

Intrafamilial Interactive Behavior, Parental Communication Deviance, and Risk for Schizophrenia

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This study addresses the empirical question of whether families high in communication deviance (CD) assessed from parental projective test data show direct interaction patterns similar to those found in families with offspring diagnosed as schizophrenic. Three parameters of interactive functioning were examined—focus of communication, role structure, and nonverbal affective attitude. The data base was a 5-minute, face-to-face videotaped interaction between parents and their disturbed, nonpsychotic adolescent in 47 families. Only families with high CD parents failed to focus communication on the discussion topic and to share topic-related feelings. High CD families were more likely to exhibit role structures in which the mother was active, either alone or in combination with the father. Low CD families were characterized by father activity. High CD parents showed avoidance and rigidity in their nonverbal affective attitude to the child; low CD parents were nonavoidant and relaxed. The relationships among the measures of communication deviance, type of adolescent symptomatology, interactive measures, and risk for schizophrenia are discussed.

Research on the role of family factors in schizophrenia has frequently been hampered by the lack of operational measures of significant intrafamilial variables. A measure that has proven useful in distinguishing parents of schizophrenics from comparison groups is the index of communication deviance (CD) developed by Wynne and Singer (Singer & Wynne, 1965; Wynne, Singer, Bartko, & Toohy, 1977). The Wynne-Singer research involved families in which the offspring were already schizophrenic. However, results from a longitudinal-prospective study (Doane, West, Goldstein, Rodnick, & Jones, 1981; Goldstein, Rodnick, Jones, McPherson, & West, 1978) of families containing disturbed, but nonpsychotic, adolescents found a comparable measure of communication deviance (Jones, 1977) to be predictive of the onset of schizophrenia-spectrum disorders in early adulthood.

The Wynne-Singer concept of communication deviance, although implying disturbances in maintaining a focus of attention in family transactions, has most frequently been measured during the administration of a projective test. Transactions between a parent and the tester were assumed to mirror ongoing family interactions between parents and children. However, there are no reported data in which the relationship between this deviant communication style (CD) and directly observed family interactions has been established. The present report addresses this issue, as it involves measures of communication deviance derived from parental projective test data and independent observations of interactions among family members collected under systematic conditions.

There are two primary objectives in this research. The first is to determine whether CD derived from projective test performance of parents indexes a tendency to engage in confusing, inconsistent, and unfocused verbal communications similar to those observed in families containing schizophrenic offspring. The second is to establish whether the CD measure is a marker for disturbances in other areas of intrafamilial functioning that have been reported in families containing schizophrenic offspring, such as parental

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role structure and affective expression (Doane, 1978; Jacob, 1975).

Method

Subjects

The data for this research were provided by the parent-child interactions of 47 intact families, who were seen by the University of California, Los Angeles, Family Project because psychological help was being sought for an adolescent offspring. Because the technical quality of the videotape recordings for some of the families was not adequate for a valid analysis, some of the measures were limited to only 34 of the 47 families. The full sample comprised 22 female and 25 male adolescents; for the truncated sample, 13 females and 21 males.

There were no significant differences among groups on demographic measures of age, IQ level, educational level, or socioeconomic status when families were classified into low, intermediate, and high groups based on the level of CD scored on the parents' Thematic Apperception Test (TAT) protocols. The mean ages were 47.4 years for fathers, 43.3 for mothers, and 15.7 for adolescents. Mean IQ levels were 123.2 for fathers, 114.9 for mothers, and 110.1 for adolescents. The average educational level attained by fathers was 14.1 years, and 13.3 years by mothers. Socioeconomic status was in the middle-class range, averaging 3.2 on the 8-point Edwards Occupational Social Class Scale (Edwards, 1938).

Initial Diagnostic Assessment

The psychological status of the adolescents and the parents was examined throughout the five-session assessment procedure, described more fully in Goldstein, Judd, Rodnick, Alkire, Gould (1968). On the basis of these data, it was determined that none of the subjects in this sample—adolescents or parents—were judged by trained clinical psychologists to be manifestly psychotic or showing signs of personality disorganization within the psychotic range. The adolescents displayed a range of behavioral symptoms that could be grouped into four categories as follows: (a) aggressive-antisocial (full sample, $n = 12$; truncated sample, $n = 9$); (b) active family conflict (full sample, $n = 11$; truncated sample, $n = 8$); (c) passive-negative (full sample, $n = 10$; truncated sample, $n = 6$); and (d) withdrawn, socially isolated (full sample, $n = 14$; truncated sample, $n = 11$).

