoms. Second, we examined differences between children (ages 7-11) and early adolescence (ages 12-14) and between boys and girls. We hypothesized that the early adolescent group would have higher rates of high parental EE and more negative family functioning than the childhood group; however, we did not anticipate gender differences in parental EE. Third, we examined the association between parental EE and indices of family functioning. We hypothesized that, compared to low parental EE, high parental EE, particularly CRIT, would be associated with more negative family functioning, including higher conflict and lower cohesion, as rated by mothers, fathers and youth.

Method

Participants

Participants were drawn from 134 families with a child between ages 7 and 14 who were enrolled in a two-site randomized clinical trial [35] comparing two treatment models for youth depression. Of the 134 families, 2 families did not have EE data; these were due to audio-recording difficulties or refusal of audio-recording altogether. Thus, the total sample for the current study comprised 132 families who had at least one parent with complete EE measures at the baseline evaluation.

Children were eligible if they met the following inclusion criteria: (a) DSM-IV-TR [36] diagnosis of current MDD, DD, Double Depression (MDD + DD), or Depression Not Otherwise Specified, (b) ages 7-14; (c) living with at least one parent or parental figure willing to participate in the evaluation and treatment sessions; and (d) parents and youth able and willing to provide informed consent (assent).Exclusion criteria included (a) thought or other disturbance that would interfere with the ability to benefit from the intervention and participate in treatment or assessments (e.g., psychotic disorder, pervasive developmental disorder, Tourette's syndrome, severe Obsessive Compulsive Disorder, active substance abuse/dependence, mental retardation), (b) severe conduct disorders that threatened the stability of the home environment (e.g. youth with recent arrests and/or juvenile justice or children's protective service involvement) due to the potential impact on treatment implementation; and (c) youth or primary caregivers did not speak English.

Procedures

Parents and children reviewed and signed informed consent

(assent) documents and were then interviewed and completed self-report measures separately. All procedures were approved by Institutional Review Boards at Boston University and UCLA.

Child diagnosis and symptom evaluation

Categorical DSM-IV-TR diagnoses were made based on information derived from the Schedule for Affective Disorders and Schizophrenia for School-Aged Children-Present and Lifetime Versions (K-SADS-PL) [37] administered to the parent about the child and to the child about him/herself. Diagnoses evaluated included depressive disorders (MDD, DD, Double Depression, DDNOS), anxiety disorders, elimination disorders, disruptive behavior disorders, tic disorders and substance use disorders. As in past studies [23], chronicity was categorized into *chronic* when depressive disorder criteria had been met for over one year and *nonchronic* when depressive disorder criteria had been met for less than one year. Estimates of inter-rater agreement based on 60 cases independently rated by two diagnosticians indicated excellent reliability for MDD (kappa = 0.95) and any depression diagnosis (kappa = 0.91). Diagnosis for comorbid disorders also demonstrated adequate reliability, including disruptive behavior disorders (kappa = 0.76), anxiety disorders (kappa = 0.77) and elimination disorders (kappa = 1.00). Depression severity and overall functional impairment were assessed dimensionally. Depression severity over the past two weeks was measured using the 17-item, clinician-rated Children's Depression Rating Scale-Revised (CDRS-R) [38], and inter-rater reliability was excellent for total scores (n = 57; ICC = 0.94).Overall functional impairment was evaluated using the Children's Global Adjustment Scale (C-GAS) [39] and was based on all available information from K-SADS-PL and CDRS-R. Inter-rater agreement was adequate for C-GAS (n = 57, ICC = 0.77).

Parental expressed emotion

The *Five Minute Speech Sample* [40] was used to assess the parents' EE toward the child. It was administered individually to each parent, who was prompted to talk for five minutes without interruptions, describing "what kind of person *[child]* is and how you get along together."Speech samples were audio-recorded, transcribed, and scored. Parents were rated high in EE by scoring high on CRIT, EOI, or both. Scoring criteria for a CRIT rating are: (1) a negative initial statement, (2) an overall indication of a negative child-parent relationship, or (3) one or more critical comments. Scoring criteria for a high EOI rating are: (1) evidence of self-sacrificing/overprotective behavior; (2) an emotional display, such as crying; or (3) at least two of the following: (a) excessive focus on the child's early life, (b) one or more statements of idealized love or willingness to do anything for the child, and (c) five or more positive remarks. Those parents who do not display behaviors characterized by either CRIT or EOI categories are considered low EE. Reliability of *Five Minute Speech Sample* ratings as assessed on 39 co-rated samples(30%) was adequate for overall EE (kappa = 0.74), CRIT (kappa = 0.79) and EOI (kappa = 0.66).

