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Family-Expressed Emotion, Childhood-Onset Depression, and Childhood-Onset Schizophrenia Spectrum Disorders: Is Expressed Emotion a Nonspecific Correlate of Child Psychopathology or a Specific Risk Factor for Depression?

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Expressed emotion (EE) was examined, using the brief Five Minute Speech Sample measure, in families of (1) children with depressive disorders, (2) children with schizophrenia spectrum disorders, and (3) normal controls screened for the absence of psychiatric disorder. Consistent with the hypothesis of some specificity in the association between EE and the form of child disorder, rates of EE were significantly higher among families of depressed children compared to families of normal controls and families of children with schizophrenia spectrum disorders. Within the depressed group, the presence of a comorbid disruptive behavior disorder was associated with high levels of critical EE, underscoring the need to attend to comorbid patterns and subtypes of EE in future research.

The observation that most childhood-onset depressions develop and are treated within the context of the family has stimulated interest in identifying family environmental variables that are associated with depression in childhood. One family environmental variable that has shown considerable promise is expressed emotion (EE). Viewed as an index of the emotional

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climate in the home, the EE measure assesses critical and emotionally over-involved attitudes by key relatives (e.g., parents) toward the patient. Numerous studies have shown that EE is a strong predictor of outcome among adult depressed and schizophrenic patients (for review, Hooley, 1990; Leff & Vaughn, 1985). Extending this work to children, a recent study by our group found that the Five Minute Speech Sample—Expressed Emotion (FMSS-EE) measure was a significant predictor of 1-year outcome among a sample of children with depressive disorders (Asarnow, Goldstein, Tompson, & Guthrie, 1993). The predictive relationship between EE and 1-year outcome was independent of possible mediating variables, such as treatment regimen and chronicity and severity of disorder.

Despite this demonstration of the prognostic significance of EE for childhood-onset depression, the question of how EE should be conceptualized needs resolution. One possible hypothesis is that EE is a specific correlate or risk factor, associated with particular childhood disorders such as depression. If EE is a specific correlate of depression, higher levels of EE would be expected in parents of depressed children than parents of children with other disorders. This hypothesis is consistent with interpersonal theories of depression (Coyne, 1976) that emphasize the high level of rejection in the interpersonal environments of depressed individuals. Alternatively, EE may be a nonspecific correlate of psychopathology. This second view would predict that EE attitudes would be more frequent among parents of children with psychiatric disorders compared to parents of children without psychiatric disorders. Third, EE may be a general characteristic of families and present in families with and without disturbed children. The combination of particular child vulnerabilities and EE attitudes, however, may lead to poor outcomes.

Minimal data exist for evaluating these hypotheses with respect to childhood depression, although results from three recent studies support the view of EE as a nonspecific correlate of child psychopathology. Hibbs et al. (1991) found higher rates of FMSS-EE among parents of children with disruptive behavior disorders and obsessive compulsive disorders, as compared to parents of normal controls, but similar rates of EE for parents of children in the two clinical groups. Marshall, Longwell, Goldstein and Swanson (1990) found comparable distributions of FMSS-EE scores among parents of children with attention deficit hyperactivity disorder, with and without comorbid oppositional or conduct disorders. In a community sample, Stubbe, Zahner, Goldstein, and Leckman (1993) found a higher rate of psychiatric disorder among children whose mothers were rated as high in FMSS-EE.

Support for the view that EE may be associated with specific disorders was provided by Stubbe et al.'s (1993) additional finding that whereas critical EE profiles were associated with disruptive behavior disorders or the

presence of one or more DSM-III-R diagnoses, emotionally overinvolved EE profiles were associated with separation anxiety and overanxious disorders. Using a sample selected based on the presence or absence of depression in parents and an interview measure of EE, Schwartz, Dorer, Beardslee, Lavori, and Keller (1990) found that mothers' critical EE was associated with a significantly higher risk that their children would have depression (either major depression or dysthymic disorder), substance abuse, or conduct disorder. These data suggest that critical EE may be particularly significant for depressive disorders, a hypothesis that is consistent with other results indicating associations among maternal criticism and depressive features in the child such as self-criticism and negative self-concepts (Jaenicke et al., 1987; for review, see McCauley & Myers, 1992).

