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Patterns of Expressed Emotion in Adolescent Eating Disorders

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Abstract

Background—This goal of this study was to understand patterns of expressed emotions in adolescent eating disorders. As such, this study compared expressed emotion (EE) among families of adolescents with anorexia nervosa (AN), bulimia nervosa (BN), and a psychiatric control group, major depressive disorder (MDD). This study also examined the influence of family status (intact vs. non-intact) and the presence of siblings on EE.

Methods—Two-hundred and fifteen adolescents (ages 12–19) and their families were recruited for this study including 121 adolescents with AN, 54 adolescents with BN, and 40 adolescents with MDD. Adolescents with at least one parent completed the Standardized Clinical Family Interview (SCFI). Adolescents completed structured diagnostic interviews to assess eligibility for the study, as well as a standardized questionnaire to assess depression.

Results—Analyses revealed that fathers showed higher levels of critical comments to adolescents with BN or MDD than those with AN, whereas mothers made more critical comments toward patients with BN. Mothers made the least number of positive remarks toward patients with MDD. In terms of the influence of family status, fathers from intact families showed more expressions of warmth and were less critical than fathers from non-intact families, whereas mothers from intact families were less critical but also made fewer positive remarks than mothers from non-intact families. The presence of siblings appeared to reduce mothers' expression of warmth and emotional overinvolvement.

Conclusions—Unique patterns of EE were found to characterize AN, BN, and MDD. Family status and the presence of siblings exert an influence on EE that should be taken into consideration in future research.

Keywords

Expressed emotion; adolescents; anorexia nervosa; bulimia nervosa; depression

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Introduction

Expressed emotion (EE) is a measure of a relative's attitudes and behaviors toward an ill family member and includes dimensions such as criticism, hostility, emotional overinvolvement, warmth and positive remarks (Brown & Rutter, 1966; Vaughn & Leff, 1976). Originally found to be a robust predictor of relapse for patients with schizophrenia (Brown, Carstairs, & Topping, 1958), it has also been found to predict poor outcome in mood disorders (Butzlaff & Hooley, 1998), and treatment failure and dropout in eating disorders (Hedlund, Fichter, Quadflieg, & Brandl, 2003; Le Grange, Eisler, Dare, & Hodes, 1992; Szmukler, Eisler, Russell, & Dare, 1985). Much of the research on EE has examined adult psychopathology, with less focus on adolescents. Given the importance of the parent-child relationship in adolescents' development and mental health (Moretti & Peled, 2004), EE is a potentially fruitful and informative area of research in adolescent psychopathology.

Based on the essential role of the family in the treatment of adolescent eating disorders (Le Grange, Lock, Loeb, & Nicholls, 2010), EE research may offer specific insight into the factors contributing to symptom maintenance and improvement in these conditions. Specifically, research on adolescent eating disorders suggests maternal criticism is a strong predictor of poor outcome (van Furth et al., 1996). Consequently, separated family therapy has been found to be superior to conjoint therapy when maternal criticism is high (Eisler et al., 2000; Eisler, Simic, Russell, & Dare, 2007). In spite of these findings, it is unclear whether EE is a specific risk or maintenance factor for eating disorders or a nonspecific correlate of psychopathology. Specifically, research on adolescents with depression also suggests high levels of family EE and maternal criticism, and high EE seems to predict later onset of childhood depression (Silk et al., 2009) even after controlling for maternal depression (Burkhouse, Uhrlass, Stone, Knopik, & Gibb, 2012). Furthermore, high EE in families of adolescent psychiatric inpatients has been found to be strongly associated with persistent mood disorder (Asarnow, Goldstein, Tompson, & Guthrie, 1993). Although research on AN and BN suggests unique patterns of EE, studies have been underpowered to detect differences (Dare, Le Grange, Eisler, & Rutherford, 1994). Moreover, to date, no research exists that compares youth with eating disorders to youth with another psychiatric condition.

