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Are Employment Interview Skills a Correlate of Subtypes of schizophrenia?

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Abstract
Forty-six inpatients with a DSM-III diagnosis of schizophrenia were assessed in the week prior to discharge from hospital on measures of positive and negative symptoms and on 12 measures of employment interview skills (i.e., eye contact, facial gestures, body posture, verbal content, voice volume, length of speech, motivation, self-confidence, ability to communicate, manifest adjustment, manifest intelligence, over-all interview skill), and a global measure of employability. A cluster analysis based on the total positive and negative symptom scores produced two groups. The group with the lower mean negative symptom score exhibited better employment-interview skills and higher ratings on employability.
Some subtyping systems of schizophrenia emphasize cross-sectional phenomenology (e.g., the syndromes of hebephrenia, catatonia, and paranoia), while others have been developed along prognostic lines (e.g., acute versus chronic, process versus reactive, good versus poor premorbid functioning). Despite the variety of subtyping systems, there is still no consensus on which, if any, is the most reliable and valid (Carpenter & Stephens, 1979). Carpenter and Stephens (1979) proposed that the development of new subtypes would be of value only if they were "validated by biological, genetic, treatment and outcome data" (p. 503).

In recent years the predominance of positive or negative symptoms has been used as a basis for identifying subtypes of schizophrenia (Andreasen, 1985; Crow, 1985). Some support for the validity of subtyping on this basis has come from findings which indicate that the Type II, or negative, syndrome is associated with poorer premorbid adjustment, educational background, response to neuroleptic treatment, a more chronic deteriorating course, neurological "soft signs," structural brain abnormalities on CT scan and significant cognitive impairment on neuropsychological assessment (Andreasen, 1985; Clausen & Minas, 1987; Crow, 1985; Jackson & Minas, 1985). On the other hand, the Type I, or positive, syndrome is associated with a more acute, remitting course, probable disturbances in neurochemical transmission, a good response to neuroleptics and relatively intact cognitive functioning (Jackson & Minas, 1985). It has been suggested that a further correlate of the negative syndrome is impairment in social skills functioning (Jackson & Minas, 1985) and deficits in employment-interview skills (Charisiou, 1987).
A schizophrenic patient's employment-interview skills can significantly affect employability since the employment interview is the basis of most hiring decisions (Drake, Kaplan, & Stone, 1972). This is the case in spite of its unreliability in predicting performance at work (Heller, Jackson, & King, 1982). It is possible that a patient with adequate work skills will be assessed as unemployable if he displays poor interview skills (Heller, et al., 1982). The use of training (EIST) programs in employment-interview skills in the treatment of psychiatric patients has received increased attention in recent years (Denicola, 1980; Gordon, 1980; Kelly, Laughlin, Clairborne, & Patterson, 1979; Kelly, Uren, & Patterson, 1981; Kirklen, 1982). Such programs use behavioral training procedures such as didactic instruction, modeling, rehearsal, feedback, and reinforcement. They are based largely on a skills-deficit model with particular interview behaviors as targets for training (Heller, et al., 1982). A number of considerations limits the conclusions which may be drawn from these studies: (i) psychiatric patients are trained in interview skills which have only been validated in nonclinical samples; (ii) there has been wide variation across studies in the frequency, duration, and amount of such training; (iii) the foci for assessment have been limited; (iv) the employment-interview role-play assessments have been somewhat simplistic and unrealistic; (v) concurrent treatments (e.g., antipsychotic medication) have not always been controlled; (vi) often the follow-up durations have been inadequate; and (vii) generally the subject samples have been heterogeneous, with insufficient attention being paid to diagnostic issues and patient descriptions. In addition, there is a need to determine which schizophrenic patients are likely to show a positive response to training, as the reported studies indicate that a subsample of their subjects do not show a positive response to the
same training format (Charisiou, 1987; Charisiou, Jackson, Boyle, Burgess, Minas, & Joshua, 1989; Denicola, 1980).

