

Controllability Perceptions and Reactions to Symptoms of Schizophrenia: A Within-Family Comparison of Relatives With High and Low Expressed Emotion

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In a sample of 35 family members of patients with recent-onset schizophrenia, attributions of control and the content of critical comments were compared for 2 relatives of the same household who held discrepant expressed emotion (EE) attitudes (1 high and 1 low) toward their mentally ill family member. Attributions and the content of critical comments were also compared for low-EE relatives from low-EE homes versus low-EE relatives from high-EE homes. Our results indicate that high-EE relatives tend to attribute more control over behavior to patients than do low-EE relatives of the same patient. In addition, low-EE relatives from high-EE homes attribute more behavioral control to patients than do low-EE relatives from low-EE homes. These findings suggest that EE status is linked to attributions of control over behaviors, but additional patient factors or influences among family members may also affect EE attitudes.

Research conducted over the past 3 decades on expressed emotion (EE) offers convincing evidence that, following a schizophrenic episode, patients who return to live in households in which one or more relatives hold hostile, critical, or emotionally overinvolved attitudes toward them (high-EE) have a poorer symptomatic course of illness than do patients who return to live with relatives who do not hold as many of these negative attitudes (see Kavanagh, 1992, for a review). Although EE is now widely accepted as a valid and useful prognostic indicator for schizophrenia, the specific processes that operate to bring about high-EE attitudes in relatives or a return or exacerbation of symptoms in their family members are still poorly understood (Hooley & Licht, 1997; Weisman, López, Karno, & Jenkins, 1993; Weisman, Nuechterlein, Goldstein, & Snyder, 1998).

Hooley (1987) was the first to offer a model suggesting that attributional differences in relatives' perceptions of patients' ability to manage the disorder may be associated with EE status. Weisman et al. (1993, 1998) offered support for Hooley's model indicating that, as compared with low-EE family members, relatives who hold hostile or critical attitudes (high-EE) tend to believe that their ill family member has more control over the illness and the disruptive symptoms. Moreover, similar results were reported in earlier studies by other investigators who used entirely different methods of measuring attributions and beliefs (Brewin, MacCarthy, Duda, & Vaughn, 1991; Harrison & Dadds, 1992).¹

Relatives' EE status and their attributions about the patient's illness are frequently assumed to be independent of patient characteristics, such as severity or type of symptoms or other, non-symptomatic traits. This belief stems from earlier studies indicating no significant association between EE ratings and either concurrent symptomatology as assessed through structured clinical interviews (e.g., Nuechterlein et al., 1986) or premorbid levels of functioning such as patient's educational level, age of onset of first psychotic symptom, and total time ill (Goldstein et al., 1989).

In a previous study (Weisman et al., 1998), however, we found differences in the types of symptoms and behaviors criticized by high-EE and low-EE relatives that may suggest subtle differences in patient characteristics despite a lack of difference in typical positive and negative symptoms rated on the basis of structured interviews. In that study, we found that high-EE relatives were more critical of negative symptoms and long-standing personality

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¹ Other studies have also found different attributional dimensions (e.g., internal vs. external locus of control) to be of importance in differentiating high- and low-EE relatives; however, a discussion of these dimensions is beyond the scope of this article.

traits and other nonsymptomatic behaviors (e.g., patient's career choice) than were low-EE relatives. Yet, no EE differences were found with respect to critical comments toward symptoms that are clearly reflective of psychosis (positive symptoms), such as hallucinations and delusions. Nor were there differences in the frequency of critical comments regarding other nonpsychotic yet pathological symptoms (e.g., anxiety or restlessness). This raises the possibility that, even though patients from high-EE and low-EE families may be indistinguishable in terms of overall level of psychopathology, high-EE relatives may respond more critically in part because their relatives exhibit greater levels of subclinical symptoms or nonpathological behaviors. In other words, the attitudes and attributions held by high-EE relatives may be less characterological and more linked to patient behaviors than investigators previously believed. One way to examine this issue is to assess attributions of control and patterns of criticism among high-EE and low-EE relatives within the same household and compare these with those observed between high-EE and low-EE relatives from different households. If differences in patient behaviors are driving the observed variability in attributions and in patterns of criticism between high- and low-EE relatives from independent households, then one might expect attributions and patterns of criticism to be more similar between high-EE and low-EE relatives within the same household.

