

BEHAVIORAL CORRELATES OF PSYCHOMETRIC PATTERNS:
A FACTORIAL STUDY

A Dissertation
Presented to
the Faculty of the Graduate School
University of Houston

In Partial Fulfillment
of the Requirements for the Degree
Doctor of Philosophy

by
Harold Armen Goolishian
June 1953

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The present investigation was an attempt to demonstrate a relationship between particular psychometric patterns and external criteria. The hypothesis of the study was that a relationship exists between aspects of psychometric performance and other measures of behavior, and that this relationship could be shown by means of a correlational analysis.

The subjects for this study were a group of randomly selected female psychiatric patients at the University of Texas Medical Branch Hospitals. The subjects included most of the usually diagnosed neuroses and psychoses with the exception of neurological disorders. Behavioral items utilized in this study were gathered from the case histories of the subjects and, in general, were behaviors frequently associated with clinical concepts of psychopath, delinquency, character disorder, and hysteria. The test variables used were certain Wechsler-Bellevue test scores as well as certain qualitative aspects of the content of some Rorschach test responses.

The hospital records of all subjects were checked for the presence or absence of the behavioral and psychometric items and the data intercorrelated by means of tetrachoric correlations. The correlation matrix was factor analyzed by the complete centroid method and the eight resulting factors rotated orthogonally to simple structure.

The following factors were extracted:

Factor I - Inadequate Socialization

The behavioral items loading on this factor were identified as a constellation of behaviors in which the common characteristic is an inadequate assimilation of the values and restrictions of the culture and a rebellion against them. The test items of high Performance IQ, number shock, and low Arithmetic significantly loaded this factor and were considered as fairly pure measures of it. It was suggested that this factor is similar in context to Cattell's Factor C.

Factor II - Surgency

The second factor was identified as a constellation of behaviors in which the major characteristic was surgency. The test items loading on this factor were low Information to Comprehension and Picture Completion plus Picture Arrangement greater than Block Design plus Digit Symbol. This factor seemed to be a good match with Cattell's Factor F.

Factor III - Hypochondriasis

The third factor was identified as a hypochondriacal factor. The test item loading on this factor was Immature M, and it was suggested that immature content on the Rorschach is related to similar attitudes and expressions of immaturity.

Factor IV - Hysteria

The behaviors loading on this factor were considered to be similar to those frequently associated with the clinical

concept of hysteria. Aside from low intelligence, no test item loaded this factor. A tentative match was made between it and Cattell's Factor I.

Factor V - Immature Dependency

This factor was identified as a constellation of behaviors in which the common unity is the expression of immaturity and dependency. Immature M significantly loaded on this factor, and it was concluded that the factor was similar in context to Cattell's Factor G.

Factor VI - Aggression

This factor was significantly loaded with items identified as having a common unity of hostility or aggression. The presence of aggressive movement responses on this factor was taken as evidence for the relationship between this qualitative aspect of the Rorschach test and other indications of aggressive or hostile behavior.

Factor VII - Anxiety

This factor was tentatively identified as an anxiety factor. Anatomy and sex responses on the Rorschach significantly loaded the factor, and it was concluded that there was a relationship between these responses and other expressions of anxiety.

Factor VIII (residual factor)

This factor was considered to be a residual factor and no attempt was made to interpret it.

With one exception (Rorschach color responses), all test items significantly loaded on one or more of the seven significant factors. Loadings of .50 to .89 could occur by chance only very infrequently, and therefore they were taken to indicate a strong relationship between the test items and the personality variables represented by the factor space. Each of the seven factors loaded both behavioral and psychometric data. This demonstration of common factor variance was considered to be good evidence for support of the hypothesis that a relationship exists between psychometric and behavioral data.

PREFACE

The present study stems from a series of researches at the University of Texas Medical Branch Hospitals aimed at the validation of clinical psychological tests. Practical necessities and demands have often forced the clinical usage of psychological tests far beyond their proven predictive powers. The widespread use and popularity of these tests necessitates a greater amount of research concerning their validity.

One of the problems in this area of research is the choice of validating criteria. Too often attempts have been made to validate test results against nosological classifications. Although diagnostic categories offer easily available criteria, their use has serious shortcomings. The results of studies employing diagnostic categories rest as much on the validity of the diagnosis itself, as it does on the tests. In the present study, diagnoses were excluded from consideration, and an attempt was made to relate specific test results to "observable" constellations of behavior.

The use of factor analysis in the present study enabled the simultaneous manipulation of a large number of variables. This approach offers a compromise between the "atomism" of the experimentalists and the "art" of the clinicians. It demonstrates, I believe, that psychological

tests can be related to other measures of behavior. Although the study represents only a beginning in the factorial approach to this problem, it is hoped that it will provide a framework for future research.

I am grateful to Dr. Austin Foster for his continued assistance in this undertaking. I must express my appreciation to my fellow workers for their critical reading and intelligent interest in this study. Particular mention should be made of the assistance of Dr. Mary Varley, Mr. A.W. Jeffreys, and Mr. Samuel Scher. I wish to thank the members of my committee for their guidance, particularly, Dr. Laurence McGaughran, chairman, for his constant willingness to set aside other duties in order to give me the benefit of his excellent counsel. Final acknowledgement must be made to my wife, Leslie Goolishian, whose encouragement and assistance have been invaluable.

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CHAPTER I

INTRODUCTION

Despite the widespread use of psychological tests as diagnostic instruments, there is considerable disagreement as to their validity. Experimental findings in this area have been frequently contradictory, particularly in the clinical research with the Wechsler-Bellevue and Rorschach tests.

On the basis of their research findings, Rapaport,¹ Schafer,² Jastak,³ and others, consider the Wechsler and Rorschach tests to be valid predictors of certain clinical behaviors. However, recent reviews of later research in this area have cited the results of numerous studies which do not agree with these positive findings. Schofield⁴ has asked, "How many negative findings must be reported in order to refute the heuristic claims of Wechsler and Rapaport?"

1 D. Rapaport, M. Gill, and R. Schafer, Diagnostic Psychological Testing, Vol. I. (Chicago: Year Book Publishers, 1945.)

2 R. Schafer, Clinical Application of Psychological Tests. (New York: International Universities Press, 1948.)

3 J. Jastak, "Problems of psychometric scatter analysis," Psychol. Bull., 46:177-197, 1949.

4 W. Schofield, "Research trends in clinical psychology," J. Clin. Psychol., 6:148-152, 1950.

In a survey of recent literature, Rabin and Guertin⁵ state, "...it is time to stop clogging the literature with testimonials pro and con the validity of the Wechsler as a diagnostic instrument." Wittenborn and Holzberg⁶ suggest, "...extreme caution, if not open skepticism, in attempting to use Rorschach scores as aids to clinical diagnosis."