The present study aimed to further clarify the significance of EE for childhood depression by comparing families of children with depressive disorders (major depression and/or dysthymic disorder), normal controls screened for the absence of psychopathology, and children with schizophrenia spectrum disorders (schizophrenia or schizotypal personality disorder). Because childhood-onset schizophrenia spectrum disorders are particularly severe and chronic disorders (Asarnow & Ben-Meir, 1988), this comparison group provides an opportunity to (1) compare parents of depressed children to parents of children with one of the severest child disorders, and (2) examine whether disorders that vary along such key dimensions as chronicity and severity are associated with different EE attitudes and parental responses. This was the first study to our knowledge to examine EE in parents of children identified based on the presence of a depressive disorder, as well as in parents of children with schizophrenia spectrum disorders.

Three major questions were addressed: (1) Is EE, particularly critical EE, more common among parents of children with depressive disorders compared to parents of children with schizophrenia spectrum disorders? (2) Is EE a nonspecific factor that is associated with the presence of any psychiatric disorder in the child and less frequent in parents of children screened for the absence of psychopathology? (3) Is EE associated with other characteristics of the child's illness such as comorbid patterns, chronicity, and severity of impairment?

METHOD

Subjects

Eighty-six children and their parents participated in the study. Children were between 6.9 and 13.43 years of age with a mean of 10.43. There were

61 boys and 25 girls. The sample consisted of 75 Caucasian children, and 11 minority children, (six African-American, four Hispanic, and one Asian). At the time of entry into the study, 45 children were living in two-parent homes and 41 children were living in single-parent homes. There was a wide range of socioeconomic status (SES) levels in the sample, as revealed by a mean four-factor Hollingshead (Hollingshead, 1975) rating of 43.23 and range of 11 to 66. Children with depressive disorders and children with schizophrenia spectrum disorders were recruited from the child psychiatric inpatient services at the UCLA Neuropsychiatric Institute or affiliated hospitals. To be included in the sample each child had to meet the following criteria: 7 to 14 years of age during the index hospitalization³; living with parents prior to hospitalization; WISC-R (Weschler, 1974) Full Scale IQ above 70; and child met DSM-III (APA, 1980) criteria for major depression, dysthymic disorder, schizophrenia, or schizotypal personality disorder based on the project diagnostic assessment described below. Twenty-one normal controls were recruited through community announcements, advertisements, and mailings. Following a telephone screening in which parents were asked whether the child had ever had adjustment problems or had been on medication for emotional or behavioral problems, evaluations were conducted using the same diagnostic procedures employed with the psychiatric groups. Two children met criteria for attention deficit disorder on evaluation and were not included in the sample.

Table I presents the demographic and diagnostic characteristics of subjects in each group. As shown in Table I, the 35 children in the depressed (DEP) group consisted of 16 children with major depression (MDD), 6 children with dysthymic disorder (DD), and 13 children with double depression (MDD + DD) (Keller & Schapiro, 1982; major depression superimposed on dysthymic disorder). Children in the schizophrenia spectrum disorders (SZ) group included 20 children with schizophrenia and 10 children with schizotypal personality disorder (SPD). SZ and SPD were diagnosed using the same DSM-III criteria used with adults. However, a minimum duration criterion of 1 year was required for schizotypal symptoms in order to provide comparability with the duration criterion for dysthymic disorder. Hierarchical rules were needed to assign children to primary diagnostic groups. Major diagnoses (MDD or SZ) always took precedence over the more minor forms of the syndrome (DD or SPD). When DD and SPD cooccurred, children were placed in the SZ spectrum group based on the DSM-III convention of not diagnosing mood disorder when superimposed on schizophrenic or schizophreniform disorders. As

³Two children were almost 7 (6 years 11 months) at the time of admission, but were included in the sample because they had their seventh birthdays shortly after admission and during the index hospitalization.

shown in Table I, no significant differences emerged between children in the DEP and SZ spectrum groups on the demographic variables. The normal controls were somewhat younger (mean age = 9.83) than the psychiatric groups, and differed significantly from the DEP group in age, $t(55) = 2.77, p < .01$. No other significant between-group differences were found on the demographic variables.

