INTRA-TEST SCATTER ON THE SHIPLEY-HARTFORD ABSTRACTION SCALE
AND ITS RELATIONSHIP TO SCHIZOPHRENIA

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AND ITS RELATIONSHIP TO SCHIZOPHRENIA

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By

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CHAPTER I

PRESENTATION OF THE PROBLEM

Introduction

The Shipley-Hartford Vocabulary and Abstraction Scale, originally devised by W. C. Shipley (12) to measure the deterioration of intellectual power resulting from mental illness in 1939, can also be usefully employed in estimating the mental ability of persons in normal health.

On the Shipley-Hartford Scale, a score for each part of the scale is obtained and a Conceptual Quotient (C.Q.) is derived by dividing the Vocabulary Score by the Abstraction Score. The different C. Q's. are interpreted by test norms to indicate the degree of impairment. The rationale of this scale, as well as other tests of this type, rests on the assumption that vocabulary is relatively unaffected in mental disorders, whereas the ability for abstract thinking declines rapidly in such circumstances. The larger the discrepancy between the two, the greater the impairment.

Abstract reasoning is measured by a twenty-item abstraction test in which the subject is asked to grasp the relationship involved in a progressive series of items and complete the final missing member of the series. Mental age norms for vocabulary, abstraction, and total score are
available based on a normative group of 1046 subjects, all students from the fourth grade through college who had been administered standardized group intelligence tests. Reliability coefficients of .87, .89, and .92, respectively, were obtained for vocabulary, abstraction, and total score (12).

The responses to the abstraction tests also offer relatively rich material for clinical interpretation despite the paper-and-pencil nature of the test. Some weaknesses develop at the lower ranges of intelligence, suggesting the need for further extention at this level. The abstraction test differentiates well down to a mental age of eleven years, but with less confidence than the vocabulary test. Many workers in the clinical field believe that the Shipley tests should never be used independent of a battery of psychometric tests, and should not be used primarily as a diagnostic test. Nevertheless, most of the studies that have utilized this test have been concerned with differentiating between specific clinical groups, and because the establishment of value in any psychometric instrument evolves through varying phases of investigation, the objective differentiation between two clinical groups will be the major focus of this study.

As it stands today, with lack of satisfactory validation or reliability evidence, scatter on the Shipley-Hartford Abstraction Scale formulates a clinical puzzle. The relationship between scatter and clinical diagnosis is sufficiently
unclear to make the clinician cautious in its use and interpretation.

Statement of Problem

The present study will be concerned with the reliability of the Shipley-Hartford Abstraction Scale as an instrument for diagnosis of schizophrenia and personality disorders.

The investigation will consist of two parts: First, to investigate the amount of scatter on the Shipley-Hartford Abstraction Scale by subjects diagnosed as schizophrenics and subjects diagnosed as personality disorders, secondly to determine a cut-off score to discriminate between the two groups.

Hypothesis

It is the hypothesis of this study that there is a significant difference between Shipley-Hartford Abstraction Scale scatter of patients diagnosed as schizophrenics and the scatter of those patients diagnosed as having personality disorders.

Background Knowledge and Theory

Very few investigations have been made in areas related to this study. However, investigation and analysis of these studies have proven to be invaluable both from the standpoint of contributing needed and useful information and by pointing out needed areas of investigation.
The relative inability of many schizophrenic patients to think in an abstract manner is a well-documented clinical finding. One method of measuring this impairment involved the interpretation of proverbs as demonstrated by Lewis, Griffith, Riedel and Simmons (10), Gorham (9), Elmore and Gorham (7), and Becker (2). These investigations have shown that the differences between schizophrenic patients and control subjects are independent of intellectual differences between the groups.

The loss of the abstract ability of schizophrenic patients is attributed by Arieti (1) to a retreat from Aristotelian logic to a more primitive form of thinking. As such, the loss of abstract ability can be conceptualized as an attempt to minimize anxiety. Since psychogenic theories place great emphasis upon the early nature of anxiety-producing trauma to the etiology of schizophrenia, and if these theories are valid, then schizophrenic patients might well demonstrate greater difficulty abstracting proverbs, with latent content which is concerned with early developmental experiences, as contrasted to proverbs having to do with later experiences.

