The Relative Appropriateness of Responses to Humor in Schizophrenia.

Herbert Donell Miller

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THE RELATIVE APPROPRIATENESS OF
RESPONSES TO HUMOR IN SCHIZOPHRENIA

A Dissertation

Submitted to the Graduate Faculty of the
Louisiana State University and
Agricultural and Mechanical College
in partial fulfillment of the
requirements for the degree of
Doctor of Philosophy

in

The Department of Psychology

by
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August, 1956
ACKNOWLEDGMENTS

The author wishes to acknowledge the assistance he has received in completing this manuscript.

To Dr. T. W. Howard for his guidance through the pilot study which led to this experiment; to Dr. Andrew Sanchez, Mr. Alan Long, Dr. N. P. Dellis, Mr. O. Buckley, Mr. H. B. Hysell, Mrs. H. D. Miller for their help in the collection of the data; to Dr. Paul C. Young, Dr. I. P. Stevenson, Dr. Graham B. Bell, and Dr. J. G. Dawson for their criticisms of the manuscript in its several drafts; and especially to Dr. T. W. Richards for his advice, encouragement, and patience in the final stages of preparation, the author wishes to express his sincere appreciation.
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ABSTRACT

A relative lack of appropriateness in emotional response is considered a primary symptom of schizophrenia and one of its distinctive features. In Bleuler's classical discussion of schizophrenic affectivity three varieties of affective inappropriateness are implied: the inappropriateness of (1) a person's apparent affect to his reported feeling, (2) apparent affect to the feeling typically reported by normal people in the same situation, (3) reported feeling to the feeling typically reported by normal people in the same situation. This experiment tested the assumption that the three kinds of relative appropriateness are equally suggestive of schizophrenia.

A series of 36 cartoons from current magazines and books were shown individually to 51 normal (non-hospitalized) women. They rated the humor value of each cartoon on an 8-point scale. Their average response to each cartoon was considered typical of "normal response" to that particular series of cartoons.

When the cartoons were shown to other subjects, observers rated the apparent intensity of each subject's emotional response to each cartoon on an 8-point scale. These ratings represented a person's "apparent affect". Simultaneously, each subject rated the humor value of each cartoon on an 8-point scale. These ratings represented "reported feeling".

Normal response, apparent affect, and reported feeling may be compared by means of Pearson correlation coefficients. The three
correlations possible (apparent affect with reported feeling, apparent affect with normal feeling, reported feeling with normal feeling) correspond to the three kinds of relative appropriateness.

Twenty-four schizophrenic patients and 24 nonschizophrenic patients from Southeast Louisiana Hospital and from Charity Hospital, New Orleans, were selected for testing. A control group of comparable age, intelligence, educational background, and socio-economic class was selected from the normal (non-hospitalized) population in the communities served by the two hospitals.

The cartoon test was administered individually to every subject. The results of this study support Bleuler's theory that the discrepancy between apparent affect and subjective experience is greater for schizophrenic patients than for all other groups. This appears to be a function of the high degree of constriction in the outward affective response of schizophrenic patients.

On the other hand, this study presents evidence contradicting Bleuler's assumption that what is true of this kind of appropriateness is also true for two other kinds as well. For the appropriateness of apparent affect to the experience typically reported by normal persons in the same situation nonschizophrenic patients manifest abnormal responses, whereas schizophrenic patients do not. There seems to be no difference among schizophrenic patients, nonschizophrenic patients and normal persons in the appropriateness of the feeling they report to the feeling typically reported by normal people in the same situation.
Chapter I

Introduction

The definition of affectivity as a "generalized emotional reaction which has definite effects on the body and mind" (79, p 7) suggests that what is pertinent to an understanding of the role of the affects in the schizophrenic patient may also point to what is essential to an understanding of schizophrenia. From the time Kraepelin first isolated "dementia praecox" down to the present day one highly influential group within modern psychiatry has insisted that "it is in affective relationships that schizophrenia is most fundamentally manifested, and these rather than disorders of mentation should be the primary concern of psychiatrists" (34, p 76).

Kraepelin (49, p 412) has described dementia praecox as involving a "weakening of those emotional activities which permanently form the mainsprings of volition". He has called attention to the characteristic "loss of inner unity of the activities of intellect, emotion, and volition in themselves and among one another" (49, p 412). This picture of the disorder accords the affective function a central place in dementia praecox. Recognizing such symptoms in many people who outside a literal application of Kraepelin's term, dementia praecox, Bleuler redefined the concept as referring to a family of diseases to which he gave the collective name, schizophrenia. This choice of name implies that a lack of psychic integration is a salient feature
of the disease.

Bleuler (7, 8) and Rado (57) also have explained the inability of a patient's affect to provide a consistent, unifying force in his life as a major, perhaps the basic factor behind this lack of integration. For Rado it is not emotion in general but the lack of pleasure which is crucial to the disorder (57, p 411):

"The schizotypes' zest for life is reduced. The welfare emotions also counterbalance the pain-connected emergency emotions. In the schizotypes, motivational weakness of the welfare emotions causes an emotional disbalance; without this tempering influence the emergency emotions tend to grow excessive in motivational strength and integrative scope."

Thus abnormality in affective response is considered a primary symptom of schizophrenia and one of its distinctive features. It is so common in clinical practice to find a flattened affect associated with schizophrenia that some psychiatrists appear inclined to assign every patient showing this defect to the schizophrenic category. Nevertheless, observations reported by Greenson (27), Spitz (71), Brill (9), Moloney (51), Schiele et al. (69) serve as a reminder that the schizophrenic-like affective response may also be seen in other persons too. These authors discuss the affective responsiveness typical of other cultures, the effects of near starvation, living in a concentration camp, traumatization on the battlefield, all of which alter the affects in a direction which resembles the affective distortions of schizophrenia.

Sullivan (74, p 76) is among those who doubt that the incongruity between expressed emotion and related idea is pathognomic of schizophrenia. Regarding this incongruity as more apparent than real, he
laments the "fact that theories of the disorder have been built around it," commenting: "I wonder that negative instances are so easily ignored, that the parallel in one's remembered dreams is overlooked, and that the recollection of one's own behavior in awkward situations are not associated with this seemingly fundamental peculiarity of the schizophrenic." If this primary symptom of schizophrenia can indeed be abundantly illustrated in the "psychopathology of everyday life" this would point to a fundamental weakness in the theory that affective inappropriateness reflects an integrative defect based on a distinctive genotype. Whether or not this is so, the evidence Sullivan has presented is far from impressive. In a footnote he referred to a case study he made in 1928 (73, pp 141-158) concerning which he wrote (74, p 76):

"That the patient was schizophrenic is beyond question... This patient at one time or another expressed well-nigh the gamut of human emotion, never in any instance that I studied with anything but a simple relation to the content in awareness at the time, or clearly evidenced as verging on awareness."

Logically, a single negative case may be sufficient to undermine a universal theory, but the behavioral scientist is hardly likely to regard it crucial. Laying aside the fact that it is difficult to see how a diagnosis of schizophrenia was arrived at without eliciting at one time or another the affective dysfunction which is central to making the diagnosis in the first place (according to the theory), there is still the matter of the degree to which any given phenomenon is present to be considered. Qualitative habits of thought with their subtle, hardly noticed, all-or-none implications can be very misleading. Perhaps Bleuler's position is correct on a quantitative basis even though absolute
standards may never be completely satisfied.