Despite these widespread differences in opinion, the Wechsler and Rorschach tests remain as two of the most widely used clinical instruments. In most clinics they are utilized to do what their critics claim they cannot do, that is, to diagnose and to predict the individual's behavior. It seems evident that many of the clinicians utilizing these tests as diagnostic tools have not been provided with definitive answers as a result of this controversy. Therefore, further research in this area seems indicated.

The basic hypothesis of the present study is that a relationship does exist between diagnostic test results and observable behavior. This hypothesis is in turn dependent upon the more general assumption that test behavior, as

5 A. I. Rabin and W. H. Guertin, "Research with the Wechsler-Bellevue Test:1945-1950," Psychol. Bull., 48:211-248, 1951.

6 J. R. Wittenborn and J. D. Holzberg, "The Rorschach and descriptive diagnosis," J. Consult. Psychol., 15:460-463, 1951.

reflected in test scores, is but another aspect of the underlying adjustment patterns which also give rise to the various behaviors described in the clinical histories. In this sense, psychological tests may be considered as specialized forms of behavior observation, and any distinction between "test behavior" as opposed to "observed behavior" must necessarily be arbitrary. In diagnostic work, however, the psychologist attempts to predict various behavior patterns from test performance. In order to demonstrate the validity of such predictions, it is necessary to make some distinction between these two aspects of behavior.

In broad terms, validity may be defined as the relationship between "test behavior" and "observed behavior," that is, criteria external to the testing situation. One method for determining the validity of psychological tests has been called "validity by congruence."⁷ In this method the validity of a test item is established by the nature of the "psychological company" it keeps. In the present study the meaning or validity of a test item will be inferred from its factorial composition, that is, the common variance it shares with the criterion measures.

⁷ F. H. Sanford and I. M. Rosenstock, "Projective techniques on the doorstep," J. Abn. Soc. Psychol., 47: 3-16, 1952.

The selection of an adequate criterion constitutes one of the basic problems in establishing the validity of a testing instrument. The measures chosen in this study were derived from certain aspects of the subjects' "observed behavior" as recorded in their clinical histories.

In general, this behavior consisted of various acts and attitudes frequently associated with the clinical concepts of psychopathy, delinquency, character disorder, and hysteria. The use of such behavior has a particular advantage in that it is generally dramatic and easily noticed by others. If it has occurred at all in the life history of a patient, there is a good chance that it will be included in the usual clinical history. For example, the occurrence of a temper tantrum will generally be noticed by parents or associates and is more likely to be reported than, say, seclusive or moderately withdrawn behavior.

The test items used in this study were selected from a group which have been frequently isolated in clinical and experimental literature as hypothetically related to the behaviors cited above. In a following section the actual behavior and test items used are listed, along with a rationale for their selection.

CHAPTER II

REVIEW OF THE LITERATURE

Wechsler-Bellevue Studies

Relationships between psychometric patterns and various psychiatric disorders have been suggested since the early use of the Stanford Binet Intelligence Test. As early as 1915 a research article noted a relationship between scores on the Stanford-Binet and certain personality measures.¹ Since that time considerable research effort has been applied to the study of the relationships between test scores and other aspects of behavior. It was not, however, until the introduction of the Wechsler-Bellevue Intelligence Scale that an individually-administered intelligence test provided separate performance and verbal sub-scores. Since the publication of that test there has been a flood of published research alleging relationships between sub-test scatter patterns and various psychiatric entities. For example, a recent review of a five year period of research lists 145 references, the majority of which refer to a relationship between scatter patterns on the test and some

1 F. Porter, "Difficulties in the interpretation of mental tests, types and examples," Psychological Clinic., 9:140-158, 1915.

aspect of personality adjustment.² It is the restricted purpose of the present review to summarize only the research with the Wechsler-Bellevue which is most immediately related to the problems of this study.

In his manual, Wechsler³ listed a number of sub-test patterns which he considered as serviceable in distinguishing the test performance of one clinical group from others. For example, he pointed out that neurotics tend to have a relatively high Verbal IQ, while psychopaths frequently are found to have a relatively high Performance IQ. Since this publication, there has been a large number of conflicting reports of research intended to test the usefulness of the patterns suggested by Wechsler.

Levi⁴ used Wechsler's diagnostic indicators for adolescent psychopaths. He found clear statistical evidence for real differences between the Performance and Verbal IQ's for this clinical group. This finding was confirmed in a later report in which it was found that a group of children showing behavior disorders had a mean Performance

2 A. I. Rabin and W. H. Guertin, op. cit.

3 D. Wechsler, The Measurement of Adult Intelligence, Third Edition. (Baltimore: Williams and Wilkin, 1944.)

4 J. Levi, "A Psychometric Pattern of the Adolescent Psychopathic Personality." (Doctoral Dissertation, New York University, 1943.)

IQ twelve points higher than their Verbal IQ. Weider, Levi, and Reisch⁵ concluded:

There is little doubt that as a group, children with delinquent and a-social character traits, and usually these manifest various behavior problems, do well on tests requiring performance and manual ability as opposed to tests of a verbal nature. (p. 700)

Sloan and Cutts⁶ investigated defective children characterized by frequent attempted escapes, sodomy, fighting, temper tantrums, destructiveness, etc., and found that of 50 boys, 45 had Performance IQ's higher than their Verbal IQ's. Franklin⁷, in a study of 276 delinquent negro children, found mean Performance IQ's significantly higher than Verbal IQ's. While these studies support the hypothesis of Wechsler concerning the relationship between a high Performance IQ and delinquent behavior, they are not conclusive in that they did not control for absolute intelligence nor education.

5 A. Weider, J. Levi, and F. Reisch, "Performances of problem children on the Wechsler-Bellevue Intelligence Scale and Revised Stanford-Binet," Psychiat. Quart., 17:695-701, 1943.

6 W. Sloan and R. A. Cutts, "Test patterns of defective delinquents on the Wechsler-Bellevue Test," Am. J. Ment. Def., 50:95-97, 1945.

7 J. C. Franklin, "Discriminative values and patterns of the Wechsler-Bellevue Scales in the examination of delinquent negro boys," Educ. Psychol., 5:71-85, 1945.

Strother⁸ studied a group of fourteen diagnosed adolescent psychopaths. He compared the Verbal and Performance IQ's of this group and found no significant differences. In his sample of psychopaths, only eight of the fourteen cases had a high Performance pattern. He concluded as a result of this study that the relationship between the Performance and Verbal IQ was not a reliable diagnostic indicator of psychopathy. The small number in the sample, however, throws some doubt as to the validity of this finding, and it must be interpreted with some caution. Further, the use of the diagnosis as a criterion against which the Verbal-Performance ratio is validated is a slightly different procedure than used by Sloan and Cutts,⁹ Franklin,¹⁰ and Levi.¹¹ The latter authors used various measures of behavior as opposed to a nosological category. The advantages of this procedure are described in greater detail in a later section.