While studies have generally associated high EE with psychopathology and poor treatment outcome, limited research on low EE or positive sentiment suggests that it may have a protective effect on child psychopathology. In the depression literature, longitudinal research suggests that low parental EE has been found to predict remission from depression in both outpatient and inpatient samples (Asarnow et al., 1993; McCleary & Sanford, 2002). Similarly, although studies of EE in eating disorders have historically focused on the 'negative' components of critical comments, hostility, and emotional overinvolvement, parental warmth has been found to predict a good outcome for adolescents with AN (Le Grange, Hoste, Lock, & Bryson, 2011). Another gap in the literature is an understanding of specific family factors associated with positive and negative EE. Although family factors such as social status, marital satisfaction, family conflict, and achievement orientation have been associated with EE in eating disorders (Duclos et al., 2014; Hibbs, Hamburger, Kruesi,

& Lenane, 1993; Kyriacou, Treasure, & Schmidt, 2008; St. Jonn-Seed & Weiss, 2005; Szmukler et al., 1985), other factors central to the treatment of eating disorders such as intact family status and the influence of siblings have not been examined.

In light of the current state of the research, the primary goal of the current study was to examine patterns of EE among families of adolescents with AN or bulimia nervosa (BN). As such, this study compared EE in families of adolescents with AN, BN, and major depressive disorder using family interviews. The decision to include youth with major depressive disorder as a psychiatric illness control group is based on previous research suggesting that high EE is associated with depression in adolescents and also predicts poor outcome (Silk et al., 2009). Given research finding high levels of critical comments in MDD and also BN, it was hypothesized that levels of parental critical comments would be similar for patients with BN and MDD, which would both be higher than for parents of patients with AN. Due to limited research on family factors on EE in eating disorders, a secondary goal of this study was to examine the role of family status (intact vs. non-intact) in EE and the influence of sibling presence on family EE.

Methods

Participants and procedure

Participants were 215 adolescents and their families. Diagnoses were made according to DSM-IV (APA, 1994). Adolescents with AN (n = 121) were part of a larger two-site treatment study Lock et al., 2010). Eligible participants were between the ages of 12 and 18, living with parents or a legal guardian, and met DSM-IV criteria for AN, except for the amenorrhea criterion. Participants were not eligible for the study if they had a current psychotic disorder, substance dependence, a physical condition, such as pregnancy, that could influence eating or weight, or if they had previously received either of the two treatments offered in the study. Adolescents with BN (n = 54) were also part of a treatment study (Le Grange, Crosby, Rathouz, & Leventhal, 2007). Eligible participants were between the ages of 12 and 19 and met DSM-IV criteria for BN; participants who did not meet the frequency criterion were included in the study if they binged or purged at least weekly for the previous six months. Participants were not eligible for the study if they required physical or psychiatric hospitalization, had limited knowledge of English such that they were unable to participate in treatment, had current substance dependence, a body mass index ≤ 17.5, were receiving treatment for the eating disorder, or were using medications or had a physical condition that could influence eating or weight. Adolescents with MDD (n = 40) were recruited specifically for the current study. As part of the current study, the adolescent with MDD participated in two study visits. During the first visit, the adolescent completed the Kiddie-Schedule for Affective Disorders and Schizophrenia (K-SADS) to ensure eligibility for the study, followed by the Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) and a questionnaire assessing demographics and treatment history. In the second visit, the adolescent and his/her parent/guardian participated in family interviews. Participants were paid $20 for each visit. Thirty-four participants completed both visits. Male and female participants were eligible if they were between the ages of 12 and 19 years, had a primary diagnosis of MDD, and had at least one parent who was able to

participate in the study. Adolescents with a past or current diagnosis of AN, BN, or eating disorder not otherwise specified were excluded from the present study, as were adolescents with a current diagnosis of psychosis or substance abuse, or who were actively suicidal. Emancipated minors, wards of the state, and children in foster care were not eligible to participate in the study. Participants gave written informed consent and studies were approved by the Institutional Review Boards of The University of Chicago, IL, Stanford University, CA, and Mayo Clinic, MN.

