Communication Deviance in Schizophrenic Families: Temporal Stability and Racial Bias

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Running Head: Communication Deviance

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Abstract

In two studies, critical aspects of the construct of communication deviance (CD) were examined. With respect to temporal stability, no consistent pattern of CD in schizophrenic families was found, nor was there any relationship between CD and level of symptomatology in the patients. With respect to cultural bias, there was no mean difference in CD scores between groups of black and white subjects. The temporal stability finding challenges the construct validity of CD since it contradicts the underlying theory of the concept. The cultural bias study is encouraging; however, other aspects of bias still need to be examined.

Over the past few decades, increased attention has been devoted to examining the environmental factors associated with schizophrenia, particularly those factors related to family interaction. Although the earlier literature concentrated on the mother-child relationship and proposed such notions as the schizophrenogenic mother (Fromm-Reichmann, 1948), more recent research has turned its attention to disturbances in communication within a family system. In general, this line of research has examined the hypothesis that these disorganized and unclear communication patterns of the parents are antecedents to an offspring's later becoming schizophrenic; the parents' inability to establish a shared attentional focus and communicate a coherent message is thought to impair the child's ability to understand verbal communication and thus increase the likelihood of schizophrenia in the child.

Concept of Communication Deviance

Wynne and Singer (1963) coined the term "communication deviance" (CD) to refer to these abnormalities, such as disruptions, vagueness, irrelevance, and lack of closure that often characterize the speech of schizophrenic families. Communication deviance is assumed to be an enduring and relatively stable attribute of these families. In order to investigate the effects of these communication patterns, Wynne and Singer focused on the formal, stylistic, transactional patterns of families which might relate to the thought disorder evidenced by schizophrenic patients. They defined a continuum of communication patterns ranging from amorphousness, defined as "global, predominantly undifferentiated forms of functioning," to fragmentation, defined as "failures of hierarchic integration after some degree of clear differentiation has been achieved" (p. 201).

Based on these classification dimensions, Singer was able to correctly diagnose an individual as schizophrenic, neurotic, or normal from Rorschach protocols or the individual's parents, and to correctly pair parents' and offspring's Rorschach protocols with a high degree of accuracy (Singer & Wynne, 1965). Singer and Wynne then worked to operationalize this discrimination process by articulating a set of categories of deviance on which speech samples of family members could be scored. A scoring manual was developed for the Rorschach, and later, a revised version for the TAT. Scoring is based on such dimensions as closure problems, disruptive behavior, and peculiar reasoning and verbalizations. Some examples of closure problems are leaving the story hanging (example: "...Probably the way it turns out is...And however the amount of compassion he feels for his mother, the more he thinks of her. I don't know how it turns out."), responses in the subjunctive form (example: "Well, this could be the son of this elderly lady who's -- looks as though he's told his mother, if that's his mother, some distressing news about something."), and not spontaneously mentioning a major perceptual element of the picture (major elements are defined for each picture in the manual). Disruptive behavior includes categories such as interrupting the task, asking questions after the story has been started, and giving associations about the self (example: "Reminds me of my son contemplating whether he should play the guitar or not..."). Peculiar perceptions and verbalizations include categories such as misperceiving the card, odd phrasing (example: "...And the father has a large confidence in his son."), peculiar reasoning (example: "... maybe it isn't his mother because he wearing an overcoat."), and repetitiveness.

Study 1: Temporal Stability of Communication Deviance

Based on the underlying assumption that deviant communication patterns in the family are enduring and relatively stable, and cause (or at least increase the likelihood of) schizophrenia in the child, recent research has undertaken high-risk studies with families of disturbed adolescents. Jones et al. (1977) assessed communication deviance (which they renamed as transactional style deviance) in 44 families who came to the UCLA Psychology Department Clinic for help with their adolescent children. At 4-year follow-up of 16 subjects, those adolescents identified as high-risk based on family CD scores were said to be "significantly more impaired" (p. 73) than those with less risk. Since the scale used to evaluate outcome did not directly assess schizophrenia spectrum disorders, and since the adolescents were only entering the period of risk for schizophrenia, these results can only suggest that CD in the family may be related to risk for later developing more serious problems, possibly schizophrenia.