Jackson and Minas (1985) suggested that negative syndrome schizophrenics are more likely to have impaired social skills deficits and to respond poorly to social skills-training programs. They hypothesized that negative-syndrome patients would be characterized by impaired premorbid acquisition of social skills, marked deterioration of social skills since onset of the disorder and impaired capacity for learning new social skills. The converse relationship was hypothesized for positive-syndrome patients. A similar relationship may exist between the two syndromes and employment-interview skills. If negative-syndrome patients have significant cognitive impairments, then it may be expected that their capacity to benefit from training approaches will be more limited than for nonnegative-syndrome patients. All of those factors may contribute to the variability in outcomes reported in the literature on training (Charisiou, 1987). Andreasen and Olsen (1982) indicated that 55% of their positive-syndrome subsample were currently employed, as opposed to 6% of their negative-syndrome subsample. Severe deficits in social and occupational functioning and chronic unemployment may be a consequence of negative symptoms (Pearlson, Garbacz, Breaky, Ahn, & De Paulo, 1984). Pearlson, et al. (1984) found persistent unemployment to be significantly associated with lateral ventricular enlargement and negative symptoms. Variables such as age, sex, race, and neuroleptic treatment were not significantly related to unemployment.

It may not be clear whether a patient's deficient employment skills are the sequelae of, or synonymous with, negative symptoms. A rehabilitation model may aid conceptualization and clarification of this issue (Anthony & Liberman, 1986).
In this model three levels of dysfunction are considered: (i) impairments, which are considered to be "any loss of abnormality of psychological, physiological or anatomical structure or function"; (ii) disabilities, which may result from impairments and are defined as "any restriction or lack of ability to perform an activity in the manner or within the range considered normal for a human being"; and, (iii) handicap, which results from impairments or disabilities which place an individual at a disadvantage in terms of limiting or preventing "the fulfillment of a role that is normal for that individual." At the impairment level, microbehavioral employment skills, e.g., facial gestures, eye-contact, and so on, may be considered to be somewhat similar to negative symptom constructs, e.g., affective flattening and alogia. However, molar ratings of employment interview skill (where raters are instructed and encouraged to use their own judgments) can be considered to assess the individual at the disability level, while expert raters' assessments of the employability of the subjects can be considered to index potential handicap. The present study included measures which indexed all three levels of dysfunction.

The subjects in the present study were a subsample (n = 46) of a slightly larger (N = 51) group previously described (Minas, Joshua, Jackson, & Burgess, 1988). (Five patients did not consent to undergoing videotaping which made the sample size 46.) Of the 51 subjects, 32 subjects were assessed on the Schedules for the Assessment of Negative and Positive Symptoms (Andreasen, 1983, 1984) within 7 to 10 days of admission and again in the week prior to discharge. Although there was a significant decrement in positive symptoms (p<.0001), there was no decrease in negative symptoms (p >.05), indicating that the latter were relatively stable, at least during the inpatient period. We are currently investigating the long-term stability of negative symptoms. Whether employment-interview skills and ratings
of employability are stable over time and would continue to covary with each other and with negative symptoms is not known and was not a focus of the present investigation. Repeated assessments over a long period of time have been advocated by Carpenter, Henrichs, and Wagman (1988) and would be necessary to clarify these issues.

The aims of the present study were (i) to determine whether positive and negative subtypes could be identified by cluster analysis in a sample of patients with chronic schizophrenia and (ii) to test the hypothesis that schizophrenic patients with a predominantly negative syndrome have poorer employment-interview skills and are less likely to be rated as employable than those with a predominantly positive syndrome.

**Method**

**Subjects**

The subjects studied were 46 patients who gave written, informed consent to participate in the study and met the DSM-III (APA, 1980) criteria for schizophrenia. The sample's demographic characteristics are described by Charisiou et al. (1989) but essentially the sample (13 women, 33 men) had a mean age of 36.7 (SD = 12.0) yr., a mean number of 11.2 (SD = 10.5) yr. of disorder, 5.4 (SD = 5.2) admissions and 12.0 (SD = 3.4) yr. of education. The average total length of premorbid employment since leaving school was approximately 6.5 yr., while the average period of continuous employment was approximately 3 yr.
Procedure

In the week prior to discharge each subject was assessed by one or two of the project clinicians (HJJ, IHM, SDJ) on the Schedule for the Assessment of the Positive Symptoms (Andreasen, 1984), the Schedule for the Assessment of Negative Symptoms (Andreasen, 1983), the side-effects subscale of the Manchester Scale (Krawiecka, Goldberg, & Vaughan, 1977) and the Hamilton Rating Scale for Depression (Hamilton, 1960). Moderate to high levels of interrater reliability were obtained for all four ratings (rs = .99, .96, .93, and .59, respectively, ns 16 to 17).