The ordinary clinical method of estimating the extent of a patient's inappropriate affectivity is the psychiatrist's subjective impression, based on his observation of the patient's expression, speech, motor behavior... etc... in the moderately stressful situation of the diagnostic interview. The patient's discussion of his problem allows the clinician to note any lack of harmony between the content of a patient's speech and his manifest affect.

Such an approach is usually sufficient for diagnostic purposes, but the lack of a more nearly objective measure obstructs our understanding of the place of the affects in schizophrenia. One major purpose of this study is the attempt to derive a more nearly objective index of the relative appropriateness of schizophrenic affectivity.

The phrase, "appropriateness of affectivity," requires more precise specification. Although it is usually used in a restricted sense to refer to something distinguishable from "flattened" or "blunted" affect, it will be used here as a more general concept including "flatness," on the basis of the fact that flat responses are inappropriate to those situations involving what are for most people emotionally laden stimuli.

Though references to the relative appropriateness of the schizophrenic patient's affective responses are quite frequent in the literature, experiments bearing directly on the topic are not. Therefore this study is based on Bleuler's pioneer work (7) as still (in this student's opinion) the most thorough theoretical and clinical approach to the subject to date.

It is possible to isolate three varieties of inappropriate affec-
tivity in Bleuler's chapter on the fundamental symptoms of schizophrenia:
1) the incongruity between the feeling a person shows and the feeling he
    reports;
2) the incongruity between the feeling a person shows and the feeling
    most normal people report under the same circumstances;
3) the incongruity between the feeling a person reports and the feeling
    most normal people report under the same circumstances.
Although Bleuler has abundantly illustrated each kind, he nowhere
suggests that their relevance to a diagnosis of schizophrenia may be
different. That is an assumption which this experiment has undertaken
to investigate.

An attempt to duplicate the psychiatrist's diagnostic interview
or the staff conference with a view to observing the schizophrenic
patients' affective disorder in its usual setting would present a large
number of variables which would be exceedingly difficult to control.
The stimuli confronting each patient are at least as variable as the
nature and degree of his presenting problem, and it is to this variety,
not some fictional uniformity, that the psychiatrist must react in
posing his questions and making his observations. Furthermore, the
observer would need to be on the alert for a wide variety of emotional
reactions or their absence in a setting that would call them forth.
The many possible emotional reactions may not be equally vulnerable to
the schizophrenic condition; and finally, the range and distribution of
a normal population cannot very easily be known so long as the patient's
own presenting problem is considered the primary stimulus in the
situation to be observed.

Therefore this study will be limited to the direct investigation
of only one of the many different emotional reactions possible. It must be readily elicitable, and the range and distribution of normal manifestations must be known. The stimuli confronting patient and normal subject alike should be the same, at least objectively. If this study should do no more than investigate an emotional response which had not been well explored in the patient population, the results would be of interest even though the extent to which they represent the whole may prove minimal.

Of all the possible emotional responses which can be studied in a schizophrenic population (without running the risk of traumatizing the patients) humor seems to make the nearest approach to the criteria just described. If Rado (57, p 411) is right in his belief that all schizophrenics suffer an "integrative pleasure deficiency" then humor stimuli — so universally popular — may provide the ideal technique for measuring the extent of a patient's incapacity. To use Rado's idiom, stimuli capable of eliciting a representative "welfare emotion" may be very sensitive to the insidious effect of schizophrenia, whereas stimuli normally capable of eliciting the "emergency emotions" only may not discriminate at all.

Moreover, humor may have the added advantage of indirectly touching upon the whole gamut of human emotion. Recent cartoon studies by Frenkel (20), Levine (42), and Redlich, Levine and Sohler (61), have tended to support Freud's impression that one's response to humor is a sensitive reflection of his underlying psychodynamics.

Although they reported no numerical results, Redlich, Levine, and Sohler (61) said that the degree of response to humor stimuli may be estimated with a satisfactory degree of reliability between judges. The
experimenter conducted a pilot study (unpublished) to establish what sort of agreement might be expected between an observer estimate of the degree of mirth response to a series of cartoons and the subject's own estimate of the degree of mirth experienced. Average Pearson r between observer estimate and subject criterion for fifteen normal subjects was .76, a result which suggests that it is possible to satisfactorily judge the degree of mirth experience on the basis of facial expression.

Rather than leave the variable "how most people would react to the situation" to the observer's imagination, this design represents an improvement on the clinical situation in that it is proposed to answer the question experimentally in actually testing the reactions of normal people under identical conditions.

Thus two estimates of a person's affective response to the same stimuli plus the typical reaction of normal people to the same stimuli will be obtained for comparison. The observer estimate of apparent affect is similar to the type of estimate the psychiatrist usually makes, whereas the subject's self estimate is similar to the type of estimate the patient makes of his own feelings. For economy of expression the three will be referred to by means of the following abbreviations:

AA) Apparent affect, or the "feeling a subject shows", as rated by an observer.

SE) Self estimate, or the "feeling a subject reports", as inferred from the subject's rating of the humor value of a series of cartoons.

SR) Standard reaction, or the "feeling most normal people report" under similar stimulus conditions, as inferred from their pooled ratings of the humor value of a series of cartoons.

For normal subjects one would expect the relationships among the
two variables and the SR to be high. For schizophrenic patients, one may predict on the basis of Bleuler's theory that the relationships would be low. The two variables and the SR may be related to one another in ways which were felt to correspond to the three affective incongruities discernable in Bleuler's discussion of schizophrenic affectivity, namely, the relationship:

1) between manifest feeling and reported feeling (AA and SE);
2) between apparent feeling and the feeling typically reported by a group of normal people in response to the same stimuli (AA and SR);
3) between reported feeling and the feeling typically reported by normal people in response to the same stimuli (SE and SR).

Of fundamental importance is the degree of discrepancy between AA and SE. From Bleuler's theory we may predict:

**Hypothesis 1.** The discrepancy between AA and SE is greater for schizophrenic patients than for normal persons.

**Hypothesis 2.** The discrepancy between AA and SE is greater for schizophrenic patients than for hospitalized, nonschizophrenic psychiatric patients.

**Hypothesis 3.** There is no difference between normal persons and nonschizophrenic patients in the discrepancy between AA and SE.

An understanding of the pattern of AA-SE discrepancies for various populations may be derived from an examination of the variability of each, taken separately. A limited variability in AA would seem to correspond to flattened affect. Accordingly, the following hypotheses are advanced:

**Hypothesis 4.** The variability of AA in a schizophrenic group is less
than the variability of AA in a normal group.

**Hypothesis 5.** The variability of AA in a schizophrenic group is less than the variability of AA in a nonschizophrenic group.

**Hypothesis 6.** There is no difference between normal persons and nonschizophrenic patients in the variability of each subject's AA.

