

## **The Measurement of Schizotypy: Relationship to Diagnosis**

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Screening versions of nine self-report measures of schizotypic signs were given to samples of schizophrenics, psychotically depressed patients, and alcoholics. No differences were found between the groups on any of the schizotypy measures. Visual inspection suggested that approximately one third of each group scored in the schizotypic range on several scales, but the majority of each group showed no elevation on any of the scales.

Meehl (1962, 1964) proposed one of the most influential diathesis/stress models of schizophrenia. He argued that a genetic factor, schizotaxia, was a necessary but not a sufficient condition for the development of schizophrenia. According to Meehl, any individual with this predisposing factor would develop a distinctive personality organization which he labelled schizotypy, but only a portion of schizotypes will ever decompensate into schizophrenia.

Meehl (1964) suggested that the schizotype could be identified by a series of signs - stable characteristics of the individual which were recognizable even in the fully compensated schizotype. Self-report measures have been developed to measure many of the schizotypic signs described by Meehl including Physical and Social Anhedonia (Chapman, Chapman, & Raulin, 1976; Mishlove & Chapman, 1985), Perceptual Aberration (Chapman, Chapman, & Raulin, 1978), Somatic Symptoms (Raulin, Chapman, & Chapman, 1978), Magical Ideation (Eckblad & Chapman, 1983), Intense Ambivalence (Raulin, 1984), Social Fear (Raulin & Wee, 1984), Rage (Raulin, 1982), Distrust (Raulin, 1982), Impulsive Nonconformity (Chapman, Chapman, Numbers, Edell, Carpenter, & Fisher-Beckfield, 1983) and Cognitive Slippage (Miers & Raulin, 1984). Each of these scales was developed to have high reliability and minimal method variance (acquiescence and social desirability response set bias). Schizophrenics have been compared with control subjects on four of the scales. In each case, the schizophrenics scored significantly higher than the normal control subjects. Furthermore, in a series of studies, college students who score high on one or more of these scales display mild forms of a variety of characteristics found in schizophrenic populations such as social or cognitive deficits (Adamski, Raulin & Colavecchia, 1983; Beckfield, 1985; Chapman, Chapman, Raulin & Edell, 1978; Chapman, Edell & Chapman, 1980; DePalma & Raulin, 1982; Eckblad & Chapman, 1983; Edell & Chapman, 1979; Friedland, Raulin, & Rourke, 1984; Fujioka & Chapman, 1984; Haberman, Chapman, Numbers & McFall, 1979; Martin & Chapman, 1982; Miller & Chapman, 1983; Numbers & Chapman, 1982; Raulin, 1984; Raulin, Van Slyck & Rourke, 1983; Simons, 1981, 1982; Simons, MacMillan & Ireland, 1982a, 1982b).

Although schizophrenics have been found to score higher than controls on at least four schizotypy scales (Anhedonia, Perceptual Aberration, Ambivalence, and Magical Ideation), there is almost no data comparing schizophrenic populations with other psychiatric groups on the distribution of schizotypic signs. Since no data are available on this question, one cannot rule out the possibility that the schizotypy measures tap general psychopathology rather than the specific psychopathology characteristic of schizophrenia. Furthermore, the results of studies of non-psychiatric subjects who score high on the

schizotypy scales seem to suggest a general risk for psychopathology rather than a specific risk for schizophrenia (see Fujioka & Chapman, 1984). In view of these issues, it is appropriate to compare schizophrenics with a non-schizophrenic psychiatric control group since this comparison would provide a partial test of the construct validity of these scales. The current study provided this comparison.

#### *Method*

##### *Subjects*

Subjects included 18 schizophrenics, 15 alcoholics, and 5 depressed patients. The majority of these patients were chronic with one or more previous admissions. All were males hospitalized at a VA Medical Center. The schizophrenic and depressed patients were hospitalized on an acute care unit for an average of 2 to 4 weeks. Most had had prior hospitalization for psychiatric problems. The alcoholics were hospitalized for a 4-week inpatient treatment program for alcohol abuse. Patients were typically interviewed during the first two weeks of their hospital stay. Approximately half of the patients from each group who were approached about participating in the project agreed to participate and were able to complete the study. Table 1 summarizes the demographic characteristics of the samples.