Goldstein (1981) reported on a 5-year follow-up of 40 adolescents from the same group as Jones et al. (1977). Goldstein found a significant relationship between parental CD and schizophrenia spectrum diagnosis at 5-year follow-up. Low and intermediate CD was almost always associated with nonspectrum outcome diagnoses, but high CD was associated with a range of outcomes, including some definitely schizophrenic diagnoses. As can be seen by this study, high CD is not necessarily predictive of schizophrenia spectrum disorders, but it

does identify adolescents with increased risk of developing these disorders.

Temporal Stability in Communication Deviance

Although these families were tested when the patient was not schizophrenic and the CD clearly existed prior to any subsequent schizophrenic episode, this existence is not evidence for the underlying assumption that CD is an enduring and relatively stable attribute of family members of schizophrenics. Since these families were tested when the adolescent was disturbed and brought to a clinic for help, the possibility exists that the CD is a reaction to the adolescent's disturbance. Whether these communication patterns existed prior to this episode, or will continue to exist, has not been assessed.

The issue of temporal stability is directly related to the underlying assumption of CD as a cause of schizophrenia. However, no attempts have been made to examine this aspect of CD. Because CD might alternatively be explained as a family's reaction to the psychotic episode of the offspring, research must address the exclusion of one of these alternative explanations. To achieve this goal, families must be tested repeatedly; families of schizophrenics must be tested both at times when the schizophrenic is hospitalized and is not hospitalized, and families of adolescents must be tested both at times when the adolescent is disturbed and is not disturbed. This study addresses the question of whether CD is stable over time, or whether it fluctuates with the clinical state of the patient.

Issues Addressed in Study 1

To summarize, the questions addressed by this study were:

(1) Is communication deviance an enduring and relatively stable attribute of family members of schizophrenics?

Although the underlying theory suggests that CD is stable, no research has been done to test this aspect of the theory.

(2) Does the level of communication deviance of family members fluctuate with the clinical state of the patient?

Communication deviance might be a reaction to the psychotic symptoms of the patient; if this were the case, one would expect less CD when the patient was more stable.

Method

Subjects

Nineteen schizophrenic outpatients meeting Research Diagnostic Criteria for schizophrenia or schizoaffective disorder, mainly schizophrenia, participated in this study. To be included in this study, each patient had to have at least one family member who was also willing to participate; twenty-eight relatives participated. The patients were recently discharged from a hospital following a psychotic episode and were participating in a two-year study comparing medication strategies. Upon entering this study, patients living with family members or in close contact with them were invited, along with

the family members, to participate in a study of family environmental factors. One or two key relatives per family were chosen for participation in the following manner: If the patient was married, the spouse was invited to participate; if the patient was living with one or both parents, they were invited; if the patient was living with another adult relative acting as parent or guardian, that relative was invited; if the patient was living alone and had daily contact with a key relative, that relative was invited to participate. Participation in this study was voluntary, and all subjects were treated in accordance with the "Ethical Principles of Psychologists."

The population of relatives in this study was comprised as follows: Mother and Father -- nine families; Mother only -- four families; Father only -- one family; Spouse -- three families; Mother and another relative -- one family; Other relative only -- one family. Nine patients were male; eight patients were white and eleven were black. The mean age of the patients was 29.5 years ($\underline{s}$ = 7.1), with a range of 18 - 47 years. The mean SES of the families was 3.6 (Hollingshead, 1957), lower middle to middle class. The mean level of education of the patients was 12.7 years ($\underline{s}$ = 2.5).

Procedure

As part of a longer interview procedure, all relatives were administered a 7-card TAT (cards 1, 2, 3GF, 6BM, 7BM, 8BM, and 13MF). The TAT was administered in accordance with the procedures designed for communication deviance studies. The examiner does not interrupt during the story-telling and, on the first card only, repeats the relevant parts of the instructions that the subject omitted from the story. There is no inquiry or prompting for the rest of the pictures.

All relatives were interviewed individually. The interview sessions were audio-recorded, and the TAT stories were subsequently transcribed. The interview took place within one month of each patient's admittance to the medication study and was repeated six months later.

Patients were evaluated by an independent rater (i.e., not the therapist or the interviewer) to assess clinical state at two points in time, when entering the medication study and six months later. Clinical state was measured with three standardized assessment scales: the Brief Psychiatric Rating Scale (BPRS, Overall & Gorham, 1962), the Quality of Life Scale (QL, Heinrichs, Hanlon, & Carpenter, 1984) and the Global Assessment Scale (GAS, Spitzer et al., 1976).

