

SHORT REPORTS

Parental Communication Deviance and Schizophrenia: A Cross-Cultural Comparison of Mexican- and Anglo-Americans

Jeri A. Doane
Yale University School of Medicine

David J. Miklowitz and Erik Oranchak
University of California, Los Angeles

Roberto Flores de Apodaca
California State University, Long Beach

Marvin Karno, Angus M. Strachan, and Janis H. Jenkins
University of California, Los Angeles

Levels of parental communication deviance (CD), as measured on the Thematic Apperception Test (TAT), were compared among families of schizophrenic patients in two culturally distinct groups. Spanish-speaking Mexican-American parents of schizophrenics completed the TAT in their native language, and CD was coded from their stories by a Spanish-speaking rater. Mexican-American parents had levels of CD that were nearly identical to those of a carefully matched sample of English-speaking Anglo-American parents. Factor scores that measure distinct subtypes of CD also did not differ across groups. The data suggest that levels of CD, despite discriminating between parents of schizophrenics and nonschizophrenics, do not vary across different languages and cultures.

Over the past 2 decades, investigators have tried to identify aspects of the family environment that are associated with the onset or course of schizophrenic disorders (Goldstein, Rodnick, Jones, McPherson, & West, 1978; Vaughn & Leff, 1976). Initially, it was believed that the somewhat unique patterns of disturbed communication found in parents of schizophrenic patients were at least partially responsible for the development of schizophrenia in the offspring. The term *communication deviance* (CD) was originated by Singer and Wynne (1965), who found that disordered styles of verbal exchange were distinguishing features of families containing a schizophrenic member. In their view, CD in parents is related to disturbed thinking in the preschizophrenic offspring, and this linkage results from the child's gradual internalization of disturbed parental communication. The operating assumption underlying this notion is that the ways in which people learn to share foci of attention and derive meaning from external stimuli is related to basic, repeated parent-child exchanges during the formative years of a child's development.

A variety of investigators have since provided evidence that high amounts of CD distinguish parents of individuals with a schizophrenia-spectrum diagnosis from those with other psychiatric diagnoses (Doane, West, Goldstein, Rodnick, & Jones, 1981; Goldstein et al., 1978; Jones, 1977; Singer, 1967; Wynne,

Singer, Bartko, & Toohey, 1977; Wynne, Singer, & Toohey, 1976). In a longitudinal study by Goldstein and colleagues (Goldstein, 1985; Goldstein et al., 1978), the presence of high levels of CD in parents was associated with increased risk for the subsequent development of schizophrenia-spectrum disorders in disturbed adolescent offspring followed prospectively for 5 to 15 years. However, the adolescents in this study, though nonpsychotic, were already disturbed at the time the CD measures were obtained, a factor that might influence the level of CD found in their parents. Thus, support for the hypothesis that CD contributes to the development of schizophrenia is only suggestive.

A hypothesis of the present study was that CD indexes a subclinical deficit that may be linked to schizophrenia at a biological level. A recent study by Nuechterlein, Goldstein, Ventura, Dawson, and Doane (1989) that indicates an association between levels of parental CD and degree of dysfunction in attentional information processing in index schizophrenic offspring provides tentative support for this biogenic view. Further support for this view would come from the demonstration that levels and types of CD among parents of schizophrenics do not vary with their specific culture or language. However, nearly all of the published reports linking high levels of parental CD to schizophrenia in offspring are based on samples of English-speaking subjects.

To investigate this cross-cultural issue, a sample of relatively unacculturated Mexican-American parents of schizophrenics from a larger study by Karno et al. (1987) was compared with a carefully matched sample of Anglo-American parents on the

Correspondence concerning this article should be addressed to Jeri A. Doane, Yale University School of Medicine, P.O. Box 12A Yale Station, New Haven, Connecticut 06520.

amount and type of CD found in their speech. If CD levels were found to be the same, irrespective of language or culture, this would be consistent with a model of CD that views the formal aspects of deviant spoken language as reflective of an underlying attentional or information processing deficit of possibly biogenic origin. This deficit may manifest itself as subclinical forms of deviant functioning and/or as clinically measurable forms of overt disturbances, such as blatant thought disorder.