Measures

Standardized Clinical Family Interview (SCFI; Kinston & Loader, 1984)—The SCFI is a structured clinical interview in which family members are interviewed together about various aspects of family life, including similarities and differences between family members, level of cohesion in the family, roles and responsibilities in the household, discipline, conflict and resolution, decision making, and involvement with extended family and the community. EE ratings are made by trained raters from the videotaped interviews. The SCFI was completed at baseline as part of the larger AN and BN studies, and during the second visit for the adolescents with MDD. Earlier studies of EE used the Camberwell Family Interview (Leff & Vaughn, 1985), which is lengthy to administer and score. The SCFI has been shown to be comparable to the CFI (Hodes, Dare, Dodge, & Eisler, 1999) and has been used in several studies of EE (Eisler et al., 2000; Hoste & Le Grange, 2008; Le Grange et al., 1992; Le Grange et al., 2011). For all three studies, families were invited to bring all family members to participate in the interview. In non-intact families, the adolescent patient was interviewed together with both parents if both parents were participating in the study. All SCFI interviewers had experience in interviewing families and were trained to administer the SCFI, which involves reading questions to families and generally adhering to the SCFI script.

Beck Depression Inventory (BDI; Beck et al., 1961)—The BDI is a widely-used 21-item self-report measure of depressive symptoms such as mood, lack of satisfaction, and feelings of guilt, rated on a 4-point scale. Higher scores indicate higher levels of depression. The measure's psychometric properties have been well established (Beck, Steer, & Garbin, 1988).

Data analysis

All EE ratings were made by trained raters (RR and DLG), with interrater reliability established at .80. Critical comments and positive remarks are frequency counts: the numbers are summed at the end of the interview. Hostility is rated on a four point scale of 0–3 based on a person's rejection of a family member, generalization of criticism toward the family member, or both. It is a global score, meaning the content of the entire interview is taken into consideration before a rating is made. Warmth and emotional overinvolvement are also global scales, both rated from 0–5. Warmth is based on the tone of voice a relative uses when talking about an ill family member, as well as the degree of empathy for and interest in the family member. Emotional overinvolvement is based on a number of factors, including self-sacrificing or overprotective behavior, dramatization, and displays of emotion during the interview.

Chi-square tests were used to compare diagnostic groups on sex and family status (intact vs. non-intact). Univariate ANOVAs were used to compare groups on age, body mass index (BMI), and BDI. Due to differences between diagnostic groups in age, age was entered as a covariate in analyses. Multivariate ANOVAS were used to analyze EE data. EE data were available for 91 fathers and 106 mothers in the AN group, 28 fathers and 54 mothers in the BN group, and 13 fathers and 30 mothers in the MDD group. Due to the large number of fathers who did not participate in the SCFI, separate MANOVAs were conducted for fathers and mothers. In addition, because hostility is a categorical variable and rates of hostility were very low, it was not included in the analyses.

Results

Demographic characteristics by diagnosis are provided in Table 1. As a whole, participants were primarily Caucasian (78.6%), followed by Hispanic (7.9%), Asian (6.0%), African-American (2.8%), and Other or missing (4.7%). For families of patients with AN, 72% of interviews included both parents; 52% of families of patients with BN had both parents attend the interviews, and only 22.5% of families of patients with MDD had both parents attend the interviews. Significant differences were found between diagnostic groups on age, family status, BMI, and BDI.

Psychiatric diagnosis and family status

Table 2 shows means for mothers' and fathers' EE scores. Multivariate analyses for fathers revealed a main effect of diagnosis ($F(8, 244) = 2.43$, $p = .015$; $\eta^2 = .073$), family status ($F(4, 121) = 3.96$, $p = .005$; $\eta^2 = .116$), and a significant interaction effect of diagnosis and family status ($F(8, 242) = 1.99$, $p = .048$; $\eta^2 = .061$). Pairwise comparisons for diagnosis revealed that fathers made significantly fewer critical comments toward patients with AN ($M = 0.2$, $SD = 0.2$) than toward patients with BN ($M = 2.0$, $SD = 0.5$; $p = .001$), or toward patients with MDD ($M = 1.6$, $SD = 0.4$; $p = .006$), who did not differ from each other. No differences were found between diagnostic groups for fathers' positive remarks, warmth, or emotional overinvolvement.