Likewise the variability of each subject's SE may be analyzed in the same way. Bleuler's theory is ambiguous at this point and offers little guidance in stating hypotheses. Therefore the following are stated in the null form:

**Hypothesis 7.** There is no difference between normal persons and schizophrenic patients in the variability of each subject's SE.

**Hypothesis 8.** There is no difference between schizophrenic and nonschizophrenic patients in the variability of each subject's SE.

**Hypothesis 9.** There is no difference between nonschizophrenic patients and normal persons in the variability of each subject's SE.

The availability of a criterion (SR) for judging to what extent the AA or SE of a particular group approximates normal behavior in the same objective situation permits an investigation of the following hypotheses:

**Hypothesis 10.** There is no difference between zero and the correlation of AA with SR in a schizophrenic patient group.

**Hypothesis 11.** There is no difference between zero and the correlation of SE with SR in a schizophrenic patient group.

**Hypothesis 12.** There is no difference between zero and the correlation of AA with SR in a nonschizophrenic patient group.

**Hypothesis 13.** There is no difference between zero and the correlation of SE with SR in a nonschizophrenic patient group.
It is conceivable that the use of a SR based entirely on the SE of a standardization population might appreciably limit the extent of AA-SR relationships. Although the basic way to test this would be to collect both kinds of data from the standardization population and make the appropriate comparisons, a slightly less direct approach to the same problem may be made simply by comparing the correlations of AA with SR and SE with SR in the normal group. Accordingly, the verification of the following hypothesis may be considered evidence in favor of the use of SR based on the standardization group's SE alone.

**Hypothesis 1:** Within the normal group there is no difference between the correlation of AA with SR and the correlation of SE with SR.
Chapter II

Procedure

Inasmuch as cartoons readily call forth affective response in most normal people, the possibility of using cartoons in measuring affective appropriateness was considered. A pilot study showed that such an approach was feasible.

Fifteen cartoons, as that half which had discriminated better between normal and schizophrenic subjects in the pilot study, were presented together with 50 others from current magazines and books to 51 normal (non-hospitalized) women. The subjects were required to rate the relative humor value of each cartoon on an 8-point scale. The mean and standard deviation of these ratings was determined for each cartoon.

It was felt that relative agreement regarding a cartoon's humor value would be reflected in a limited standard deviation. The standard deviations for all 65 cartoons ranged from 1.0 to 2.4. The 36 cartoons with standard deviations ranging from 1.0 to 1.6 were selected for use in the main experiment. (These 36 cartoons appear as appendix A).

The average rating of each cartoon was considered typical of "normal response" to that particular cartoon. For example, it may be seen in Table 6, column SR, that the 51 women rated cartoon 29 as having a mean humor value of 4.8, a result which suggests that cartoon 29 may be the funniest in the series. On the other hand, cartoon 30 received a mean humor rating of 3.0, a result which suggests that (in the
collective opinion of the standardization subjects) cartoon 30 has hardly any humor value at all. Thus the 36 mean ratings have been considered a "standard reaction" (SR), which has been used in comparing the reactions of various groups to the same affective stimuli.

Inasmuch as it was considered likely that schizophrenic patients could find the rating task sufficiently complex for their diminished abilities that this fact alone might account for a low degree of relationship among the three factors, a simple test was devised which required rating a series of rectangles on an 8-point scale according to size. The "Rating Ability Test" was constructed in the following manner. A series of eight rectangles was drawn on a piece of heavy paper 8x12 inches and mounted on pasteboard. The rectangles were arranged according to progressively increasing size across a common baseline beneath which the numbers 0 through 7 appeared, each assigned from left to right in direct proportion to the relative size of each rectangle. The smallest measured 1/8 in. wide by 1 1/4 in. tall. Each succeeding rectangle was 1/8 in. wider and 1 1/4 in. taller. The largest was 1 in. wide by 10 in. tall. The purpose of this paper (Fig. 1) was to serve as a guide to the subject in making judgments of the relative size of rectangles. The rectangles to be rated were exact duplicates of those on the "guide paper". Each of 20 such rectangles was drawn in the center of 20 sheets of heavy paper, 8 1/2 in. by 11 in. in size. These were arranged in random order and bound in a notebook. Inasmuch as extremes in size would be the easiest discriminations to make, the sizes were not presented with equal frequency. Instead, extreme sizes 0 and 7 were presented once each, sizes 1 and 6 were presented twice each, sizes 2 and 5 were presented three times each, and sizes 3 and 4 were presented four times.
Fig. 1. Reproduction of the eight rectangles to be rated in the Rating Ability Test, reduced to one-half size.
each. The following standard sequence of administration was determined by reference to a table of random numbers: 3, 4, 7, 3, 5, 2, 0, 4, 1, 4, 2, 4, 6, 3, 2, 5, 3, 6, 5, 1.

As an additional measure of the relative capacity of the schizophrenic patients and normal subjects used in this study, a brief screening test of verbal intelligence (75, 76) devised by Thorndike was used. He selected 20 words from the Institute of Educational Research Intelligence Scale, CAVD. Two words were chosen from each of the levels of the CAVD from H through Q. This is an untimed power test presenting five alternatives upon which to base each of 20 choices. The vocabulary test was standardized by presenting it together with the "Otis" (Otis Self-Administering Intelligence Examination, Intermediate Level, Form A) to 538 pupils in grades 7, 8, and 9, and together with the "Otis" (Otis Self-Administering Intelligence Examination, Higher Level, Form A) to 456 pupils in grades 10 and 11. The subjects were students in the public schools of Middletown, Connecticut and Rutherford, New Jersey. By an elaborate process of comparing the results of the Otis examinations with those of the vocabulary test a series of Otis Mental Age equivalents of vocabulary scores were worked out.

Thorndike and Gallup incorporated the vocabulary test as part of the regular weekly inquiries by the American Institute of Public Opinion on matters of current interest. The sample of 2,974 subjects was taken from the standard voting sample of the institute. All the subjects tested were registered American voters, and the "proportions in the sample were planned to correspond with the characteristics of the voting population in the country at large" (76, p 76). The results, recorded in terms of the number of vocabulary words passed, were as follows:
16.9% of the population scored below 7, 6.4% scored 7, 7.4% scored 8, 7.6% scored 9, 9.5% scored 10, 8.7% scored 11, 9.7% scored 12, 7.9% scored 13, 7.8% scored 14, and 19.1% of the population scored 15 or above. $Q_1$ was 10.52, $Q_2$ was 10.75, $Q_3$ was 13.62, and the mean was 10.52. $Q_2$ or the median corresponds to an Otis MA of 16 years and two months, a level very near to that attained by a class of high school students in New York City in the first month of the junior year. Thorndike and Gallup (76) have regarded the test as a useful adjunct to public opinion research, giving as it does a quick estimate of a subject's verbal intelligence with a reliability (Pearson $r$) between .80 and .85. Tompkins is using this vocabulary test at the present time in his standardization of the Tompkins-Horn Picture Arrangement Test at Princeton.