Measures

Revised Version of the Communication Deviance Scoring Manual for the TAT (Singer & Wynne, 1966). This scoring system consists of 29 categories of closure problems, disruptive behavior, and peculiar verbalizations on which TAT stories can be rated. Scores are based on the number of different categories that appear in each of the seven stories. A list of the categories is presented in Table 1. Three raters were trained in the use of the manual and achieved an average

interrater reliability of r = .89. The raters were blind to patient characteristics and scores of other family members.

Clinical state measures. The three standardized assessment measures used to measure clinical state and outcome, the Brief Psychiatric Rating Scale, the Quality of Life Scale, and the Global Assessment Scale provide information on current clinical state, level of symptoms, and course of illness over the past few months.

In addition to these measures, demographic information and data on the patients' psychiatric history were obtained from the patients' clinic (medication study) records.

Table 1
TAT Scoring Categories

Category	Category Content
	CLOSURE PROBLEMS
1	Fragments of words, phrases, and ideas appear in the story.
2	Passages of the story are unintelligible.
3	Part of the story is given as a question, or the listener is called upon to supply meaning.
4	The story is left hanging.
5	Spontaneous mention of a major perceptual element of the picture is not made.
6	The subject is grossly uncertain about a major perceptual element.
7	Contradictions and inconsistencies are present.
8	Responses in negative form.
9	Responses in subjunctive form.
10	No integration of picture elements.
11	A card 2 figure is left out of story.
12	Attribution of intention to the cards.
13	"I hope" endings.
14	"I don't know" endings.
15	Other closure problems.
	DISRUPTIVE BEHAVIOR
16	Interruptions of the task.
17	Peculiar set toward the task.
18	Questions about the task instructions after the story is begun.
19	Associations about self which are not a part of the story.
20	Tangential replies to examiner questions.
	PECULIAR PERCEPTIONS AND VERBALIZATIONS
21	The card is misperceived.
22	Idiosyncratic meaning is assigned to details.
23	Odd phrasing and word usage are present.
24	Slips of the tongue occur.
25	Peculiar reasoning of any kind is present.
26	Repetitiveness of words, phrases, or ideas occurs.
27	Incorrect abstract word usage.

Category	Category Content
	ADDITIONAL FORMAL CHARACTERISTICS
28	Reaction time average.
29	Story length index

Results

In order to address the question of stability of CD over time, a Pearson correlation coefficient between baseline and six-month total CD scores of all relatives was computed. No significant relationship was found (r = .289, p = .181). As shown in Table 2, there were also no significant relationships found between CD and clinical state measures at baseline or at six-month follow-up. Moreover, as can be seen in Table 2, there is no relationship between baseline CD and follow-up clinical state measures, or between baseline clinical state measures and follow-up CD measures.

Table 2

Correlations of Communication Deviance of Relatives and Clinical State of Patients

	Baseline			Six-month follow-up		
	BPRS	GAS	QL	BPRS	GAS	QL
CD baseline	r =-.19	r = .49	r =-.29	r = .19	r =-.36	r =-.32
	N = 21	N = 12	N = 22	N = 20	N = 20	N = 20
	p =.40	p =.11	p =.19	p =.43	p =.12	p = .18
CD 6-months	r =-.25	r = .34	r = .16	r =-.08	r = .20	r = .19
	N = 23	N = 11	N = 24	N = 22	N = 22	N = 22
	p =.25	p =.30	p =.45	p =.72	p =.38	p =.40
CD baseline - CD 6-months			r = .29	N = 23	p = .18	

In order to evaluate further the possibility that change in CD is related to change in clinical state, additional analyses were done. Simple change scores between baseline and 6-month follow-up scores were not used because of high correlations of the two scores for some variables. Instead, residual scores were computed for each variable (CD, BPRS, GAS, and QL) by removing the effects of the baseline score from the 6-month score with a linear regression analysis. The residuals from the CD analysis was then correlated with the residuals from the other three analyses. As can be seen in Table 3, each analysis resulted in a non-significant correlation between CD and the clinical state measure used.