Table I. Demographic and Diagnostic Characteristics for Subjects in Each Group

	Depressed (<i>n</i> = 35)	Schizophrenia (SZ) spectrum (<i>n</i> = 30)	Normal controls (<i>n</i> = 21)
<i>n</i> (%) Male	23 (66%)	23 (77%)	15 (71%)
<i>n</i> (%) minority	3 (9%)	5 (17%)	3 (14%)
<i>n</i> (%) Single-parent homes	18 (51%)	13 (43%)	10 (48%)
Age			
Mean	10.99	10.20	9.83 ^a
<i>SD</i>	1.53	1.93	1.59
Range	6.91–13.39	6.93–13.37	7.16–13.43
Socioeconomic status, Hollingshead 4 factor			
Mean	43.49	43.23	49.62
<i>SD</i>	13.82	13.32	12.58
Range	17–66	11–66	21–66
<i>n</i> (%) Principal diagnoses			
Major depression (MDD)	16 (46%) ^b		
Dysthymic disorder (DD)	6 (17%) ^b		
Double depression (MDD+DD)	13 (37%) ^b		
Schizophrenia		20 (67%)	
Schizotypal		10 (33%)	
Codiagnoses			
Disruptive behavior disorders	11 (31%)	18 (60%)	
Anxiety disorders	10 (29%)	4 (13%)	
Atypical depression/DD		14 (47%)	
Schizotypal	3 (9%)		
Global Adjustment Scale (C-GAS)			
Mean	40.48	31.50 ^c	
<i>SD</i>	9.59	31.50	
Range	15–56	15–42	
<i>n</i> (%) Acute onset	8 (23%)	1 (3%) ^c	

^aThe normal controls were significantly younger than the depressed group, $t(55) = 2.77, p < .01$. This was the only significant between-group difference on demographic variables.

^bChildren within the depressed group are subdivided into three mutually exclusive groups: children with MDD and no DD, children with DD (but no MDD), and children with MDD superimposed on DD (double depression).

^cDepressed children were significantly less impaired, $t(63) = 4.26, p < .001$, and significantly more likely to present with acute onsets, Fisher's exact $p < .04$, when compared to children with SZ spectrum disorders.

Like most child psychiatric samples, comorbidity was found among both psychiatric groups. The most common codiagnoses were disruptive behavior disorders (attention deficit disorder, conduct disorder, oppositional disorder) and anxiety disorders (separation anxiety disorder, overanxious disorder, obsessive compulsive disorder). As shown in Table I, the most common codiagnoses among the DEP group were disruptive behavior disorders and anxiety disorders. Three children with major depression also met criteria for SPD, but were included in the DEP group because of the presence of the more severe depressive disorder MDD. Frequent codiagnoses among children in the SZ spectrum group were disruptive behavior disorders, depression (atypical depression or dysthymic disorder), and anxiety disorders. Inspection of Table I further reveals that, when compared to the DEP group, children with SZ spectrum disorders were more severely impaired as reflected by lower Children's Global Adjustment Scale (C-GAS; Shaffer et al., 1983) scores and were less likely to show acute onsets of disorder.

Procedures

Intake Diagnoses. DSM-III diagnoses were derived at intake based on the following sources of information: semistructured diagnostic interviews using the Schedule for Affective Disorder and Schizophrenia for School-Age Children Epidemiological Version (K-SADS-E; Orvaschel & Puig-Antich, 1987) conducted with each child; K-SADS-E interview with parents⁴; and all other information available on each child, including observations of the child's clinical status during the course of hospitalization and the results of other interviews and evaluations conducted during the course of the child's hospitalization. Two experienced clinicians had to agree on the child's diagnosis for a child to be included in this sample and only children meeting criteria for current episodes of MDD or DD were included. Estimates of interrater agreement revealed a high level of reliability on diagnostic judgments, kappas ranging from = .82 to .91, $p < .001$.

Other Clinical Characteristics. Using the same procedures employed in a prior study (Asarnow & Ben-Meir, 1988), ratings of chronicity/onset pattern and impairment at the time of hospitalization were made based on reviews of the child's complete medical records, cumulative school records, and records from prior evaluations and treatment. Chronicity/onset pattern was classified as follows: (1) acute—child showed a marked decline in func-

⁴Parent K-SADS interviews were available for all but a small early subset of the sample. For this small group, diagnostic information was obtained from parents using a modified version of the Camberwell Family Interview which included sections of the K-SADS that were needed to make major child diagnoses.

tioning within the year prior to the index hospitalization; and (2) insidious or chronic—child showed a pattern of slow continuous decline in adaptive functioning or showed signs of severe dysfunction from early childhood (a period of 5 years or more). Interrater reliability assessed across three independent raters ranged from kappa = .63, $p < .02$, to kappa = 1.00, $p < .0003$; percent agreement range, 92.3% to 100%. Severity of impairment at the time of hospitalization was rated using the C-GAS (Shaffer et al., 1983). The C-GAS ranges from 1 to 100 and includes behavioral examples which serve as anchor points. Interrater reliability on C-GAS scores was assessed using intraclass correlation coefficients and ranged from .79 to .99, $p < .011$, across three raters.