In a study of Wechsler-Bellevue patterns with child-

8 C. R. Strother, "Performance of psychopaths on the Wechsler-Bellevue Test," Proc. Iowa Acad. Sci., 51:397-400, 1944.

9 W. Sloan and R. A. Cutts, op. cit.

10 J. C. Franklin, op. cit.

11 J. Levi, op. cit.

ren, Verniaud¹² found that 90 per cent of behavior-problem children had Performance IQ's higher than Verbal IQ's. She concluded:

This is a strong enough trend to make one wonder whether the verbal biased 10% belonged in conflict with duly constituted authority except by accident or mischance. (p. 77)

In this group of behavior-problem children she found that Object Assembly tended to be the highest sub-test score, followed closely by the Picture Arrangement, Picture Completion, Block Design, and Digit Symbol sub-test scores.

The Arithmetic sub-test score was found to be consistently poor for the entire group. These findings, however, were incidental to the study and no attempt was made to cross-validate them.

In a recent study by Altus and Clark¹³ two groups were compared; one group, composed of general prisoners at Army Disciplinary Barracks, was found to have a mean Performance IQ significantly higher than the Verbal IQ. The second group, consisting of juvenile delinquents from fourteen to eighteen years old, was broken down into white and Mexican subgroups, in order to provide a gross control for cul-

12 W. M. Verniaud, "Psychological Patterns as a Diagnostic Aid in Child Guidance," (Doctoral Dissertation: University of Houston, 1949.)

13 W. B. Altus and J. H. Clark, "Subtest variations on the Wechsler-Bellevue for two clinical groups," J. Consult. Psychol., 13:444-448, 1949.

tural differences. All white juvenile delinquents had Performance IQ's superior to Verbal IQ's; 28 out of 31 Mexican delinquents had higher Performance IQ's. Their comment concerning their results is of interest.

It must be emphasized that the sub-test patterning for all three groups is remarkably similar in spite of the fact that they are linguistically different, that their age ranges are exceedingly variable, and also in spite of the fact that they represent fairly distinct grouping. (p.447)

These authors conclude that language and cultural conditions cannot account for the performance superiority of the groups and that there is a relationship between delinquent behavior and a high Performance IQ relative to Verbal IQ.

Clark and Moore¹⁴ studied the relationship between Wechsler test patterns and psychiatric diagnoses with Army and Air Force prisoners. The three classifications studied were "no psychiatric disorder," "immaturity reaction," and "pathological personality type." In all groups the Verbal sub-tests showed negative deviations from the means of all the sub-test scores; correspondingly, the Performance sub-tests, excluding Digit Symbol, showed positive deviations

14 J. H. Clark and J. Moore, "The relationships of Wechsler-Bellevue patterns to psychiatric diagnosis of Army and Air Force Prisoners," J. Consult. Psychol., 14:493-496, 1950.

from the total mean. Concerning this and the previous study, the authors stated:

In a sense all of the groups had a basic similarity in that all included individuals who had committed infractions of Army or civilian laws. One might assume, therefore, that apparently there are certain characteristics common to all these groupings which result in similar patternings on the Wechsler-Bellevue. (p. 145)

Varley,¹⁵ in a study of behavior which she considered to be representative of rebellion against the demands of society, or of an adjustment based upon a manipulation of the environment without regard for the needs of others, found significant differences in Performance and Verbal IQ's. Although there were some sex differences, she concluded that a Performance bias of five or more points definitely suggested a weak acceptance of cultural mores. Her population consisted of adult psychiatric patients.

Many other studies on Wechsler-Bellevue patterns have utilized analyses of the inter-test patterns. Perhaps the most extensive of these was the research of Rapaport.¹⁶ He analyzed scatter patterns on the Wechsler for nineteen nosological groups and a control normal group. His findings have been criticized by many for inadequate statistical anal-

¹⁵ M. B. Varley, "Behavioral Correlates of Psychometric Patterns." (Doctoral Dissertation, University of Texas, 1952.)

¹⁶ D. Rapaport, M. Gill, and R. Schafer, op. cit.

ysis. Many investigators in follow-up studies have failed to confirm his findings. Rabin and Guertin¹⁷ concluded in a review of this research:

It has added to the already existing confusion of contradictory findings on various groups which differ in age and in control of several pertinent factors. (p.227)

Wittenborn¹⁸ utilized Rapaport's data to test three hypotheses he considered important in profile or scatter analysis. These hypotheses were that (1) all patients having the same diagnosis have a similar Wechsler pattern, (2) sub-test correlations between any pairs of patterns of the same diagnostic group are higher than those between pairs of patients of different diagnosis, and (3) that correlations between pairs of patients of the same diagnosis are higher than correlations obtained between pairs of hypothetical patients when two or three of the subtests have the same rank. He found that the correlations were too small to support these hypotheses and concluded that pattern analysis with the Wechsler Test was of no great value as a psychometric supplement to diagnosis.

17 A. I. Rabin and W. H. Guertin, op. cit.

18 J. R. Wittenborn, "An evaluation of the use of Wechsler-Bellevue sub-test scores as an aid in psychiatric diagnosis," J. Consult. Psychol., 13:433-439, 1949.

Rashkis and Welsh¹⁹ devised twelve signs of anxiety based on Wechsler-Bellevue records of thirty patients. Seven of the signs were based on temporary inefficiencies on the Digits, Information, Block Design, Arithmetic, Object Assembly, Picture Completion, and Picture Arrangement subtests. The remaining five signs were based on observations made during the testing situation. All twelve signs did discriminate between anxious and non-anxious subjects. In a follow-up study, Schoben²⁰ employed the same signs and found no significant differences in a comparison of non-anxious and anxious college students.

Rabin²¹ in his summary of eleven years of research with Wechsler patterns concluded:

The eleven years since the original publication of Wechsler's scale of global intelligence in 1937 have shown that his instrument is an easily adaptable and pliable tool for research purposes...in fact, the dozens of studies published have not changed much the state of affairs in respect to scatter...the scatter mountain has given birth to a mouse...it is doubtful that the continued clogging of the experimental literature with testimonials pro and con, based on scanty and uncontrolled evidence will be of further benefit. (p. 239)

19 H. A. Rashkis and G. S. Welsh, "Detection of anxiety by use of the Wechsler Scale," J. Clin. Psychol., 7: 354-357, 1946.

20 E. J. Shoben, "The Wechsler-Bellevue in the detection of anxiety: A test of the Rashkin-Welsh hypothesis," J. Consult. Psychol., 14:40-45, 1950.