In contrast, differences between these two language groups on levels or types of CD would be consistent with alternative explanations for the link between parental CD and offspring schizophrenia. This link might, for example, be conceptualized as one that is mediated by stress in the relationship, such that a patient whose illness places relatively more burden on parental caretakers might induce higher levels of CD in these parents. Specifically, if more CD were found in the sample of Anglo-American parents of schizophrenics, then one might hypothesize that high levels of deviant communication in parents is in part a function of stress due to strains on the modern nuclear family in caring for a psychiatrically disturbed relative. Perhaps less acculturated Mexican-American families who care for the patient within the context of a large extended family experience less stress from the patient's illness and as a result manifest less CD. This view would be consistent with reports that the course of schizophrenic illness is more benign for patients living in developing countries (World Health Organization, 1979).

Method

Subjects

Subjects were 64 parents of schizophrenic patients (32 Mexican-American and 32 Anglo-American) from a total of 52 families (24 Mexican-American, 28 Anglo-American). All 52 patients (35 men, 17 women) were recently hospitalized, newly discharged schizophrenics who met diagnostic criteria as specified by the Present State Examination (Wing, Cooper, & Sartorius, 1974) and the third edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-III; American Psychiatric Association, 1980). The mean age of the patients was 25.4 years ($SD = 6.2$).

The Anglo-American sample consisted of a subgroup of families drawn from larger samples of schizophrenic patients participating in longitudinal studies of family factors and family intervention (discussed in Miklowitz et al., 1986). All Anglo-American families were White. The Mexican-American families were drawn from a sample obtained by Karno et al. (1987). Families in the Anglo-American sample were selected so that they were matched with those in the smaller Mexican-American sample on key demographic and illness-history attributes of parents and patients.

The two samples did not differ (all $ps > .10$) on patients' mean age (Mexican-American, $M = 25.8$, $SD = 6.5$; Anglo-American, $M = 25.0$, $SD = 6.0$), patients' number of prior hospitalizations (Mexican-American, $M = 3.2$, $SD = 2.5$; Anglo-American, $M = 2.3$, $SD = 2.2$), or sex distribution of patients (Mexican-American, 16 men, 8 women; Anglo-American, 19 men, 9 women). The two samples were the same on sex distribution of parents (there were 22 mothers and 10 fathers in each sample), on average length of stories parents created for the Thematic Apperception Test (TAT; Morgan & Murray, 1935) (Mexican-American, $M = 5.4$ lines, $SD = 3.1$; Anglo-American, $M = 5.5$, $SD = 2.8$), and on proportions of single- and two-parent families.

The Mexican-American families had mean acculturation levels of 2.5, as defined by the Cuellar Acculturation Scale (Cuellar, Harris, &

Table 1
Item Interrater Kappa Reliability for Individual CD Codes

Coding category	Reliability	Clinical significance
Fragments	.67	Good
Unintelligible phrases	.55	Fair
Question percepts	.76	Excellent
Story ending hanging	.77	Excellent
Perceptual element ignored	.75	Excellent
Gross uncertainty	.66	Good
Contradictions, inconsistencies	.46	Fair
Responses in negative	.64	Good
Subjunctive form	.56	Fair
No integration of elements	.66	Good
Card 2 figure deleted	.93	Excellent
Overt disruptions	.66	Good
Peculiar set	.67	Good
Questions about task	.87	Excellent
Personal associations	.76	Excellent
Misperceptions	.59	Fair
Detail overinterpretation	.69	Good
Odd word usage	.73	Good
Slips of tongue	.66	Good
Peculiar reasoning	.27	Poor
Repetitions	.79	Excellent
Incorrect abstractions	.61	Good

Note. All reliability statistics were based on Cohen's (1960) Kappa. $n = 23$ protocols.

Jasso, 1980), reflecting a relatively low level of acculturation. Socioeconomic status of the Mexican-American sample was low, whereas the Anglo-American sample was predominantly lower middle class to middle class.