Chapman (4) discusses two explanations, not necessarily contradictory, that have been advanced to explain schizophrenic thinking disorder, and particularly to explain the concept-forming disturbance. The first explanation is that there is a primary loss of ability.
The second is that there is what might be called an increased distractibility, i.e., an inappropriate utilization of distracting material which is connected in various ways to the matter at hand. The first explanation is discussed most clearly in the writings of those who view the thinking disorder in terms of "concrete-abstract" dimension. Prominently in this school is Goldstein (8) who conceives the loss of the "abstract-attitude" as the cause not only of the lowered ability to perform on his conceptual tests but also of a wide variety of other thinking deviations. In his view, inappropriate responses by default when the patient does not have available a correct conceptual response.

The second point of view is that the schizophrenic has not lost ability per se, but is prevented from demonstrating his ability by an over-responsiveness to distracting material.

Three previous studies by Chapman (3,5), and Chapman and Taylor (6) have demonstrated that over-responsiveness to various kinds of distractions accounts in part for the lowered performance of schizophrenics. It has been shown that a differential over-responsiveness to certain kinds of stimuli rather than others may account for some clinically observable features of the thinking disorder.

Medow, Greenblatt, and Solomon (11) and Chapman (4) discuss the terms "looseness of association" and
"impairment in abstraction" as having been considered by different investigators as the primary symptoms of schizophrenia. It was stated in these studies that Bleuler and a large group of subsequent psychiatrists have characterized the phenomena of "looseness of associations" as the psychognomic symptom in schizophrenia. Among the basic symptoms, Bleuler writes, "The disturbances of association are especially important." Goldstein (8) and other investigators have similarly emphasized the importance of impairment in abstraction as a central symptom of the disease.

Limitations of This Study

This investigation will be limited to an analysis of Shipley-Hartford Abstraction scatter of one hundred subjects; thirty-two men and sixty-eight women, patients at the Timberlawn Sanitarium, Dallas, Texas who have been diagnosed by the staff Psychiatrists as being either schizophrenic or as personality disorders.
CHAPTER BIBLIOGRAPHY


CHAPTER II

RELATED RESEARCH

The study of scatter patterns of psychodiagnostic instruments is very limited. There have been relatively few studies dealing with Shipley-Hartford Retreat Scale diagnosis scatter patterns; however, the Shipley-Hartford Scale has been correlated with the Wechsler-Bellevue Adult Intelligence Scale on which studies of scatter patterns are more plentiful. Although there is a lack of agreement as to the diagnostic powers of these two instruments, the studies have contributed needed and useful information and have pointed out needed areas of investigation.

Sines (8) presented data from two Veterans Administration psychiatric samples, and from a sample of State Hospital psychiatric aides which indicated that the Shipley-Hartford Retreat Scale is a good measure of current intellectual functioning. Correlations between the Shipley-Hartford Scale scores and the standard intelligence tests used were .77 with the Wechsler-Bellevue, .79 with the Veterans Administration Hospital and .78 with the Army General Classification Test in the psychiatric aide samples.

There are other studies that have not yielded such positive results. Garfield and Fey (2) concluded that the
Weschler-Bellevue Adult Intelligence Scale and Shipley-Hartford Retreat Scale, when measuring mental impairment have little relationship to each other, and apparently are not measuring the same aspects of mental functioning.

In a study by Wittenborn (10) and Harper (4) it appears that the possibility of using Wechler-Bellevue sub-test scores in differential diagnosis or in the prediction of the type of symptom the patient will manifest are limited and may be so restricted as to be of no practical value. There is little hope that these sub-tests could be used profitably in the descriptive diagnosis of an individual and is not a major mechanical aid for descriptive diagnosis of functional thinking disorders.

Other investigators, Rappaport (7), Margaret (5), and Rabin (6) make extravagant claims for the diagnostic power of Wechler-Bellevue scatter patterns while Garfield (1), and Webb (9) deny completely the validity of any such pattern analysis for diagnostic purposes.