*Table 1*  
*Mean Demographic Characteristics of the Three Groups*

	Schizophrenics (N=18)	Alcoholics (N=15)	Depressed (N=5)
Age	35.5 (6.95)	38.9 (10.9)	47.4 (16.0)
Education	13.0 (2.40)	12.4 (2.61)	12.0 (3.67)

Note: Standard deviations are in parentheses.

##### *Procedures*

Subjects were selected on the basis of hospital diagnosis. Diagnoses were confirmed using information from a structured interview (the *Schedule for Affective Disorders and Schizophrenia -- Lifetime Version; SADS-L*; Spitzer & Endicott, 1977). Each patient completed screening versions of nine scales of schizotypic signs. Table 2 presents a brief description of each of the nine schizotypy measures used in this study.

#### *Results*

Table 3 shows the mean scores in each of the three groups for each schizotypy measure. One-way ANOVAs were conducted separately for each schizotypy measure. In all cases, the differences between groups fell short of significance. Visual inspection of the scores suggested that a portion of each group (approximately one third) showed a pattern of high scores on several scales, but the majority in each group showed no deviantly high scores (2 standard deviations above the normal mean) on any of the scales.

*Table 2*  
*Brief Descriptions of the Schizotypy Scales*

- Physical Anhedonia** - inability to experience physical pleasure
- Perceptual Aberration** - perceptual distortions especially of body image
- Intense Ambivalence** - strong simultaneous or rapidly fluctuating positive and negative feelings
- Somatic Symptoms** - a collection of symptoms thought to be indicative of subtle neurological dysfunction
- Social Fear** - strong fear of people and/or social interactions
- Magical Ideation** - a general belief in causal connections between behavior and events which are objectively unrelated
- Cognitive Slippage** - a subtle form of thought disorder
- Distrust** - a strong distrust of the motives of other people
- Rage** - characterized by strong, periodic, uncontrolled, angry outbursts

*Table 3*  
*Mean Scores on the Schizotypy Scales for the Three Groups.<sup>1</sup>*

	Schizophrenics (N=18)	Alcoholics (N=15)	Depressed (N=5)
Physical Anhedonia (15) <sup>2</sup>	4.11 (2.40)	5.00 (3.57)	3.00 (2.83)
Perceptual Aberration (10)	1.17 (1.47)	0.33 (0.62)	0.20 (0.45)
Intense Ambivalence (10)	2.88 (3.08)	2.60 (2.06)	2.40 (2.19)
Somatic Symptoms (10)	1.89 (2.61)	1.47 (1.51)	2.00 (2.12)
Social Fear (10)	3.56 (3.97)	2.93 (2.71)	4.00 (2.00)
Magical Ideation (10)	2.83 (2.68)	1.73 (1.98)	1.20 (1.64)
Cognitive Slippage (11)	2.58 (2.81)	2.60 (3.00)	2.20 (3.03)
Distrust (10)	3.11 (3.18)	3.27 (2.37)	1.40 (2.07)
Rage (10)	2.72 (3.03)	2.60 (3.02)	1.80 (4.02)

Note: None of the group differences were statistically significant.

<sup>1</sup>Standard deviations are in parentheses following the mean.

<sup>2</sup>The number of items in each scale is shown in parentheses.

### Discussion

Previous research (Chapman et al., 1976, 1978; Eckblad & Chapman, 1983; Raulin, 1984) has found schizophrenics scoring significantly higher than controls, but high scores on the schizotypy measures were characteristic of only a portion of the schizophrenics. The percentage of schizophrenics showing elevated scores in this study is comparable to past findings. However, the inclusion of psychiatric comparison groups makes it clear that patients in other diagnostic categories also score high on these scales. This may mean that the scores are not predictive of schizophrenia proneness as hypothesized by Meehl.

