Expressed Emotion and Language Disturbances in Parents of Stable Schizophrenia Patients

by Nancy M. Docherty

Abstract

Nineteen healthy parents of long-term schizophrenia outpatients were assessed for levels of expressed emotion (EE) and for characteristics of communication style which are putative markers of vulnerability to schizophrenia. We administered measures of communication deviance, linguistic reference performance, global disorganization, and positive formal thought disorder. Parents high in EE showed significantly poorer linguistic reference performance and greater disorganization in their speech than parents low in EE. These findings support the idea that high EE in some individuals may be associated with cognitive characteristics indicative of a vulnerability to schizophrenia, and this may account in part for the well-established association between EE level in parents and prognosis in patients.


Studies of the clinical course of illness in schizophrenia patients following hospital discharge have demonstrated that the family environment to which they are discharged makes a difference in their likelihood of relapse (Brown et al. 1962; Vaughn and Leff 1976). Specifically, patients who go to live with relatives high in "expressed emotion" (EE) are much more likely to suffer increases in symptomatology over time than those who go to live with low EE relatives. In this context, high EE in a relative is defined either by a highly critical attitude toward the patient or by emotional overinvolvement as manifested, for example, by overprotectiveness or interdependency with the patient. The findings on the relationship between EE and relapse have been replicated a number of times and generally have indicated quite a sizable effect. In addition, family treatment programs aimed at reducing EE have found that when the level of EE has been successfully lowered in relatives, the patients' rate of relapse has decreased (Falloon et al. 1984; Hogarty et al. 1986). The relatives involved in these studies have primarily been the patients' parents.

We have observed and documented subclinical cognitive anomalies—in particular, subtle disturbances of communication—in some healthy parents of schizophrenia patients. Specifically, we have found higher levels of communication deviance (Singer and Wynne 1965; Docherty 1993) and poorer linguistic reference performance (Rochester and Martin 1979; Docherty 1995) in these parents than in matched control parents with no schizophrenia offspring. Other investigators have also reported idiosyncrasies of communication and cognition in the parents of these patients as a group when compared with parents of normal control subjects (for review, see Romney 1990; Docherty 1994); in these studies, the ability to conceptualize (to form, maintain, and use clearly defined concepts) has stood out as an area of particular weakness (McConaghy 1959; Phillips et al. 1965; Ciarlo et al. 1967; Muntz and Power 1970; Callahan and

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Saccuzzo 1986). One explanation for the higher-than-normal incidence of these cognitive anomalies in the parents of schizophrenia patients is that such anomalies represent vulnerability markers for the disorder (Docherty 1993). Alternatively, they may reflect either environmental factors that play a part in the development of schizophrenia (Singer and Wynne 1965) or the parents’ response to the experience of having a son or daughter with schizophrenia (see Schopler and Loftin 1969; Liem 1974). It is quite possible that they reflect all these things, to varying degrees, in different individuals.

We have studied two different samples of parents of schizophrenia patients. In both samples, the patients had been ill for a number of years. In interviewing the parents, we began to suspect that certain of the communication anomalies we observed, which appeared to reflect conceptualization difficulties, might in some cases be related to levels of EE. In particular, some of those parents who were highly critical of their son or daughter with schizophrenia, even years after onset of the illness, also appeared to demonstrate a relative cognitive immutability. With respect to their offspring with schizophrenia, they seemed to have more difficulty fully adjusting to the fact of their child’s illness than did other parents. For example, one parent, in discussing her son’s unconventional behavior, stated, “I know it’s an illness, and he can’t help what he does.” This was followed a few moments later by the rhetorical question, said with great feeling about the same behavior, “How can he act like that, disgrace the family?” These statements suggest that she knew her son had an illness and believed that his problematic behavior was not willful, but that she had been unable to reformulate her thoughts to accommodate the information completely. Of course, the presence of schizophrenia in a son or daughter is extremely distressing and often heartbreaking to parents, and therefore it may be very difficult to incorporate fully. However, some parents seem able to adapt more successfully than others over time. We suspect that adjustment in some parents is hindered by a general difficulty in reconceptualizing to accommodate new information, a cognitive weakness that is potentially related to the conceptualization difficulties that have been demonstrated previously in the parents of some schizophrenia patients and that may be evident in their language. In addition, some of the language anomalies found in parents—in particular, the frequent linguistic reference failures—are suggestive of subtle disturbances in interpersonal as well as conceptual boundaries (see the Method section), which are also an issue in EE, most explicitly in the realm of emotional over-involvement.