21 A. I. Rabin and W. H. Guertin, op. cit.

This view is shared by many psychologists. Schofield,²² in a review of research trends in clinical psychology, states that sufficient negative findings have been reported to refute the claims of a relationship between scatter and personality. Others, like Wittenborn,²³ have concluded that the Wechsler test may be a good and reliable indicator of intelligence, but its value as a diagnostic index is extremely doubtful.

Despite these critical views on the use of the Wechsler for diagnostic purposes, there remains a large group of psychologists who hold that the test has value for predicting adjustment. This view has been expressed by Bijou,²⁴ Jastak,²⁵ Piotrowski,²⁶ Rapaport,²⁷ Schafer,²⁸ and others. All these authors express the view that intrinsic personality

22 W. Schofield, op. cit.

23 J. R. Wittenborn and J. D. Holzberg, op. cit.

24 S. W. Bijou, "The psychometric pattern approach as an aid to clinical analysis - a review," Amer. J. Ment. Def., 46:354-362, 1942.

25 J. Jastak, "Psychometric scatter analysis," Psychol. Bull., 46:177-197, 1949.

26 Z. Piotrowski, "The test behavior of schizophrenic children," Proc. Amer. Ass. Stud. Ment. Def., 42:78-90, 1937.

27 D. Rapaport, M. Gill, and R. Schafer, op. cit.

28 R. Schafer, op. cit.

traits may be appraised through a study of test scatter, and that these appraisals may be made regardless of the total intelligence test score.

As stated above, the fundamental problem in the study of the validity of the Wechsler test patterns is the choice of adequate criteria. Most studies have used the various psychiatric categories as employed by the clinic and hospitals in which the studies were done. Serious objections can be raised against this practice since the meaningfulness of present-day nosology is in wide dispute. Psychiatrists generally agree that the present system is outmoded and unsatisfactory and that there are wide differences in its application. Since the outcome of studies utilizing psychiatric diagnoses as criteria hinges as much upon the efficiency of the diagnoses as it does upon that of the scatter pattern, caution must be utilized in evaluating the effectiveness of the test patterns. As Rabin²⁹ has pointed out, "The error is in assuming stability, uniformity, and homogeneity of the criterion. To do that is to build on sand." Schafer³⁰ states that in interpreting psychological tests, the clinician first predicts behavior and from this prediction infers a psychiatric diagnosis. This diagnosis, he

29 A. I. Rabin and W. H. Guertin, op. cit.

30 R. Schafer, op. cit.

continues, will depend upon one's theoretical leanings and upon the general clinical situation, and as such, is subject to considerable equivocation. Behavior, on the other hand, is not subject to these limitations. In the studies of Altus and Clark,³¹ and Clark and Moore,³² for example, the test patterns of the individuals in different classifications were similar. However, Clark and Moore point out that when behavior, rather than classification, was used there was a great deal of similarity among the individuals studied, in that all had histories of law infractions and of other delinquent or a-social behavior.

This review of the research indicates that when behavior, as opposed to nosology, is used as a source for criteria, there are marked similarities in research findings. Investigations of Weider, Levi, Reisch, Franklin, Verniaud, Altus and Clark, Clark and Moore, and Varley were all concerned with subjects with delinquent, a-social, or other types of behavior problems. All of these studies have indicated a relatively high Performance IQ as a characteristic feature of individuals with histories of delinquent and rebellious behavior. There appears to be a good possibility, therefore, of finding more consistency in research results

31 W. B. Altus and J. H. Clark, op. cit.

32 J. H. Clark and J. Moore, op. cit.

if behavior, as opposed to nosology, is used as a source for validating criteria.

Rorschach Studies

Since the publication of the Rorschach technique in 1921, there has been a phenomenal increase in its use as a psychodiagnostic instrument. As is true of the Wechsler test, there have been hundreds of reports of research with the Rorschach, and as with the Wechsler, there have been just as many contradictory findings as to the usefulness of this technique in diagnosing personality.

Most studies with the Rorschach have utilized the various formal scoring categories devised by Rorschach or by his successors. There has been a paucity of research with the content of the responses. The importance of the content has been pointed out by many authors. Linder,³³ speaking of the Rorschach, says:

Many of the cult-bound Rorschachers tend to miss his intention in the furor of their preoccupation with the letter to the neglect of the spirit of his achievement. (p707)

In his analysis of Rorschach content, Linder has selected certain responses which he feels are pathognomic of certain clinical categories or are related to certain kinds of be-

³³ R. M. Linder, "Analysis of the Rorschach test by content," J. Clin. Psychopath., 8:707-720, 1947.

havior. He offers no statistical evidence for the validity of his signs, but urges caution in their use.

Elizur³⁴ in 1949 reported a technique for deriving indices of anxiety and hostility from Rorschach content. Responses such as a "terrifying bat" were rated on a scale for anxiety. Likewise, responses such as "two men fighting" were rated on a scale for hostility. An individual's score for the two indices was the sum of his part scores. The total scores correlated significantly with external ratings of hostility and anxiety. The author concluded that his method appeared to be a valid technique for assessing a subject's anxiety and hostility.

In a follow-up study, Gorlow, Zimet, and Fine³⁵ found that the anxiety and hostility scores as outlined by Elizur differentiated between a delinquent and non-delinquent group. The delinquents received significantly higher hostility and anxiety scores than the non-delinquents. These authors conclude that not only these indices, but other content categories on the Rorschach, may be significantly related to other behaviors, and suggest further research in this area.

34 A. Elizur, "Content analysis of the Rorschach with regard to anxiety and hostility," J. Proj. Tech., 13:247-284, 1949.

35 L. Gorlow, N. Zimet, and H. J. Fine, "Anxiety and Hostility Rorschach scores," J. Consult. Psychol., 16: 73-75, 1952.

In an unusual and ingenious factor study of some selected Rorschach responses, Wittenborn³⁶ found that there was more relationship between content aspects of the responses than there was between the usual formal categories. His data suggest that response content plays an important role in determining the functional similarities and dissimilarities of certain responses, particularly, movement responses. For example, movement responses appeared on all factors in this study, and the data definitely suggest that the formal or abstract scoring category could not account for the distribution of movement responses. Wittenborn concluded that his analysis of discrete responses to the Rorschach test makes it evident that abstract scoring categories are not responsible for the intercorrelations found and that other aspects of the responses, particularly content, are more important determiners of the patterns of correlations noted.

Jehuda Rav³⁷ attempted to clarify the meaning of responses with an anatomical content. He studied the responses of 200 males. His findings are in disagreement with other Rorschach workers who hold that anatomical responses are directly related to a hypochondriacal preoccupation. He con-

³⁶ J. R. Wittenborn, "Statistical tests of certain Rorschach assumptions: Analysis of discrete responses," J. Consult. Psychol., 13:257-267, 1949.