Measures

Self-reports of family functioning

Two measures of family functioning were used. First, the 20-item Conflict Behavior Questionnaire (CBQ) [41] was used to assess the youth's perspective on levels of conflict and negative communication within the family. Internal consistency was excellent on the CBQ (Cronbach's alpha = 0.91). Second, two subscales of the Family Environment Scale [42] - 9 items each - were used to assess participants' perspectives of the family environment. The family cohesion scale assesses commitment to family members, help-giving behavior, and supportiveness (e.g., "in our family members really help and support one another," "we really get along well with each other"). The family conflict scale assesses conflicts, anger, and disagreements (e.g., "we fight a lot in our family," "sometimes family members get so angry they throw things"). Internal consistency was adequate for cohesion (Cronbach's alphas = 0.78 parents; 0.67 children) and for conflict (Cronbach's alphas = 0.78 parents; 0.71 children).

Maternal depressive symptoms

The total score (range 0-63) on the Beck Depression Inventory (BDI-II) [43] was used to assess current maternal depressive symptoms. Internal consistency in this sample was high (Cronbach's alpha = 0.99).

Results

Sample demographic and clinical characteristics

(Table 1) presents descriptive information on participants overall and by high versus low parental CRIT. Children ranged in age from 7 to 14 years (*M* = 10.63; *SD* = 2.08); 56% were girls and 44% were boys; a range of ethnic groups participated. The majority of families were two-parent (*n* = 79; 60%) of which 65 had two biological parents, two had adoptive parents, and 12 had a biological parent plus a stepparent. There were 51 (38.5%) one-parent families, and 2 (1.5%) with other family structures (one with grandparent and one shifting regularly between parental households). Approximately 18% of families reported annual income of less than $30,000; 37% reported annual income between $30,000 and $75,000; and 45% reported annual income exceeding $75,000. At some time in their lives, 53 (40%)received public assistance (e.g., Food stamps, WIC, Medicaid). Although parental education ranged from less than high school completion to graduate degree attainment, both mothers and fathers typically had around 2 years of college coursework. Across the sample 49 (37%) children had at least one anxiety disorders with many showing multiple anxiety diagnoses, including separation anxiety disorder (SAD; *n* = 16), simple phobias (*n* = 10), social phobias (*n* = 19), generalized anxiety disorder (*n* = 29), and post-traumatic stress disorder (*n* = 2). There were also a number of children with elimination disorders (*n* = 11; 8%) and ADHD (*n* = 40; 30%). There were no eating or substance use disorders in this sample.

Of the full sample, 34% (42 of 122) of mothers and 25% of fathers (11 of 44) were rated high EE. Of these, 28% of mothers (34 of 122) and 9% of fathers (4 of 44) were rated high CRIT; 12% of mothers (15 of 122) and 16% of fathers (7 of 44) were rated high EOI. CRIT and EOI were largely independent as only 7 mothers and no fathers were rated high on both CRIT and EOI; in only 6 families were both parents rated high EE.

Relationship of parental EE and family functioning to demographic and clinical variables

Using chi-square analyses, we examined associations between parental Expressed Emotion and demographic variables, including

Table 1: Description of sample.