Table 3

Correlations of Changes in Relatives' Communication Deviance and Patients' Clinical State

	BPRS Residual	GAS Residual	QL Residual
CD Difference	r = -.02 N = 17 p > .10	r = .38 N = 11 p > .10	r = .18 N = 18 p > .10

In addition, the stability of CD over time was examined by computing the factor scores described by Jones (1978) in a preliminary attempt at determining a factor structure for the CD scale. The six factors described are: 1 - contorted, peculiar language; 2 - misperceptions; 3 - "flighty" anxiousness; 4 - overpersonalized closure problems; 5 - faulty overintellectualization; and 6 - "failure to integrate" closure problems. Factor scores were computed by summing the scores in each category that loaded at .30 or higher (or subtracting those that loaded at -.30 or lower) on that factor. Factors 1 and 3 were not computed because no consistent measures were available for two categories, reaction time average and story length index, which load highly on these factors. Significant relationships between baseline and follow-up measures were found for factors 4, 5, and 6 (Factor 4, $r = .45$, $p = .03$; Factor 5, $r = .52$, $p = .01$; Factor 6, $r = .45$, $p = .03$).

Discussion

Contrary to the underlying theory of CD, no evidence was found to support the idea that CD is an enduring and stable attribute of family members of schizophrenics. The relationship between CD and clinical state, as well as the notion of concurrent change in these measures, were also not supported; however, if the measure is not stable, one would not expect evidence of such a relationship. Although one cannot prove the null hypothesis, one would expect that the reliability of the measure (and raters) and the assumed large effect size would lend enough power to this analysis to find a relationship if one did exist. The small number of subjects included in two correlations (with baseline GAS) might have contributed to these correlations being non-significant; however, if larger samples were available at baseline, one might predict results similar to those obtained with the larger samples at the six-month follow-up, which were still non-significant. Thus, the results of this study cannot be argued away by faulty methodology or unreliable raters.

The further analysis of the factor scores lends support to this notion. Despite the lack of validity data for the factor structure, three of the four factors examined proved to be stable over the six-month follow-up period. It is possible that the entire CD scale does not measure a stable attribute, but that parts of it do. Examining these factors more closely shows that the three stable ones are all related to closure problems and an inability to create a shared focus

with the listener. The other three factors seem to be more related to the use of peculiar or fragmented language or to misperceptions. Thus, it appears that the more subtle communication problem evidenced in factors 4, 5, and 6 represents a more stable attribute of these family members. The use of peculiar language, the fragmented style of speech, and the misperceptions are not consistent over time. The predictive utility of these factors needs to be further addressed with larger samples. One might speculate that the more stable factors are related to more stable aspects of the patient such as prognosis, whereas the less stable factors may be more analagous to the psychotic symptoms of a schizophrenic, which come and go. Further studies need to be done to address this hypothesis.

Study 2: Racial Differences in Scoring Comunication Deviance

This study addresses the appropriateness or usefulness of the Singer-Wynne scoring system in an urban black population. Since the scoring system was established mainly on working class white families, much of the slang or "street talk" often heard in an urban black population might be incorrectly scored as CD, thus artificially inflating the scores. If "street talk" is acceptable and clearly understood in these families, it is inappropriate for a scorer, essentially from a different culture, to rate this language as deviant or unclear communication. This issue must be addressed so that scores from racially different subjects are comparable.

Method

Subjects

Subjects were selected in the same manner as in Study 1. Including those subjects participating in the first study, 35 schizophrenic outpatients and one or more of their family members participated in this study. The population of relatives in this study was comprised as follows: Mother and Father -- 11 families; Mother only -- nine families; Father only -- two families; Spouse -- eight families; Mother and another relative -- one family: Father and another relative -- one family; Other relative only -- three families. Thirteen patients were white and 22 were black. The mean ages of the patients were 28.3 years for the whites, and 29.6 years for the blacks. The mean education levels were 12.8 years for the whites, and 12.4 years for the blacks.

Procedure

The procedure for this study followed the procedure outlined for Study 1, except that the interview was not repeated six months later. The CD measure used was the same; the clinical state measure used was the BPRS.

Results

A t-test for a difference between the mean CD scores of relatives of whites and blacks showed no significant difference between the

groups (t = .87, p = .387, df = 42). However, the groups of patients differed on BPRS score, such that whites had a significantly higher mean score (more symptomatic) than did blacks (t = 9.67, $p < .001$, df = 21). The mean CD and BPRS scores are presented in Table 4.