The Wechler-Bellevue Scale is primarily a measure of adult intelligence, but Wechler has devised a means of estimating mental deterioration by use of a ratio of certain sub-tests comprising the scale. According to him, four sub-tests—Information, Comprehension, Picture Completion and Object Assembly—are little affected by normal decline with age. Four other sub-tests—Arithmetic, Digit Span, Block Design and Digit Symbol—decline more
rapidly with age than the other sub-tests. By comparing the ratio of the sums of these two classifications the average or normal decline with age have been worked out. Significant deviations from this pattern are considered to be indicative of deterioration.

A study by Harelick (3) to determine the relationship which may exist between scores on tests of intelligence and tests of personality yielded a low order correlation. This indicates that scores on the Wechsler-Bellevue, the Rorschach Ink-Blot Test, and the Minnesota Multiphasic Inventory are not closely related to each other, and that therefore, the tests are measuring different aspects of personality functioning.
CHAPTER BIBLIOGRAPHY


CHAPTER III

METHODOLOGY

Subjects

The subjects in this study were one hundred psychiatric patients at Timberlawn Sanitarium, thirty-two males and sixty-eight females, divided equally into two groups: fifty patients who had been diagnosed as schizophrenics and fifty patients who had been diagnosed as having severe personality disorders. The criterion for selection was based upon the clinical diagnosis of the Staff Psychiatrists at Timberlawn Sanitarium. These were the two most common groupings from which they were drawn.

In the first group, twenty-five patients diagnosed with pure cases of schizophrenia and twenty-five patients diagnosed with pure cases of personality disorders for the year 1961-1962 were selected. The clinical diagnoses arrived at by the Staff Psychiatrists at Timberlawn Sanitarium for this group of subjects were influenced by the psychological test reports which in turn were based in part on the performance of the patient on the Shipley-Hartford Abstraction Scale. This group was considered to be the "contaminated" group. The subjects from this selected population were then matched for sex, age, educational level
and intelligence resulting in twenty-five matched pairs. The distribution of sex, mean age, educational level, and intelligence are presented in Table I.

**TABLE I**

**MEAN VALUES OF THE "CONTAMINATED" GROUP**

<table>
<thead>
<tr>
<th>Subjects</th>
<th>Male</th>
<th>Female</th>
<th>Age</th>
<th>Educational Level</th>
<th>Shipley-Hartford Intelligence Quotient</th>
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</thead>
<tbody>
<tr>
<td>Schizophrenics</td>
<td>8</td>
<td>17</td>
<td>26.8</td>
<td>12.9</td>
<td>113</td>
</tr>
<tr>
<td>Personality Disorders</td>
<td>8</td>
<td>17</td>
<td>27.1</td>
<td>12.9</td>
<td>115</td>
</tr>
</tbody>
</table>

The age range for the eight male schizophrenic subjects was fourteen years to forty-five years with the mean age being twenty-six years. The age range for the seventeen schizophrenic female subjects was fourteen years to fifty years with the mean age being twenty-seven years and five months. The mean age for the two schizophrenic groups was twenty-six years and eight months.

The age range for the eight male subjects with severe personality disorders was from fourteen to forty-seven years with a mean age of twenty-six years and five months. The age range for the seventeen females with severe personality disorders was from fifteen to fifty-two years with the mean age being twenty-seven years and six months. The mean age
for the two groups with severe personality disorders was twenty-seven years and one month.

The range of the educational level for the eight male schizophrenic subjects was seven years to eighteen years and five months with the mean educational level being twelve years and seven months. The educational range for the seventeen female schizophrenic subjects was eight years to sixteen years with the mean educational level being thirteen years and two months. The mean educational level for the two schizophrenic groups was twelve years and nine months.

The range of the educational level for the eight male subjects with severe personality disorders was eight years to sixteen years and five months with the mean educational level being twelve years and seven months. The educational range for the seventeen female subjects with severe personality disorders was ten years to sixteen years with the mean educational level of thirteen years and one month. The mean educational level for the two groups was twelve years and nine months.

The Shipley-Hartford Intelligence Quotients for the eight male schizophrenic subjects ranged from ninety to one hundred and forty-four with the mean intelligence quotient of one hundred and fifteen. The intelligence quotients for the seventeen female schizophrenic subjects ranged from seventy-eight to one hundred and thirty-three with the mean
intelligence quotient being one hundred and eleven. The mean intelligence quotient for the two schizophrenic groups was one hundred and thirteen.