³⁷ Jehuda Rav, "Anatomy responses in the Rorschach test," J. Proj. Tech., 15:433-443, 1951.

cluded, on the basis of his results, that anatomy responses are a result of restriction in either the ability (feeble-mindedness) or affective (anxiety) spheres and that this restriction is due to anxiety.

Eichler,³⁸ in a study of Rorschach indices of anxiety due to stress, has also found that an increase in anatomical responses will accompany an increase in stress. This finding bears out Rav's conclusion that anatomical responses are a result of anxiety.

Klopfer and Kelley,³⁹ Beck,⁴⁰ and most Rorschachers stress the explosive and impulsive nature of violent color responses with content such as fire and blood. Linder⁴¹ associates them with the hysterics or aggressive psychopaths. It is widely held Rorschach theory that such responses are an indication of the affective lability of the subject and indicate a lack of emotional and intellectual control.

A non-experimental exposition of the value of Ror-

38 R. M. Eichler, "Experimental stress and alleged indicators of anxiety," J. Abn. Soc. Psychol., 46:344-355, 1951.

39 B. Klopfer and D. Kelley, The Rorschach Technique. (New York: World Book Company, 1942.)

40 S. J. Beck, Rorschach's Test, I. Basic Processes, II. A Variety of Personality Pictures. (New York: Grune and Stratton, 1945.)

41 R. M. Linder, op. cit.

schach content was given by Lubar.⁴² He stated that in responding to the Rorschach plates a subject projects his feelings and thoughts, and that the content of these responses furnishes useful information concerning the subject's "coping" or adjustment methods. Content involving hostile or aggressive activity is said to be related to such trends in the individual. The author also infers that responses of immature or childish content are related to childishness and immaturity in the subject. Lubar does not offer any evidence for the validity of these signs and merely states that they seem to have clinical validation.

Unlike most Rorschach studies, which stress the formal scoring aspects of responses, the work of Lubar, Rav, and Eichler are attempts to relate the content of the responses to extra-test criteria. These studies are based on the rationale that there is a dynamic relationship between the content of the Rorschach response and the manner in which an individual deals with his environment. Linder's method,⁴³ on the other hand, is more of a sign approach, in that a particular response is held to be a sign of a particular kind of disturbance, rather than an indication of a quality of adjustment. That is to say, Linder suggests a test of res-

42 G. H. Lubar, "Rorschach content analysis," J. Clin. Psychopath., 9:146-152, 1948.

43 R. M. Linder, op. cit.

ponses, each of which is supposed to be indicative of a particular psychiatric disorder. For example, Linder points out that "eyes staring at me" given in response to a particular small detail on card IV of the Rorschach test is definitely suggestive of a paranoid disorder. This "sign approach" to content analysis is markedly different from the approach of Schafer and Rapaport, who point out that test responses are end-products of thought organization and, as such, indicative of more basic aspects of character adjustment.

Schafer,⁴⁴ in his book on the clinical use of psychological tests, also utilizes a "content approach" in the interpretation of his records. For example, in speaking of the Rorschachs of anxiety hysterics, he states:

...it is characterized by hysteric-like expression of affective lability in response to the ink-blot proper, quite uncontrolled color form and color responses, and content with a naive and childish quality (two little fairy queens; they are so pretty). (p.39)

Schafer infers that the utilization of such naive or childish descriptions is directly related to childishness or immaturity in the behavior of the subject.

Discussion of Earlier Studies

Despite widespread disagreement, some of the research reviewed above indicate that a relationship between psycho-

44 R. Schafer, op. cit.

metric patterns and personality traits does exist. A number of investigators in this area point out that one source of the inconsistency in their results may lie in the use of the diagnostic categories as external criteria, against which the tests are validated. Another source of inconsistency in the results may be that many of the interpretations derived from the results of the Wechsler-Bellevue test are based on a rationale that the various psychiatric disorders impair or lower performance in certain tests. Thus, a lowered Digit Span score is taken as an index of impairment due to anxiety. While impairment on various sub-tests may be directly referable to a particular syndrome in some cases, as in the organic disturbances with resulting intellectual deterioration, it is not necessarily true that all test patterns are a result of impairment due to a particular psychiatric disorder. It is entirely possible that scatter may result, not from impairment, but from some special interests or general mode of adjustment. For example, an individual who copes with most problems with an obsessive, over-ideal approach will do better on tests requiring this type of ability (verbal tests) than will an individual whose life adjustment has involved knowing as little as possible. In this sense then, some of the scatter patterns on psychometric tests can be due to dynamic adjustment mechanisms and not to impairment as such. This aspect of intelligence has

not been adequately studied, although the importance of it has been pointed out many times. Wechsler⁴⁵ says of this:

One of the reasons that not much has been done is that psychologists have continued to assume that personality has little to do with intelligence. To Thurstone, as well as Spearman, general intelligence seems first to be a cognitive function; by Spearman, to be accounted for by a single pervasive factor; by Thurstone, by a number of factors. (p. 102)

As has been previously pointed out, a major difficulty in validating psychological tests is the use of nosological categories as external validating criteria. To the writer's knowledge, this is one of the first studies in which a large number of behavioral and test items have been included in a factor matrix. The use of behavioral data and psychological test data in the same matrix has the advantage that the behavioral data can be utilized to define the extracted factors against which the test items can be validated. This experimental design does not rely upon assumptions concerning the reliability or validity of nosological categories, nor does it assume that test patterns or scores are the result of impairment.

To date then, specific knowledge of the relationship involved between psychometric patterns and particular types of adjustment is meager. There is a great need for further

45 D. Wechsler, "Non-intellective factors in general intelligence." J. Abnorm. Soc. Psychol., 38:101-103, 1943.

research. This is true for all psychometric tests, and particularly true for the Wechsler and Rorschach tests, which are so widely used in making clinical decisions. Factorial methods, employing behavioral data as well as psychological test data, offer a hopeful approach to the discovery of meaningful relationships between psychological tests and observed behavior.

CHAPTER III

DESIGN OF THE EXPERIMENT

Statement of Hypothesis

The present experiment was designed to test the hypothesis that there is a relationship between certain behavior and psychometric patterns to be described below. The experimental design was a factor analysis of the intercorrelations of the behavioral and test data studied.