Five Minute Speech Sample—Expressed Emotion. The FMSS-EE measure used in our followup study was employed in this study. The FMSS is administered in an individual session with each parent or parent figure (e.g., boyfriend who lived in the home) within the first month of the child's hospitalization. For the FMSS, parents are instructed to speak for 5 min (without any interruptions) about the target child and how they get along together. Audiotaped recordings of the FMSS were sent to another laboratory (M.G.), and scored by raters who were blind to all diagnostic and other information about the child. Criteria for scoring EE from the FMSS were developed by Magana et al. (1986) and are based on analyses of the affective quality of the total 5-min monologue. High EE is defined based on a high score on either of two dimensions: criticism and emotional overinvolvement (EOI). An FMSS is scored as high on the criticism dimension if any of the following criteria is met: negative initial statement, negative relationship rating, or one or more criticisms as defined on the Camberwell Family Interview (CFI; see Leff & Vaughn, 1985) EE coding scheme. A high EOI rating is assigned if the parent (1) reports self-sacrificing overprotective behavior, (e.g., not allowing the child to go to school for fear that his or her feelings will be hurt), (2) breaks down in tears during the FMSS, or (3) shows a combination of any of the following: excessive detail about the past, statements of positive attitude, and/or excessive praise (5 or more positive remarks). Interrater reliability is assessed regularly in the laboratory and maintained at a high level, kappas ranging from .70 to .80.

Parental Stress. Parental stress was assessed by means of the chronic stress scale employed by Hammen et al. (1987). This measure includes ratings on seven dimensions of role function: marital/social, financial, employment, extended family relationships, relationships with children, health of self, and health of other family members. Each dimension was rated on a 1 (high stress) to 5 (low stress) scale with behavioral anchors for each scale rating based on a review of the extensive information available in the child's medical record and/or for the normal controls a direct interview with the mother. For

the purpose of this study, an average chronic stress score was employed which excluded stress related to the target child. Comparisons of the independent ratings of two independent raters on 15 cases demonstrated good reliability for these ratings, intraclass correlation coefficient $r = .97$. This reliability coefficient is consistent with Hammen et al.'s (1987) report of reliability coefficients ranging from .93 to .99 for the chronic stress measure.

RESULTS

Overview of Statistical Analyses

A series of logistic regression analyses were employed to test predictions of between group differences in FMSS-EE. The logistic regression analyses test whether observed associations among diagnosis and FMSS-EE are significant after controlling for potentially confounding and/or mediating variables (age, gender, SES, family composition, parental stress). Because of sample size limitations, a maximum of two variables were entered into each analysis. The chi-square statistics reported in summaries of logistic regression analyses reflect partial associations between parent FMSS-EE and child diagnosis, controlling for the other factor.

The next set of analyses examined whether FMSS-EE patterns were associated with specific illness characteristics such as comorbid diagnosis, chronicity, and severity of impairment. Within-group analyses were judged to be most appropriate for examining these effects because diagnostic groups differ on these dimensions. For example as shown in Table I, when compared to children with SZ spectrum disorders, DEP children were significantly less impaired, $t(63) = 4.26$, $p < .001$, were significantly more likely to present with acute onsets, Fisher's exact test, $p < .04$, and showed different codiagnostic patterns.

Due to the high rate of single-parent families in this sample, two approaches were employed to define family FMSS-EE status. First, we examined family FMSS-EE, using the customary approach of defining high EE whenever any parent received a high EE rating. Second, we examined mothers' FMSS-EE. Because mothers' data were available for all children in the sample, this resulted in comparable data across subjects.

Children with Depressive Disorders Versus Normal Controls

Table II presents the distribution of FMSS-EE subtypes across child diagnostic groups. In the upper portion of Table II, EE is classified based on family EE status. If any parent received a high score, the family unit

was classified as high on the EE variable. Alternatively, if all parents received low ratings, the family unit was classified as low on the EE variable. The lower portion of the table classifies EE based on only mothers' EE scores. Results of logistic regression analyses are shown in Table III.