Placement in these problem groups did not relate to parental or child IQ, parental social status, or sex of the adolescent.

Family Interactive Assessment Procedure

The data reported in this paper are derived from the fourth project session in which family members were asked to discuss some personally relevant issue.

In this session, face-to-face interactions between various combinations of family members were obtained using audiotaped segments of simulated interactions

obtained previously. The specific instructions given at the beginning of these interactions were as follows:

I will play for you a situation with which all (or at least two) of you are familiar. We want you to listen to the role-play and use it as a basis for a discussion. We would especially like you to share your feelings with each other; to really tell one another how the situation makes you each *feel* [here, the examiner stresses the word] and we'd like you to try and approach a solution. You have 5 minutes.

The family was thus instructed to focus the discussion in two ways while talking about a specified topic and expressing feelings directly to one another. The data for this study are the first 5-minute triadic interaction in which the mother, father, and adolescent are all present.

Communication Deviance Scoring

The initial assessment of this sample was carried out from 1965 through 1973 before any entry into therapeutic intervention was initiated. In 1974 the TAT protocols of 45 of the 47 sets of parents were scored for CD by independent raters who were blind as to case identification and for current or later type of symptomatology observed in follow-up interviews of the former adolescents. Further, coders were blind as to the direct interaction performance of the various family members. The 45 protocols were derived from verbatim records based on audiotapes. The other two were scored later, and were derived from extensive handwritten notes. Based on these parental data, family units were classified as high, intermediate, or low in CD using the profile criteria developed by Jones (1977), who found factor score patterns that were associated with the degree of probability that a family contained a schizophrenic offspring.

High CD was assigned on the basis of either a single parent manifesting an elevated score on certain critical factors (2 or 6) or when both parents were elevated on other factors (1, 3, 4 or 5) (43%). In the intermediate category either one parent had a significant elevation on one of the noncritical factors whereas the other had none (32%), or both parents manifested only moderate elevations on any factor. The low CD group contained parents without elevated scores on any factor (25%). In the truncated sample of 34 families, the proportions are 44%, 27%, and 29%, respectively. Sex of the adolescent and parental CD were not significantly related ($\chi^2(2) = 2.55$).

Coding of the Interactions

The triadic interactions obtained during the fourth session of the assessment procedure were coded in 1978–1979 by a new team that was blind to all case identification data and to current or later symptomatology and type of psychopathology of the child. It is important to note that these raters were not only blind as to CD level but were also naive with regard to the construct of CD and how it was scored.

Three dimensions of behavior—communication, role structure, and affect—were coded. Each verbatim tran-

scription of the interaction was first divided into discrete units of speech containing a complete thought or feeling. The unit was identified by one of three criteria: one person's remark bounded on either side by that of another family member, longer speeches divided into units based on obvious change of subject, or long pauses between words or sentences.

The mean number of units per family in the first 5 minutes of interaction for low, intermediate, and high CD groups was 31.7, 31.0, and 40.0, respectively, but there were no significant differences among groups. Each unit of interaction was coded on every scoring category.

Focus of Communication Codes

Since the task instructed the family members to focus on a particular topic *and* to share their feelings, it was necessary to consider the extent to which they followed each of these components. Two codes were applied to measure the focus of communication: a topic focus and a feeling focus, one reflecting a person's ability to stay on topic and the other the capacity to share feelings.

After these codes were applied, families were grouped into one of three categories for both the topic focus and feeling focus codes.¹ It was hypothesized, based on prior research on schizophrenic families (Mischler & Waxler, 1968; Singer & Wynne, 1965), that two extreme patterns would disrupt intrafamilial communication: (a) an undercontrolled tendency to either drift off the task or to express feelings in an uncontrolled fashion or (b) a highly overcontrolled rigidity in sticking to the specific details of the assigned topic or failing to share feelings at all. Therefore, the three-category system described below was used.

Topic focus. (a) Appropriate: 51% or more units in the interaction are scored as relevant to the assigned topic with at least two units scored as *not* relevant to the assigned topic. (b) Inappropriate—off-topic: 51% or more units in the interaction are scored as not relevant to the topic in the interaction. (c) Inappropriate—inflexibly rigid: No more than one unit is scored as not relevant to the topic in the interaction.