The present study used the Camberwell Family Interview (CFI; Vaughn & Leff, 1976) to examine high-EE and low-EE relatives' controllability attributions and to compare these within and across households. A content analysis of critical comments was also conducted to compare the patterns of symptoms and behaviors most frequently criticized by high-EE and low-EE relatives from the same and from different households. In other words, this study offers a comparison of high-EE and low-EE relatives' attributions of control in response to the same patient and the same family environment. Low-EE relatives from high-EE and independent, dual, low-EE households were also compared.

Method

Participants

Participants consisted of 35 Anglo-American relatives of schizophrenic patients who were participating in Sample 1 of a longitudinal study of the early course of schizophrenia (see Nuechterlein et al., 1992). Patients were between 18 and 45 years of age, had an initial onset of psychosis not more than 2 years before project entry, and did not have recent significant and habitual substance abuse. Diagnoses were based on an expanded version of the Present State Examination (PSE; Wing, Cooper, & Sartorius, 1974). Patients had a diagnosis of schizophrenia or schizoaffective disorder, mainly schizophrenic, by Research Diagnostic Criteria (Spitzer, Endicott, & Robins, 1978). PSE interrater agreement for interviewers was at least 85% for the presence of symptoms related to diagnosis of schizophrenia and at least 90% for the absence of items relevant to the diagnosis. See Nuechterlein et al. (1992) for a more detailed description of patient characteristics.

Procedure

Expressed emotion. Nuechterlein et al. (1992) used the CFI to obtain the EE ratings that were used in this study. The CFI is a semistructured interview that focuses on the 3 months before hospitalization. Relatives were queried regarding their attitudes and experiences of living with a

patient with schizophrenia and the influence the disorder has had on the life of the family. In the Nuechterlein et al. (1992) project, relatives were designated as high-EE if they made six or more critical comments, expressed any type of hostility, or scored 4 or more on a 5-point scale on emotional overinvolvement (EOI). All other relatives were designated as showing low-EE attitudes. All families from this project who had mixed-EE members (at least one high-EE and one low-EE member) were selected. Based on these criteria, data were obtained from 12 relatives rated as having high-EE attitudes (six or more critical comments) and 12 family members (one each from the same households) rated as having low-EE attitudes. Of the low-EE participants in these mixed-EE families, 10 were women (9 were mothers of patients, and 1 was the sister of a patient) and 2 were men (1 was the father of a patient, and 1 was the brother of a patient). Of the high-EE relatives of mixed families, 9 were men (6 were fathers of patients, and 3 were stepfathers of patients) and 3 were women (2 were the mothers of patients, and 1 was the stepmother of a patient). In addition, data from the 11 low-EE relatives from low-EE households from the Weisman et al. (1998) study were also included. For the low-EE relatives from low-EE households, 6 were men (5 were fathers of patients, and 1 was the stepfather of a patient) and 5 were women (4 were mothers of patients, and 1 was the sister of a patient). Following Weisman et al. (1993, 1998), in instances in which 2 or more relatives within a family had the same EE status (e.g., two low-EE members), one relative was randomly selected and data from the other relatives were systematically dropped from the analysis. We point out that although a few relatives in this sample expressed hostility, all such relatives also met the criteria for high-EE based on six or more critical comments.

Controllability. Controllability attributions were rated by using the procedure developed by Weisman et al. (1993) and used by Weisman et al. (1998). First, a trained coder extracted all statements from the CFI that implied perceptions of the patient's ability to control his or her symptoms or the disorder as a whole (the number of attributional statements ranged from 5 to 24; $M = 12.45$, $SD = 6.22$). A separate coder, who had not been exposed to the entire CFI, then read all of the attributional statements and combined these to come up with one global rating of perceived controllability on a 5-point scale (1 = *no perceived control*, and 5 = *a great deal of perceived control*).

