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## A Bidirectional Examination of Expressed Emotion among Families of Adolescents with Bulimia Nervosa

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### Abstract

**Objective**—The purpose of this paper was to examine expressed emotion (EE) measured from adolescents with bulimia nervosa (BN) toward their parents, in addition to measuring EE from parents toward patients.

**Method**—Fifty-four adolescents and their parents who were receiving treatment for BN participated in a videotaped family interview, from which ratings of EE were made.

**Results**—Parent and patient scores were highly correlated. Four family profiles were created (Low Patient EE/Low Parent EE; High Patient EE/High Parent EE; Low Patient EE/High Parent EE; High Patient EE/Low Parent EE) to determine whether the match between parent and patient EE was related to treatment outcome. The Low Patient EE/Low Parent EE group demonstrated the greatest reduction in purging from baseline to end-of-treatment; the High Patient EE/Low Parent EE group showed the smallest reduction in purging.

**Discussion**—Expressed emotion has historically been rated from relatives toward patients, but patients' own EE may also be related to treatment outcome.

Expressed emotion (EE) encapsulates several components of interpersonal relationships and has traditionally been used to describe relatives' attitudes and behaviors toward an ill family member.<sup>1,2</sup> It is measured on five dimensions: critical comments (CC), positive remarks (PR), hostility (H), warmth (W), and emotional overinvolvement (EOI). Families that score above certain cutoffs on CC, H, and EOI are considered to be high EE. The majority of EE research has been conducted with patients with schizophrenia or depression. EE has also been measured in patients with eating disorders (EDs), as EDs are associated with high levels of family distress,<sup>3</sup> comparable to that of caregivers for patients with psychosis.<sup>4</sup>

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#### Disclosure of Conflicts

This study was supported by NIH grant R01-MH-070620 (Dr. Le Grange). Dr. Le Grange also receives consultant fees from the Training Institute for Child and Adolescent Eating Disorders, LLC, and royalties from Guilford Press and from Routledge. Dr. Hoste receives consultant fees from the Training Institute for Child and Adolescent Eating Disorders, LLC.

High parental EE has been found to predict treatment dropout and poor outcome for adolescents with EDs, while parental warmth has predicted good outcome.<sup>5-8</sup> One controversy surrounding EE has been the direction of causality.<sup>9</sup> There is a lack of agreement regarding whether high caregiver EE leads to relapse in patients, or whether patients' illness-related behavior leads to high parent EE. Studies have found patients are at a higher risk of relapse when they spend more time with a high EE relative,<sup>2</sup> and that parental EE is unrelated to severity of patient symptomatology,<sup>10</sup> suggesting that parental EE independently affects patients' functioning. However, earlier studies of patients with schizophrenia found that patients' behavior seemed to evoke high EE from relatives.<sup>11</sup> A longitudinal study found fathers' CC and patients' "hostile uncooperativeness" seemed to exacerbate each other over time.<sup>12</sup> Further, a study examining staff EE in a treatment facility for patients with schizophrenia found that no staff member was consistently high in EE with every patient,<sup>13</sup> suggesting that EE has an interactional quality. Thus, patient behaviors may play a role in eliciting responses from caregivers.

Nevertheless, EE has historically been rated unidirectionally, from relative to patient. Particularly in the case of younger patients, for whom close incorporation into the family system is developmentally appropriate, it is possible that conceptualizing EE as a strictly unidirectional construct may present an incomplete picture. It follows that when evaluating EE in families of adolescents with EDs, it may be useful to look at a "family EE profile", which takes into account the potentially reciprocal relationship of patient and relative EE. To our knowledge, no studies have looked at family EE profiles. Only two studies have rated EE from patients toward family members.<sup>14,15</sup> The current exploratory study examined family EE profiles for adolescents in treatment for bulimia nervosa (BN) and their parents. Associations between parent and patient EE were examined, and the relationship of family EE profile to treatment outcome was assessed.

## Method

### Participants

Participants were 54 adolescents and their families enrolled in a treatment study for adolescent BN (see Le Grange et al. (2007) for details)<sup>16</sup>. Participants gave informed consent and this study was approved by the Institutional Review Board of The University of Chicago.

### Measures

**Structured Clinical Family Interview (SCFI).**<sup>17</sup>—The SCFI is a structured interview in which family members are interviewed together about various aspects of family life. Trained raters use the videotaped interview to rate EE. The SCFI was completed at baseline.

**Eating Disorder Examination (EDE).**<sup>18</sup>—The EDE is a semi-structured interview designed to assess eating disorder psychopathology. It was conducted at baseline and end-of-treatment.

## Data Analysis

EE ratings were made by RH and DLG, both trained at the Institute of Psychiatry, University of London. Interrater reliability was established at 0.80 or higher. Consistent with previous studies of EE among BN families,<sup>19</sup> parents were rated as high-EE if they made two or more CCs, showed any H, or scored 3 or higher on EOI. Ratings from patient to parent were made using the same criteria, except that EOI was not rated (see Le Grange et al. (2011)<sup>6</sup> for information on scoring EE).

## Results

Patients included 53 females and 1 male. Mean age was 15.9 years ( $SD=1.8$ ), mean illness duration was 18.3 months ( $SD=17.1$ ), and mean BMI was 22.0 ( $SD=2.9$ ). The sample was 70.4% Caucasian, 9.3% African-American, 14.8% Hispanic, and 5.5% identified as “other”. Thirty-four (63%) came from intact families. Twenty-six (48.1%) met DSM-IV criteria for BN and 28 (51.9%) for EDNOS-BN. Fifty-four mothers and 28 fathers completed the SCFI.