The Information subtest of the Wechsler Adult Intelligence Scale-Revised (WAIS-R; Wechsler, 1981) was administered and the Premorbid Adjustment Scale (Cannon-Spoor, Potkin, & Wyatt, 1982) completed during either an in vivo or a telephone interview with a patient's close relative during the week prior to discharge. A research assistant recorded the patient's age, age at time of first admission, duration of the disorder, duration of current hospitalization, total number of hospitalizations, total years of hospitalization, average daily antipsychotic drug dose (in chlorpromazine equivalents), years of education, total months of premorbid employment, and longest period of continuous employment (months). Level of depression was also assessed on the Beck Depression Inventory (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) during this week prior to discharge.

During the week prior to discharge subjects participated in a videotaped simulated employment interview, which has been fully described previously in this journal (Charisiou et al., 1989). Two independent assessors rated the subjects' videotaped employment-interview performance. Six microbehaviors were rated on
five-point scales adapted from Bellack (1983), i.e., eye contact, facial gestures, body posture, verbal content, voice volume, and length of speech. Five interview characteristics were rated on five-point scales, i.e., motivation, self-confidence, ability to communicate, manifest adjustment and manifest intelligence. The sixth characteristic, over-all interview skill, was measured on a 10-point unidirectional scale and allowed the raters to appraise the subjects' employment-interview skill subjectively. Previous research had identified the selected variables as influencing hiring decisions (Arvey & Campion, 1982; Charisiou, et al., 1989; Fisher, Farina, & Council, 1982; Gifford, Fan, & Wilkinson, 1985; McGovern & Tinsley, 1978; Sterret, 1978). These variables are exactly as described in Charisiou et al. (1989).

A panel of three experts (CES occupational psychologists) viewed the same videotaped performances and rated the subjects' over-all employability on a five-point unidirectional scale. They were also asked to determine whether or not (i) they believed the patient had selected an appropriate job vacancy; (ii) they would refer the patient to that job vacancy; and (iii) they would refer the patient to an occupational rehabilitation service. The experts were eminently suited to this task as their positions as CES occupational psychologists involved judging the suitability of psychiatric patients for employment or retraining schemes.

Data Analysis

Neither Andreasen (1985) nor Crow (1985) provide specific cut-off point scores for the respective scales they employ in their studies. In the present study, a cluster analysis (Ward's method) (SPSSX, 1986) obtained a two-group solution, based on the total ratings for the positive and negative symptoms. One-way analyses of variance were conducted on the two clusters for all measures depicted
in Tables 1 and 2 below. However, the Cochran's C and Bartlett-Box tests indicated that not all the data were homogeneous. Accordingly, the Mann-Whitney U statistic was employed to test for significant differences between the two groups. Where differences were predicted, a one-tailed significance level was used. Where predictions were not made, two-tailed significance levels were reported.

**Results**

Pearson product-moment correlations for 10 of the 12 interview skills variables were acceptable (range of rs = .43 to .63). For over-all interview skills level $r = .63$. Body posture and voice volume were not statistically significant and so were excluded from further analyses. Further details are given by Charisiou et al. (1989) in this journal.

The three expert raters' scores for the overall employability rating intercorrelated substantially (for Raters 1 and 2, $r = .64$; for Raters 1 and 3, $r = .72$; and for Raters 2 and 3, $r = .78$; all $p < .001$.) For the three dichotomous questions, the three expert raters made the same judgement for a high proportion of the patients: 69.56% (the vacancy selected was appropriate); 82.6% (I would/would not refer the patient to the job they selected); and, 84.8% (I would/would not refer the patient to an occupational rehabilitation service).
As can be seen from Table 1, there was no significant difference between Groups 1 and 2 on the mean positive-symptoms score. Group 1 had a significantly higher mean negative-symptoms score (p<.001). Group 1 corresponds to Andreasen's (1985) negative subgroup, and Group 2 to her "mixed" subgroup. There was no significant difference between the two groups in terms of the sex distribution (Group 1: 19 men, 8 women; Group 2: 14 men, 5 women; x² = .06, p > .05). Table 1 also shows that in accordance with Andreasen (1985), Group 1 had significantly fewer years of education and a poorer premorbid adjustment score than Group 1. Although not statistically significant, there were trends for Group 1 to have a smaller medication dose, a lower WAIS-R Information score, and a greater number of hospitalizations (in all cases p < .10). There were no other significant differences or trends between the two groups, and group data for those variables are not displayed in Table 1. It must be emphasized in particular, that there were no significant differences between the two groups in terms either of the total length of premorbid employment since leaving school (Mann-Whitney U =
245.5, p> .20, two-tailed), or for the longest period of continuous employment (Mann-Whitney U = 244.5, p > .20, two-tailed).

