Perceptual rigidity in paranoid schizophrenia: Use of projective animal drawings

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PERCEPTUAL RIGIDITY IN PARANOID SCHIZOPHRENIA: USE OF PROJECTIVE ANIMAL DRAWINGS

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Summary—The animal and opposite technique, a projective drawing device, was used objectively to show that paranoid schizophrenics (n = 20) exhibit more rigidity in perceptions than nonparanoid psychotic inpatients (n = 17). Data from a sample of 33 and a cross-validation sample of 153 are described. The paranoid schizophrenics performed with more rigidity as predicted in both samples. The results show the potential utility of the technique in clinical diagnosis and illustrate perceptual rigidity in paranoid schizophrenia.

During part of their training at Fulton State Hospital, Fulton, Missouri, the authors learned of the animal and "opposite animal" drawing technique developed by a former staff member, Lyman M. Riegel. This test had been in use for several years as a supplement to the usual human figure drawing in diagnostic evaluations. The rationale is similar to that of Schwartz and Rosenberg (1955), who reasoned that a person projects his own characteristics through his choice of animal and the manner in which he produces it. S is asked to draw an animal and then draw the animal which is opposite of the first. Assuming that any concept must have a polar opposite, this second drawing may reflect suppressed, denied, or otherwise unavailable facets of the personality. In addition, the present authors suggest that this tool provides considerable insight into cognitive processes.

Freud observed that "The mind is made up of contradictions and pairs of opposites" (1943, p. 68) and suggested that the resolution of impossible alternatives was a prime function of defense mechanisms. The notion of polarities in human personality is also central to the theories of Adler, Jung, Chessnoie, and Mead. Kelly's (1955) personal construct theory also revolves around groups of dichotomous "constructs" which any given person may employ. Opposites or "contrary ends" exist in each of these dimensions, and shifts in behavior may represent movement along a continuum from a construct to its opposite. One might conclude that extreme behavioral opposites are essentially equivalent in that they both represent the same underlying personality structure.

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There are differences in the perceptual responses of various subgroups within the overall classification of schizophrenia. Silverman (1964) pointed out the importance of a paranoid-nonparanoid distinction in research on schizophrenia; numerous studies have empirically demonstrated differences between paranoids and nonparanoids in various neurophysiological, perceptual, cognitive, and personality measures. Specific differences have been explored in perceptual set and perceptual rigidity.

Buss and Lang (1965; Lang & Buss, 1965) have written two reviews dealing with psychological deficits in schizophrenia. They conclude, in part, "Schizophrenics give a more closed, narrow, stimulus-bound basis for sorting objects, whereas normals give an open, more inclusive, stimulus-free basis for sorting" (Buss & Lang, 1965, p. 15). They found that schizophrenics have difficulty in changing a set that is no longer suitable to an experimental task. Although Buss and Lang did not differentiate their sample on a paranoid-nonparanoid dimension, they did recognize the potential value of such a distinction.

Adams (1960) has established the greater rigidity of schizophrenics over normals, while Rauch (1956) found that paranoid schizophrenics show a much narrower range of variability in judgments of size of objects than either nonparanoid psychotic inpatients or normals. Mandl (1954) showed that paranoid schizophrenics exhibit significantly greater rigidity (inability to shift set) than normals when confronted with a gradually changing stimulus.

The present drawing technique, unlike previously used perceptual tasks, has demonstrated utility as a projective device (Kocher & Simonds, 1971). The focus of the present study was animal-oppositional selection as an objective diagnostic indicator rather than as a projective tool. On the basis of the studies of perceptual rigidity of schizophrenics mentioned above, the authors hypothesized that paranoid schizophrenics would show considerably more rigidity in their choices of animal-oppositional than nonparanoid psychotic inpatients. The results of a pilot study and a larger cross-validation sample are reported here.

**Method**

The initial sample included 37 male psychiatric inpatients ranging in age from 17 to 69 yr. Drawn from the maximum security unit of the hospital, these had been diagnosed as paranoid schizophrenics and nonparanoid psychotic inpatients. The M, A, for the paranoid group was 38.7 yr. (SD = 9.8), while the M, A, for the nonparanoid group was 36.6 yr. (SD = 10.7). The M for the paranoid group was 98.6 (SD = 12.6; N = 20), while the M for the nonparanoid group was 94.2 (SD = 14.1; N = 17). T tests for differences in means on both variables yielded no significant findings.

The cross-validation sample consisted of 153 patients (23 of whom were paranoids) admitted to the acute unit of this hospital over a 6-mo. period. The patients were administered the animal-oppositional task as part of the admissions battery of psychological tests.