The Shipley-Hartford Intelligence Quotients for the eight male subjects with severe personality disorders ranged from eighty-six to one hundred and thirty-one with the mean intelligence quotient being one hundred and fifteen. The intelligence quotients for the seventeen females with severe personality disorders ranged from ninety-two to one hundred and thirty-seven with the mean intelligence quotient being one hundred and eleven. The mean intelligence quotient for the two groups with personality disorders was one hundred and thirteen.

The Shipley-Hartford Intelligence Quotient is determined by adding the raw abstraction score, which is calculated by subtracting the number of items missed from twenty and multiplying the resultant by two, to the raw vocabulary score, which is calculated by subtracting the number of items missed from forty, giving the total raw score. The total raw score is converted into intelligence quotients by use of the Shipley-Hartford Conversion Tables.

The second or "uncontaminated" group of patients diagnosed as pure cases of schizophrenia and all those patients diagnosed with pure cases of severe personality disorders for the year 1962-1963 were also selected. The clinical diagnoses arrived at by the Staff Psychiatrists for this group of subjects were not influenced by all of the psychological test
The Shipley-Hartford Abstraction Scale results were withheld from the psychological test reports so that any contamination of the diagnoses due to the consideration of this test would not be evident in this subject group.

The subjects in the "uncontaminated" group were matched for sex, age, educational level and intelligence resulting in twenty-five matched pairs. The distribution of sex, mean age, educational level, and intelligence quotient were calculated and the results are presented in Table II.

**TABLE II**

**MEAN VALUES OF THE "UNCONTAMINATED" GROUP**

<table>
<thead>
<tr>
<th>Subjects</th>
<th>Sex Male</th>
<th>Sex Female</th>
<th>Age</th>
<th>Educational Level</th>
<th>Shipley-Hartford Intelligence Quotient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schizophrenics</td>
<td>8</td>
<td>17</td>
<td>29.9</td>
<td>13.9</td>
<td>112</td>
</tr>
<tr>
<td>Personality Disorders</td>
<td>8</td>
<td>17</td>
<td>27.6</td>
<td>12.0</td>
<td>111</td>
</tr>
</tbody>
</table>

The age range for the eight male schizophrenic subjects was nineteen years to forty-eight years with the mean age being twenty-seven years and nine months. The age range for the seventeen schizophrenic female subjects was fifteen years to forty-nine years with the mean age being thirty-one years and nine months. The mean age for the two schizophrenic groups was twenty-nine years and nine months.
The age range for the eight male subjects with severe personality disorders was fifteen years to sixty years with the mean age being twenty-eight years. The age range for the seventeen females with severe personality disorders was fifteen years to forty-seven years and two months. The mean age for the two groups with severe personality disorders was twenty-seven years and six months.

The educational level for the eight male schizophrenic subjects was twelve years to twenty years with the mean educational level being fourteen years and seven months. The educational range for the seventeen female schizophrenic subjects was eleven years to nineteen years with the mean educational level being thirteen years and one month. The educational level for the two schizophrenic groups was thirteen years and nine months.

The Shipley-Hartford Intelligence Quotients for the eight male schizophrenic subjects ranged from eighty-six to one hundred and thirty with the mean intelligence quotient of one hundred and ten. The intelligence quotients for the seventeen female schizophrenic subjects ranged from ninety-nine to one hundred and twenty-six with the mean intelligence quotient being one hundred and fifteen. The mean intelligence quotient for the two schizophrenic groups was one hundred and twelve.

The Shipley-Hartford Intelligence Quotients for the eight male subjects with severe personality disorders ranged
from eighty-five to one hundred and forty-three with the mean intelligence quotient being one hundred and eleven. The intelligence quotients for the seventeen females with severe personality disorders range from sixty-four to one hundred and forty-four with a mean intelligence quotient for the two groups with personality disorders being one hundred and eleven.