The reliability of the cartoon test AA ratings was determined by correlating the observer ratings of each subject's response with a second observer's rating of the same responses. This was done for the 24 normal and the 24 schizophrenic subjects. (Two more observers also rated the affective behavior of half the nonschizophrenic subjects. Though the degree of agreement between the experimenter's rating and their ratings was high, their participation having been limited to a fraction of one group only precluded the use of their ratings in the reliability measures). The percentage of perfect agreement between the ratings of the first and second observers ranged from 78% to 100% with a mean of 89%. Percentage of near agreement ranged from 84% to 100% with a mean of 94%. (Percentage of near agreement is used here as a measure inclusive of instances of agreement and deviation from agreement by no more than one scale unit in either direction).
In addition to the standardization group already mentioned, this study required the use of three groups of 24 persons each. Non-hospitalized residents of urban and rural districts of St. Tammany and Orleans parishes, Louisiana, served as the source of the normal group. Hospitalized patients from Southeast Louisiana Hospital in Mandeville served as the source of the schizophrenic group. The subjects of these groups were selected on as unbiased a basis as possible from those tested who met the minimal requirements for inclusion in the experiment. One of the minimal requirements was a score within the range of the upper three-fourths of the general American population on the vocabulary test; another was a limit of six errors on the "Rating Ability Test" (Fig. 2) for the schizophrenic patient group. (The latter standard was suggested by the level of performance of the normal subjects). The subjects chosen as the nonschizophrenic patient group include not only the total population of nonschizophrenic patients available at Southeast Louisiana Hospital at the time the experiment was conducted but also the total population of hospitalized nonschizophrenic patients available at Charity Hospital in New Orleans as well. Sex and race were held constant by using white female subjects exclusively. With rare exceptions the patients included had been hospitalized less than 10 weeks.

The 36 cartoons (Appendix A) were presented individually to the 72 subjects, who were requested to rate the relative humor value of each cartoon on an 8-point scale, while observers simultaneously rated the degree of affective response on another 8-point scale (Appendix B). The data obtained were analyzed in the manner described in the chapter on results.
Fig. 2. Frequency polygons showing the distributions for the normal and the schizophrenic 24-person groups on the Rating Ability Test.
Chapter III

Results

One of the fundamental assumptions of this study is that affective inappropriateness is a function of quantitative differences among expected (SR), reported (SE), and manifested feeling (AA).

Relationship between self estimate (SE) and observer's rating or apparent affect (AA). Table 1 presents the mean of the 36 AA and SE ratings for every individual in the schizophrenic patient, hospitalized nonschizophrenic patient, and normal groups. The individual means appear to distribute themselves similarly along each dimension (whether AA or SE) within each group. Table 2, which presents the group means, confirms this impression in showing that the average mean SE ratings do not differ significantly from one another, nor do the AA ratings for the three 24-person groups. (However, the gap between normal persons and schizophrenic patients on the AA dimension so nearly approaches significance that the hypothesis of no difference must be considered more tenative here than elsewhere.) Thus experienced feeling (SE) and apparent feeling (AA) seem to be present to roughly the same extent in each of the three groups. This suggests that inappropriateness of affective response cannot be accounted for solely on the basis of either a low mean AA or a low mean SE, taken separately. To estimate the relative appropriateness of affective response a context is required as the basis upon which an AA or SE may be evaluated.
Table 1

Mean Ratings of 36 Cartoons by Each Subject (SE) and Mean Observer Ratings of Each Subject's Affective Response (AA)

<table>
<thead>
<tr>
<th>Subject#</th>
<th>AA Apparent Affect</th>
<th>SE Self Estimate</th>
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<tbody>
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<td>n = 24</td>
<td>Schizophrenic patients</td>
<td>Nonschizophrenic patients</td>
</tr>
<tr>
<td>A</td>
<td>2.0</td>
<td>4.6</td>
</tr>
<tr>
<td>B</td>
<td>2.0</td>
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<tr>
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<td>2.2</td>
</tr>
<tr>
<td>Q</td>
<td>2.5</td>
<td>3.0</td>
</tr>
<tr>
<td>R</td>
<td>3.3</td>
<td>3.8</td>
</tr>
<tr>
<td>S</td>
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<td>3.6</td>
</tr>
<tr>
<td>T</td>
<td>2.7</td>
<td>5.2</td>
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<tr>
<td>U</td>
<td>2.6</td>
<td>2.6</td>
</tr>
<tr>
<td>V</td>
<td>2.0</td>
<td>2.6</td>
</tr>
<tr>
<td>W</td>
<td>2.3</td>
<td>4.3</td>
</tr>
<tr>
<td>X</td>
<td>2.5</td>
<td>3.7</td>
</tr>
</tbody>
</table>

Mean          2.28  2.99  3.40  3.55  3.84  4.22

* The letters are arbitrary labels for each subject of each group.
Table 2

Comparison of Apparent Affect (AA) and Self Estimate (SE) Ratings in Three 24-person Groups

<table>
<thead>
<tr>
<th>Types of comparison</th>
<th>Groups being compared</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th>Differences</th>
<th>S.E.</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Group</td>
<td>Mean</td>
<td>S.E.</td>
<td>Group</td>
<td>Mean</td>
<td>S.E.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Within groups</td>
<td>Schiz</td>
<td>2.28</td>
<td>.36</td>
<td>Schiz</td>
<td>3.55</td>
<td>1.11</td>
<td>1.27</td>
<td>.20</td>
</tr>
<tr>
<td>(AA left, SE right)</td>
<td>N.S.</td>
<td>2.99</td>
<td>.90</td>
<td>N.S.</td>
<td>3.84</td>
<td>1.05</td>
<td>.85</td>
<td>.147</td>
</tr>
<tr>
<td></td>
<td>Norm</td>
<td>3.40</td>
<td>.64</td>
<td>Norm</td>
<td>4.22</td>
<td>.54</td>
<td>.82</td>
<td>.13</td>
</tr>
<tr>
<td>Between groups SE</td>
<td>Schiz</td>
<td>3.55</td>
<td>1.11</td>
<td>Norm</td>
<td>4.22</td>
<td>.54</td>
<td>.67</td>
<td>1.24</td>
</tr>
<tr>
<td></td>
<td>Schiz</td>
<td>3.55</td>
<td>1.11</td>
<td>N.S.</td>
<td>3.84</td>
<td>1.05</td>
<td>.29</td>
<td>1.53</td>
</tr>
<tr>
<td></td>
<td>Norm</td>
<td>4.22</td>
<td>.54</td>
<td>N.S.</td>
<td>3.84</td>
<td>1.05</td>
<td>.38</td>
<td>1.18</td>
</tr>
<tr>
<td>Between groups AA</td>
<td>Schiz</td>
<td>2.28</td>
<td>.36</td>
<td>Norm</td>
<td>3.40</td>
<td>.64</td>
<td>1.12</td>
<td>.73</td>
</tr>
<tr>
<td></td>
<td>Schiz</td>
<td>2.28</td>
<td>.36</td>
<td>N.S.</td>
<td>2.99</td>
<td>.90</td>
<td>.71</td>
<td>.98</td>
</tr>
<tr>
<td></td>
<td>Norm</td>
<td>3.40</td>
<td>.64</td>
<td>N.S.</td>
<td>2.99</td>
<td>.90</td>
<td>.41</td>
<td>1.11</td>
</tr>
</tbody>
</table>

Schiz = schizophrenic group; N.S. = nonschizophrenic group
Norm = normal group. (n = 24 in each case)
S.E. = standard error of the value appearing at left in each case.
* t significant beyond the 1% level of confidence.
Reference to Table 2 shows that the sheer finding of discrepancy between AA and SE is not sufficient evidence to indicate inappropriate affect. The three groups, normal persons, nonschizophrenic and schizophrenic patients, all exhibited some discrepancy. Perhaps one explanation of such a difference may be found in the possibility that subjects and observers may have used their respective 8-point scales in ways which are not comparable. On the other hand, it is a matter of everyday observation that people in our culture usually show less feeling than they claim to experience.