Feeling focus. (a) Appropriate control: At least two, but not more than 50% of the units in the interaction are scored as containing a direct expression of feeling. (b) Inappropriate—no feelings expressed: No more than one unit in the interaction is scored as containing a direct expression of feeling. (c) Inappropriate—feelings unloaded: 51% or more units are scored as “feeling-focused” in the interaction.

Role Structure Code

This reflects the predominant pattern of intrafamilial role relations in the interaction as assessed by who-speaks-to-whom behavior. The speaker and the person to whom the speech is directed are coded for every unit.

Because there are three people in each interaction, there are six possible combinations in which the who-speaks-to-whom behavior can occur. Each family's predominant who-to-whom pattern was ascertained by selecting the most frequent who-to-whom combination(s)

using defined cutting scores. The cutting score used was selected to permit the identification of clear who-to-whom speaking patterns independent of the absolute number of units in a transcript of a particular triadic interaction. One or more who-to-whom combinations were considered predominant if they were at least three units more frequent than the other combinations and if more than one were two or less units apart from each other in frequency. The classification was as follows:

Father or mother central. Families in which the father or mother is rated as the most active and salient sender and receiver of communications to and from the target child. In some families the other parent may also be actively talking to the spouse.

Dual parental focus. Families in which both parents are rated as active in directing their communications to the target child, who may or may not reciprocate.

Mixed patterns. Families in which the target child is not the focus of attention. Either the parents are rated as predominantly talking with each other, or one parent is rated as actively talking to the target child, who in turn is rated as actively talking to the other parent.

For example, in a family classified as having a mother-central role structure, the interaction might contain 20 units, with the mother speaking to the child in 8 units, the child speaking to mother in 7 units, the mother speaking to father in 3 units, and the father speaking to the child in 2 units. The mother-to-child and child-to-mother combinations are rated as predominant, since they are at least 3 units more frequent than the other combinations and 2 or fewer units apart from each other in frequency.

Affective Attitude

This was assessed by rating aspects of the parents' paraverbal and nonverbal behavior as they spoke to the child. Four types of behavior were rated during every unit of speech in which the parent spoke to the child. These are:

1. *Voice tone.* (a) Actively negative: Actively upset, angry, hostile, and so forth. (b) Passively negative: Defensive, moralistic, whiny, and so forth. (c) Positive: Interested, approving, warm, supportive, and so forth. (d) Neutral: Neither positive nor negative.

2. *Eye contact.* (a) Toward: Looks steadily at the child. (b) Intermittent: Looks away at least once. (c) Away: Does not look at the child at all.

3. *Facial expression.* (a) Expressive: Reflects feel-

¹ We decided to form categorical patterns or profiles of measures for each family rather than apply more traditional methods of data analyses based on group mean levels of measures for the following reasons: (a) To obtain means with unequal numbers of units per family, proportions would be used that are notoriously unstable, especially with low-frequency data; (b) results based on mean levels of measures across groups can be influenced by a few families with extreme scores; (c) individual family patterns can only be inferred; and (d) in clinical research aiming toward identification of specific cases, it is desirable to examine the data on a case-by-case basis.

ing and expression. (b) Nonexpressive: Blank or immobile; does not reflect feeling.

4. *Body orientation.*² (a) Inclining toward: Leaning or turned towards the child. (b) Upright position: Parallel to that of the child. (c) Inclining away: Leaning or turned away from the child.

Because affective attitude was coded only when a parent was speaking to the child, there were many families in which few data were available for parents who spoke to the child infrequently. Therefore, we decided to base the ratings on only the most active parent's paraverbal and nonverbal behaviors from each family. Thus, in the father- or mother-central families, only the active parent's nonverbal behavior was rated; for the dual-parental-focus families, the rating was based on an average over both parents' behavior, whereas for the mixed-pattern families, the rating was based on the predominant nonverbal behavior of the parent who spoke most frequently to the child.