Procedure

All of the subjects were administered the Shipley-Hartford Abstraction Scale, see appendix, page 33, in a standardized clinical setting at Timberlawn Sanitarium, conforming to the directions of the Shipley-Hartford Abstraction Scale, Manual of Directions and Scoring Key. The Abstraction Scale contains twenty items each of which must be completed by the testee. The subjects were asked to grasp the relationship involved in the progressive series of items and complete the final missing member of the series. The twenty items for the "contaminated" group were scored and the abstraction scores and amount of scatter calculated. To determine the amount of scatter within the test, the item number of the first error was subtracted from the last item number the subject had answered correctly. These results are indicated in Table III.
TABLE III

ABSTRACT SCORES ON THE SHIPLEY-HARTFORD
ABSTRACTION SCALE OF THE
"CONTAMINATED" GROUP

<table>
<thead>
<tr>
<th>Subjects</th>
<th>Mean Abstraction Scores on the Shipley-Hartford Abstraction Scale</th>
<th>Mean Scatter Scores on the Shipley-Hartford Abstraction Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schizophrenics</td>
<td>25.41</td>
<td>7.88</td>
</tr>
<tr>
<td>Personality Disorders</td>
<td>27.08</td>
<td>5.72</td>
</tr>
</tbody>
</table>

The range of the abstraction scores for the eight male schizophrenic subjects was fourteen to forty with the mean abstraction score being 26.75. The abstraction score range for the seventeen female schizophrenic subjects was six to thirty-six with the mean abstraction score being 24.06. The mean abstraction score for the two schizophrenic groups was 25.41.

The range of the abstraction scores for the eight male subjects with severe personality disorders was twelve to thirty-six with the mean abstraction score being 24.50. The abstraction score range for the seventeen female subjects with severe personality disorders was sixteen to forty with the mean abstraction score being 29.65. The mean abstraction score for the two groups with severe personality disorders was 27.08.
To determine the amount of scatter within the test, the item number of the first error was subtracted from the last item number the subject had answered correctly.

The range of the scatter scores of the eight male schizophrenic subjects was from three to thirteen with a mean score of 5.63. The scatter score range of the seventeen female schizophrenic subjects was one to seventeen with a mean score of 10.12. The mean scatter score for the two schizophrenic groups was 7.38.

The range of the scatter scores of the eight male subjects with severe personality disorders was three to ten with the mean scatter being 5.50. The scatter score range for the seventeen female subjects with severe personality disorders was zero to thirteen with the mean scatter score being 5.94. The mean scatter score for the two groups with severe personality disorders was 5.72.

The twenty items on the Shipley-Hartford Abstraction Scale for the "uncontaminated" group were scored and the abstraction scores and the amount of scatter calculated. The results are presented in Table IV.
<table>
<thead>
<tr>
<th>Subjects</th>
<th>Mean Abstraction Scores on the Shipley-Hartford Abstraction Scale</th>
<th>Mean Scatter Scores on the Shipley-Hartford Abstraction Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schizophrenics</td>
<td>24.80</td>
<td>10.17</td>
</tr>
<tr>
<td>Personality Disorders</td>
<td>25.94</td>
<td>5.31</td>
</tr>
</tbody>
</table>

The range of abstraction scores for the eight male schizophrenic subjects was eight to thirty-six with the mean abstraction score being 23.25. The abstraction score range for the seventeen female schizophrenic subjects was eighteen to thirty-six with the mean abstraction score being 26.35. The mean abstraction score for the two schizophrenic groups was 24.80.

The range of the abstraction scores for the eight male subjects with severe personality disorders was eight to thirty-eight with the mean abstraction score being 24.00. The abstraction score range for the seventeen female subjects with severe personality disorders was eight to forty with the mean abstraction score being 27.88. The mean abstraction score for the two groups with severe personality disorders was 25.94.
The range of scatter scores of the eight male schizophrenic subjects was six to sixteen with a mean scatter score of 10.63. The scatter score range of the seventeen female schizophrenic subjects was two to fifteen with a mean scatter score of 9.71. The mean scatter score for the two schizophrenic groups was 10.17.

The range of the scatter scores of the eight male subjects with severe personality disorders was one to twelve with a mean scatter score of 4.63. The scatter score range for the seventeen female subjects with severe personality disorders was zero to thirteen with a mean scatter score of 6.00. The mean scatter score for the two groups with severe personality disorders was 5.31.
CHAPTER IV

SUMMARY, INTERPRETATION AND CONCLUSION

Summary

The establishment of values in any psychometric instrument evolves through varying phases of investigation. The present study consisted of two parts: First, to investigate the amount of scatter on the Shipley-Hartford Abstraction Scale of diagnosed schizophrenics and diagnosed personality disorders; and secondly, to determine a cut-off score to discriminate between the two groups on basis of frequency of occurrence.