	Full Sample (*N* = 132)	High Maternal or Paternal CRIT (*n* = 34)	Low Maternal or Paternal CRIT (*n* = 98)
Child Age Group*			
Childhood (Ages 7-11)	78 (59%)	15 (19%)	63 (81%)
Early Adolescent (Ages 12-14)	54 (41%)	19 (35%)	35 (65%)
Child Gender			
# Female (%)	74 (56%)	18 (24%)	56 (76%)
# Male (%)	58 (44%)	16 (28%)	42 (72%)
Child Ethnicity			
Caucasian	67 (51%)	18 (27%)	49 (73%)
Latino/Hispanic	34 (26%)	11 (32%)	23 (68%)
African-American	20 (15%)	5 (25%)	15 (75%)
Other	11 (8%)	0	11 (100%)
Family Composition*			
n (%) With Both Parents	79 (60%)	14 (18%)	65 (82%)
n (%) With One Parent or Guardian	53 (40%)	20 (38%)	33 (62%)
Child Depression Diagnosis			
Major Depression (MDD)	88 (67%)	21 (24%)	67 (76%)
Dysthymic disorder (DD)	23 (17%)	6 (26%)	17 (74%)
Double Depression (MDD/DD)	7 (5%)	2 (28%)	5 (71%)
Depressive Disorder NOS	14 (11%)	5 (36%)	9 (64%)
Child Comorbidity			
Anxiety Disorders	49 (37%)	10 (20%)	39 (80%)
ADHD	40 (30%)	13 (32%)	27 (68%)
Elimination Disorders	11 (8%)	3 (27%)	8 (73%)
Depression			
Chronicity (greater 1 year)	71 (54%)	20 (28%)	51 (72%)
Total CDRS-R - Mean (*SD*)	53.71 (11.41)	52.79 (12.78)	54.03 (10.95)
Overall Functioning			
C-GAS - Mean (*SD*)	53.53 (6.01)	53.15 (5.14)	53.74 (6.19)
Maternal Depressive Symptoms			
Total BDI - Mean (*SD*)	12.01 (10.52)	11.88 (11.87)	12.12 (10.02)

*groups differ, p < 0.05

gender, family composition, ethnicity/race and age group, and clinical variables, including depression subtype (MDD, DD, Double Depression and Depressive Disorder NOS), comorbidities, depression chronicity, depression severity, functional impairment. To this end, and consistent with research on EE, we labeled families as high EE if *either* parent were rated so. Child depression severity and maternal depressive symptoms across EE, CRIT and EOI categories were examined using t-tests. Correlational analyses were used to examine associations between child depression severity and chronicity, maternal depressive symptoms and children's and parents' reports of family functioning.

First, we examined overall parental EE. In terms of demographic variables, high parental EE was not significantly associated with child gender (x^2(1) =0.04, p = 0.85) or ethnic/racial group (x^2(3) = 5.14, p =0.16).However, high parental EE was significantly more likely in family structures other than a two-parent family (x^2(1) =3.84, p = 0.05) and was marginally associated with age group (x^2(1) = 3.30, p = 0.07) such that early adolescents (ages 12-14) were somewhat more likely than children (ages 7-11) to have high at least one high EE parent. In terms of clinical variables, high parental EE was not significantly associated with depression subtype (x^2(3) = 1.39, p = 0.71); presence of comorbid anxiety *(x²*(1) = 0.20, p = 0.66), ADHD (x^2(1) = 0.64, p = 0.42) or elimination disorders (x^2(1) = 0.00, p = 0.95); depression chronicity (x^2(1) = 0.91, p = 0.34); child depression severity (t(130) = 0.41, p = 0.68), or functional impairment (t(128) = 0.14, p = 0.89).High EE in either parent was also not associated with maternal depressive symptoms (t(114) = 0.73, p = 0.47).

Second, given our specific hypotheses about the role of parental criticism, we examined parental CRIT; these data are displayed in (Table 1). Although parental CRIT was not associated with gender (x^2(1) =1.18, p = 0.67) or ethnicity (x^2(3) = 4.64, p = 0.20), youth in one-parent or "other" families, compared to youth in two-parent families were more likely to have high CRIT families (x^2(1) = 6.64, p = 0.01). In addition, early adolescent youth compared to children were more likely to have high CRIT parents (x^2(1) = 4.25, p = 0.04). In terms of clinical variables, youth with high and low parental CRIT were equally likely to be diagnosed with each of the subtypes of depression (x^2(3) = 0.92, p = 0.82). Children with high parental CRIT and low parental CRIT did not differ on presence of comorbid anxiety (x^2(1) =1.17, p = 0.28), ADHD (x^2(1) = 1.28, p = 0.26) or elimination disorders (x^2(1) = 0.01, p = 0.90); in rates of depression chronicity (x^2(1) = 0.47, p = 0.49); functional impairment (t (128) = 0.49, p = 0.62); on child depression severity (t(130) = 0.54, p = 0.59), or on maternal depressive symptoms(t(114) = 0.11, p = 0.91), as illustrated in (Table 1).

Third, we examined parental EOI. Comparing children with at least one high EOI against children with no parent with a high EOI rating, there were no differences on demographic variables, including gender, ethnic/racial group, family composition, or age group, or on any clinical variables, including depression subtype, presence of comorbid disorders, child depression severity, chronicity, functional impairment or maternal depressive symptoms.