There is evidence that poor linguistic reference performance in particular may reflect a vulnerability to schizophrenia. In an earlier study, we found that reference performance was relatively stable longitudinally in schizophrenia patients across clinical state, compared with levels of clinically rated positive formal thought disorder, which decreased significantly as overall clinical state improved (Docherty et al. 1988). Harvey et al. (1982) found poorer reference performance in the children of schizophrenia patients than in the children of psychiatric and nonpsychiatric control subjects. More recently, we found poorer reference performance in the non-schizophrenia parents of schizophrenia patients than in the parents of nonpsychiatric control subjects (Docherty 1995). We also found that poor reference performance in one or both parents was associated with a history of more severe core positive symptoms in their schizophrenia offspring (Docherty et al. 1994).

As Goldstein et al. (1992) have pointed out, the question of whether high EE is associated with vulnerability markers in parents is important. If there is such a relationship, high EE attitudes may partly reflect “schizotypy” in some parents. Those parents with greater genetic vulnerability would tend to show higher EE and would also be likely to have offspring with a poorer course of illness. Thus, the relationship between high EE in parents and high relapse rates in their offspring with schizophrenia might be due in part to a “third variable.” Those patients with a high EE parent might, as a group, have a heavier genetic loading, or perhaps a more familial form of schizophrenia, and therefore a more severe form of illness with a poorer prognosis than those with low EE parents.

We found three previous studies in the literature that could speak to this question. In a prospective study of family factors relevant to the development of schizophrenia spectrum disorders, Doane et al. (1981) assessed parents of troubled adolescents for communication deviance (CD), using verbatim projective test responses, and for affective style (AS). CD is a measure of clarity and completeness of communications that has been found to discriminate parents of
schizophrenia patients as a group from parents of normal controls (Singer and Wynne 1965; Johnston and Holzman 1979; Docherty 1993). AS is a parent-to-patient interactive measure that is associated with EE (Miklowitz et al. 1984). Doane et al. (1981) found no significant correlational relationship between CD and AS but found that the two measures in combination predicted later development of schizophrenia spectrum disorders in offspring.

Miklowitz et al. (1986) compared levels of CD in high versus low EE relatives of a large sample of schizophrenia patients. Their findings differ from those of Doane et al. (1981) in that high EE was associated with higher levels of CD in this sample. Ratings on the emotional overinvolvement scale of the EE measure were particularly highly associated with CD scores.

Goldstein et al. (1992) examined associations between psychopathology and levels of CD and EE in the parents of recent onset (within the past 2 years) schizophrenia patients. They found that CD was not significantly related to psychopathology in these parents. Nor was any association found between EE and psychopathology when EE was assessed in the parents during an acute hospitalization of their child with schizophrenia. The range of duration of the disorder in the probands was from 5 to 22 years (mean = 10 years). Thus, dealing with the proband’s illness was not new for any of the parents.

Method

Subjects. Subjects consisted of 19 parents (10 mothers and 9 fathers) of 10 DSM-III-R (American Psychiatric Association 1987) schizophrenia outpatients in treatment at an urban, public mental health center. Descriptive information on patients and parents is given in table 1. Patients and parents were assessed using the Schedule for Affective Disorders and Schizophrenia–Lifetime Version (SADS-L; Spitzer et al. 1978). Parents who reported a history of psychiatric hospitalization or any current or past psychotic symptoms in themselves were excluded from the study. All the parents either lived with or had significant contact with their son or daughter who had schizophrenia. The range of duration of the disorder in the probands was from 5 to 22 years (mean = 10 years). Thus, dealing with the proband’s illness was not new for any of the parents.

Procedures.