As shown in Tables II and III, children with depressive disorders were significantly more likely to have families who expressed high levels of FMSS-EE than the normal controls. Results of logistic regression analyses indicated a significant association between family EE and child diagnosis after adjusting for age, gender, SES, family composition, and mother's stress. Nonsignificant effects were found among EE and the covariates, with the exception of SES, which was lower among parents expressing low versus high levels of EE.

The prediction that criticism would be particularly common among parents of depressed children was also supported by the present results. As shown in Tables II and III, the association between child depression and family criticism was significant after adjusting for all of the examined covariates. Again, with the exception of SES, none of the covariates was significantly associated with critical EE. Parents of depressed children did not differ significantly from parents of controls on the EOI dimension.

Table II. Child Diagnosis and Parent Five-Minute Speech Sample Expressed Emotion (FMSS-EE)

	Depressed (<i>n</i> = 35)		Normal control (<i>n</i> = 21)		Schizophrenia spectrum (<i>n</i> = 30)	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
I. Child diagnosis and family FMSS-EE						
Low EE	17	49%	17	81%	23	77%
High EE	18	51%	4	19%	7	23%
EE subtype ^a						
Critical	12	34%	1	5%	7	23%
EOI ^b	4	11%	3	14%	0	
Critical + EOI	2	6%	0		0	
II. Child diagnosis and mother's FMSS-EE						
Low EE	20	57%	18	86%	24	80%
High EE	15	43%	3	14%	6	20%
EE subtype ^a						
Critical	9	26%	1	5%	6	20%
EOI ^b	4	11%	2	9%	0	
Critical + EOI	2	6%	0		0	

^aEE subtype percent is defined as number of subjects with EE subtype divided by number of subjects within the diagnostic group.

^bEOI = emotional overinvolvement.

Table III. Summary of Chi-Square Statistics Measuring Partial Association Among Child Diagnosis and Parent Five-Minute Speech Sample EE: Comparisons of Children with Depressive Disorders and Normal Controls^a

Variable adjusting for	χ^2 , Family EE	χ^2 , Mother's EE	χ^2 , Family criticism	χ^2 , Mother's criticism
Age	6.15 ^b	5.60 ^b	5.68 ^b	4.31 ^b
Gender	5.37 ^b	4.46 ^b	5.74 ^b	4.15 ^b
SES	7.33 ^c	6.32 ^b	6.23 ^b	4.76 ^b
Family composition	5.45 ^b	4.42 ^b	5.72 ^b	4.15 ^b
Mother's stress	6.57 ^b	5.39 ^b	5.00 ^b	3.37 ^d

^aBecause of sample size limitations a maximum of two variables were entered into any single analysis. EE = expressed emotion; SES = socioeconomic status.

^b $p < .05$.

^c $p < .01$.

^d $p < .07$.

Similarly, as shown in the lower section of Table II and in Table III, mothers of children with depressive disorders were significantly more likely to express high levels of FMSS-EE than were mothers of normal controls. Results of logistic regression analyses indicated a significant association between mother's EE and child diagnosis after adjusting for each of the examined covariates. Similarly, mothers of depressed children were significantly more likely to express high levels of criticism than were mothers of controls after adjusting for age, gender, SES, and family composition. The association between child diagnosis and mother's criticism was somewhat weaker after adjusting for mother's chronic stress level. This may have been due in part to the highly significant difference between the stress levels of mothers of depressed children and mothers of normal controls, $t(55) = 4.45$, $p < .0001$. No significant association was found along diagnosis and mother's EOI.

Children with SZ Spectrum Disorders Versus Normal Controls

No significant differences were found in rates of EE among parents of children with SZ spectrum disorders and parents of normal controls. Similarly, no significant between group differences were found when mother's EE was examined.

Children with Depressive Disorders Versus Children with SZ Spectrum Disorders

As shown in Table II, rates of EE were higher among families of children with depressive disorders compared to families of children with SZ spectrum disorders. Results of logistic regression analyses presented in Table

IV reveal that children with depressive disorders were significantly more likely to have high EE families after controlling for the effects of age, gender, SES, family composition, and mother's stress. This effect was only marginal ($p < .07$) when EE was classified based only on mother's EE. Although high EOI was significantly more common among families and mothers of depressed children, Fisher's exact tests, $p < .03$, the low frequency of high EOI precluded the use of logistic regression analyses. It also merits note that high EOI was not found in the SZ spectrum group and the combination of high EOI and high criticism occurred only among mothers of depressed children. The low frequency of high EOI, however, requires that all results with respect to the EOI dimension be viewed as tentative.