Although the mere fact of a discrepancy between AA and SE did not discriminate between schizophrenic patients and other groups, the degree of the discrepancy did. According to our first hypothesis, "the discrepancy between AA and SE is greater for schizophrenic patients than for normal persons". Table 3 shows that this hypothesis has been verified in that the difference between the AA and SE for normal persons (0.82) is significantly smaller than the difference between AA and SE for schizophrenic patients (1.27). According to hypothesis 2, "the discrepancy between AA and SE is greater for schizophrenic patients than for hospitalized, nonschizophrenic patients". In Table 3 it may be seen that this hypothesis may be accepted at the 5% point (one-tailed test) in accord with theoretical and clinical expectations.

If inappropriate affective response is a distinctive feature of schizophrenia, as Bleuler maintained, then, as predicted by hypothesis 3, "there is no difference between normal persons and nonschizophrenic patients in the discrepancy between AA and SE". Table 3 indicates that this null hypothesis may be readily accepted.

It seemed likely that the schizophrenic patients' flattened
Table 3
Significance of Difference Between Groups in the Discrepancy Between Apparent Affect (AA) and Self Estimate (SE)

<table>
<thead>
<tr>
<th>Test of Hypothesis 1</th>
<th>Test of Hypothesis 2</th>
<th>Test of Hypothesis 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Group</td>
<td>Mean</td>
<td>S.E.*</td>
</tr>
<tr>
<td>Schizophrenic</td>
<td>1.27</td>
<td>.20</td>
</tr>
<tr>
<td>Normal</td>
<td>.82</td>
<td>.13</td>
</tr>
<tr>
<td>Difference</td>
<td>.45</td>
<td>.23</td>
</tr>
<tr>
<td>$t = 1.96$</td>
<td>$P = .03$ point</td>
<td>$t = 1.87$</td>
</tr>
</tbody>
</table>

*S.E. = Standard error of value appearing at left in each case.*
affective response would be expressed in less variation of apparent affect 
(AA) than that shown on a normal group. This was hypothesis 4; Table 4, 
which summarizes comparisons between groups on variability shows that this 
hypothesis was accepted at the 5% point. Likewise hypothesis 5 predicted, 
"there is less individual AA variability in the schizophrenic group than 
in a hospitalized nonschizophrenic psychiatric patient group". Reference 
to Table 4 indicates that this hypothesis was also accepted at the 5% 
point. Hypothesis 6 suggests that "there is no difference between the 
mean AA variance of a normal group and the mean AA variance of a non­ 
schizophrenic group". The null hypothesis was rejected, as Table 4 
shows, for the difference between the mean variances is significant at 
the 5% level of confidence. Therefore it is seen that variability of AA 
progressively decreases from normal persons, through nonschizophrenic 
patients, to schizophrenic patients.

The mean SE variance for each group provided a convenient test 
of whether progressively flattened affect (AA) is paralleled by a 
progressively constricted subjective experience (SE). The acceptance of 
hypotheses 7, 8 and 9 showed that there is no difference among the three 
experimental groups in the variability of SE reported. Thus lability of 
the outward expression of emotion (AA) appears to be especially lacking 
in schizophrenic patients at the same time that the degree of variability 
in the reported intensity of their inner experience (SE) fails to differ 
significantly from that of normal persons.

When individual subject's AA and SE scores were correlated with 
each other (Pearson r), it was anticipated that normal subjects would 
show the highest correlations, nonschizophrenic patients, intermediate 
correlations, and schizophrenic patients the lowest correlations.
Table 1

Comparison of the Variability (Variances) of Apparent Affect (AA) and the Self Estimate (SE) Ratings on Three Groups of Subjects

<table>
<thead>
<tr>
<th>Group</th>
<th>Variances of AA</th>
<th>Variances of SE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hypothesis 1</td>
<td>Hypothesis 5</td>
</tr>
<tr>
<td></td>
<td>Mean S.E.</td>
<td>Mean S.E.</td>
</tr>
<tr>
<td>Schizophrenic</td>
<td>.4682 .1155</td>
<td>.4682 .1155</td>
</tr>
<tr>
<td>Nonschizophrenic</td>
<td>1.0683 .1721</td>
<td>1.0683 .1721</td>
</tr>
<tr>
<td>Normal</td>
<td>1.6597 .1728</td>
<td>1.6597 .1728</td>
</tr>
<tr>
<td>Difference</td>
<td>1.1915 .2077</td>
<td>.6001 .2073</td>
</tr>
<tr>
<td>Significance</td>
<td>t = 5.7 P = .01 point</td>
<td>t = 2.9 P = .01 point</td>
</tr>
</tbody>
</table>

S.E. = Standard error of value at left in each case.
No correction was made for heterogeneity of variance, because the experimenter's intent was to produce a score that would correspond to the subjective impression of the relative appropriateness of affective response.

Table 5 lists the uncorrected correlation coefficients for the 72 subjects used in this study. An asterisk is placed beside each score derived from data having heterogeneous variances so that the reader who feels that the violation of one of the statistical assumptions behind product-moment $r$ is not justified in this case may arrive at his own interpretation. In this way an interesting phenomenon may be observed. In moving from normal through nonschizophrenic to schizophrenic subjects it is seen that variances for normal persons are nearly all homogeneous, for nonschizophrenic patients variances are about half homogeneous and half heterogeneous, for schizophrenic patients nearly all the variances are heterogeneous. Turning to the uncorrected correlation coefficients themselves, it is apparent at once that the mean AA-SE correlation for the schizophrenic patients does not differ significantly from zero, and that the mean AA-SE correlations for the nonschizophrenic patients and normal persons do not differ significantly from each other. These results are in harmony with Bleuler's theory that inappropriate affect is a distinctive feature of schizophrenia.