Table 4

Mean CD and BPRS Scores for Whites and Blacks

	Whites	Blacks
N of relatives	18	26
CD of relatives	$\bar{x}$ = 31.17 s = 9.88	$\bar{x}$ = 28.77 s = 8.24
BPRS of patients	$\bar{x}$ = 2.04 s = .52	$\bar{x}$ = 1.68 s = .42

Discussion

Surprisingly, no difference in CD scores was found between whites and blacks. Thus, despite the difference in language that might be used, this language is not perceived as deviant in the currently used scoring system. The results of this study suggest that there is no evidence attesting to the inappropriatness of this scoring system for use with an urban black population.

However, this analysis only tested one aspect of potential cultural bias; other aspects of bias must be examined before we can conclude that this scoring system is actually appropriate for use with this population. For instance, CD level may not differ between the groups, but the predictive validity may differ. Communication deviance might mean different things in different cultures; however, the predictive utility must be further examined with larger samples.

Although Study 1 found no relation between symptomatology and CD, the significant difference in symptomatology (BPRS score) between the two groups might in some way have influenced these results. Since CD does not seem to be a stable trait, part of the score might be related to current level of symtoms. If this is the case, the increased level of symptoms in the white group may have raised their scores so that a group difference, given similar symptom levels, was not evident.

Conclusion

The above studies suggest that the concept of communication deviance, as measured by the present scoring system, needs to be evaluated more closely. The lack of evidence for stability of communication deviance requires that the underlying theory of CD be questioned. If CD is not an enduring and stable attribute of family members, then there is no reason to assume that it existed prior to any disturbance in the offspring of these families. Although previous

research has shown some predictive validity of CD, the CD might have appeared only at the time the adolescent began to have problems. Since CD was not measured in families where there were no disturbed children, this discrimination cannot be made. The lack of support for the underlying assumptions of CD demands that the construct be re-examined to determine exactly what is lending this measure some predictive power.

The evidence for stability in some of the factors, though, suggests that part of what is currently called CD may, in fact, be a stable attribute of the family members. Perhaps a re-evaluation of the CD scale is needed to determine which categories actually measure the construct that was intended. Communication deviance, as currently measured, is probably not a single construct, but, rather, is determined by several aspects of the patient or family. Further research is necessary to break this scale into its most appropriate components and to determine exactly what these components can be used to predict.

The lack of a difference in CD level between racial groups supports the use of this scoring system with an urban black population without concern for biased scores. However, as mentioned earlier, a cultural bias in the predictive utility of the construct of CD may still exist. Such a possibility must not be ignored.

In general, it must be concluded that the concept and underlying theory of CD be re-examined with the current results taken into account. Clearly, these results have implications for the further use of this construct.

References

Fromm-Reichmann, F. (1948). Notes on the development of treatment of schizophrenics by psychoanalytic psychotherapy. Psychiatry, 11, 263-273.

Goldstein, M. J. (1981). Family factors associated with schizophrenia and anorexia nervosa. Journal of Youth and Adolescence, 10(5), 385-405.

Heinrichs, D. W., Hanlon, T. E., & Carpenter, W. T., Jr. (1984). The Quality of Life Scale: An instrument for rating the schizophrenic deficit syndrome. Schizophrenic Bulletin, 10, 388-398.

Hollingshead, A. (1957). Two factor index of social position. United States.

Jones, J. E. (1978). Patterns of transactional style deviance in the TAT's of parents of schizophrenics. Family Process, 17, 327-337.

Jones, J. E., Rodnick, E. H., Goldstein, M. J., McPherson, S. R., & West, K. L. (1977). Parental transactional deviance as a possible indicator of risk for schizophrenia. Archives of General Psychiatry, 34, 71-74.

Overall, J. E., & Gorham, D. R. (1962). The Brief Psychiatric Rating Scale. Psychological Reports, 10, 799-812.

Singer, M. T., & Wynne, L. C. (1966). Principles for scoring communication deviances in parents of schizophrenics: Rorschach and TAT scoring manuals. Psychiatry, 29, 260-288.

Singer, M. T., & Wynne, L. C. (1965). Thought disorder and family

relations of schizophrenics. IV: Results and implications. Archives of General Psychiatry, 12, 201-212.

Spitzer, R. L., Gibbon, M., & Endicott, J. (1976). The Global Assessment Scale: A procedure for measuring overall severity of psychiatric disturbance. Archives of General Psychiatry, 33, 766-771.

Wynne, L. C., & Singer, M. T. (1963). Thought disorder and family relations of schizophrenics. II: A classification of forms of thinking. Archives of General Psychiatry, 9, 199-206.