Critical comments. The content of critical comments used by Nuechterlein et al. (1992) in assessing EE was evaluated by using the procedure developed by Weisman et al. (1998). First, a trained coder identified the CFI passage in which each critical comment occurred and extracted the verbatim sentence or paragraph. A second coder, who did not have exposure to the entire CFI, then used a detailed manual (see Weisman et al., 1998) to aid in classifying criticisms into one of the following seven categories: negative symptoms (e.g., poor hygiene), positive symptoms (e.g., hallucinations), antisocial behaviors (e.g., excessive lying), substance abuse (drug and alcohol use), other symptoms (e.g., obsessive-compulsive behaviors), enduring personality traits (e.g., stubbornness), and other (non-symptomatic) behaviors (e.g., patient's choice of friends).

Interrater reliability. A kappa coefficient of agreement on EE level (high vs. low) was obtained for use in earlier research on patients participating in the longitudinal study (Nuechterlein et al., 1992) and was found to be .85. Reliability estimates for ratings of controllability from all of the high-EE relatives and the low-EE relatives from low-EE households were also obtained in a previous study. In the Weisman et al. (1998) study, four undergraduates, unaware of the research hypotheses, were trained as coders. To assess the reliability of the final ratings, 10 random CFIs were rated by all four coders and by Amy G. Weisman. Intraclass coefficients between each coder and Weisman was .83 or higher for controllability. Each coder obtained a kappa coefficient of agreement rating with Weisman of .79 or higher for categorizing the content of critical comments. Four different undergraduates, unaware of the research hypotheses, were trained as coders for the present study. To assess reliability of the controllability and symptom dimension ratings of the 12 low-EE relatives from high-EE households

included in the present sample, pairs of trained coders rated each of the 12 transcripts, as did Weisman. The intraclass reliability coefficient between these pairs of ratings was found to be .87 for controllability. Each coder also had an interrater reliability of .85 or higher with Weisman. Kappa for categorizing criticism content was found to be .88 between the pairs of coders, and each coder had a kappa of .82 or higher with Weisman.

Results

The first set of analyses examined attributions of control. First, pairs of high-EE and low-EE relatives from within the same high-EE household (HEEH) were compared. Although not statistically significant, there was a strong tendency (effect size $d = .63$) for high-EE relatives ($M = 2.92$, $SD = 0.79$) to perceive the patient as having more control over bringing on and managing the symptoms of schizophrenia, as compared with low-EE relatives from the same household ($M = 2.42$, $SD = 0.79$), $t(11) = 1.92$, $p = .08$.² Next, low-EE relatives from HEEH were compared with low-EE relatives from low-EE households (LEEH). Low-EE relatives from HEEH ($M = 2.42$, $SD = 0.79$) perceived the patient as having more control over the disorder and the disruptive symptoms than did low-EE relatives from LEEH ($M = 1.73$, $SD = 0.65$), $t(21) = 2.27$, $p < .05$; effect size $d = .95$.

The next set of analyses compared pairs of high-EE and low-EE relatives from the same household on the types of symptoms and behaviors most frequently criticized. As compared with low-EE relatives from HEEH, high-EE relatives from HEEH were found to make more critical comments regarding negative symptoms.³ (high-EE $M = 2.40$, $SD = 2.59$; low-EE $M = .40$, $SD = 0.70$), $t(9)^4 = 2.34$, $p < .05$; enduring personality traits (high-EE $M = 3.50$, $SD = 3.63$; low-EE $M = 0.90$, $SD = 0.99$), $t(9) = 2.29$, $p < .05$; and other, nonsymptomatic behaviors (high-EE $M = 1.60$, $SD = 1.58$; low-EE $M = 0.10$, $SD = 0.32$), $t(9) = 2.87$, $p < .05$. High-EE and low-EE relatives from the same family did not differ on their number of criticisms regarding positive symptoms, antisocial behaviors, substance abuse, or other symptomatic behaviors (all $ps > .05$).