There may in fact be other implications to be drawn from the pattern of the results in this study. For example, it is possible that higher scores are associated with a "proneness for psychosis," which would be consistent with recent findings of Chapman & Chapman (1985) and Fujioka & Chapman (1984). The alcoholics and depressed patients employed as comparison groups in the study were hospitalized inpatients who may represent relatively more severe symptomatology. In fact, clinical observation and lore often suggest that some alcoholic patients engage in "self-medication" for underlying symptoms of more severe psychopathology which sometimes proves to be schizophrenia. Further research could examine the question of whether non-schizophrenic patients who obtain high scores on one or more of the scales might manifest a symptom pattern similar to that seen in high scoring schizophrenic patients. Examination of the risk for such psychopathological processes in family members of high scorers on these scales would be one strategy for further exploration.

Another issue to consider is that hospitalized psychiatric patients often tend to overendorse psychopathological symptoms. For example, many patients tend to endorse more MMPI items obviously associated with severe symptomatology while not endorsing more subtle items (Greene, 1980). Since the format of the items in the schizotypy scales is similar to MMPI item format, it is possible that symptom overendorsement could have resulted in spuriously high scores for some of the scales for some of the patients. If patients in the different groups overendorsed psychopathology differentially, than real differences between the groups might have been masked.

Research continues to examine these and other construct validation issues. Although previous research suggests that the schizotypy scales may be very valuable tools in the study of schizophrenia, the current data suggest that these schizotypy scales should not be used as diagnostic tools until further research can define what diagnostic implications may be associated with higher scores.

### References

- Adamski, R.J., Raulin, M.L., & Colavecchia, C. (1983, April). Social perception in schizotypic college students. Paper presented at the Eastern Psychological Association Convention, Philadelphia.
- Beckfield, D.F. (1985). Interpersonal competence among college men hypothesized to be at risk for schizophrenia. *Journal of Abnormal Psychology*, 94, 397-404.
- Chapman, L.J., & Chapman, J.P. (1985). Psychosis Proneness. In M. Alpert (Ed.) *Controversies in Schizophrenia*. New York: Guilford Press.
- Chapman, L.J., Chapman, J.P., Numbers, J.S., Edell, W.S., Carpenter, B.N., & Fisher-Beckfield, D. (1983). Impulsive nonconformity as a predictor of psychosis-proneness. Unpublished manuscript.

- Chapman, L.J., Chapman, J.P., & Raulin, M.L. (1976). Scales for physical and social anhedonia. *Journal of Abnormal Psychology, 85*, 374-382.
- Chapman, L.J., Chapman, J.P., & Raulin, M.L. (1978). Body-image aberration in schizophrenia. *Journal of Abnormal Psychology, 87*, 399-407.
- Chapman, L.J., Chapman, J.P., Raulin, M.L., & Edell, W.S. (1978). Schizotypy and thought disorder as a high-risk approach to schizophrenia. In G. Serban (Ed.) *Cognitive Defects in the development of mental illness*. New York: Brunner-Mazel.
- Chapman, L.J., Edell, W.S., & Chapman, J.P. (1980). Physical anhedonia, perceptual aberration, and psychosis proneness. *Schizophrenia Bulletin, 6*, 639-653.
- DePalma, E. & Raulin, M.L. (1982, April). Feature-specific inhibition in intensely ambivalent subjects. Paper presented at the Eastern Psychological Association Convention, Baltimore.
- Eckblad, M., & Chapman, L.J. (1983). Magical Ideation as an indicator of schizotypy. *Journal of Consulting and Clinical Psychology, 51*, 215-225.
- Edell, W.S. & Chapman, L.J. (1979). Anhedonia, perceptual aberration and the Rorschach. *Journal of Consulting and Clinical Psychology, 47*, 377-384.
- Friedland, T.J., Raulin, M.L., & Rourke, P. (1984). Intense ambivalence: Its relationship to schizotypy and psychotic-like experiences. Paper presented at the Eastern Psychological Association Convention, Baltimore.
- Fujioka, T.A.T. & Chapman, L.J. (1984). Comparison of the 2-7-8 MMPI profile and the perceptual aberration-magical ideation scale in identifying hypothetically psychosis-prone college students. *Journal of Consulting and Clinical Psychology, 52*, 458-467.
- Greene, R.L. (1980). *The MMPI: An interpretive manual*. New York: Grune & Stratton.
- Haberman, M.C., Chapman, L.J., Numbers, J.S., & McFall, R.M. (1979). Relation of social competence to scores on two scales of psychosis proneness. *Journal of Abnormal Psychology, 88*, 675-677.
- Martin, E.M. & Chapman, L.J. (1982). Communication effectiveness in psychosis-prone college students. *Journal of Abnormal Psychology, 91*, 420-425.
- Meehl, P.E. (1962). Schizotaxia, Schizotypy, Schizophrenia. *American Psychologist, 17*, 827-838.
- Meehl, P.E. (1964). *Manual for use with checklist of schizotypic signs*. Minneapolis: Psychiatric Research Unit, University of Minnesota Medical School.
- Miers, T.C., & Raulin, M.L. (1985, March). The development of a scale to measure cognitive slippage. Paper presented at the Eastern Psychological Association Convention, Boston.
- Miller, E.N. & Chapman, L.J. (1983). Continued word association in hypothetically psychosis-prone college students. *Journal of Abnormal Psychology, 92*, 468-478.