A profile reflecting the predominant behavior in voice tone, eye contact, facial expressiveness, and body orientation of each active parent was developed using the following cutting criteria, again derived from an examination of the common frequency clusters seen in 10 randomly selected low- and high-speech-unit families: One or two categories in each affective attitude code were considered predominant if they were two or more units higher in frequency than the other categories and (if two categories) were equal to each other or only one unit apart in frequency. The one exception to this rule was if a parent was previously rated as having a "rigid" expressive face, that is, if all the parent's units were coded as expressive, the parent automatically received a "rigidly expressive" label for the face aspect of the profile. Thus, a parent's affective profile might be the following: active negative voice tone; intermittent, away (avoidant) eye contact; rigid facial expression; upright body position.

The role structure and the focus of communication codes were rated from transcripts of the audiotapes for all 47 families. Because the affective attitude codes were rated from videotape, only 34 of the 47 families could be coded. Interrater reliabilities were calculated using the Kappa statistic (Cohen, 1960) and were obtained after approximately 10 hours of training. The reliability of each code was judged acceptable and is presented in Table 1. After reliabilities were calculated raters discussed each instance of disagreement and agreed on a resolution.

Results

Focus of Communication

First, we examined the relationship between CD level and communication focus. Because maximal disruption of attentional focus will occur when both topic and feeling focus are inappropriate, a configural score was formed. Thus, using the decision rules described earlier, a family unit was classified into one of three groups: inappropriate com-

Table 1
Reliability Based on the Kappa Statistic for Each Interactional Code

Code	Interrater reliability (Kappa) ^a
Role structure	
Who speaks	1.00**
To whom	.95**
Focus of communication	
Topic	.72**
Feeling	.78**
Affective attitude	
Voice tone	.64*
Eye contact	.73**
Facial expressiveness	.40*
Body orientation	.86**

^a Reliabilities were calculated over at least four interactions.

* $p < .001$. ** $p < .0001$.

munication in both topic and feeling, inappropriate in one only, and appropriate in both. In Table 2 it may be seen that there is a significant association between parental CD and the degree of disruption of communicational focus in the triadic family discussion ($p < .04$).³

The high CD group shows a significant number of families with inappropriate focus in *both* how the topic is maintained and how feelings are shared. When intermediate and low CD families do show inappropriate focus, it is predominantly in only one of these areas. Although 7 families showed disruption on both topic and feeling focus, 5 did not. It is possible that within these 12 families CD is more consistently associated with

² During the interaction the parents and child are seated in a prearranged and standard row of chairs in which the child is in the middle, flanked by the parents, whose chairs are turned slightly toward that of the child. Thus, movement is restricted so that only the torso from the waist up has any flexibility.

³ The traditional rule of thumb for the chi-square statistic is that the average expected frequency per cell be at least five. We justify using the chi-square statistic in certain tables where the average expected frequency is less than five because recent studies indicate probability statements in chi-square tests of homogeneity were quite accurate even when the average expected cell frequencies were considerably below five (Camille & Hopkins, 1978; Roscoe & Byars, 1971).

Table 2
Level of Parental CD Associated With Degree of Focus of Communication

CD level	Degree of focus of communication			<i>n</i>
	Inappropriate		Appropriate	
	<i>Both</i> topic and feeling dimensions	<i>Either</i> topic or feeling dimensions		
High	7	5	8	20
Intermediate	1	5	9	15
Low	0	2	10	12
<i>n</i>	8	12	27	47

Note. $\chi^2(4) = 9.99, p < .04$.

one of the two forms of focus codes. Examined separately, topic focus did not show a significant association with CD. Feeling focus did have a significant relationship with CD ($p < .04$) in which the high CD families showed mostly lack of expression of feelings rather than an unrestrained expression of feelings.

The only significant sex difference over all the focus measures was in the topic focus code. When inappropriate focus with regard to the topic was present in a family, families of female adolescents exhibited more of the "off-topic" type, whereas for families of males it was the "rigidly on-topic" type. The analysis provided no obvious clues as to the basis for this sex difference.

Adolescent symptom group was not significantly associated with degree of focus of communication, nor with the separate topic focus or feeling focus subcodes. The relationship between symptom group and focus of communication remained nonsignificant when the analysis was done on males and females separately. Therefore, this disruption of communication focus does not seem to be reactive to the form of the adolescent's behavior problem.

Role Structures

The families were classified in one of four structural patterns based on the most active and salient person or relationship in the family's interaction. Table 3 shows a highly significant association between CD and parental role structural pattern ($p < .0001$).