The hypothesis of this study was that there is a significant difference between Shipley-Hartford Abstraction Scale scatter of patients diagnosed as schizophrenic and those patients diagnosed with severe personality disorders. The data obtained in the study warrants the acceptance of this hypothesis.

Previous studies have indicated that some schizophrenics do not have the ability to abstract adequately. Many investigators believe that this is due to an attempt to minimize anxiety; others conclude that there is a primary loss of ability, while others assume that this inability to abstract adequately is due to an increased distractability.
The population sample of this study consisted of patients at Timberlawn Sanatorium. The files of the psychology department were utilized in selecting the records of eight male schizophrenic patients, and seventeen female schizophrenic patients, eight male patients with severe personality disorders and seventeen female patients with severe personality disorders, in whose diagnoses the **Shipley-Hartford Abstraction Scale** was considered. This patient population comprised the first study group and was labeled the "contaminated" group. The second study group consisted of eight male schizophrenic patients and seventeen female schizophrenic patients, eight male patients with severe personality disorders and seventeen female patients with severe personality disorders in whose diagnoses the **Shipley-Hartford Abstraction Scale** was not considered. This group was labeled the "uncontaminated" group. The records were matched for sex, age, educational level and **Shipley-Hartford Intelligence Quotient**, resulting in fifty schizophrenic records and fifty personality disorder records—all which served the basis of this study.

The **Shipley-Hartford Abstraction Scale** of each subject was analyzed and the necessary statistical procedures were employed. By using the critical ratio method the hypothesis that scatter on the **Shipley-Hartford Abstraction Scale** is significantly higher for diagnosed schizophrenic patients than patients diagnosed with severe personality disorders can be retained for the "contaminated" group. The resulting critical ratio, 1.93, is significant at the .03 level of
significance. Further research is suggested using a larger sample. Also, by using the critical ratio method the hypothesis that scatter on the Shipley-Hartford Abstraction Scale is significantly higher for diagnosed schizophrenic patients than patients diagnosed with severe personality disorders can be retained for the "uncontaminated" group. The resulting critical ratio, 15.42, is highly significant beyond the .001 level of significance.

By using a cut-off score of ten, 48 per cent of the schizophrenic patients and 30 per cent of the patients with severe personality disorders were correctly identified in the "contaminated" group. Using the same cut-off score of ten, 76 per cent of the schizophrenic patients and 60 per cent of the personality disorders were correctly identified for the "uncontaminated" group. However, the validity of diagnostic assignment on the basis of a scatter score below ten has yet to be demonstrated.

The clinical application of the Shipley-Hartford Abstraction scatter as a diagnostic index is contingent upon additional validation studies.

Interpretation

The hypothesis that diagnosed schizophrenic patients will have a significantly higher scatter score on the Shipley-Hartford Abstraction Scale than patients with a diagnosed personality disorder is significant beyond the .05 level of significance for the "contaminated" group. The
critical ratio being 1.93, with a resulting P value of 0.7.
The mean scatter score of the schizophrenic group was 7.88;
whereas, the mean scatter score for the personality disorder
group was 5.72. The frequency distribution of the scatter
scores are indicated in Table V.

TABLE V

FREQUENCY DISTRIBUTION OF THE "CONTAMINATED"
SHIPLEY-HARTFORD ABSTRACTION SCALE
SCATTER SCORES

<table>
<thead>
<tr>
<th>Shipley-Hartford Scatter Scores</th>
<th>Diagnosed Schizophrenic Subjects</th>
<th>Diagnosed Personality Disorder Subjects</th>
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<tbody>
<tr>
<td>19</td>
<td>..</td>
<td>..</td>
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<tr>
<td>18</td>
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<td>0</td>
<td>2</td>
<td>1</td>
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</table>

By using a cut-off score of ten or above, it was found
that 48 per cent of the schizophrenic patients and 80 per
cent of the patients with severe personality disorders were
correctly identified for the "contaminated" group. This
indicates that a scatter score of ten or above has a 2:1 chance of being indicative of schizophrenia. Fifty-two per cent of the schizophrenic group proved to be false negatives; those schizophrenic subjects who fell into the non-schizophrenic group according to the cut-off score, when this index was employed. Sixty-six per cent of those subjects obtaining scatter scores below ten had been diagnosed with severe personality disorders, see Table VI.