The final set of analyses compared low-EE relatives from HEEH with low-EE relatives from LEEH to evaluate whether different patient behaviors might be criticized in these two groups of low-EE relatives. Results indicated no significant differences. In other words, low-EE relatives from HEEH and low-EE relatives from LEEH did not differ in their number of criticisms for any category of symptoms or other reported behaviors (all $ps > .05$).⁵

Discussion

In this study we attempted to shed light on the reasons that high-EE relatives may be more critical of mentally ill family members than are their low-EE counterparts. In a previous study by the same group of authors (Weisman et al., 1998), we found high-EE attitudes toward schizophrenia to be related to a belief system that holds patients responsible for the disorder and the associated symptoms. However, in that study we compared only high-EE and low-EE relatives from independent households, leaving open the possibility that variability in attributions and criticisms across EE levels may stem from characteristics of the patients rather than of their relatives. In the present study we compared relatives' perceptions of schizophrenia in households in which two relatives had discrepant EE ratings. We found a ten-

dency for high-EE relatives to hold patients more responsible for their symptoms than did low-EE relatives of the same patient. Although this finding was not statistically significant, the effect size was moderate, suggesting that statistical significance would probably be achieved with a somewhat larger sample. In fact, some investigators would have used a one-tailed test in this situation, in which case this finding would have reached the $p < .05$ level of significance.

Interestingly, we also found a strong and significant tendency for low-EE relatives of patients from HEEH to perceive patients as more responsible for their illness than did low-EE relatives who did not also have a family member designated as high-EE. One explanation for this finding is that the low-EE relatives within HEEH were all regularly exposed to high-EE attitudes and attributions about the patient. Thus, some form of "contagion effect," in which high-EE relatives influence the attitudes and attributions of low-EE family members, might be a factor. However, our findings also raise the possibility that some aspect of patient compartment may encourage greater attributions of control from relatives from high-EE households, calling into question the traditional view that blaming patients for their disorder is a traitlike characteristic associated with family members with high-EE attitudes. Thus, in addition to any preexisting tendencies of some relatives to attribute responsibility for symptoms to patients, certain patient characteristics might also serve as a trigger for more attributions of this type.

In an earlier article using a sample that overlaps with that of this study, Rosenfarb, Goldstein, Mintz, and Nuechterlein (1995) reported that patients from HEEH and LEEH do differ on some subclinical symptoms and behaviors when interacting with relatives. Specifically, they found that compared with patients from LEEH, patients from HEEH showed significantly more odd and disruptive behaviors during interactions with family members. In addition, Rosenfarb et al. found that high-EE relatives significantly increased their level of criticism following the patient's first expression of unusual thinking. On the basis of the same sample and the same patient-relative interactions as in the Rosenfarb et al. study, Woo, Goldstein, and Nuechterlein's (1997) study also reported differences in nonverbal-paralinguistic expressions of subclinical symptomatology in patients from HEEH and LEEH. For example, they found that patients from high-EE families were more likely to exhibit significantly more subclinical behaviors suggestive of positive symptoms (e.g., inappropriate affect or unusual facial expressions) and hostility during directly observed

² All tests reported in this article are two-tailed.

³ Note that there were no differences between patients from high-EE and low-EE families on the severity of actual positive and negative symptoms as rated from the Brief Psychiatric Rating Scale (Lukoff, Nuechterlein, & Ventura, 1986).

⁴ These analyses are based on only 10 pairs of relatives because the list of criticisms from the Nuechterlein et al. (1992) study was missing in two of the high-EE cases. Thus, we were unable to evaluate the content of the critical comments in these instances.

⁵ To address concerns regarding violations of normality assumptions, we repeated all analyses in this study by using either Wilcoxon's ranked sum test or Wilcoxon's matched pairs signed ranks sum test. In no case were the results from parametric and nonparametric analyses dissimilar.

interactions with their relatives. The Woo et al. and Rosenfarb et al. findings, in conjunction with results of the present study, suggest that there are likely to be bidirectional processes connecting patients' behaviors and relatives' attitudes toward patients.