Ten of the 12 low CD families show fa-

ther-central role structures, whereas only 5 of 20 high CD families had father-central patterns. The predominant patterns of role structure in the high CD group were either mother-central or dual-parental-focus patterns. Though a somewhat higher percentage of the intermediate CD families had father-central patterns, the majority showed role structures labeled as mixed, in which the parents talk mainly with each other or there is no reciprocity by the child.

Parental role structure and adolescent symptom group were not significantly related. Although the numbers became too small for formal analyses, there did not appear to be a systematic relationship between role structure and symptomatology when males and females within each behavior problem group were examined separately.

Affective Attitude

Because there are few studies concerning nonverbal manifestations of parental attitudes to the child, our hypotheses were more tentative for this measure. It was expected that parents high in CD would show generally more negative attitudes. However, it was unclear as to exactly how this would be expressed. Chi-square tests run separately for each nonverbal category revealed that voice tone and body orientation were not significantly associated with CD level. There was a strong relationship ($p < .005$) between CD and facial expressiveness and a weak trend ($p < .13$) between CD level and eye contact.

We hypothesized that these two behaviors

Table 3
Level of Parental CD Associated With Patterns of Role Structure

CD level	Pattern of role structure				n
	Father central	Mother central	Dual parental focus	Mixed	
High	5	8	6	1	20
Intermediate	5	2	0	8	15
Low	10	2	0	0	12
n	20	12	6	9	47

Note. $\chi^2(6) = 30.96, p < .0001$.

of facial expressiveness and eye contact might occur in different combinations when examined together in each parent. The combination of eye contact and facial expressiveness occurred in three patterns: (a) avoidant and rigid: parents whose eye contact is predominantly "away" and whose facial expressiveness is "rigid" or predominantly "nonexpressive"; (b) nonavoidant and rigid: parents whose eye contact is predominantly "towards" or "intermittent" and whose facial expressiveness is "rigid" or predominantly "nonexpressive"; and (c) nonavoidant and relaxed: parents whose eye contact is predominantly "towards" or "intermittent" and whose facial expressiveness is expressive but flexible (i.e., predominantly rated as "expressive" with one or more units rated as "nonexpressive").

It may be seen in Table 4 that the hypothesis was supported, as shown by a highly significant ($p < .0005$) relationship between CD and patterns of affective attitude. High CD parents showed both avoidance of eye contact and rigidity in facial expression as they interacted with their child. Low CD parents showed more affiliative attitudes

with both observable eye contact and more flexible, relaxed facial expressiveness. The intermediate CD parents fell in between, having notable eye contact with rigidly expressive faces.

There was also a significant association between adolescent symptom group and parental nonverbal affective attitude ($p < .005$), as presented in Table 5. The differences here are especially striking between the families of adolescents displaying symptoms of a passive nature. Parents of passive-negative adolescents nearly always looked at the child and were facially responsive. Parents of withdrawn adolescents were always rigid facially and sometimes avoidant also when talking to the adolescent. It is interesting to note that the passive-negative group, where parents express a consistent positive affective attitude also had the best outcomes when re-evaluated 5 years later at age 20 (Goldstein et al., 1978).

Discussion

The present study is concerned with the nature of the relationship between parame-

Table 4
Level of Parental CD Associated With Affective Attitude Reflected in Nonverbal Behavior

CD level	Affective attitude			n
	Avoidant and rigid	Nonavoidant and rigid	Nonavoidant and relaxed	
High	9	4	2	15
Intermediate	1	6	2	9
Low	2	0	8	10
n	12	10	12	34

Note. $\chi^2(4) = 20.12, p < .0005$.

Table 5
Adolescent Symptom Group Associated With Affective Attitude Reflected in Nonverbal Behavior

Symptom group	Affective attitude		
	Avoidant and rigid	Nonavoidant and rigid	Nonavoidant and relaxed
Aggressive-antisocial	5	0	4
Active family conflict	3	2	3
Passive-negative	0	1	5
Withdrawn	4	7	0
<i>n</i>	12	10	12

Note. Avoidant and rigid with nonavoidant and rigid versus nonavoidant and relaxed: $\chi^2(3) = 14.15, p < .005$.

ters of communication deviance as measured by projective test performance and interactions observed during a face-to-face family discussion. Previous research (Doane et al., 1981) demonstrated that the level of CD in 37 of the parental pairs used in this study significantly predicted ($p < .001$) those adolescent offspring who subsequently developed schizophrenia spectrum disorders as diagnosed at a 5-7-year follow-up. Thus, the measure of parental CD has been shown to be a viable indicator of the degree of risk for schizophrenia and related disorders in the offspring. A finding that connects this attribute to specific types of behavior in actual interactions would be an important step in the isolation and delineation of behavioral patterns within the family that may antedate the appearance of more severe psychopathology.