Fathers who were part of intact families made fewer critical comments ($M = 0.4$, $SD = 0.2$) than fathers in non-intact families ($M = 2.1$, $SD = 0.4$; $p < .001$). In addition, fathers in intact families were higher on warmth ($M = 1.9$, $SD = 0.2$) than fathers in non-intact families ($M = 1.1$, $SD = 0.3$; $p = .037$). Univariate tests revealed that fathers from non-intact families were more critical toward patients with BN than fathers from intact families ($M = 3.3$, $SD = 5.8$ vs. $M = 0.7$, $SD = 1.1$, $F(2, 25) = 4.78$, $p = .038$; $\eta^2 = .161$). Fathers of patients with AN did not differ on EE ratings based on family status; however, only 11 fathers from non-intact families participated in the interviews so there may not have been sufficient power to detect differences.

Multivariate analyses for mothers revealed a main effect of diagnosis ($F(8, 358) = 2.63$, $p = .008$; $\eta^2 = .056$), and family status ($F(4, 178) = 2.76$, $p = .029$; $\eta^2 = .058$). Pairwise comparisons for diagnosis showed that mothers made significantly fewer critical comments toward patients with AN ($M = 0.6$, $SD = 0.2$) than toward patients with BN ($M = 1.7$, $SD = 0.3$; $p = .003$). Mothers also made fewer critical comments toward patients with MDD ($M =$

0.7, $SD = 0.4$) than toward patients with BN ($p = .026$). Mothers made more positive remarks toward patients with AN ($M = 1.9$, $SD = 0.2$) than MDD ($M = 0.9$, $SD = 0.3$; $p = .012$), and made more positive remarks toward patients with BN ($M = 1.8$, $SD = 0.3$) than MDD ($p = .031$). No differences were found for mothers' warmth or emotional overinvolvement.

Regarding family status, mothers from non-intact families made more critical comments ($M = 1.4$, $SD = 0.3$) than mothers from intact families ($M = 0.6$, $SD = 0.2$; $p = .033$), although mothers from non-intact families also made more positive remarks ($M = 1.8$, $SD = 0.2$) than mothers from intact families ($M = 1.2$, $SD = 0.2$; $p = .043$).

Presence of siblings

Siblings were present in 49% of families of patients with AN, with an average of 1.4 ($SD = 0.6$) siblings attending the interview. Siblings were present in 28% of families of patients with BN ($M = 1.5$, $SD = 0.6$) and in 22.5% of families of patients with MDD ($M = 1.7$, $SD = 0.7$).

For fathers, the presence or absence of siblings did not have an impact on EE ratings. For mothers, there was a significant effect of presence of siblings ($F(4, 183) = 3.89$, $p = .005$). When siblings were present, mothers were less warm ($M = 1.7$, $SD = 0.1$) than when they were absent ($M = 2.3$, $SD = 0.1$; $p = .004$), and mothers were lower on emotional overinvolvement when siblings were present ($M = 0.5$, $SD = 0.1$) than when they were absent ($M = 0.9$, $SD = 0.1$; $p = .004$).

Discussion

This study is one of the first to compare EE among families of adolescents with AN, BN, and MDD. Overall, findings varied according to parent and EE dimension. However, parents generally made the fewest critical comments toward patients with AN. Fathers were significantly more critical of patients with BN or MDD than they were toward patients with AN, whereas mothers were most critical of patients with BN. Mothers also made the least number of positive remarks toward patients with MDD. An earlier study found a trend toward higher parental criticism among parents of children with BN compared to children with AN (Dare et al., 1994). These authors suggested that parents may have a more difficult time expressing criticism toward a patient with AN who may be clearly frail and unwell, than toward a patient with BN who may not outwardly appear unwell and may engage in more disruptive behaviors that parents find difficult to understand. In clinical practice, parents often express frustration with finding food missing when that food was intended for dinner for the family or lunch for another child, and may express anger or disgust regarding purging behaviors. Adolescents with binge/purge behaviors also have higher rates of psychiatric comorbidity and may be particularly challenging for parents (Swanson, Crow, Le Grange, Swendsen, & Merikangas, 2011).