High-EE relatives express a greater number of critical comments than do low-EE relatives by definition. In the present study, we helped to clarify the specific types of patient symptoms and behaviors that differentiate high-EE and low-EE family members on number of critical comments that these actions elicit. We found that relatives with high-EE attitudes targeted long-standing personality traits and nonpsychiatric behaviors more frequently in their criticisms than did relatives of the same household who did not hold high-EE attitudes. In addition, we found that high-EE relatives criticized patients for their negative symptoms more so than did low-EE relatives from the same household, whereas no EE group differences were found in the frequency of criticisms regarding positive symptoms. This may be viewed as support for earlier research suggesting that high-EE relatives are less knowledgeable about schizophrenia than are low-EE relatives (Cozolino, Goldstein, Nuechterlein, West, & Snyder, 1988) and they have a particularly poor understanding of behavioral deficits (Harrison & Dadds, 1992).

The findings reported here appear to extend support for an attributional model (Hooley, 1987) for understanding high-EE attitudes. In this study we found a strong tendency for high-EE relatives to attribute more control to patients over their symptoms than did low-EE relatives of the same household. Furthermore, high-EE relatives from HEEH were more critical than low-EE relatives from these same households of negative symptoms which, from Hooley's model, would seem particularly prone to be viewed as under the patients' personal control. Consistent with an attribution-affect framework, high-EE relatives may be more critical of negative symptoms than low-EE relatives partly because they are unaware that these behaviors reflect core symptoms of schizophrenia. High-EE relatives may, instead, be more likely to view negative symptoms as behaviors done intentionally to bother them. On the other hand, in our study, EE groups did not differ in the frequency of criticisms regarding positive symptoms. As Hooley's model would predict, because positive symptoms are easily recognized as direct components of mental illness, they are less likely to be targeted for criticism by both low-EE and high-EE relatives.

The attribution-symptom type perspective described here may appear to be inconsistent with the results of Rosenfarb et al. (1995) and Woo et al. (1997). In these studies there were actually subthreshold levels of behavioral excesses (i.e., odd speech and inappropriate affect) that distinguished patients from HEEH and LEEH and that Rosenfarb et al. found to provoke the most criticism from high-EE relatives during a face-to-face interaction task. In both of these studies, however, the behaviors examined were at subclinical levels. From an attribution standpoint, behavioral excesses that are below threshold (unlike full-blown positive symptoms) may be too mild to be recognized as part of the mental illness. Instead, these behaviors may be more likely to be perceived as under the patient's control or as characterological, leading relatives to react negatively to their presence. This issue could be clarified in future research by directly examining attributions about subthreshold positive symptoms.

Perhaps an even more fascinating question raised by the findings in this study is: Why did the low-EE relatives in HEEH remain low-EE, even though they did perceive patients as having a good deal of control over their symptoms? Explaining why these relatives expressed so few hostile and critical remarks when talking about patients despite holding perceptions often associated with high-EE attitudes is important to the further understanding of the sources of EE attitudes.

A final interesting observation from this study is that in mixed-EE homes, it was primarily the male family members who were designated as high-EE, $\chi^2(1, N = 24) = 8.26, p < .01$. Male individuals are more internal in their attributions in general (Furnham, 1984), and some research even links gender differences in controllability attributions directly to perceptions of mental illness. For instance, in an analogue study using vignettes of patients described to meet the *DSM-IV* (Diagnostic and Statistical Manual of Mental Disorders, 4th edition; American Psychiatric Association, 1994) criteria for schizophrenia, Weisman and López (1997) found that Anglo-American men perceived both the cause and the symptoms of the patient's disorder as more controllable by the patient than did Anglo-American women. The evidence linking external attributions to high-EE (Brewin et al., 1991; Weisman et al., 1993, 1998) may suggest that male family members are at greater risk than female family members for developing highly critical attitudes toward their mentally ill relatives.

In summary, attributions of control are associated with levels of EE attitudes, but significant differences in levels of these attributions occur even within subgroups of low-EE relatives. Additional research is needed to determine why low-EE attitudes remain despite the presence of moderate attributions of control.

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