Table 2 shows that, for the 10 interview skills variables as well as the employability rating, Group 1 had poorer mean performance scores than Group 2. Group 1 patients were assessed as demonstrating more deficient interview skills and were viewed as less employable than Group 2 patients.

The three expert raters were asked to determine whether (i) the patient had made an appropriate decision, (ii) they would refer the patient to the selected job vacancy, and (iii) they would refer the patient to an occupational rehabilitation service. Although Group 1 patients were less likely than Group 2 patients to select an appropriate job vacancy, the difference was nonsignificant (Group 1 = 40.7%; Group 2 = 63.2%; x^2 = 1.43, p > .10, one-tailed). Group 2 patients, however, were significantly more likely to be referred to their selected job vacancy (Group 1 = 22.25%; Group 2 = 52.6%; x^2 = 3.30, p < .05, one-tailed). Approximately one-quarter of Group 1 patients would be referred to that job vacancy and just over a
half of Group 2 patients. Finally, significantly fewer Group 1 patients would be referred to an occupational rehabilitation service (Group 1 = 61.2%; Group 2 = 89.5%; Fisher's exact test, p = .04, one-tailed).

**Discussion**

The cluster analyses yielded two groups which differed significantly in terms of the severity of negative symptoms but showed no significant difference in the mean positive-symptoms score, a finding similar to that reported by Clausen and Minas (1987). The samples in the current and the previous (1987) studies were similar in that subjects had long-standing illness and were assessed during similar phases of illness, i.e., when considered ready for discharge in the former and as outpatients in the latter. A predominantly positive group was not identified in either sample, emphasizing the importance of specifying phase of illness as well as diagnostic and other clinical information when deriving subtypes (by whatever method) of schizophrenia. The derivation of very similar subtypes in the two studies suggests that cluster analysis is a reliable technique for this purpose, rather than using arbitrary cut-off scores for positive and negative symptoms, the method of deriving subtypes most commonly used by other investigators such as Andreasen (1985) and Crow (1985).

Consistent with other reports (Andreasen, 1985; Crow, 1985), Group 1 had a significantly poorer premorbid adjustment and fewer years of education than Group 2. Group 1 performed less well than Group 2 on all interview skills and were rated as less employable. This latter result is also consistent with previous reports (Andreasen & Olsen, 1982; Pearlson et al., 1984). Although Group 2 patients were not significantly more likely than Group 1 patients to choose an
appropriate job vacancy, they were significantly more likely than Group 1 patients to be referred to that job vacancy and to an occupational rehabilitation scheme. It is important to emphasize that there were no significant differences between the two groups in terms of prior work experience. Whether prior work experience and other variables such as education contribute significantly to predicting employability will be investigated by us subsequently, focusing on the same sample.

The finding of the present study that the most severely impaired and disabled patients were less likely to be referred to their preferred job vacancy or to an occupational rehabilitation scheme is a cause for concern. It suggests that judgments of employability can restrict access to occupational rehabilitation so that those who are already the most handicapped will be further denied access to training programs. Assistance in developing sufficient occupational skills to enter even a supported or sheltered work environment may be of benefit to such patients (Anthony & Liberman, 1986).

A caveat is required. It should be noted that some of the interrater correlations, although acceptable, were quite low and did not account for much of the variance. This might leave open to question the validity of the findings, at least at the impairment or micro-behavioral level, yet they are offset to some extent by stronger interrater reliabilities for the employability ratings of the three experts. Altogether these results might indicate the difficulties of obtaining high interrater reliabilities at the micro-behavioral or impairment level, compared to the higher interrater reliabilities obtained at both the disability and handicap level where molar ratings are used.

In conclusion, this study has identified employment interview skills as a
further (cross-sectional) correlate of schizophrenia subtypes. Longitudinal studies in more heterogeneous samples of schizophrenic patients will be required to determine whether schizophrenic patients with a predominantly positive syndrome have differential interview skills, to examine the long-term stability of negative symptoms, interview skills, and employability ratings and, most importantly, to identify the responsiveness of the subtypes to various skills-training approaches.

References