**Relationship of self estimate (SE) and of apparent affect (AA) to standard reaction (SR).** All that has been said so far relates to but one kind of relative appropriateness of affective response, namely, the harmony between thought (as expressed in the judgment, SE) and feeling (as observed: AA). It remains to discuss the interrelationships among two other kinds of relative appropriateness:
Table 5

Coefficients of Correlation (Pearson r) Between Apparent Affect (AA) and Self Estimate (SE) for Each of 72 Subjects for All 36 Cartoons

<table>
<thead>
<tr>
<th>Schizophrenic patients</th>
<th>Nonschizophrenic patients</th>
<th>Normal subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td>-.16</td>
<td>.21</td>
<td>.00</td>
</tr>
<tr>
<td>.00*</td>
<td>.28*</td>
<td>.27</td>
</tr>
<tr>
<td>.00*</td>
<td>.30*</td>
<td>.28</td>
</tr>
<tr>
<td>.00*</td>
<td>.41*</td>
<td>.16</td>
</tr>
<tr>
<td>.00*</td>
<td>.44</td>
<td>.53</td>
</tr>
<tr>
<td>.00*</td>
<td>.55</td>
<td>.54</td>
</tr>
<tr>
<td>.00*</td>
<td>.60*</td>
<td>.60</td>
</tr>
<tr>
<td>.00*</td>
<td>.62*</td>
<td>.66*</td>
</tr>
<tr>
<td>.07*</td>
<td>.65*</td>
<td>.67</td>
</tr>
<tr>
<td>.11*</td>
<td>.69</td>
<td>.69</td>
</tr>
<tr>
<td>.17*</td>
<td>.70</td>
<td>.69*</td>
</tr>
<tr>
<td>.27*</td>
<td>.70</td>
<td>.70</td>
</tr>
<tr>
<td>.28*</td>
<td>.75</td>
<td>.80</td>
</tr>
<tr>
<td>.32</td>
<td>.76</td>
<td>.81</td>
</tr>
<tr>
<td>.33*</td>
<td>.76*</td>
<td>.82</td>
</tr>
<tr>
<td>.34</td>
<td>.79</td>
<td>.83</td>
</tr>
<tr>
<td>.35*</td>
<td>.81*</td>
<td>.84*</td>
</tr>
<tr>
<td>.37*</td>
<td>.82</td>
<td>.85</td>
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<td>.39*</td>
<td>.84*</td>
<td>.86</td>
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<td>.45</td>
<td>.88</td>
<td>.86*</td>
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<td>.53*</td>
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<td>.89</td>
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<td>.57</td>
<td>.88</td>
<td>.94</td>
</tr>
<tr>
<td>.66</td>
<td>.94*</td>
<td>.95</td>
</tr>
</tbody>
</table>

* A correlation coefficient based upon data having heterogeneous variances

N for each group = 24
1) the relationship between the feeling expressed in behavior (AA) and the feeling ordinarily reported by normal individuals in the same situation (SR).

2) the relationship between the feeling experienced (as reported: SE) and the feeling ordinarily reported by normal individuals in the same situation (SR).

The mean AA and the mean SE for each of the 36 cartoons for all three groups are presented in parallel columns in Table 6 together with the 36 means (and standard deviations) obtained from the 51 standardization subjects. Table 7 presents the degree of correlation between the mean scores of AA and of SE with SR for each group.

From Table 7 it is apparent that there is an appreciable relationship between the standard reaction (SR) and that given by the normal group for self estimate (SE) and for apparent affect (AA); the Pearson r is .57 in each instance. Thus hypothesis 11, which affirms that "within the normal group there is no difference between the correlation of AA with SR and the correlation of SE with SR" is supported.

In the patient groups the correlations of SE with SR were sufficiently high to result in rejection at the 5% level (15, p .008) of hypotheses 11 and 13 (which state that there is no difference between their SE-SR correlations and zero). It may be seen in Table 7 that the respective standard errors of the SE-SR correlations of all three groups overlap to an extent which suggests that there is no difference between them.

Before turning to an evaluation of the AA-SR correlations in the patient groups, it may be well to recognize that their variances of AA were so narrow that a question of homogeneity was considered. Transforma-
Table 6

Mean Apparent Affect (AA) and Self Estimate (SE) Scores for Each of 36 Cartoons as Given by Three 2b-person Groups, Together with the Means Given by the Standardization Group

<table>
<thead>
<tr>
<th>Cartoon</th>
<th>Schizophrenic patients</th>
<th>Nonschizophrenic patients</th>
<th>Normal subjects</th>
<th>Standardization subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>AA</td>
<td>SE</td>
<td>AA</td>
<td>SE</td>
</tr>
<tr>
<td>1.</td>
<td>2.5</td>
<td>4.0</td>
<td>2.8</td>
<td>3.8</td>
</tr>
<tr>
<td>2.</td>
<td>2.2</td>
<td>3.2</td>
<td>3.5</td>
<td>4.1</td>
</tr>
<tr>
<td>3.</td>
<td>2.5</td>
<td>3.4</td>
<td>3.0</td>
<td>4.6</td>
</tr>
<tr>
<td>4.</td>
<td>2.2</td>
<td>3.0</td>
<td>2.2</td>
<td>2.8</td>
</tr>
<tr>
<td>5.</td>
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<td>3.2</td>
<td>4.5</td>
</tr>
<tr>
<td>6.</td>
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<td>3.8</td>
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<td>3.1</td>
<td>4.5</td>
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<td>3.1</td>
<td>4.2</td>
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<tr>
<td>14.</td>
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<td>3.0</td>
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<td>3.2</td>
<td>4.1</td>
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<tr>
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<td>2.2</td>
<td>4.0</td>
<td>2.9</td>
<td>4.1</td>
</tr>
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<td>4.1</td>
</tr>
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<td>22.</td>
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<td>3.7</td>
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<td>24.</td>
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<td>4.2</td>
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<td>3.3</td>
<td>3.7</td>
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<td>3.0</td>
<td>3.8</td>
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<td>27.</td>
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<td>3.6</td>
<td>3.0</td>
<td>3.8</td>
</tr>
<tr>
<td>28.</td>
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<td>3.6</td>
<td>2.9</td>
<td>3.9</td>
</tr>
<tr>
<td>29.</td>
<td>2.3</td>
<td>3.9</td>
<td>3.4</td>
<td>4.5</td>
</tr>
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<td>30.</td>
<td>2.1</td>
<td>2.8</td>
<td>3.1</td>
<td>3.6</td>
</tr>
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<td>31.</td>
<td>2.3</td>
<td>3.6</td>
<td>3.2</td>
<td>3.8</td>
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<td>32.</td>
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<td>3.6</td>
<td>3.0</td>
<td>4.0</td>
</tr>
<tr>
<td>33.</td>
<td>2.3</td>
<td>4.1</td>
<td>2.8</td>
<td>3.7</td>
</tr>
<tr>
<td>34.</td>
<td>2.1</td>
<td>3.2</td>
<td>2.4</td>
<td>3.3</td>
</tr>
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<td>35.</td>
<td>2.2</td>
<td>3.2</td>
<td>2.8</td>
<td>3.4</td>
</tr>
<tr>
<td>36.</td>
<td>2.3</td>
<td>3.8</td>
<td>3.6</td>
<td>4.0</td>
</tr>
</tbody>
</table>

For SR means, N= 51; for all other means, N= 24; S.D. = Standard deviation
Table 7

Coefficients of Correlation (Pearson r) Between Mean Scores for Self Estimate (SE) and for Apparent Affect (AA) and Standard Reaction (SR)

<table>
<thead>
<tr>
<th></th>
<th>Self Estimate</th>
<th>Apparent Affect</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>r</td>
<td>S.E.</td>
</tr>
<tr>
<td>Schizophrenic patients</td>
<td>.33</td>
<td>.15</td>
</tr>
<tr>
<td>Nonschizophrenic patients</td>
<td>.47</td>
<td>.13</td>
</tr>
<tr>
<td>Normal subjects</td>
<td>.57</td>
<td>.11</td>
</tr>
</tbody>
</table>

* Pearson r not significantly different from zero at the 5% level of confidence, according to the table in Edwards (15, p 408).
tions were undertaken to determine whether this had any appreciable effect on the AA-SR correlations. (For the schizophrenic patient group each pair of cartoon means was transformed by $1/10X$; for the nonschizophrenic patient group each pair of means was transformed by the square root of $100X$). Inasmuch as the transformed data resulted in a Pearson $r$ of $.51$ for the schizophrenic patient group and a Pearson $r$ of $.29$ for the nonschizophrenic patient group, it is apparent that it makes no difference whether transformed or untransformed data are used in this study.