## Correlational Analyses

Parental CC was highly positively correlated with patient CC. Parental and patient H were also highly positively correlated. Patients' PR was positively correlated with mothers' PR but not fathers' PR, and was correlated with patient H toward both parents. Patient W and parental W were also positively correlated. CC and H ratings were highly positively correlated and W and PR ratings were significantly correlated for parents but not for patients<sup>a</sup>.

## Family EE Profiles

Patients and parents were classified as either high or low EE (see Table 1). Families were organized into four profiles that were used in subsequent analyses: High Patient/High Parent ( $n=8$ ), High Patient/Low Parent ( $n=8$ ), Low Patient/High Parent ( $n=10$ ), and Low Patient/Low Parent ( $n=28$ ). Parents were put in the “High Parent” group if either the mother or father demonstrated high EE.

## Outcomes

One-way ANOVAs were conducted to evaluate the relationship between EE profile and percent reduction in binge-eating and purging from baseline to end-of-treatment. Results were significant for percent reduction in purging ( $F(3, 44)=2.77, p=.05$ ) but not for percent reduction in binge-eating ( $p=.81$ ).

Follow-up tests were conducted to evaluate pairwise differences. Tukey's post hoc comparisons revealed that the High Patient/Low Parent group had a significantly smaller reduction in purging from baseline to end-of-treatment than the Low Patient/Low Parent group ( $p = .006$ ). The Low Patient/Low Parent group demonstrated the greatest reduction in purging from baseline to end-of-treatment (see Table 2).

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<sup>a</sup>Supplemental tables are available online including means and SDs for EE scores and correlational analyses.

Given the possibility that the EE match between parent and patient may be important, groups were combined into matched (Low Patient/Low Parent plus High Patient/High Parent) and unmatched (Low Patient/High Parent plus High Patient/Low Parent) and analyses were rerun. Results were similar in that reduction in binge-eating from baseline to end-of-treatment did not differ between groups, but there were significant differences in reduction in purging between the matched ( $M = 80.1$ ,  $SD = 36.1$ ) and unmatched groups ( $M = 54.7$ ,  $SD = 42.0$ ) ( $F(1, 46) = 4.7$ ,  $p = .035$ ).

## Discussion

The current study examined parent and patient EE in adolescents seeking treatment for BN and their families. Given the small sample size and the uneven distribution of groups, caution must be employed when interpreting these results. Findings, however, suggest that the concept of a family EE profile in the case of adolescent BN warrants investigation with a larger sample.

Patient criticism was significantly positively correlated with both parental criticism and patient and parental hostility. Surprisingly, patient positive remarks were positively correlated with patient hostility, but not with parental hostility. Although causality cannot be inferred, it seems that parents who communicate criticism and hostility are also receiving it from their children. Similarly, warm parents seem to have warm children, although correlations are lower. These findings suggest a reciprocal relationship between parent and child interactions. The relationship between patient positive remarks and hostility was unexpected and may suggest that adolescents who display positive affect toward their parents may also be more likely to display negative affect.

Differences were found between the four family EE profiles for reductions in purging but not binge-eating. It is possible that purging is associated with EE because the behavior may elicit stronger emotional reactions in parents than binge-eating. As may be expected, the Low Patient/Low Parent group exhibited greatest decreases in purging. However, the next-greatest decreases were found in the High Patient/High Parent group, suggesting that perhaps it is not the overall level of EE in the family, but the match in family EE that accounts for symptom change. This was supported by findings of significantly higher decreases in purging in matched versus unmatched family profiles. The High Patient/Low Parent group had the smallest decrease in purging behavior, suggesting that parents who are generally low on EE may have difficulty interacting with a high-EE child. These results differ from previous studies finding that high parental EE predicts poor treatment outcome. However, the majority of previous studies have been conducted with patients with AN;<sup>5-7</sup> additional studies are needed with families of patients with BN.

Limitations to the study include a small sample. Additionally, some profile groups had high variance and groups were not evenly distributed. As such, findings require replication in a larger sample, particularly given that mean differences approached significance in two comparisons (Low Patient/Low Parent vs. High Patient/High Parent and Low Patient/Low Parent vs. Low Patient/High Parent).

This is the first study to examine family EE profiles among adolescents with BN. Findings suggest that it may be important to examine patient EE in addition to parental EE, and that the match in parent and patient EE may impact treatment outcome. Future study is needed to determine how family EE profiles may be related to outcomes in adolescents with AN.

## Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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**Table 1**

Percent (n) of High and Low EE Among BN Patients and Parents

	Patient to Dad	Patient to Mom	Dad to Patient	Mom to Patient	Any Family Member
High EE	24 (10)	26 (14)	12 (5)	28 (15)	50 (27)
Low EE	76 (32)	74 (40)	88 (37)	72 (39)	50 (27)

*Note.* EE = expressed emotion. Ns vary because different numbers of mothers and fathers participated in the family interview.



Means and Standard Deviations for Reductions in Binge and Purge Episodes from Baseline to End-of-Treatment for Four Expressed Emotion Profiles

**Table 2**

	Percent Reduction in Binge Episodes		Percent Reduction in Purge Episodes		
	<i>N</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
High Patient/High Parent	7	59.89	35.68	73.72	28.33
High Patient/Low Parent	8	41.17	57.93	37.92	43.37
Low Patient/High Parent	8	63.99	45.24	71.48	35.48
Low Patient/Low Parent	25	58.53	56.74	81.82	38.32