Factor analysis has as its chief aim the discovery of the relationships existing in any given set of data. As Thurstone¹ states:

Factor analysis assumes that a variety of phenomena within a domain are related and that they are determined, at least in part, by a relatively small number of functional unities or factors. These factors may be called by different names, such as, "causes," "faculties," "parameters," "functional unities," "abilities," or "independent measurements." (p.57)

In the usual factorial experiment items loading any particular factor are used to define the nature of the factor. That is, the common factor variance for each item loading a factor is assumed to be "caused" by some essential similarity between the items, and it is the task of the factor analyst to define or deduce the nature of this similarity.

The utilization in the present study of behavioral

1 L. L. Thurstone, Multiple Factor Analysis.
(Chicago: University of Chicago Press, 1947.)

items to define a dimension of personality is similar to the usual factorial design. The basic difference is the utilization of these behavioral items and the functional unity they define as criterion measures for the psychological test items. This design is based on the assumption that to the extent a test item loads on a factor, it is related to the factor and is, further, a convenient measure of it. For example, if six items share significant common factor variance, and one of these is a test score, then it is possible to assume that the test score is a measure or indicator of this hypothetical factor. It may also be assumed that to the extent the test score loads the factor, it is related to the functional unity defined by all items on the factor. Cattell² utilizes a hypothetical two-factor example consisting of twelve items in explaining this principle. He states:

In this way, all twelve tests can be represented in terms of only two factors. This has theoretical advantages in that we can begin a search for two hypothetical powers or tendencies which lie behind the performances in all twelve tests, and it has practical advantage in that we may hope to substitute a few tests to tell us practically all that is now being achieved by the use of a long battery of twelve tests. (p. 31)

Therefore, by factor analysis not only can a large number of variables be reduced to a small number of factors, but

2 R. B. Cattell, Factor Analysis. (New York: Harper & Bros., 1952.)

also, those few items highly loading the factor may be utilized as measures of it.

For the purpose of the present study, these basic tenets of factor analysis are construed to mean that test items significantly loading any given factor are measures of it. Further, the higher the loading for any single test item the better it measures that dimension of personality defined by the factor and the greater the relationship between the two. In this sense, the present study is an attempt to show a relationship between specific test items and other aspects of behavior by utilizing historical or clinical data to factorially define criterion measures for the test items.

Description of the Test Materials

The Wechsler-Bellevue and the Rorschach tests used in this study were part of the routine psychological battery given to psychiatric patients at the University of Texas Medical Branch Hospitals. The Wechsler test was administered according to the directions outlined in the Wechsler manual³, with the following exceptions: (1) the Digit Span sub-test score was omitted in the computation of the IQ's because of its extreme variability, and (2) the Object Assembly sub-test was omitted and the Performance IQ accordingly prorated since

3 D. Wechsler, op. cit.

this sub-test is not routinely given at the University of Texas Medical Branch Hospitals because of its lack of an adequate relationship with the total IQ score. The Rorschach test was given and scored according to the principles outlined by Klopfer and Kelley.⁴

The behavioral data used in this study were abstracted from the psychiatric case records of the hospital. These records included the usual case history, medical history, course of treatment, nurse and ward notes, and correspondence concerning the patient. The data utilized in this study came mainly from the case histories; all of these were taken by the attending physicians. The folders were examined "blindly" by the experimenter, that is, without fore-knowledge of the psychological test results. In all cases, the assumption of the presence of behavior in the subject was based upon a direct statement in the history that the patient had exhibited the behavior at some time in her development.

Population

The population studied was limited to white female psychiatric patients at the University of Texas Medical Branch Hospitals. The limiting of the population to one sex was considered desirable because it has been demonstrated

4 B. Klopfer and D. M. Kelley, op. cit.

that large differences in the results of factorial studies can be attributed to sex differences alone.⁵ The sample drawn for this study was selected by taking the first 100 patients tested after a given date. As can be seen in Table I, the median age of the group was 25; median schooling, eleventh grade; median IQ, 101.

TABLE I

MEDIAN AGE, IQ, AND SCHOOLING

	Median
Age (computed to last birthday)	25
IQ (Wechsler-Bellevue Full Scale)	101
Schooling (last grade entered)	11

All patients in the sample were diagnosed as having a functional psychiatric disorder, since patients that had a known organic disorder were excluded from the group. The patients at this hospital are referred from all parts of Texas, and in general, represent all socio-economic groups. Since they were selected on the basis of a particular time period of test referrals, the experimenter is not aware of other

5 S. B. Red, "A Factorial Study of Algebraic Ability." (Doctoral Dissertation, University of Texas, 1942.)

factors of bias in the sample. Excepting organic disorders, the sample included most of the usually designated psychiatric disorders of a neurotic and psychotic nature.

Case History Items

The trait population utilized in this study consisted of both behavioral and psychometric data. The behavioral data came from the case histories of the patients. Before the final items were selected, a group of histories was first studied carefully in order to determine the kinds of information they contained which might be representative of immature, acting-out, psychopathic, rebellious, or demanding attitudes. After the case history items were selected, the sample of subjects was drawn. Cases used in the preliminary item analysis were not included in the final sample. Each case history item was dichotomized into "yes" (the item was present) and "no" (the item was not present) groups. In those cases in which the data were in a continuous series (such as age), the item was dichotomized as close to the median as possible so that the group was split into two equal parts.

The following is a list of the case history items and a brief rationale for each:

1. Age - scored positive for 25 years or below. This item was recorded to the nearest birthday. If an individual is in active rebellion against the demands of society, then he

might be expected to come quickly to the attention of others. Because his behavior is less apt to be tolerated by others, such individuals would be more apt to be referred for psychiatric treatment early. While it is true that neurotics or psychotics may be hospitalized at any age, it was felt that the lower age group among psychiatric patients would contain a greater number of individuals in active conflict with the demands of society.

2. School - scored positive for eleven years or less of schooling. As with age, it was hypothesized that this item would be an index to open rebellion or conflict with one's environment. If a lack of intelligence is not a factor, then conflict with society will in many cases manifest itself by an inability to continue in school. Again, it is true that many people leave school at an early age for many other reasons; however, it was hypothesized that in a group of psychiatric patients, there would be a large number who had rebelled against this aspect of socialization.

3. Histrionic Behavior - defined as fainting spells, temper tantrums, or seizures without known organic basis, in the presence of others. This type of behavior usually evokes an immediate response in others. It is an attempt to force one's desires for attention or support, and is often used to get one's way. Rarely does this behavior occur in isolation and

it would generally be expected to subside if there were no one around to pay attention. Histrionic behavior is considered to be an immature manner of achieving satisfactions in that it represents an inability to delay response or to withstand frustration.