EE assessment. The Camberwell Family Interview (CFI; Vaughn and Leff 1976), a semi-structured interview traditionally used to assess EE, was administered to each subject. It was rated for both criticism and emotional overinvolvement, the two dimensions that constitute EE. Subjects were considered high in criticism

Table 1. Descriptive Information on schizophrenia patients and their parents

<table>
<thead>
<tr>
<th></th>
<th>Patients</th>
<th>Parents</th>
</tr>
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<tbody>
<tr>
<td>Number</td>
<td>10</td>
<td>19</td>
</tr>
<tr>
<td>Female, %</td>
<td>10</td>
<td>53</td>
</tr>
<tr>
<td>Caucasian, %</td>
<td>50</td>
<td>53</td>
</tr>
<tr>
<td>Age, years (SD)</td>
<td>31 (6.1)</td>
<td>62 (6.3)</td>
</tr>
<tr>
<td>Education, years (SD)</td>
<td>12 (2.1)</td>
<td>12 (4.3)</td>
</tr>
<tr>
<td>Occupation1 (SD)</td>
<td>6.7 (0.9)</td>
<td>5.1 (2.0)</td>
</tr>
<tr>
<td>Global Assessment of Functioning2 (SD)</td>
<td>48 (7.8)</td>
<td>78 (4.2)</td>
</tr>
</tbody>
</table>

Note.—SD = standard deviation.

1According to Hollingshead & Redlich Scale (1958): 1 = highest, 7 = lowest occupational level.

if they received a rating over 6 on that scale—that is, if they made more than six critical comments as defined by CFI rating criteria. They were considered high in emotional overinvolvement if they scored above 3 on that scale. An individual was considered “high EE” if he or she was high on either scale. The interview was administered and audiotaped by a psychiatric resident trained in the method. The CFI rater was trained by Dr. Robert Cole at the University of Rochester. Following the training, the CFI rater rated 10 reliability tapes and attained acceptable levels of interrater reliability with Dr. Cole’s group ($r > 0.80$) on each of the two scales. In the present study, ratings were done blind to thought and communication disorder ratings, as well as to the hypotheses of the study.

**Communication measures.** Subjects provided 10-minute audiotaped conversational speech samples on standardized, affectively neutral topics (e.g., hobbies, interests, siblings’ occupations) according to a semistructured protocol. The interviewer asked relevant, open-ended questions on the designated topics, explicitly avoiding any discussion of the offspring’s symptoms or mental health-related issues. These audiotaped speech samples were transcribed and rated using three different natural language communication measures. Each of these measures was scored by a different set of raters, and all raters were blind to the subjects’ identities, EE status, and scores on the other measures. They were also blind to the hypotheses of the study.

The communication measures used have been described more fully elsewhere (Docherty et al. 1988; Docherty 1993, 1995). Briefly, the first was a measure of CD, adapted for use with conversational speech (Docherty 1993) from the work of Singer and Wynnne (1965) and Velligan et al. (1990). This is a multifaceted rating system designed to capture an individual’s ability or inability to share a focus of attention with another person in conversation. In other words, it assesses the degree to which a speaker’s communications are well defined and complete as opposed to amorphous or fragmented. Categories of deviance that were scored are: uncompleted remarks, unintelligible remarks, contradictions, ambiguous referents, extraneous remarks, tangential remarks, peculiar language, and reiteration. To control for differences among subjects in the amount of speech generated, instances of deviance were counted and divided by the number of clauses of speech. The interrater reliability of scores on this composite measure was extremely high: intraclass $r = 0.95$.

Our second language measure assessed linguistic reference performance using a system developed by Rochester and Martin (1979), Harvey (1983), and Docherty et al. (1994), which essentially rates the coherence and comprehensibility of speech. This system counts instances of unclarity—that is, instances in which the speaker makes an unclear reference. An unclear reference is unclear either because its referent is ambiguous (e.g., “The two gentlemen came in and I didn’t like him” [unclear reference italicized]) or because its referent is unknown to the listener (e.g., “The two gentlemen came in and I didn’t like the apparition”). These ratings involve counting the number of unclear references in the speech sample and the number of clauses, and computing the number of unclear references per clause. In this way, variations in the amount of speech obtained do not influence the language disorder ratings. In general, speech containing frequent unclear references is perceived as being more disorganized (Docherty 1995). There is some overlap between these measures and the “ambiguous referents” category, which is part of the CD ratings. Linguistic reference performance ratings have a much lower threshold for scoring, however, and thus are sensitive to subtle referential unclarities often present in speech that is not blantly disordered.