Procedure

Administration and scoring of CD measure. Approximately 2 weeks after the patient was discharged from the hospital, parents were individually administered a seven-card TAT (Cards 1, 3GF, 2, 6BM, 7BM, 8BM, and 13MF) according to standardized instructions. Subjects were asked to create stories for each card, explaining what led up to the scene in the card, what the characters were thinking and feeling, and how each story ended. Verbatim, typed transcripts were made from audiotaped recordings of this task. A native English-speaking criterion rater (JAD) coded TAT protocols from the Anglo-American samples, using the 27-category CD system developed by Jones and Doane (1979). This coding manual is an extension of the work originally developed by Wynne and Singer for use on the Rorschach (Singer & Wynne, 1965). Examples of speech deviances coded in this system include fragmented or unintelligible speech, stories with no ending, odd word usage, contradictions, interruptions, concrete interpretations of the task, and peculiar reasoning.

The same instructions for the TAT were given in Spanish to parents in the Mexican-American sample by an interviewer fluent in Spanish. A native Spanish-speaking psychologist (RFA) was trained to score English TAT protocols using the Jones and Doane (1979) system, prior to his participation in the present study. Training in CD scoring was carried out on TAT transcripts of English-speaking subjects from a different Anglo-American sample than the one used in this study.

Twenty-three randomly selected protocols from this separate Anglo-American sample were used to generate interrater reliability coefficients. Interrater agreement between RFA and JAD was .77 (Cohen's, 1960, kappa, $p < .01$). Interrater reliability was based on agreement on the presence or absence of each of the 27 CD categories. Individual kappas for each coding category between RFA and JAD are shown in Table 1. Cicchetti and Sparrow (1981) have developed criteria for assess-

ing interrater reliability that involve distinguishing between coefficients that are merely statistically reliable and those that are reliable in a clinical or practical sense. These criteria have been applied to the individual kappas, as shown in Table 1. The number of observed instances of certain of the codes was too small to generate a meaningful kappa statistic. The percentage of agreement was used for these categories, and all percentages were above 70%. As shown in Table 1, generally the CD codes were quite reliable, indicating that the Spanish-speaking rater was not rating CD in Anglo-American parents in ways measurably different from the criterion English-speaking rater.

RFA rewrote the CD scoring manual into Spanish, adapting examples to fit the everyday usage of the Spanish language. The translation received careful review for both technical and conceptual accuracy by two investigators thoroughly trained and familiar with CD.

Data reduction. The criterion measure used for overall level of CD was a mean z score, computed as follows: Each parent's raw score for each of the 27 CD categories was calculated as a ratio of the number of occurrences of the category in that parent's TAT protocol to the number of TAT cards administered. (Dividing the score by the number of TAT cards is a fairly standard procedure among researchers using this measure, because, in some projects, five cards are used, and, in others, seven cards are used. The standard program is written in such a way that the data can be interpreted equivalently whether one has used five cards or seven cards to collect measures of CD.) Each of these 27 ratio scores was then placed in z score form according to the distribution of that category, using the normative data of Jones (1977). The mean of these 27 z scores was then calculated; this mean represented a composite measure of CD for the parent, corrected for the relative frequency of each CD category.

In order to control for the possibility that high amounts of CD mainly reflect increased verbal output in the relatives of schizophrenics, a parallel data analysis was carried out to correct for the effects of total amount of speech produced by the parent. This procedure involved a mean z ratio in which the parents' mean z score was divided by the average number of lines per TAT story. Thus, this mean z ratio score could be construed as a measure of the relatives' overall amount of CD per line of speech. This ratio produced extremely small numbers; therefore, the ratios were multiplied by 100 and were used to assess whether total amount of speech had an impact on the data analysis with the mean z score. No effects due to number of lines per story were found for any of the findings to be reported. Therefore, the results will be reported in the z score form, a format consistent with that used in previous publications.

Six CD factor scores were also obtained for each parent, using a method described in detail by Jones (1977). The six factors are (1) Contorted, Peculiar Language; (2) Misperceptions; (3) "Flighty" Anxiousness; (4) Overpersonalized Closure Problems; (5) Faulty Overintellectualization; and (6) "Failure To Integrate" Closure Problems.