Correlates of FMSS-EE Among Depressed Children

Associations between parent FMSS-EE and child illness characteristics in the depressed sample were examined by comparing high and low FMSS-EE groups on the following variables: C-GAS scores indexing the severity of the child's impairment; child diagnosis (MDD vs. DD vs. MDD/DD); presence versus absence of a comorbid externalizing disorder; presence versus absence of a comorbid anxiety disorder; and acute versus nonacute onset. Comparisons of high versus low EE groups were also conducted for age, gender, family composition, mother's stress, SES, and WISC-R IQ. Groups were stratified on (1) overall FMSS-EE, (2) the criticism dimension, and (3) the EOI dimension. In these analyses, the EE variables were based on family EE (if any parent was high the family unit was classified as high),

Table IV. Summary of Chi-Square Statistics Measuring Partial Association Between Child Diagnosis and Parent Five-Minute Speech Sample EE: Comparisons of Children with Depressive Disorders and Children with Schizophrenia Spectrum Disorders^a

Variable adjusting for	χ^2 , Family EE	χ^2 , Mother's EE
Age	4.55 ^c	3.48 ^b
Gender	5.04 ^c	3.56 ^b
SES	5.17 ^c	3.76 ^b
Family composition	5.37 ^c	3.73 ^b
Mother's stress	5.17 ^c	3.83 ^b

^aBecause of sample size limitations a maximum of two variables were entered into any single analysis. EE = expressed emotion;

SES = socioeconomic status.

^b $p < .07$.

^c $p < .05$.

and on mother's EE. Dimensional variables were examined using *t* tests; Fisher's exact tests (two-tailed) were employed for categorical variables.

A significant association was found between the presence of a comorbid disruptive behavior disorder and family criticism, Fisher's exact test, $p < .02$. As shown in Table V, depressed children with comorbid disruptive behavior disorders were significantly more likely to have parents expressing high levels of criticism compared to children without comorbid disruptive behavior disorders. This association was somewhat weaker when only mother's criticism scores were considered, Fisher's exact test, $p < .07$. No other significant effects were obtained.

Correlates of FMSS-EE Among SZ Spectrum Children

Within-group analyses were conducted using the procedures described above for the depressed group with the following exceptions: Comparisons were made between schizophrenic children and children with schizotypal personality; and children with comorbid depressive disorders (atypical depression or dysthymic disorder) were compared with children with no comorbid depression diagnoses. No significant effects were found for severity of child impairment, the presence of a comorbid disruptive behavior disorder, the presence of a comorbid anxiety disorder, the presence of a comorbid depressive disorder, child gender, family composition, SES, child IQ, or mother's stress.

DISCUSSION

Major findings of the present study were as follows: (1) Children with depressive disorders were significantly more likely to have parents who expressed high levels of FMSS-EE than were normal control children screened for the absence of psychiatric disorder; (2) rates of FMSS-EE

Table V. Association Among the Presence of a Comorbid Disruptive Behavior Disorder and Family Criticism^a

Comorbid disruptive behavior disorder	Criticism			
	Low		High	
	<i>f</i>	%	<i>f</i>	%
Present	3	27%	8	73%
Absent	18	75%	6	25%

^aHigh criticism is defined as any parent (mother or father) rated as high in criticism. Fisher's exact test, $p < .02$.

were comparable among parents of children with schizophrenia spectrum disorders and parents of normal controls; (3) rates of FMSS-EE were significantly higher among parents of depressed children compared to parents of children with SZ spectrum disorders; (4) rates of criticism were significantly higher among parents of depressed children when compared to parents of normal controls; and (5) within the depressed group the presence of a comorbid disruptive behavior disorder was associated with higher levels of criticism by parents.

These results are consistent with the hypothesis of some specificity in the association between EE and the form of child disorder, and contrary to the hypothesis that EE is a nonspecific correlate of child psychopathology. When viewed in conjunction with the prior literature, it appears that parent EE, particularly critical EE, is most likely to be elevated among parents of children with depression, disruptive behavior disorders, and obsessive compulsive disorders (Hibbs et al., 1991). Congruent with interpersonal theories of depression (Coyne, 1976) as well as other research indicating impairments in the family relationships of depressed children (for review, see McCauley & Myers, 1992), our findings underscore the likelihood that depressed children will encounter criticism and rejection in their interpersonal environments.