An examination of instances of reference failure suggests that they may reflect difficulties on the part of the speaker in the area of concept definition. They also often appear to involve an assumption that the listener will understand the speaker’s thoughts without being told them explicitly (e.g., “It seems so this, that, or the other”), a difficulty in remembering correctly what has been mentioned already and what has only been thought (e.g., “Another reason I like it is ...” [There has been no mention of any reason before this one]), or a confusion among referents within the mind of the speaker (e.g., “My husband has been in the hospital before. The last time we were admitted was ...” [spoken by a woman who has never been in the hospital herself]). Thus, unclear references often seem to be manifestations of subtle boundary disturbances between speaker and listener, inner world and outer world, or one person and another. In the present study, reference performance ratings were generated by a single blind rater. As a reliability check, the author also
rated 25 percent of the speech samples. Interrater reliability was high: intraclass $r = 0.89$.

The third measure was a rating of positive formal thought disorder made using Andreasen’s thought, language, and communication (TLC; Andreasen 1986) scales. In this system, each of a number of elements is rated on a 5-point scale (0–4). The elements included in our study were derailment, tangentiality, pressure of speech, illogicality, and distractible speech. Definitions and specific rating criteria for each element are given on the scales. Scores depend on either the number of instances of disorder (e.g., instances of derailment or distractible speech) or the global severity of disorder (e.g., severity of pressure of speech) in conversational speech samples of set duration. In our study, ratings on these five scales were summed to give overall positive formal thought disorder ratings. The rater was highly reliable with the author on these ratings: intraclass $r = 0.87$ for the composite scores.

A global rating of disorganization was also made by the diagnostic interviewer using the disorganization scale of the Positive and Negative Syndrome Scale (PANSS; Kay et al. 1987). The interviewer was blind to subjects’ EE status and scores on the other communication measures. The interviewer had previously attained acceptable reliability on the PANSS ($r > 0.80$) by means of training videotapes.

## Results

The sample was rather small, and some of the distributions were not normal. Therefore, we used nonparametric statistical procedures throughout. All results reported are two-tailed.

**CFI Ratings.** Seven of the 19 subjects were rated as high EE. Of these, four were high on criticism only, one was high on emotional overinvolvement only, and two were high on both dimensions.

**Communication Measures.** Means and standard deviations for the communication measures have been reported elsewhere (Docherty 1993, 1995). The ranges of scores on the TLC scales and the PANSS disorganization scale were limited because none of the subjects scored very high on either measure. The various communication measures were related to each other. Spearman correlations are presented in table 2.

**EE and the Communication Measures.** We compared high EE parents with low EE parents on each of the measures using the Mann-Whitney $U$ test. High and low EE groups did not differ significantly on the CD measure. However, high EE parents demonstrated greater deviance than low EE parents on the measures of linguistic reference performance and disorganization, and showed a trend toward higher levels of positive thought disorder on the TLC. We also examined the two dimensions of EE separately in the same manner. The language measures tended to be related to both dimensions, but more strongly to criticism than to emotional overinvolvement. These results are reported in table 3.

## Discussion

The proportion of high EE parents in our sample was lower than it was in many other studies. This was to be expected since these parents had all had a number of years to adjust to their son or daughter’s illness, and the illness was not at present acute. Doane et al.’s (1981) finding of an absence of association between CD and AS was supported and augmented by our parallel finding that CD and EE were not significantly related, even in this more “chronic” sample. Nevertheless, this finding should be interpreted cautiously since null results obtained from a small sample cannot be considered conclusive. Furthermore, these results are not consistent with

### Table 2. Spearman correlations between communication measures in healthy parents of schizophrenia patients ($n = 19$)

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Communication deviance</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Linguistic reference performance</td>
<td>0.62&lt;sup&gt;1&lt;/sup&gt;</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>3. Positive formal thought disorder</td>
<td>0.33&lt;sup&gt;2&lt;/sup&gt;</td>
<td>0.44&lt;sup&gt;2&lt;/sup&gt;</td>
<td>1</td>
</tr>
<tr>
<td>4. Disorganization</td>
<td>0.46&lt;sup&gt;3&lt;/sup&gt;</td>
<td>0.64&lt;sup&gt;4&lt;/sup&gt;</td>
<td>0.64&lt;sup&gt;4&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

<sup>1</sup>$p < 0.01$.
<sup>2</sup>$p < 0.07$.
<sup>3</sup>$p < 0.05$.
<sup>4</sup>$p < 0.007$.
Table 3. Comparison of language ratings in high vs. low expressed emotion (EE) parents of schizophrenia patients (n = 19)