Table 2 includes correlations between family functioning indices (child-, mother- and father-report cohesion and conflict, and child-report conflict behavior), child depression severity and chronicity, functional impairment, and maternal depressive symptoms. Interestingly, there were few relationships between child clinical variables and reports of family functioning. Overall

Table 2: Correlations between Family Environment Scales (FES); Child Conflict Behavior Questionnaire (CBQ); Child depression severity/chronicity and functioning, and maternal depressive symptoms.

	M (sd)	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1. Child FES Cohesion	6.0 (2.11)										
2. Child FES Conflict	3.35 (2.30)	**-0.60ᶜ**									
3. Child CBQ	5.04 (5.21)	**-.049ᶜ**	**0.45ᶜ**								
4. Mother FES Cohesion	5.96 (2.55)	0.18	**-0.19ᵃ**	**-21ᵃ**							
5. Mother FES Conflict	3.84 (2.47)	**-20ᵃ**	**0.32ᶜ**	0.18	**-0.58ᶜ**						
6. Father FES Cohesion	6.38 (2.40)	0.11	**-0.29ᵃ**	-0.24	**0.37ᵃ**	**-0.61ᶜ**					
7. Father FES Conflict	3.40 (2.24)	0.06	0.17	0.07	**-39ᵇ**	**0.58ᶜ**	**0.60ᶜ**				
8. CDRS	53.87 (11.42)	-0.03	0.11	0.15	0.08	0.03	-0.27	0.07			
9. Chronicity	0.54 (0.50)	0.06	0.04	0.04	0.10	-0.02	0.03	-0.25	-0.16		
10. C-GAS	53.53 (6.01)	0.09	-0.15	**-0.18ᵃ**	0.00	- 0.05	0.15	-0.04	**0.58ᶜ**	0.08	
11. Maternal BDI	12.01 (10.52)	0.01	0.00	0.16	**-0.34ᵇ**	0.04	**-0.41ᵃ**	0.20	**-19ᵃ**	- 0.05	

ᵃ= p < 0.05 ; ᵇ= p < 0.01; ᶜ p < 0.001

functional impairment was inversely associated with youth reports of conflict behavior. Not surprisingly, individuals 'own self-report indices of family functioning were highly inter correlated (internally consistent), mothers' and fathers' reports were highly correlated with one another, and both parents' reports were moderately correlated with child reports. Higher levels of maternal depressive symptoms were associated with lower ratings of family cohesion for both mothers and fathers.

Expressed emotion and family functioning

Separate MANOVAs were then used to examine the association between parental EE classifications (Overall EE, CRIT and EOI) and the family functioning variables, including cohesion, conflict and child conflict behavior scale scores. As in the above analyses, a family was considered high EE if either parent was high. Mother, father and child questionnaire ratings were each examined. High overall family EE was associated with more negative family functioning as rated by mothers (F(2,120) = 3.25, p = 0.04), with mothers in high EE families having higher ratings on conflict (F(1,121) = 6.00, p = 0.02) than those in low EE families. Similarly, compared to low CRIT families, mothers in high CRIT families reported poorer family functioning overall (F(2,120) = 10.18, p < 0.001), including both lower cohesion (F(1,121) = 6.53, p = 0.01) and higher conflict (F(1,121) = 20.51, p < 0.001). However, there were no associations between family EOI and mother's ratings of family functioning. Means for family member ratings of family functioning variables as a function of parental CRIT are displayed in (Table 3).

We then looked at fathers' ratings of family functioning and family EE. Fathers in high EE families did not differ from low EE families on ratings of family functioning. We next focused on parental CRIT. Compared to fathers in low CRIT families, those in high CRIT families reported more negative family functioning (F(2,45) = 4.82, p = 0.01), including lower cohesion (F(1,46) = 7.99, p > 0.01) and higher conflict (F(1,46) = 7.09, p = 0.01). Comparing high EOI families to low EOI families, we found no differences in fathers' ratings of family functioning.