The low rate of FMSS-EE observed among parents of children with SZ spectrum disorders is interesting in relation to Hooley's (1987) suggestion that high EE attitudes may be most likely to develop when family members view symptoms as under the patient's control. High EE, particularly critical EE, may reflect a coping strategy in which parents attempt to control the child's behavior by providing information about behaviors and characteristics which the parent would like the child to change. This strategy is clearly least productive in situations where the targeted behaviors and characteristics are manifestations of the disorder which are beyond the child's control. SZ spectrum disorders are among the most severe forms of psychiatric disorder seen in children; and when compared to depressive disorders, they are associated with significantly higher levels of current impairment and poorer premorbid adjustment (Asarnow & Ben-Meir, 1988). It may be that the very severe and chronic dysfunction seen in children with SZ spectrum disorders results in more frequent illness attributions and fewer efforts to control what appears to be uncontrollable. These data raise the question of whether other particularly severe early-onset forms of disorder such as autism will also be associated with lower rates of parent EE.

The EE construct includes two major dimensions: criticism and EOI. Results of the present study converge with other results suggesting that parent criticism is associated with child depression, as well as with child disruptive behavior disorders (Schwartz et al., 1990; Stubbe et al., 1993). Indeed, the present data not only indicate a link between criticism and de-

pression, but also indicate that depressed children with comorbid disruptive behavior disorders were particularly likely to have parents who expressed high levels of criticism. These data underscore the heterogeneity of depressive disorders in childhood, as well as the likelihood that different processes and factors may operate in the developmental pathways for different subtypes of depression. The present results are also consistent with an accumulating body of research suggesting that depressed children with disruptive behavior disorders may comprise a distinct etiologic subgroup. Findings of lower rates of affective illness among relatives of depressed children with comorbid conduct disorders, for example, have led to the suggestion that depressed children with associated conduct disorders may have a phenocopic nonfamilial form of depression (Puig-Antich et al., 1989).

The high rate of criticism among parents of depressed children with comorbid disruptive behavior disorders is interesting in relation to prior findings indicating that children with comorbid depression and disruptive behavior disorders tend to have high rates of peer rejection and to be disliked by peers, when compared to children with pure internalizing disorders (depression + anxiety; Asarnow, 1988) or children with no depression or conduct disturbance (Cole & Carpentieri, 1990). Collectively, these data suggest that the combination of dysphoric irritable affect and disruptive behavior may serve to increase the likelihood that children will be viewed critically and/or rejected by parents and peers, key figures in the social environment. While this observation underscores the important role children have in shaping their environments, prospective data are needed to clarify the complex chain of behaviors and reactions that contribute to the difficult social niches in which these children find themselves.

Cognitive models of depression emphasize the role of negative views of the self, the world, and the future in the development and maintenance of depression. A growing research literature indicates that during depressive episodes children are likely to show low levels of self-esteem and feelings of hopelessness, and to provide negative evaluations of their level of competence (Asarnow & Bates, 1988; Asarnow, Carlson, & Guthrie, 1987; Kazdin, French, Unis, Esveltd-Dawson, & Sherick, 1983; Kendall, Stark, & Adam, 1990; McCauley, Mitchell, Burke, & Moss, 1988; for review, see Garber & Hilsman, 1992; Hammen, 1990; Weisz, Rudolph, Granger, & Sweeney, 1992). Parent criticism would likely reinforce the depressed child's already negative view of him/herself and the future, thus increasing the likelihood of continuing depression. This hypothesized vulnerability to parent criticism in depressed children is consistent with our earlier report that depressed children returning to homes where parents expressed high levels of EE (predominantly criticism) were more likely to show continuing problems with depression at the end of the first year after hospital discharge.

Because both genes and environments run in families, there is a crucial need to clarify the impact of both if we are to understand the complex processes impacting upon the developmental course of mental disorders. The present findings suggest that EE, particularly critical EE, is a frequent feature of the environments of depressed children. Results of the present study, however, do not clarify whether EE is associated with depression or other forms of psychopathology in the parents. Results from studies by Hibbs et al. (1991) and Schwartz et al. (1990), and preliminary results by Goldstein et al. (1992), indicate an association between parent psychopathology and EE. However, Schwartz et al. found that maternal critical EE predicted an increased risk of depression, substance abuse, or conduct disorder in the child after adjusting for the increased risk of child disorder associated with parental mood disorder. Higher stress would be expected to be associated with the presence of parent dysfunction, and our data do indicate an association between parent EE and child depression, adjusting for the higher levels of chronic stress observed among parents of depressed children, as compared to the normal controls. Future work is needed to clarify associations among psychopathology in children and their parents, and attributes in the family environment, such as EE, with demonstrated prognostic significance.