The findings of this study show that high CD parents did demonstrate distinctive attributes in three aspects of their interaction with their child; communication focus, role structure, and nonverbal affective expression. One third of high CD families were very likely to deviate from an appropriate focus in *both* the discussion of the assigned topic and the expression of feelings. In the majority of these families, feelings were rarely openly and directly expressed. Members did not voice how they were feeling, nor did they inquire about the feelings of the other. High CD families containing a male adolescent tended to rigidly and doggedly focus the discussion on the assigned topic. Their interactions often had a stilted, lifeless quality without the occasional tension-re-

lieving side comments characterizing discussions in families with a lower level of CD. In the high CD families with a female adolescent, the focus of the conversation was especially confusing in that the assigned topic was commonly disregarded. For example, after being instructed to discuss the issue of the child's curfew, the family might quickly focus on a minor detail and argue about exactly how late she had come in on a certain night, or they might focus on a completely different topic such as the family's vacation. There were no obvious explanations for this sex difference in the data. In any event, a significant number of families with high levels of CD, either through extreme, rigid overcontrol or through chaotic undercontrol, are unable to sustain a conversation with one another in which relevant content and feelings are shared.

In addition, we examined how the parents structure their roles during the stressful and demanding discussions the focus of which they knew was on problems involving the child. In all but two of the low CD families, the father was the most active participant in the discussion as both sender and recipient of the communications. In contrast, in interactions of high CD families, it was the mother who played a strong, active role. She was either the sole central figure, while the father was largely ignored as he made ineffectual attempts to converse, or she was joined by the father in actively focusing the discussion on the child. The clinical picture of those families who show dual parental focus appears to be one of a strong, opinionated mother leading the discussion while

the father seems less harsh and either vocally supports the wife or attempts to placate her when she expresses disapproval of the child.

The majority of the intermediate CD families showed mixed structural patterns. This group was unique in that they were the only families in the sample in which the focus was *not* on problems primarily involving the child. Marital issues were often openly discussed, with the child either remaining unhappily silent or being drawn into a mediator role.

The high CD group showed more heterogeneity in role structure patterns than the intermediate or low CD groups. This was consistent with Jones's (1977) observation that high CD could be identified on the basis of diverse patterns. For some families a specific factor pattern observed in one parent (Factor 2 or 6) was sufficient for CD status. For other factor patterns the criteria required elevations for both parents. Lewis (1979) examined whether this heterogeneity in CD criteria was associated with the different role structure patterns within the high CD group. She found a significant relationship. In families in which either father or mother was singly the defining parent, that parent was observed as the most salient person in the parent-child interaction. When both parents were required to meet the high CD criteria, the dual parental focus structure was observed in the interaction. This implies that the high CD parent(s) is apt to be particularly salient in the interactions between parent and child and is thus an active shaper of the family tone.

Aspects of paraverbal and nonverbal behavior were also studied, as they are thought to serve as indicators of the less cognitive and more pervasively subtle affective signs of how the communicants feel about each other (Argyle, 1972; Mehrabian, 1971; Watzlawick, Beavin, & Jackson, 1968). High CD parents both avoided eye contact and showed rigidity in facial expressiveness as they talked to their child. In marked contrast, low CD parents maintained direct eye contact with a facial expressiveness that was more relaxed and spontaneous. The intermediate CD group was intermediate in this respect as well. They combined some eye

contact while conveying a sense of uneasiness through rigid facial expressiveness. Although research on family behavior has tended to focus on verbal communication, these clear differences between groups provide strong evidence that the nonverbal channel of behavior conveys important information. The demeanor of the high CD parents conveys a sense of uneasiness and desire to "ward off" at least conversational intimacy with the child, whereas the low CD parents appear much more relaxed and willing to engage with the child.