<table>
<thead>
<tr>
<th></th>
<th>Mann-Whitney U</th>
<th>p</th>
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<tr>
<td>High vs. low EE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communication deviance</td>
<td>36</td>
<td>0.61</td>
</tr>
<tr>
<td>Linguistic reference performance</td>
<td>15</td>
<td>0.02</td>
</tr>
<tr>
<td>Positive formal thought disorder</td>
<td>22</td>
<td>0.07</td>
</tr>
<tr>
<td>Disorganization</td>
<td>19</td>
<td>0.02</td>
</tr>
<tr>
<td>High vs. low criticism</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communication deviance</td>
<td>31</td>
<td>0.48</td>
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<tr>
<td>Linguistic reference performance</td>
<td>15</td>
<td>0.04</td>
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<tr>
<td>Positive formal thought disorder</td>
<td>14</td>
<td>0.02</td>
</tr>
<tr>
<td>Disorganization</td>
<td>12</td>
<td>0.007</td>
</tr>
<tr>
<td>High vs. low emotional overinvolvement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communication deviance</td>
<td>11</td>
<td>0.15</td>
</tr>
<tr>
<td>Linguistic reference performance</td>
<td>5</td>
<td>0.03</td>
</tr>
<tr>
<td>Positive formal thought disorder</td>
<td>14</td>
<td>0.23</td>
</tr>
<tr>
<td>Disorganization</td>
<td>11</td>
<td>0.09</td>
</tr>
</tbody>
</table>

Miklowitz et al.'s (1986) large-sample finding of a positive correlation between CD and EE. However, our sample did differ from Miklowitz et al.'s in that we excluded parents who themselves reported a history of psychiatric hospitalization or psychotic symptoms. Thus, our sample may have had a smaller range of CD scores, making statistically significant group differences less likely.

High EE was significantly related to our other measures of thought and communication disorder, supporting the idea that high EE might reflect, in part, certain kinds of cognitive weaknesses in parents. If such weaknesses are associated with vulnerability, they should be present more often in parents of patients with either a heavier genetic loading or a more familial form of schizophrenia. These patients would then be likely to have a more severe and persistent illness with higher relapse rates, just by virtue of the familial nature of their illness.

The range on some of the communication measures was relatively small. Specifically, ratings on the positive thought disorder and disorganization scales tended to be low in this group, because the subjects themselves had no psychiatric illness. Despite the limited range of scores, poor linguistic reference performance, positive formal thought disorder, and disorganization were significantly associated with high levels of criticism in our sample. We interpret these findings as reflective of greater difficulties in those parents with conceptualization weaknesses in accommodating cognitively to the situation of having a mentally ill son or daughter. The reference performance ratings were also significantly associated with emotional overinvolvement on the CFI. This finding supports our idea, based on a qualitative analysis of instances of unclear references, that this kind of communication problem reflects, in part, subtle disturbances in interpersonal boundaries.

We do not discount the impact of high EE as an environmental stressor for patients. There is abundant evidence of it. In high EE families, the likelihood of relapse has been found to vary depending on the amount of face-to-face contact the patient has with the high EE relative (Brown et al. 1972). Family intervention studies have managed to lower the levels of EE in many parents, and when this has occurred, relapse rates have also decreased dramatically (Falloon et al. 1984; Hogarty et al. 1986). Results from these and other studies make it clear that relapse rates are affected by family attitudes and interactions. However, there have also been parents in the family intervention studies whose EE has not changed, even with the interventions. This subset of parents is likely to have included a higher proportion of those with subclinical conceptualization difficulties and boundary disturbances, just as in our sample, those with high EE several years into their offspring's illness—that is, those who have been less able to accommodate to the situation over time—were the ones demonstrating more disturbances of communication.

Factors underlying high EE are not well understood. As mentioned previously, a genetic hypothesis is only one of several possible explanations for our findings. For example, it is possible that the parents who were most deeply distressed over their son or daughter's illness were less organized in speech, not because of any inherent cognitive weakness but because of their heightened emotional state. Our data provide evidence of associations between EE and certain communication measures in this sample but do not allow us to make
definite conclusions regarding the meaning of these associations.

While our study was limited in scope and the sample was not large, the findings offer preliminary evidence of cognitive variables associated with EE in a particular subset of parents. These findings could be replicated and expanded upon by administering a wider range of cognitive and schizotypy measures to a larger sample, and by including an assessment of the family psychiatric history of each parent, to further elucidate the nature of EE and its relationship to relapse.

References


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