4. Suicide attempts or threats - defined as an actual attempt on one's life or a threat of such an attempt. Many suicides may be legitimate attempts to end a difficult situation or may result from a psychotic loss of reality-testing. Nevertheless, it can also be used as a dramatic way of forcing one's demands. It can be a hasty, aggressive, and impulsive action. In many such cases, the suicide attempt consisted of a minimal gesture, such as taking two or three extra sleeping tablets, and in these cases, the clinical interview usually brought out the "if I'm gone, you'll be sorry you treated me so mean" formula. Previous suicide attempts in this group of subjects were necessarily unsuccessful, and for this reason it was felt that this item would include a large number of individuals who utilized the threat of suicide in order to achieve immediate or excessive satisfaction for their demands, as well as having displayed an inability to accept the demands made upon them by their environment.

5. Excessive use of alcohol or drugs - defined as an entry by a psychiatrist in the case record of an excessive use of

these articles. Such a record does not imply addiction, and in most cases this was not the problem. The immaturity and dependency of those who show excessive reliance upon drugs and alcohol should be reflected in a character structure incorporating low frustration tolerance and an inability to meet in a mature way the vicissitudes and demands of the culture. In many instances, the patient's attempt to excuse very deviant and often rebellious behavior is on the basis of alcohol usage.

6. Delinquent behavior - defined as a history of delinquency or law infraction. This behavior was felt to be representative of open conflict or rebellion against society and its demands. An individual in open conflict with society's demands might be expected to exhibit frequent violations and infractions of laws.

7. Negative or uncooperative in a therapy situation - defined as a record by the attending physician of active resistance to treatment, or of having left the hospital against medical advice. Individuals with an externalized conflict might be expected to feel little need for therapeutic change and to actively resist efforts by others to bring about such an event. They will have attempted to meet most of life's adjustments by active rebellion or by avoidance of anxiety, and might also be expected to adjust to therapy in a similar manner.

8. Multiple Marriages - defined as a record of two or more marriages. Individuals remarry for many reasons; nevertheless it was felt that within a psychiatric population, multiple marriages might often reflect the individual's lack of deliberation and inability to accept the responsibilities and demands of a marriage relationship. Also, a major reason for many marital difficulties may well lie in the demanding or rebellious attitudes, or in the resistance to change, as shown in one or both of the marriage partners.

9. Divorced status (or open conflict with present marital partner) - defined as a record of having been divorced or in open (physical) conflict with the present partner. While there is some similarity between this item and the previous one, in that divorce necessarily precedes a second marriage, it was felt that there was sufficient difference to include this item. It was hypothesized that this behavior included a more definite element of open hostility and aggression.

10. Early sexual experience - defined as a record of extra-marital, or premarital (before the age of nineteen) heterosexual relationship. In general, the postponement or delay of heterosexual activity is expected by our society. It was hypothesized that among those who have engaged in early sexual experiences there will be included a large number of individuals in rebellion against the restrictions of society.

Further, the inability to delay impulse-gratification may also be considered to be characteristic of immaturity.

11. Early marriage - defined as a record of marriage before the age of nineteen. Early marriage may represent an escape from a home situation that is intolerable, or from one in which there is considerable conflict. It may also represent the action, orientation, and impulsivity of immature and rebellious individuals. In this sense, it is an attempt to change the environment rather than to change one's self. As with Item 10, it should be recognized that early marriages occur for many reasons, but it was felt that within a group of psychiatric patients those who married relatively early would frequently be found to be in rebellion against the demands of society and to have used marriage as an escape from responsibility.

12. Open conflict with parents - defined as a statement in the case history describing open physical conflict with the parents. If one is in rebellion against the demands of society, this rebellion might be expected to take expression in open violence against the familial representatives of the society.

13. Parents dead, divorced, or separated during the developmental period - The developmental period here was defined

as the first sixteen years of life. Since the family unit is a major carrier of culture, it was hypothesized that the lack of adequate family relationships should result in poorly developed cultural assimilation. This is apt to result in an individual with weak acceptance of cultural and societal values.

14. Operations for "female troubles" - defined as a record of any operation on the reproductive organs with the exception of the usual operations during childbirth. The majority of the individuals scoring positive on this item had a history of hysterectomies. Many such operations are done on a basis of vague and ill-defined complaints by the patient. An inability to adjust adequately to the culturally-imposed marital and sexual roles might easily be projected into "female troubles." Such complaints may conceivably stem from a need to gain attention and support. For women with serious adjustment problems, the utilization of such difficulties might present a relatively easy and immature method to gain this goal.

15. Physical complaints - defined as any presenting complaint specifically involving some biological dysfunction without a known organic basis.

16. Behavioral complaints - defined as any presenting complaint specifically involving difficulty with interpersonal

relationships, or an inability to adjust to others without open hostility and conflict.

17. Psychological complaints - defined as any presenting complaint specifically involving some psychogenic factor, such as phobias, delusions, anxiety, and others.⁶

Test Data

The psychological test data used in this study were taken from the test files of the Psychology Department of the University of Texas Medical Branch Hospitals. The experimenter gathered the test items "blindly," that is, without knowledge of the data in the subject's case histories. To avoid contamination in judgments, the experimenter copied the test data onto master sheets and assigned a number for each subject. Ratings as to the presence or absence of a test item were determined by referring to the entries on the master sheet. Each separate item was checked for the entire sample at one time, so as to insure consistency in judgments. As with the case history items, dichotomized categories of "yes" (the item was present) and "no" (the item was not present) were used. The following is a list of the test items used, along with an

⁶ Items 15 through 17 were drawn from that section of the case history in which the chief presenting complaint is listed. They are not mutually exclusive, and some individuals were scored for more than one category.

account of the earlier studies in which a relationship between the test item and the behavior studies has been noted:

18. High Performance - defined as Performance IQ equal to, or superior to, Verbal IQ. The split was made at this point in order to divide the group into two equal parts. The superiority of performance over verbal functions shown in the test records of delinquent and rebellious individuals has been demonstrated in many studies. Sloan and Cutts,⁷ Varley,⁸ Verniaud,⁹ Altus and Clark,¹⁰ and others have reported a relationship between a performance bias and delinquent or a-social behavior.

19. Information low¹¹ - defined as the weighted score on the Information sub-test being two points or more below the Comprehension sub-test weighted score. According to Schafer,¹² low Information score as compared to the Comprehension score is typical of the emphasis placed upon the defense of

7 W. Sloan and R. A. Cutts, op. cit.

8 M. B. Varley, op. cit.

9 W. M. Verniaud, op. cit.

10 J. Altus and J. H. Clark, op. cit.

11 The "sub-tests" referred to in this and in succeeding paragraphs are separate groups of test items contained in the Wechsler-Bellevue Intelligence Scale, Form I.

12 R. Schafer, op. cit.

repression by the hysteric patients. Eysenck¹³ also reports narrow interests as significantly loading on his hysteric factor. Many subjects score low on this test, as compared with other tests, because of vague or poorly systematized knowledge. Typical of the answers of these individuals is the response to "Where is London?", "Oh, I just don't know, overseas somewhere, I guess."