We then looked at children's ratings of family functioning and found that those in high EE families were marginally more negative

on ratings of family functioning than those with low EE parents (F(3, 122) = 2.35, p = 0.08). Although there was no difference between those groups of youth on their ratings of cohesion or conflict on the FES, those in high EE families reported significantly more conflict behavior (F(1,124) = 6.20, p = 0.01) than those in low EE families. Similarly, family CRIT was marginally associated with children's ratings of family functioning (F(3,122) = 2.30, p = 0.08); and this effect was entirely accounted for by reports of conflict behavior, where children in high CRIT families had higher ratings of conflict behavior than did children in low CRIT families (F(1,124) = 6.41, p = 0.01). There was no relationship between parental EOI and children's ratings of family functioning.

Discussion

This paper examined parental Expressed Emotion and family functioning in the largest sample to date of pre- and early-adolescent youth with depression. There were three major findings. First, EE did not appear to be associated with depression severity and chronicity,

Table 3: Family functioning and parental expressed emotion iticism.

Among Depressed Youth (n = 132)		
	Family CRIT	
	High	Low
Child Report	n = 33	n = 94
FES Cohesion	5.79 (2.37)	6.07 (2.05)
FES Conflict	3.58 (2.31)	3.31 (2.32)
Conflict Behavior Scaleᵃ	6.73 (6.12)	4.33 (4.43)
Mother Report	n = 33	n = 91
FES Cohesionᵃ	5.03 (2.64)	6.27 (2.45)
FES Conflictᶜ	5.42 (2.39)	3.33 (2.28)
Father Report	n = 13	n = 35
FES Cohesionᵃ	4.85 (2.85)	6.97 (2.09)
FES Conflictᵇ	4.85 (1.82)	3.00 (2.24)

ᵃ = p < 0.05; ᵇ = p < 0.01; ᶜ = p < 0.001

Notes: Numbers in parentheses represent standard deviations. In two parent families, if either parent received a high CRIT rating the family rating was considered high

functional impairment, comorbidity, or maternal depressive symptoms. Second, high family EE, particularly CRIT, was more common in adolescents vs. children, and in 1-parent *vs* 2-parent families. Third, EE, particularly CRIT, was strongly associated with other indicators of family functioning, specifically, perceptions of family conflict reported by youths and parents, and cohesion reported by parents.

Although EE, specifically CRIT, was associated with family functioning indicators, it was not associated cross-sectionally with clinical variables, including severity or chronicity of child depression or psychiatric comorbidity. These findings are consistent with a study of family EE among adolescents with bipolar disorder which found no association between EE and adolescents' symptom severity or current functioning [44]. Although some studies have found associations between EE status and clinical characteristics, such as the presence of a comorbid disruptive behavior disorder [26], these associations were not found in the present sample. It is important to note that this sample included only youth with diagnosed depressive disorders, and thus the range on clinical characteristics may be restricted. Past studies have found higher rates of EE in families of depressed youth compared to normal control youth and youth with other forms of mental illness [26,27], suggesting that depressed youth as a group may be at higher risk than other groups of youth for negative family relationships. However, *among* depressed youth, specific clinical variables may not increase risk of parental EE. Results of this and other studies may indicate that EE does not appear to be an indicator of concurrent clinical state or associated characteristics but rather a measure of intrafamilial processes that play a role in the developmental course of depression and responsiveness to treatment [21,22].

We found parental EE to be related to demographic factors. Specifically, the likelihood of high parental EE was elevated in one-parent families compared to two-parent families and families of early adolescent youth compared to pre-adolescent youth. Although one-parent families are often resilient, they may experience greater stress during transitions and have less access to resources [45]. Further, these stressors may lead to more negative parenting attitudes [46]. Thus, single-parent families may be at greater risk for high CRIT. It is also possible that characteristics associated with high CRIT may contribute to single parent status; the present study design does not allow for determination of potential pathways. High parent CRIT was also associated with child age. Youth during the childhood years were less likely to have a high CRIT parent than were youth during the early adolescent years. Within a normal developmental framework this is not unexpected. As children navigate the early adolescent years, conflicts with parents increase somewhat [33], perhaps associated with developmental tendencies towards more negative and less positive emotions [32], and parents may be more likely to disclose these conflicts during the *Five Minute Speech Sample*. It is also possible that as depressed youth age their symptom presentations may change, such that greater irritability may be manifest.

Across parents, questionnaire ratings of the Family Environment Scale (FES scales) were associated with parental EE, particularly CRIT. High maternal CRIT was associated with greater conflict and lower cohesion on the FES as rated by both mothers and fathers and

more conflict on the CBQ as rated by youth. High paternal CRIT was associated with youth ratings of higher conflict behavior and father and mother ratings were in the anticipated direction; however, the smaller number of fathers participating limited statistical power.