When comparing the present results with other EE studies, it is important to note that only the Hibbs et al. (1991) study employed measures of EE that were directly comparable to those employed in this study. Schwartz et al. (1990) rated criticism from an interview rather than the FMSS. Stubbe et al. (1993) employed the FMSS, but employed slightly modified scoring procedures. Although the impact of these methodological differences on observed associations remains to be determined, there are striking similarities among findings from the different FMSS-EE studies. For example, rates of high EE among mothers of "normal" comparison groups were similar in the Stubbe et al. (1983) and the present study, 21.5% and 14%, respectively. High EE was more common among families of Hibbs et al.'s (1991) normal controls (51.5%) compared to our rate of 19% for family EE ratings. However, this higher rate may have been related to the relatively high rate (29%) of psychiatric disorder among Hibbs et al.'s parents of normal controls. Stubbe et al.'s rates of high EE among mothers of children with disruptive behavior disorders (45.5%) were also quite similar to our rate of 43% of high EE among mothers of depressed children and 54% among mothers of depressed children with comorbid disruptive behavior disorders. Additionally, Hibbs et al. found high EE among 81.6% of families of children with disruptive behavior disorders, which is similar to our rate of 72.7% of high EE among families of depressed children with comorbid disruptive behavior disorders.

Comparisons of rates of FMSS-EE in our child sample with rates published for adult-onset disorders must be viewed cautiously, particularly as much of the FMSS-EE data available on adults has included cross-national samples. Interestingly, however, in the only published report of rates of FMSS-EE in families of depressed adults, Florin, Nospadt, Reck, Franzen, & Jenkins, (1992) found that 65% of spouses were rated as high EE, a rate that is even higher than our rate of 51% in families of depressed children. Although Florin et al. employed a German sample, and cultural differences may influence the likelihood that EE attitudes will be expressed, these data do provide some support for the position that high FMSS-EE is a significant correlate of depression. Alternatively, our rate of 23% of high FMSS-EE among families of children with SZ spectrum disorders is lower than the rate of 44% high FMSS-EE reported in the only U.S. sample that has presented comparable family-based data (Miklowitz et al., 1989).

The present report provides additional support for the utility of the brief FMSS-EE measure. Traditionally, however, EE was rated based on parents' responses in the Camberwell Family Interview. Because the CFI requires between 1 to 2 hours to administer and an additional 3 to 4 hours to score, there has been an interest in developing briefer measures of EE. Although two independent studies have documented significant relationships between FMSS-EE ratings and those derived from the CFI (Leeb et al., 1991; Magana et al., 1986), the FMSS has been found to be less sensitive than the CFI to high EE. Thus, different findings might have emerged had we used the CFI.

EE measures are presumed to reflect interactional processes. Because the FMSS-EE measure is derived from speech samples obtained in the child's absence, however, it is more appropriately viewed as a measure of parental attitudes than of parent-child interaction. There are some data indicating different interactional patterns among high- and low-EE families (for review, see Hooley, 1990) as well as among families of depressed children as compared to families of nondepressed controls (Cole & Rehm, 1986; Cook, Asarnow, Goldstein, Marshall, & Weber, 1990; for review, see McCauley & Myers, 1992). Additional research is needed to clarify associations between FMSS-EE and direct interactional measures, the nature of interactions in families with depressed children, and associations between FMSS-EE and other measures of the family environment.

It is important to note that our measures of EE were obtained after the child had developed a depressive disorder. Consequently, our data pertain only to the correlates of disorder, and the developmental pattern of the disorder following onset (Asarnow et al., 1993). Furthermore, statistical power was weak for within-group analyses and additional subgroup effects might have emerged with a larger sample. The low rates of EOI in this

sample also limited our ability to examine associations with EOI. Finally, the sample for this study was comprised of children admitted for psychiatric care and the present findings may not generalize to less disturbed samples of depressed children drawn from outpatient or nonclinical sites.

In conclusion, the present results indicate that parent EE, particularly critical EE, is a significant correlate of depression in childhood. Viewed in conjunction with our earlier report of an association between EE and 1-year outcome, these findings highlight the importance of understanding the social and family contexts in which depressions emerge, continue, and remit during childhood. From a clinical perspective, these data underscore the need to attend to the family environments of depressed children and suggest the utility of family-based treatment approaches for depressed children.

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