It is possible that the high levels of paternal criticism and lower levels of maternal positive remarks by parents of adolescents with MDD may be a function of the nature of depression in children and adolescents, which tends to be characterized by lower levels of positive

affect and may exert an influence on social responses (Joiner, Catanzaro, & Laurent, 1996; Lonigan, Hooe, David, & Kistner, 1999; Lonigan, Phillips, & Hooe, 2003). It is also consistent with previous literature finding that fathers are less likely to respond to their depressed adolescents in a way that amplifies positive affect (Katz et al., 2014), and that parents of depressed adolescents are generally less supportive of them than parents of healthy adolescents (Sheeber, Davis, Leve, Hops, & Tildesley, 2007).

Previous studies have shown that parental EE can have a negative impact on treatment outcome (Chambless & Steketee, 1999; Hedlund et al., 2003; Le Grange et al., 1992; Szmukler et al., 1985) and psychiatric relapse (Butzlaff & Hooley, 1998) across a number of disorders. A study of psychiatric inpatients found that high levels of EE predicted poor outcome for children with depressive disorders one year following hospitalization (Asarnow et al., 1993). Additional studies should assess the influence of parental EE specifically on outcome for adolescents receiving outpatient treatment for MDD or BN, as the current study suggests that clinicians should be attuned to the presence of parental criticism and work to modify it in treatment.

The important role of parental criticism in particular (Burkhouse et al., 2012; Eisler et al., 2000; Eisler et al., 2007; Silk et al., 2009; van Furth et al., 2006) does not imply that blame should be directed toward parents for the onset or maintenance of adolescent psychopathology. Among families of adolescents with EDs, bidirectional examinations of EE have found significant correlations between EE ratings from child to parent and EE ratings from parent to child (Hoste, Lebow, & Le Grange, 2015; Rienecke, Lebow, Lock, & Le Grange, in press), suggesting that there is a reciprocal relationship between parent and child interactions. A longitudinal study investigating maternal criticism and adolescent symptoms of depression and generalized anxiety found that adolescent depressive symptoms were a stronger predictor of later maternal criticism than the reverse (Nelemans, Hale, Branje, Hawk, & Meeus, 2014). Studies of patients with schizophrenia have also suggested that EE is reciprocal in nature (Willetts & Leff, 1997). In addition, it is possible that adolescents' perceptions of their family are just as important, if not more so, than actual parental EE (Nelemans et al., 2014). Thus, although parental EE has been shown to play an important role in treatment outcome, there are likely other important factors influencing and interacting with parental EE that need to be better understood and should be investigated in future studies.

Family status also had an influence on parents' EE. Fathers from intact families were warmer and less critical than fathers from non-intact families, whereas mothers from intact families were less critical but also made fewer positive remarks than mothers from non-intact families, regardless of patient diagnosis. Surprisingly little has been written on the topic of EE in non-intact versus intact families, but findings from the current study have clear clinical implications. Clinicians working with divorced or reconstituted families may need to pay particular attention to the presence of EE and work with parents to decrease criticism and increase warmth, particularly as parental warmth has been shown to predict good treatment outcome among families of patients with AN (Le Grange et al., 2011).

The current study identified that sibling presence may influence maternal EE, with mothers expressing less warmth and less emotional overinvolvement when the adolescent's sibling was present. Sibling involvement is a central element of family-based therapy for adolescent eating disorders. Siblings are put in a supportive role, while parents are given the job of weight restoration. As such, more research is necessary to understand how parent-child and sibling relationships may enhance or undermine parental EE in order inform interventions to increase positive EE. This finding also highlights the importance of the way in which family members are interviewed. During the rating of the videotaped family interviews, it was noted that the presence of siblings seemed to influence the degree to which parents would participate in the interview, particularly if the siblings were actively participating. Although there is little research on siblings' influence on mothers or fathers in their interactions with adolescents, studies of young children suggest that the presence of an opposite sex sibling significantly reduced mothers' verbalizations with the child's other sibling (Cicirelli, 1978). Clearly, when siblings are present, parents are required to distribute their attention, and therefore parents in this study may have had decreased opportunities to express warmth or display emotional overinvolvement. Future studies of EE should consider this when determining which family members are present during interviews, and whether the time-saving advantages of interviewing the entire family at once outweigh the potential disadvantages of obtaining less information from individual family members.