**TABLE VI**

<table>
<thead>
<tr>
<th>Subjects</th>
<th>Number in Test Population</th>
<th>Scatter Scores 10</th>
<th>Scatter Scores 10</th>
<th>$\chi^2$</th>
<th>$P$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schizophrenics</td>
<td>25</td>
<td>12</td>
<td>13</td>
<td>3.21</td>
<td>.07</td>
</tr>
<tr>
<td>Personality Disorders</td>
<td>25</td>
<td>5</td>
<td>20</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The cut-off score was not quite significant, but the resulting $\chi^2$ was 3.21. The right direction was predicted, however. The author feels that further research using larger samples would produce more positive results.

The hypothesis that diagnosed schizophrenic patients will have a significantly higher scatter score on the Shipley-Hartford Abstraction Scale than patients with a diagnosed personality disorder is highly significant beyond the .001 level of significance for the "uncontaminated" group. The critical ratio being 15.42. The mean scatter
score of the schizophrenic group was 10.17; whereas, the mean scatter score for the personality disorder group was 5.31. The frequency of distribution of the scatter scores are indicated in Table VII.

TABLE VII

FREQUENCY DISTRIBUTION OF THE "UNCONTAMINATED"
SHIPLEY-HARTFORD ABSTRACTION SCALE
SCATTER SCORES

<table>
<thead>
<tr>
<th>Shipley-Hartford Scatter Scores</th>
<th>Diagnosed Schizophrenic Subjects</th>
<th>Diagnosed Personality Disorder Subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td>18</td>
<td>. .</td>
<td>. .</td>
</tr>
<tr>
<td>17</td>
<td>. .</td>
<td>. .</td>
</tr>
<tr>
<td>16</td>
<td>1</td>
<td>.</td>
</tr>
<tr>
<td>15</td>
<td>2</td>
<td>.</td>
</tr>
<tr>
<td>14</td>
<td>1</td>
<td>.</td>
</tr>
<tr>
<td>13</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>12</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>11</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>10</td>
<td>3</td>
<td>.</td>
</tr>
<tr>
<td>9</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>8</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>7</td>
<td>2</td>
<td>.</td>
</tr>
<tr>
<td>6</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>. .</td>
<td>. .</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>1</td>
<td>. .</td>
<td>5</td>
</tr>
<tr>
<td>0</td>
<td>. .</td>
<td>1</td>
</tr>
</tbody>
</table>

By using a cut-off score of ten or above, it was found that 60 per cent of the schizophrenics and 76 per cent of the personality disorders were correctly identified. Forty per cent of the schizophrenic group proved to be false negatives. Fifty-eight per cent of those subjects obtaining scatter
scores below ten had been diagnosed with severe personality disorders, see Table VIII.

**TABLE VIII**

$\chi^2$ RESULTS FOR THE "UNCONTAMINATED" GROUP

<table>
<thead>
<tr>
<th>Subjects</th>
<th>Number in Test Population</th>
<th>Scatter Scores 10</th>
<th>Scatter Scores 10</th>
<th>$\chi^2$</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schizophrenics</td>
<td>25</td>
<td>15</td>
<td>10</td>
<td>6.23</td>
<td>.02</td>
</tr>
<tr>
<td>Personality Disorders</td>
<td>25</td>
<td>19</td>
<td>6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The cut-off score was significant with the resulting $\chi^2$ of 6.23. The author feels that further research using larger samples would produce more positive results.

The personality disorders are homogeneous on both these measures so that most of them obtained stable scatter scores; whereas, the schizophrenics are unpredictable and obtained widely distributed scatter scores. This is in agreement with the study by Chapman (2) in that schizophrenics have the ability to abstract, but their consistency of performance differs.

In support of the findings by Lewis, Griffith, Simmons, and Reidel (5), Gorham (4), Elmore and Gorham (3), and Becker (1) and an incidental finding in this study, the scatter scores differ significantly; whereas, the mean level of intellectual functioning does not, see Table I (page 14).
The clinical application of the Shipley-Hartford Abstraction scatter as a diagnostic index is contingent upon an encouraging validation study.