Is it tenable that the high CD, the intrafamilial transactional behavior observed, and their association with one another are at least in part a reaction to specific aspects of the adolescent's behavior? Using as an index of the latter the form of behavior problem the adolescent presented at the time of intake, we did not find on the whole that this attribute of adolescent behavior related to parental transactional behavior associated with CD level. The one significant association found between adolescent behavior problem and nonverbal affective attitude of the parent (see Table 5) was apparent only in the prevalence of the more relaxed facial expressions of the parents of the passive-negative adolescents and the more rigid expressions of the parents of the withdrawn adolescents. On the whole, therefore, there is little evidence at this time that the relationship between parents' CD and their transactions with the adolescent are simply reactive to the specific attributes of the adolescent's disturbance. However, we recognize that the form of adolescent disturbance is but one way, and a very gross one at that, of characterizing the behavior of the adolescent toward which a family system may be sensitive.

Although the literature is not uniform on this point (Doane, 1978; Jacob, 1975), when differences between parents of schizophrenics and parents of other groups have been found, a trend similar to the father-central pattern noted here have been found for families *not* containing schizophrenic offspring. This was the overwhelming pattern in the low CD group in the present study, which was associated with adequate communica-

tional focus and a nonavoidant flexible affective attitude. However, in the present study, five high CD families also showed this father-central pattern. The communication focus data for these families were then examined to determine if they were different from the low CD, father-central family units. In four of these five families, the interaction was classified as inappropriate in both topic and feeling focus. In addition, in the four of the five families who were in the nonverbal analysis subsample, the fathers exhibited an avoidant-rigid affective attitude. Thus, the high CD father-central families stand in marked contrast to their low CD counterparts, where high paternal activity is associated with the maintenance of an effective communicational focus and a positive affective attitude. Simply classifying high CD families as father-central loses important information concerning an interactional mode quite distinct from that of the low CD family units. One explanation may be that the combination of high CD and a central role is particularly stressful to these fathers, so that they may be less able to monitor their responses and thus may contribute to a more deviant interactive atmosphere.

The high CD father-central families not only differed from their low CD counterparts but they also were most consistently deviant when contrasted with the mother-central and dual-parental-focus families in the same CD group. For example, in the mother-central, high CD families, eight of nine did not show inappropriate communicational focus on *both* topic and feeling, and four of six in the truncated sample showed benign affective attitudes nonverbally. For the dual parental focus families, the picture was mixed, as one family showed a pattern similar to the father-central pattern in which consistent deviations on both communication focus and nonverbal affective attitudes codes was noted, two families showed deviations in neither category, and two others showed consistent deviations in either the communication focus codes or the affective attitude but not on both dimensions.

It might be surmised that the father-central, high CD families were the most pathological in the sample because of their con-

sistent association of deviant communication and negative affective attitude and therefore were at highest risk for offspring disorders in the extended schizophrenia-spectrum range at a later date. Similarly, the mother-central families would be hypothesized to be at the least risk because of the absence of consistent deviance in either communication focus or affective attitude. Generally, the data at the time of the 5-year follow-up (see Doane et al., 1981, for a full description of procedures and range of outcomes) supports the predicted order, as three of four cases on the truncated father-central sample received diagnoses in the extended schizophrenia-spectrum range while only two of the six in the mother-central did so. The outcome data for the dual parental focus, high CD families that might be hypothesized to fall in between the other two because of an inconsistent pattern of deviation in either communication focus or affective attitude had a range of outcomes similar to the father-central. Four of five cases in this group received diagnoses in the extended schizophrenia spectrum. Thus, although there is not a simple linear relationship between the number of deviant attributes in a family system and the degree of risk for offspring schizophrenia-spectrum disorders, some degree of relationship between the presence of deviant parental attributes and offspring risk can be noted.

The fact that CD, derived from parental projective test data, predicts outcome only when associated with deviant familial attributes indicates that the CD measure can, at best, be used as a rough screening device for identifying family units at risk for offspring disorders in the extended schizophrenia range. This measure can narrow the sample to one containing a much higher than base rate of families at risk for schizophrenia-spectrum disorders in the offspring. However, more precise identification of at-risk family units will come about when we are able to observe and specify actual ongoing family transactions associated with the course of offspring disorder as the individual goes from adolescence into adulthood. Such specification of intrafamilial transactions associated with subsequent schizophrenia-spectrum disorders will not only aid in prediction

but will also clarify the processes through which family relationships have an impact on the course of development from adolescence to adulthood.

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