The AA-SR correlations for the schizophrenic patient group differ significantly from zero; thus hypothesis 10 is rejected. Its standard error ($0.125$) overlaps with that of the normal group ($0.114$) to an extent which suggests that there is no difference between schizophrenic patients and normal persons on the AA-SR dimension of relative appropriateness of affective response.

On the other hand, the AA-SR correlation for the nonschizophrenic patient group is not quite high enough to justify the rejection of hypothesis 12, which states, "There is no difference between zero and the correlation of AA with SR in a nonschizophrenic patient group". The acceptance of hypothesis 12, therefore, taken in conjunction with the rejection of hypothesis 10 (there is no difference between zero and the AA-SR of the schizophrenic patient group) suggests that, with regard to the AA-SR dimension nonschizophrenic patients may be less appropriate in their affective response than schizophrenic patients. Caution must be observed in coming to such a conclusion, however, so nearly does the AA-SR correlation of the nonschizophrenic patient group approach significance.
Chapter IV
Discussion

The validity of this study is dependent upon the acceptance of several assumptions. Two of these refer to the schizophrenic patients' SE:

1. It is assumed that the schizophrenic patients' judgments reflect inward affective experience and that the words used to denote the successive steps of affective variation (Appendix B) mean essentially the same thing to them as to other groups. This is an obstacle, however, common to any attempt to understand the schizophrenic patient's experience from their own point of view.

2. It is assumed that optimal rapport has been obtained and that the schizophrenic patients' SE are candid statements of their true opinions. The patients' behavior during testing has convinced the experimenter that this assumption is not only justified, but that it points to one of the cartoon test's greatest strengths, the ability to elicit and maintain rapport.

3. It is assumed that psychiatric diagnoses pertinent to this investigation were based on equivalent criteria in the two institutions from which the patient population was drawn. The psychiatrists of Charity Hospital and Southeast Louisiana Hospital whose opinions were the most frequently relied on were trained at a common center.

4. It is assumed that the diagnoses obtained in the two institutions are typical of the diagnoses that might have been obtained by
competent persons anywhere. This is not so easily granted. It was felt that the psychiatrists' decisions here were probably more typical of that group which finds the theories of Rado (57) a congenial frame of reference. On the other hand, this characteristic of the diagnostic criterion has the advantage of providing a more direct test of some of the theories under consideration even though it may restrict its generality of application. It is felt that the humor test would be more likely to elicit what Rado has called a "welfare emotion" than the moderately stressful situation of the diagnostic interview.

5. It is assumed that the results obtained reflect the effect of schizophrenia as compared with other kinds of psychiatric disorders, but it may be argued that the results merely reflect varying degrees of mental illness. It is true that a high percentage of the nonschizophrenic group were not psychotic, but on the other hand it is difficult to see how degree of illness might have been controlled if schizophrenia of its very nature is a more serious illness than the other disorders.

Of course, the results obtained here were based on three fairly heterogeneous groups with a N of only 24 for each group. Future research in this area could take the form of either appreciably increasing the N or making the groups more homogeneous. (It would be exceedingly difficult to do both simultaneously). To increase homogeneity, one might follow some such procedure as this: Select a large group of normal people having the following personality characteristics: introversion, tidiness, punctuality, persistence, following a schedule or routine, systematic approach to problems, highly organized . . . etc. Divide this group in half on a random basis, using one of the groups for standardization purposes and the other as an experimental group. Next, select a group of obsessive-
compulsive neurotic patients, and finally, a group of paranoid schizophrenic patients, taking care to match the three experimental groups on as many relevant variables as possible. With three such homogeneous groups the kind of experiment undertaken here might be repeated with a better opportunity of exhibiting significant results. It will be noted, of course, that such a design does not control for degree of illness either.

Nevertheless, if the experimental design used here may be considered a fair test of the hypotheses submitted, and if the foregoing assumptions are accepted, then the following generalizations may be in order. The results of this study support Bleuler's theory that the discrepancy between apparent affect and subjective experience is greater for schizophrenic patients than for all other groups. This appears to be a function of the high degree of constriction in the outward affective response (AA) of schizophrenic patients. On the other hand, this study presents evidence contradicting Bleuler's assumption that what is true of this one kind of appropriateness is also true for two other kinds as well. For the appropriateness of apparent affect to the experience typically reported by normal persons in the same situation (AA-SR) nonschizophrenic patients manifest abnormal responses, whereas schizophrenic patients do not. There seems to be no difference among schizophrenic patients, nonschizophrenic patients and normal persons in the appropriateness of the feeling they report to the feeling typically reported by normal people in the same situation.
Chapter V

Conclusions

1. There are at least three kinds of relative appropriateness of affective response which vary more or less independently of each other.

2. The generalizations made in Bleuler's discussion of schizophrenic affectivity seem to apply to the discrepancy between apparent affect and reported feeling only.

3. Such discrepancy may be accounted for by the extremely low individual variability of apparent affect in the schizophrenic group.

4. Nonschizophrenic patients stand between the schizophrenic and the normal groups with regard to the variability of their apparent affect.

5. Schizophrenic, nonschizophrenic and normal groups do not seem to differ from each other in the variability of their reported feeling (as inferred from their SE).

6. There was no difference between the schizophrenic patient group and the normal group in the degree of relationship between their apparent affect and the typical reaction of another normal group to the same situation.

7. On the other hand, the nonschizophrenic patient group failed to differ significantly from zero in the degree of relationship between apparent affect and the typical reaction of a normal group to the same situation (AA-SR).

8. The relative appropriateness of reported feeling to the feeling reported by most normal people in response to the same situation
does not discriminate effectively among the three groups used in this experiment (SE-SR).
Selected Bibliography


43. Lewis, N. D. Outlines for psychiatric examinations. New York State Department of Mental Hygiene, 1943.


64. Ribot, T. The psychology of emotions. London: W. Scot, 1897.


APPENDIX A

Cartoons: the Series and its Sources

This is a list of the artists and publications originally responsible for the cartoons used in this study. In every case the author of this paper has recorded all the information available to him at the present time concerning each cartoon. Permission for the use of copyrighted cartoons is pending. The numbering of the cartoons follows the final sequence of administration.