Conclusions

1. Scatter on the Shipley-Hartford Abstraction Scale is significantly higher for schizophrenics than personality disorders with comparable levels of intellectual functioning.

2. A scatter score of ten or above is strongly contraindicative of personality disorders.

3. Schizophrenics can abstract but their consistency of performance differs from the personality disorders.
CHAPTER BIBLIOGRAPHY


Complete the following. Each dash (_) calls for either a number or a letter to be filled in. Every line is a separate item. Take the items in order, but don't spend too much time on any one.

Start here

1. 1 2 3 4 5 __
2. White black short long down ___
3. AB BC CD D _
4. Z Y X W V U ___
5. 1 2 3 2 1 2 3 4 3 2 3 4 5 4 3 4 5 6 ___
6. NE/SW SE/NW E/W N/ ___
7. escape scape cape ___ ___
8. oh ho rat tar mood ___ ___ ___
9. A Z B Y C X D ___
10. tot tot bard drab 537 ___ ___
11. mist is wasp as pint in tone ___
12. 57326 73265 32657 26573 ___ ___ ___
13. knit in spud up both to stat ___
14. Scotland landscape scapegoat _____ee
15. surgeon 1234567 snore 17635 rogue ___ ___ ___
16. tam tan rib rid rat raw hip ___ ___
17. tar pitch throw saloon bar rod fee tip end plank ___ ___ ___ meals
18. 3124 82 73 154 46 13 ___
19. lag leg pen pin big bog rob ___ ___
20. two w four r one o three ___
NAME

In the list below, the first word in each line is printed in capital letters. Opposite it are four other words. Draw a line under the one word which means the same thing, or most nearly the same thing, as the first word. A sample has been worked out for you. If you don't know, guess. Be sure to underline one word in each line that means the same thing as the first word.

SAMPLE

LARGE  red  big  silent  wet
1. TALK  draw  eat  speak  sleep
2. PERMIT  allow  sew  cut  drive
3. PARDON  forgive  pound  divide  tell
4. COUCH  pin  eraser  sofa  glass
5. REMEMBER  swim  recall  number  defy
6. TUMBLE  drink  dress  fall  thick
7. HIDEOUS  silvery  tilted  young  dreadful
8. CORDIAL  swift  muddy  leafy  hearty
9. EVIDENT  green  obvious  sceptical  afraid
10. IMPOSTER  conductor  officer  book  pretender
11. MERIT  deserve  distrust  fight  separate
12. FASCINATE  welcome  fix  stir  enchant
13. INDICATE  defy  excite  signify  bicker
14. IGNORANT  red  sharp  uninformed  precise
15. FORTIFY  submerge  strengthen  vent  deaden
16. RENOWN  length  head  fame  loyalty
17. NARRATE  yield  buy  associate  tell
18. MASSIVE  bright  large  speedy  low
19. HILARITY  laughter  speed  grace  malice
20. SMIRCHED  stolen  pointed  remade  soiled
21. SQUANDER  tease  bit  cut  waste
22. CAPTION  drum  ballast  heading  ape
23. FACILITATE  help  turn  strip  bewilder
24. JOCOSE  humorous  paltry  fervid  plain
25. APPRISE  reduce  strew  inform  delight
26. RUE  eat  lament  dominate  cure
27. DENIZEN  senator  inhabitant  fish  atom
28. DIVEST  dispossess  intrude  rally  pledge
29. AMULET  charm  orphan  dingo  pond
30. INEXCRABLE  untidy  involatile  rigid  sparse
31. SERRATED  dried  notched  armed  blunt
32. LISSOM  moldy  loose  supple  convex
33. MOLLIFY  mitigate  direct  certain  abuse
34. PLAGIARIZE  appropriate  intend  revoke  maintain
35. ORIFICE  brush  hole  building  lute
36. QUERULOUS  maniacal  curious  devout  complaining
37. PARIAH  outcast  priest  lentil  locker
38. ABET  waken  ensue  incite  placate
39. TEMERITY  rashness  timidity  desire  kindness
40. PRISTINE  vain  sound  first  level
BIBLIOGRAPHY

Books


Articles