- Mishlove, M., & Chapman, L.J. (1985). Social anhedonia in the prediction of psychosis proneness. *Journal of Abnormal Psychology, 94*, 384-396.
- Numbers, J.S. & Chapman, L.J. (1982). Social deficits in hypothetically psychosis-prone college women. *Journal of Abnormal Psychology, 91*, 255-260.
- Raulin, M.L. (1982a). Rage Scale: A measure of Schizotypy. Unpublished Scale. (Available from M.L. Raulin, Psychology Department, SUNY at Buffalo, Buffalo, N.Y. 14260).
- Raulin, M.L. (1982b). Distrust Scale: A measure of Schizotypy. Unpublished Scale. (Available from M.L. Raulin, Psychology Department, SUNY at Buffalo, Buffalo, N.Y. 14260).
- Raulin, M.L. (1984). Development of a scale to measure intense ambivalence. *Journal of Consulting and Clinical Psychology, 52*, 63-72.
- Raulin, M.L., Chapman, L.J., & Chapman, J.P. (1978). Somatic Symptoms Scale. Unpublished scale. (Available from M.L. Raulin, Psychology Department, SUNY at Buffalo, Buffalo, N.Y. 14260)
- Raulin, M.L., Van Slyck, M.R., & Rourke, P. (1983, April). MMPI correlates of several schizotypy scales. Paper presented at the Eastern Psychological Association Convention, Philadelphia.
- Raulin, M.L., & Wee, J.L. (1984). The development and initial validation of a scale to measure social fear. *Journal of Clinical Psychology, 40*, 780-784.
- Simons, R.F. (1981). Electrodermal and cardiac orienting in psychometrically defined high-risk subjects. *Psychiatry Research, 4*, 347-356.
- Simons, R.F. (1982). Physical anhedonia and future psychopathology: An electrocortical continuity? *Psychophysiology, 19*, 433-441.
- Simons, R.F., MacMillan, F.W. III, & Ireland, F.B. (1982a). Anticipatory pleasure deficit in subjects reporting physical anhedonia: Slow cortical evidence. *Biological Psychology, 14*, 297-310.
- Simons, R.F., MacMillan, F.W. III, Ireland, F.B. (1982b). Reaction-time crossover in preselected schizotypic subjects. *Journal of Abnormal Psychology, 91*, 414-419.
- Spitzer, R.L. & Endicott, J. (1977). *Schedule for Affective Disorders and Schizophrenia--Lifetime Version (SADS-L)*. New York: New York State Psychiatric Institute. (Available from Authors.)