The study has a number of limitations, most notably, the unequal diagnostic sample sizes and the small number of fathers who accompanied patients with BN and MDD to the assessments. Because the families of adolescents with AN and BN completed the measures of EE in the context of a treatment study in which they were receiving ongoing treatment at no cost, they may have been more willing to participate than the families of patients with MDD. The families of patients with MDD were recruited specifically for this study and did not have the incentive or convenience of participating in the context of their assessment and treatment for depression. Many adolescents with MDD and their families reported that it was challenging to schedule appointments involving the entire family, especially in the context of limited resources and poor access to transportation. In addition, the EE raters were not blind to patient diagnosis. Finally, EE has been found to vary according to ethnic minority status (Hoste & Le Grange, 2008). This was not analyzed in the current study given the already relatively small sizes of the BN and MDD groups.

The study of EE has provided important insights into adult psychopathology, particularly among patients with schizophrenia, but little research has been conducted with adolescent populations. The current study adds to the very limited research on EE among adolescents, and raises important clinical issues with regard to the presence and impact of high EE in divorced or reconstituted families. Future studies should further examine family factors associated with EE, the reciprocal nature of EE between patients and parents, and the effectiveness of interventions designed to reduce high parental EE.

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Key points

- Unique patterns of expressed emotion were found to characterize families of adolescents with AN, BN, or MDD.
- Fathers were significantly more critical of patients with BN or MDD than they were toward patients with AN, whereas mothers were most critical of patients with BN.
- Family status and the presence of siblings were also related to parental EE.
- Therapists treating adolescents with eating disorders or depression should assess for parental EE and provide appropriate interventions to reduce high EE when possible.

Table 1

Demographic characteristics by diagnosis

	AN	BN	MDD
	M/n (SD/%)	***M/n (SD/%)***	***M/n (SD/%)***
N	121	54	40
Sex	110 F (90.9)	53 F (98.1)	38 F (95.0)
Intact	95^{a} (78.5)	34^{b} (63)	15^{c} (41.7)
Age	14.42^{a} (1.63)	15.94^{b} (1.75)	15.44^{b} (1.96)
BMI	16.07^{a} (1.10)	21.97^{b} (2.93)	24.89^{c} (5.54)
BDI	14.67^{a} (10.05)	26.28^{b} (11.97)	21.55^{c} (12.76)

Note. AN = anorexia nervosa; BN = bulimia nervosa; MDD = major depressive disorder; Intact = intact family; BMI = body mass index; BDI = Beck Depression Inventory. Means in the same row that do not share superscripts differ at $p < .05$.

Table 2

Mean (SD) expressed emotion scores for parents by patient diagnosis

		AN[1]	BN	MDD
CC	Father	0.26 (0.77)	1.00 (2.07)	1.46 (3.55)
	Mother	0.50 (1.70)	1.44 (2.75)	0.63 (1.10)
H	Father	0.03 (0.23)	0.07 (0.26)	0.00 (0.00)
	Mother	0.03 (0.17)	0.06 (0.23)	0.00 (0.00)
EOI	Father	0.35 (0.62)	0.32 (0.55)	0.31 (0.85)
	Mother	0.68 (0.89)	0.80 (0.90)	0.77 (1.07)
W	Father	1.66 (1.30)	1.93 (1.25)	1.38 (1.33)
	Mother	2.05 (1.36)	2.00 (1.10)	2.20 (1.13)
PR	Father	0.84 (1.17)	1.32 (1.19)	0.54 (0.97)
	Mother	1.61 (1.81)	1.78 (2.05)	1.03 (1.30)

Note. AN = anorexia nervosa; BN = bulimia nervosa; MDD = major depressive disorder; CC = critical comments; PR = positive remarks; H = hostility; W = warmth; EOI = emotional overinvolvement.

[1] (Rienecke et al., 2016).