Artist: Source of Cartoon:

2. Zeis Saturday Evening Post, April 17, 1954.
4. Temes Origin unknown
9. Price New Yorker
11. O'Brien 1000 Jokes
12. Gallagher Saturday Evening Post
13. Darrow The New Yorker 25th Anniversary Album
16. Boltinoff Saturday Evening Post
17. Alain The New Yorker 25th Anniversary Album
19. Nofzige 1000 Jokes
20. Fox Ladies Home Journal
23. Johns Origin unknown
24. Baeb Saturday Evening Post
25. C. Day New Yorker
26. Hoff New Yorker
27. Decker New Yorker
28. Jarvis Saturday Evening Post
31. Starke New Yorker
32. Kraus New Yorker
33. King Saturday Evening Post
34. Hoff New Yorker
35. unknown House, E. Words Fail Me. New York: Ace, 1951.
36. Tobin Ladies Home Journal
"How would a big delicious steak dinner sound to you, Henry?"

"But how's the job otherwise?"
"Be sure and write us when you learn how."

"If you don't cut out the horseplay, Simpson, you're going to find yourself riding in another car pool!"
"She spoils that brat to death."

"The minute you went in, he jumped back in the car and drove off, whistling a little tune."
"What gets me is that having to love everybody whether you like them or not."
"What happened 17 years ago today? I'll give you a hint.
I was wearing a veil."
11.

"So that's where you were hiding!"

12.

"Now what did I say?"
"Watch it, Charlotte, you're tending to lead again."

"Mind if I sit over there awhile, dear? I want to change ears."
"Well, anyone can make a mistake!"
"Please, Martin, can't you lean somewhere else?"

"The following half hour of total silence is brought to you by the courtesy of the Marble Orchard Cemetery."
"It is! It is so! It's SOUR MILK!

"She'll be right down—her mother's briefing her."
"Do mothers ever worry how their children will turn out? Their figures, I mean!"
"I said people don't seem to like me for some reason—open your ears, fathead!"

"Say! This hobby of yours is fun!"
"Did you see her deliberately turn their air-conditioner off?"
"On our honeymoon, we'll visit Denver, Cheyenne, Salt Lake City, Phoenix—well, maybe not Phoenix—mother has been there."

"That's just an expression, Mrs. Brown. I don't really want to take him home with me."
"... bending over the quick-frozen desserts. Took too long to make up her mind."

"So! Like a hole in the head you need me—?"
"Good heavens, no! I just wanted to feel that I could."
"I'm in here, in the bathtub, Mr. Swenson. Come on in."

"I don't think it's fair to call people middle-aged just because they're not so young anymore."
"Do you feel well enough to be cheered up?"
APPENDIX B

Description of 8-point Rating Scales and Instructions Given Subjects

The 8-point scale presented each subject might have been represented frankly as an affective scale varying between the extremes of pleasantness and unpleasantness, but it was decided that representing it that way would lead the subjects to consider their responses a purely personal matter, whereas representing the scale as expressing a "funny—not funny" dimension might convey the impression to the subject that he was making objective judgments, an impression, it was felt, which would be more conducive to candid responses. Similar reasoning and experience led Strother, Barnett and Apostolakos (71) in a similar direction in their construction of a humor test based on William Steig's cartoons published under the title The Lonely Ones. The verbal description of the eight points used in this experiment's humor test follow. The judgment "extremely funny" was assigned a score of 7, "very funny", a score of 6, "moderately funny", a score of 5, "mildly funny", a score of 4, "only very slightly funny", a score of 3, "indifferent" or "don't get it", a score of 2, "not funny", a score of 1, and "disgusting" or "repulsive", a score of 0. To name the lower extreme of the scale "disgusting" is consistent with Strother's usage (71), and also with the linear scale of pleasantness-unpleasantness devised by Woodworth (82).

The observers of the subject's mirth responses likewise made use of an 8-point scale which might have more objectivity than a purely
intuitive rating. The observer judgment, "boisterous laughter", was assigned a score of 7, "normal laughter", a score of 6, a mere "chuckle", a score of 5, a "broad grin", a score of 4, a "half smile", a score of 3, a "blank visage", a score of 2, a "slightly negative response", a score of 1, a "definitely negative response", a score of 0. However, even such a scale allows room for individual differences in that observers may unconsciously compensate for personal differences in amplitude of response in rating laughter as "boisterous", for example, in one case, but the same degree of laughter as "normal" in another more labile person.

The instructions given each patient subject were these: "Here are 36 cartoons like the kind you see in current magazines and books. Some of these will be much funnier than others, some may not be funny at all. We want to publish some of the better ones in our hospital newspaper, but we can't rely on our own opinions of how good they are, because many people might disagree with our choice. That is why we are asking for you opinion, and for the opinions of a lot of other people like you. Mark that number which best describes the cartoon in the tablet before you beside the number which identifies it". By gestures, examples, and further explanations, clarifications were made when necessary to a subject's compliance with the instructions. While rating the subject's affective behavior, the observers acted in such a way as to suggest that they were not especially interested in each judgment the subject made. Apparently only a few noticed, and only two commented on the observers' activity.
APPENDIX C

Some Additional Controls

Inasmuch as this experiment involved the use of three 24-person
groups representing three diagnostic classifications certain character­
istics of the subjects were recorded and analyzed to determine whether
the groups differed among themselves on any other dimension which might
systematically bias the results obtained.

The sum of ages at last birthday within each group was 88 for
schizophrenic patients, 99 for nonschizophrenic patients, and 76 for
normal persons. Bartlett's Test of the homogeneity of variance was
applied to the raw data and the null hypothesis accepted before the
analysis of variance technique was introduced. An F of 2.6 showed that
there was no real difference in age among the three groups.

The sum of vocabulary words passed was 263 for schizophrenic
patients, 258 for nonschizophrenic patients, and 268 for normal persons.
Bartlett's Test of the hypothesis of no difference in variance was
accepted and the analysis of variance technique was applied to the data.
An F of .08 indicated that the groups did not differ with regard to
verbal intelligence (as estimated by the instrument used).

The educational level attained was coded in the following manner:
Group distribution of last grade completed as 0-6 = 1, 7-8 = 2, 9-11 = 3,
12 = 4, 13-15 = 5, 16+ = 6. The sum of coded scores for the schizo­
phrenic patients was 88, for the nonschizophrenic patients, 89, and for
normal persons, 101. After Bartlett's Test was applied and the null
hypothesis accepted, the analysis of variance of coded scores was under-
taken. An F of 1.2 indicated that there was no significant difference among the three groups on the educational dimension.

All subjects were divided into urban and rural groups on the "place of residence" dimension, married and single on the marital status dimension, and "working-lower" and "middle-upper" on the socio-economic class dimension. Using the most clearly manifested and widely variable sort of relative appropriateness of affective response (apparent affect-self estimate) as a criterion, the biserial correlation coefficients between the "place of residence" and socio-economic class dimensions and criterion were computed and found not to vary significantly from zero (biserial r of .05 and .13, respectively). Because of the necessary statistical assumption of an underlying continuum is violated on the marital status dimension, biserial r could not be used, and chi-square was substituted in testing whether the distribution of marital statuses among the three diagnostic classifications differed significantly from its distribution in the general American population. A chi-square below the 5% level of confidence suggested that the assumption of randomness had not been violated here either.
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