Both authors were formerly attached to the psychology staff of State Hospital No. 1, Fulton, Mississippi, where this study was carried out as part of an ongoing projective drawings project.
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by staff "psychochirurists" who had no knowledge of the hypotheses being tested or the results of the initial study. The basis for classification by diagnostic group was the estab-
lished psychiatric diagnosis of the hospital staff, without knowledge of the drawings or hypotheses under study. Comparison of age and intellectual levels of paranoid schizo-
phrenics and nonparanoids in the cross-validation sample showed no significant differences
between the two groups. A test for MgI of those who produced rigid animal-opposites
(M = 94.3, SD = 16.0) versus those who produced nonrigid opposites (M = 95.3,
SD = 14.6) was nonsignificant.

All patients were given a booklet containing the following instructions on the cover:
"Some people are often better able to express themselves through pictures than words. On
the pages which follow you will be asked to make certain drawings. Do not worry if you
have no artistic ability but try anyway." On the next page was the instruction, "Draw an
animal," and on the following page, "Draw the animal which is the opposite of the one
you just drew." All drawings were done in pencil, without time limitation.

Rigidity on the animal-opposite task was operationally defined in terms of certain
drawing productions. These criteria were adopted following Adams' (1960) definition
of rigidity which states, "Rigidity may be defined as decreased variance of responses in
stimulus situations for which no definite response is apparent to the individual" (1960,
p. 129). All drawings were classified as "rigid" or "norigid" on two criteria: any oppo-
site based on rotation, mirror-image reversal, or otherwise repositioning the first drawn
animal, or any opposite based on altering the sex of the first drawn animal, was consid-
ered a rigid opposite. Any other type of opposite was considered nonrigid.

Each patient was asked to name the animal he had drawn, and classification was
based on this verbal assessment in order that artistic differences not be a factor. Some
patients, for example, drew similar looking pictures while indicating that they were at-
tempts to depict two different animals.

The rationale for these criteria arose from the notion that the more rigid mode of
forming an opposite would be likely to retain the original animal concept, while shifting
in physical placement or its sex. For these purposes, opposites which were highly recog-
nized (e.g., dog and cat) were considered examples of nonrigid reasoning.

RESULTS AND DISCUSSION

In the initial sample, the hypothesis that paranoid schizophrenic inpatients would
produce more rigid opposite-animal responses was upheld as 13 of 20
paranoid schizophrenics produced rigid opposites, while 1 of 17 nonparanoids
did so ($\chi^2 = 13.30, p < .001, 1 df$).

Results of the independent cross-validation sample supported the earlier
findings: Of 23 paranoid schizophrenics, 11 produced rigid responses as did 22
of 108 nonparanoids. Two nonparanoids did not produce opposites and were
not included in the analysis. The hypothesis that paranoid schizophrenics would
produce more rigid opposite-animal responses was supported ($\chi^2 = 7.38, p < 
.01, 1 df$).

The main hypothesis, that paranoid schizophrenic inpatients could be dis-
tinguished from nonparanoid psychiatric inpatients on the basis of rigidity as
measured with the animal-opposite drawings, was supported in the initial sam-
ple and in an independent cross-validation sample. The paranoid schizophrenics
in these samples performed in a rigid manner on the drawing task about 65% and 48% of the time. Thus, the drawings yielded about 55% and 57% misclassifications. These potential “false negatives” for paranoid schizophrenia must be considered carefully by the clinician interested in differential diagnosis.

The nonparanoid psychiatric patients in the initial and cross-validation samples performed in the predicted nonrigid manner 94% and 90% of the time in their respective groups. Thus, the former showed the rigid performance hypothesized as characteristic of paranoid schizophrenia in 6% and 20% of the sampled cases, a rather low level of “false negatives.”

It is evident that the antireal-optic technique may provide useful diagnostic hypotheses for screening paranoid schizophrenics. Any such hypotheses, however, must be considered highly tentative. It is yet unanswered to make any definitive diagnostic statement based on task performance. The task, however, continues to be particularly useful with the patient who is functionally illiterate, since it may be administered orally and in a relatively brief time.

Concepts and research on perceptual rigidity have provided the theoretical basis for this study. The present data lend support to work done by Adams (1969) and Mandl (1954), who have suggested that significant differences exist between paranoid schizophrenics and nonparanoid psychiatric patients in rigidity and inability to shift set. Silverman’s (1964) warning about the need to distinguish between paranoid and nonparanoids in research on schizophrenia should be re-emphasized in light of the present findings.

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