Results

Data were analyzed separately for mothers ($n = 22$ per sample) and fathers ($n = 10$ per sample) in the two samples by means of one-way analyses of variance (ANOVAs). Mothers in the Mexican-American sample had levels of overall CD as measured by mean z scores ($M = 0.02$, $SD = 0.27$) that were approximately equivalent to those of mothers in the Anglo-American sample ($M = 0.12$, $SD = 0.39$), $F(1, 42) = 1.03$, $p > .10$. Furthermore, none of the six CD factor scores discriminated between mothers in the two samples. In parallel, fathers in the Mexican-American sample had mean z scores ($M = -0.11$, $SD = 0.20$) that were similar to those of fathers in the Anglo-American sample ($M = -0.04$, $SD = 0.25$), $F(1, 18) = 0.51$,

$p > .10$ and were only discriminable on one of the six CD factor scores, Overpersonalized Closure Problems. Scores on this factor were lower among Mexican-American fathers of schizophrenics ($M = 48.7$, $SD = 7.1$) than among Anglo-American fathers ($M = 56.8$, $SD = 7.9$), $F(1, 18) = 5.72$, $p < .05$. If item reliabilities for this factor were higher than those for the other factors, it might help to explain why a group difference was observed on this factor and not the others. No difference in item reliabilities was found, however. The above findings were essentially identical when data were reanalyzed using one-way analyses of covariance (ANOVAs), using average TAT story length as the covariate.

Because no significant differences on levels or types of CD were found when comparing mothers and fathers, and because maternal and paternal CD scores were, in two-parent families, only modestly correlated (all $r_s < .50$), data from the entire sample of relatives were pooled ($n = 64$), and the two cultural groups were again compared using one-way ANOVAs. No significant intergroup differences were found on any of the CD variables.

Discussion

The cross-cultural and cross-language comparability of rates of CD in the speech of parents of schizophrenics suggests that CD is not a culture-bound phenomenon but is rather a marker of an underlying process that is linked to, but not isomorphic with, the production of verbal language. Previous research with Anglo-American samples has consistently revealed higher rates of CD in parents of individuals with schizophrenia than in parents of individuals with nonpsychotic disorders (Singer, 1967; Singer & Wynne, 1965; Wynne et al., 1977; Wynne et al., 1976). The question of whether the CD rates observed in this sample of Mexican-American parents of schizophrenics are greater than those of Mexican-American parents of nonpsychotic patients with other psychiatric diagnoses is a topic for further study.

The results are consistent with a model of CD in which deviant patterns of language in the parent are seen as reflecting some underlying biogenic substrate that the family members of the schizophrenic share. If CD were primarily a reaction to situational stress levels in the family that were due to such things as hardship imposed by a chronically mentally ill family member, then we might have observed higher, or perhaps lower, rates of CD in these families, who are so different in composition, structure, and culture from the Anglo-American families.

Although research suggests that the course of schizophrenic disorders may be more benign for patients living in developing countries than for those in industrialized countries, no difference in prevalence of the disorder is reported (World Health Organization, 1979). One interpretation of our findings is that the underlying processes reflected by the CD variable may be associated more with the actual presence of the disorder in the offspring than with the course of the illness once it has already developed. It is interesting in this regard that Karno and associates (1987), using the same Mexican-American sample that was used in this study, reported that lower rates of high expressed emotion (a variable thought to be associated with the course of illness; Vaughn & Leff, 1976) were found in these Mexican-American families than in their Anglo-American counterparts.

The variance in levels of communication deviance, on the other hand, appears to be less influenced by culture and perhaps more influenced by the psychiatric diagnosis of the offspring.

Future studies that focus on variables that account for the variance in CD within groups of parents of schizophrenics would be useful in empirically validating the CD construct and in understanding the mechanisms underlying its manifestation. In particular, the exact nature of the link between parental communication deviance and attributes of the schizophrenic offspring, such as levels or types of thought disorder or attention/information processing deficits, deserves further consideration.