Self-report ratings of family functioning showed high internal consistency for mothers, fathers and children. In addition, mother and father ratings were highly correlated with one another and moderately with child ratings of family functioning. These measures were significantly related to EE, particularly CRIT. The relationship of EE to these indicators provides support for the contention that EE ratings may reflect important aspects of family functioning, including cohesion and conflict. Brief measures of parental EE may be useful in clinical settings to evaluate family risk potentially suggestive of more negative outcomes among depressed youth.

The present results indicate that EE, a behavioral index of parents' expression of emotion when describing their children, is associated with both parent and youth perceptions of conflict in the family environment. This finding may be particularly important given that high EE has been shown to be associated with poor outcomes among depressed youths [23-25] and the relatively strong cross-study findings indicating that youth perceptions of family conflict behavior predict a less robust treatment response [47-49]. Future research is needed to clarify the nature of these interfamilial processes and mechanisms, the degree to which they can be targeted and modified, and the impact of changing these family processes on youth depression outcomes.

Interestingly, while EE was associated with perceptions of conflict in the family and low parent-reported family cohesion, EE was not significantly associated with maternal depressive symptoms. These findings are consistent with other work suggesting that EE in general does not reflect parental psychopathology in adults [21,30] and that EE may be detecting family characteristics other than parent depression. However, other research suggests that a history of depressive disorder in mothers may be associated with greater likelihood for high CRIT toward offspring [31]. Perhaps there are important differences in risk for high EE between those with elevated current symptoms and those with a history of diagnosable depressive disorders. Indeed, early parental depression may increase risk for high EE, particularly CRIT, but current depressive symptoms may not be associated with high EE. Importantly, aside from parental EE, depression may have other impacts on family functioning. In this study, maternal depressive symptoms were also associated with lower ratings of family cohesion by both mothers and fathers, perhaps reflecting maternal social withdrawal and its impact on the family. It is also important to note that we have not accounted for other forms of parental psychopathology that may strongly impact family functioning. For example, parental anxiety has been shown to be associated with increased parental withdrawal [50], higher rates of EOI [51], and increased parental intrusiveness [52]. Future studies should more thoroughly assess a wider range of parent psychopathology.

Limitations include the lack of a comparative normative or clinical sample, the limited number of fathers participating, and reliance on the *Five Minute Speech Sample* as a measure of EE. First, although we are able to compare children with high and low EE parents on family functioning indicators and clinical variables, we

do not know if these relationships are exclusive to depressed youth or are characteristic of other youth with mental health disorders and their families or of youth without mental health concerns. However, this work may assist in identifying depressed youth who may be at particularly enhanced risk for negative outcomes. Second, few studies have examined EE in fathers and those that have rarely include enough fathers to thoroughly examine family and clinical correlates of father EE. While our sample is one of the largest to date, the limited number of fathers and the low rate of high EE among fathers limit our ability to draw firm conclusions. Although mother-child relationships are the focus of most studies, father-child relationships may be equally important [53], and there is a need for more research to examine their role. Third, although the *Five Minute Speech Sample* has frequently been used to examine parental EE in youth, it has some limitations. This instrument was modeled on the *Camber well Family Interview* [54] - a much longer interview - which was used to assess dimensions including hostility, criticism, emotional over involvement and warmth. Given its brevity, hostility could not be adequately assessed using the *Five Minute Speech Sample* and may be an important dimension [40]. However, research using the longer interview suggests strong associations between hostility and criticism [21]. There is also some evidence that the shorter speech sample may underestimate the rate of high EE [55].

In sum, the current work is consistent with EE research in indicating that (a) parental EE is an indicator of family functioning and relationship quality [21,22]; (b) criticism is the primary component of parental EE impacting depressed youth; (c) parental EE is not simply an indicator of the severity of either child or maternal psychopathology. These results, in conjunction with other data indicating that measures of intrafamilial processes such as EE and youth perceptions of family conflict have strong prognostic significance for depressed youths, underscore the importance of future work to clarify mechanisms through which these adverse family processes may contribute to poor outcomes in youth depression. Our data also highlight the importance of careful evaluation and consideration of family factors in a comprehensive evaluation of youth depression.

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