References

- American Psychiatric Association. (1980). *Diagnostic and statistical manual of mental disorders* (3rd ed.). Washington, DC: Author.
- Cicchetti, D. V., & Sparrow, S. S. (1981). Developing criteria for establishing interrater reliability of specific items: Applications to assessment of adaptive behavior. *American Journal of Mental Deficiency, 86*, 127-137.
- Cohen, J. (1960). A coefficient of agreement for nominal scales. *Educational and Psychological Measurement, 20*, 37-46.
- Cuellar, I., Harris, L. C., & Jasso, R. (1980). An acculturation scale for Mexican-American normal and clinical populations. *Hispanic Journal of Behavior Sciences, 2*, 199-217.
- Doane, J. A., West, K. L., Goldstein, M. J., Rodnick, E. H., & Jones, J. E. (1981). Parental communication deviance and affective style: Predictors of subsequent schizophrenia spectrum disorders in vulnerable adolescents. *Archives of General Psychiatry, 38*, 679-685.
- Goldstein, M. J. (1985). Family factors that antedate the onset of schizophrenia and related disorders: The results of a fifteen year prospective longitudinal study. *Acta Psychiatrica Scandinavica, 71*, 7-18.
- Goldstein, M. J., Rodnick, E. H., Jones, J. E., McPherson, S., & West, K. (1978). Familial precursors of schizophrenia and schizophrenia spectrum disorders. In L. C. Wynne, R. L. Cromwell, & S. Matthysse (Eds.), *The nature of schizophrenia: New approaches to research and treatment* (pp. 487-498). New York: Wiley.
- Jones, J. E. (1977). Patterns of transactional style deviance in the TATs of parents of schizophrenics. *Family Process, 16*, 327-337.
- Jones, J. E., & Doane, J. A. (1979). *Communication deviance scoring manual*. Unpublished manuscript.
- Karno, M., Jenkins, J. H., De La Selva, A., Santana, F., Telles, C., Lopez, S., & Mintz, J. (1987). Expressed emotion and schizophrenic outcome among Mexican-Americans. *Journal of Nervous and Mental Disease, 175*, 143-151.
- Miklowitz, D. J., Strachan, A. M., Goldstein, M. J., Doane, J. A., Snyder, R. S., Hogarty, G. E., & Falloon, I. R. H. (1986). Expressed emotion and communication deviance in the families of schizophrenics. *Journal of Abnormal Psychology, 95*, 60-66.
- Morgan, C. D., & Murray, H. A. (1935). A method for investigating fantasies: The Thematic Apperception Test. *Archives of Neurology and Psychiatry, 34*, 289-306.
- Nuechterlein, K. H., Goldstein, M. J., Ventura, J., Dawson, M. E., & Doane, J. A. (1989). Patient-environment relationships in schizophrenia: Information processing, communication deviance, autonomic arousal, and stressful life events. *British Journal of Psychiatry, 155*(5), 84-89.
- Singer, M. (1967). Family transactions and schizophrenia: I. Recent research findings. In J. Romano (Ed.), *The origins of schizophrenia: Proceedings of the first Rochester International Conference of Schizophrenia* (pp. 147-164). Amsterdam: Excerpta Medica Foundation.
- Singer, M., & Wynne, L. (1965). Thought disorder and family relations of schizophrenics: IV. Results and implications. *Archives of General Psychiatry, 12*, 201-212.
- Vaughn, C. E., & Leff, J. P. (1976). The influence of family and social factors on the course of psychiatric illness: A comparison of schizophrenic and depressed neurotic patients. *British Journal of Psychiatry, 129*, 125-137.
- Wing, J. K., Cooper, J. E., & Sartorius, N. (1974). *The description and classification of psychiatric symptoms: An instruction manual for the PSE and CATEGO system*. London: Cambridge University Press.
- World Health Organization. (1979). *Schizophrenia: An international follow-up study*. New York: Wiley.
- Wynne, L., Singer, M., Bartko, J., & Toohey, M. (1977). Schizophrenics and their families: Recent research on parental communication. In J. M. Tanner (Ed.), *Developments in psychiatric research* (pp. 254-286). London: Hodden & Stoughton.
- Wynne, L., Singer, M., & Toohey, M. (1976). Communication of the adoptive parents of schizophrenics. In J. Jorstad & E. Ugelstad (Eds.), *Schizophrenia 75: Psychotherapy, family studies, research* (pp. 413-452). Oslo, Norway: Universitetsforlaget.

Received January 23, 1989

Revision received April 28, 1989

Accepted May 1, 1989 ■