20. Low Arithmetic - defined as the weighted Arithmetic sub-test score being as low as, or lower than, each of the other verbal sub-tests, excluding Digit Span. Digit Span was not included in this measure because of the extreme day-to-day variability which occurs in the individual's performance on this test. Wechsler,¹⁴ Levi,¹⁵ and others report relatively low scores on this test as characteristic of the response-patterns of delinquents and psychopaths. An examination of the data presented by Verniaud¹⁶ and Altus and Clark¹⁷ also revealed a relatively low score on Arithmetic to be concomitant with a diagnosis of behavior disorder.

13 H. J. Eysenck, Dimensions of Personality. (London: Routledge and Kegan Paul, 1947.)

14 D. Wechsler, op. cit.

15 J. Levi, op. cit.

16 W. M. Verniaud, op. cit.

17 J. Altus and J. H. Clark, op. cit.

21. Picture Arrangement plus Picture Completion greater than Block Design plus Digit Symbol - defined as the sum of the weighted scores on Picture Arrangement and Picture Completion sub-tests equal to, or greater than, the sum of the weighted scores of the Block Design and Digit Symbol sub-tests. Schafer,¹⁸ Wechsler,¹⁹ and others report a relatively high Picture Arrangement and Picture Completion in the scatter patterns of delinquents. Both Eysenck²⁰ and William²¹ found that the hysteric (or extravert) was able to grasp quickly and accurately the meaning of picture stories and to note inconsistencies in distorted pictures.

22. Intelligence Quotient high - defined as a full scale IQ of 101 or better. This item was included in order to control for intelligence. Eysenck²² reported that the intelligence played an important role in his hysteric factor. The inclusion of a measure of intelligence in the correlation matrix enabled a determination of the amount of variance which in-

18 R. Schafer, op. cit.

19 D. Wechsler, op. cit.

20 H. J. Eysenck, op. cit.

21 J. M. William, "An analysis of humor and laughter," Amer. J. Psychol., 53:70-85, 1940.

22 Eysenck, op. cit., p. 36.

telligence contributed to any factor.

23. Immature M²³ - defined as the number of immature M being equal to, or greater than, other M. M is here defined as human movement responses as outlined by Klopfer and Kelley.²⁴

Immature M is defined as movement responses in which the content involves vivid Disney-like scenes, clowns and circuses, human movement in animal figures, comic characters, figures described in affective terms such as weird, gay, ugly, fairy scenes, and humans described as funny looking. The form level of the response was not taken into consideration in rating this item. Lubar²⁵ suggests that immature movement responses on the Rorschach are signs of other immature and childish behavior on the part of the subject who gives the response.

Schafer,²⁶ in describing the affectively labile neurotic, speaks of the hysteric-like expressions and descriptions of the figures as well as of the response content with a naive and childish quality which is characteristic of the movement responses of this group.

23 The terms, M, FM, color, and anatomical content refer to scoring categories of the Rorschach Psychodiagnostic Test.

24 B. Klopfer and D. M. Kelley, op. cit.

25 G. H. Lubar, op. cit.

26 R. Schafer, op. cit.

24. Aggressive M and FM - defined as human movement or animal movement responses involving aggressive or hostile action. Elizur²⁷ and Gorlow, Zimet, and Fine²⁸ report a relationship between aggressive content in the Rorschach responses and behavior of a hostile, aggressive nature.

25. Violent Color - defined as Rorschach responses in which the content involves fire, explosions, or blood. Beck,²⁹ Klopfer and Kelley,³⁰ and others considered this type of response to be related to violent and impulsive behavior.

26. Anatomy - defined as Rorschach responses involving content of an anatomical nature, including sexual anatomy. Most Rorschachers have stressed the relationship between this type of response and an anatomical or hypochondriacal preoccupation. On the other hand, Rav³¹ and Eichler³² both report a relationship between anatomical responses and anxiety or stress.

27 A. Elizur, op. cit.

28 L. Gorlow, M. Zimet, and H. Fine, op. cit.

29 S. Beck, op. cit.

30 B. Klopfer and D. M. Kelley, op. cit.

31 J. Rav, op. cit.

32 R. M. Eichler, op. cit.

27. Number shock - defined as protestations by the patient during the arithmetic sub-test about an inability to do arithmetic, such as, "I never could do this stuff; I've been out of school too long; Oh, God, take that horrible stuff away." Schafer,³³ in describing the Wechsler performance of the narcissistic character disorder, states that the typical woman in this group will protest violently during this test, and he concludes that this is typical of the avoidant behavior of this type of adjustment.

Procedure

The sample was selected from the test files of the Psychology Department of the University of Texas Medical Branch Hospitals. Following this selection, the case records of the experimental group were examined for evidence of the case history items listed above. The presence of an item was considered to be demonstrated if there was a statement in the case record that the patient had exhibited the behavior at some time in his life history. While this procedure undoubtedly missed some patients who would have been rated clinically as having the behavior in question, it was felt that strict adherence to this rule canceled out a large source of unreliability. The examination of the case record

33 R. Schafer, op. cit.

for the judgment of the case history item was carried out "blindly," that is, without knowledge of the psychological test results.

Following the judgments of the case history items, the test records of the experimental group were judged for the presence or absence of the psychodiagnostic test items. The test data, as well as the behavioral data, were dichotomized into "yes" and "no" categories. In cases where the data were in a continuous series, the item was split as close to the median as possible in order to divide the group into two equal parts. For example, the item of test intelligence was split at the point between Full Scale IQ of 100 and 101, since this split divided the sample at the Median IQ. This type of dichotomy was necessary because of the nature of the correlation method used, and because a median split insured maximum reliability for the correlation.

As with the case history data, the psychodiagnostic test data were analyzed "blindly." In order to do this, the examiner copied the test results onto master sheets and assigned each subject a number. The judgments for the presence or absence of an item were made from the entries on the master sheets and without knowledge of the case record or the identity of the subject. Each single test item was rated for the entire group at one time, so as to insure consistency in rating.

After the judgments of the test and case history data had been completed, the items were intercorrelated by means of tetrachoric correlations computed from the Chesire Tables.³⁴ The resulting matrix was factor analyzed by means of Thurstone's³⁵ complete centroid method and was rotated orthogonally. The rotations were carried out by rotating the factors by pairs, plotting each pair graphically, and computing the rotation algebraically.

34 L. Chesire, M. Saffir, and L. L. Thurstone, Computing Diagrams for the Tetrachoric Correlation Coefficient. (Chicago: University of Chicago Bookstore, 1933.)

35 L. L. Thurstone, Multiple Factor Analysis. (Chicago: University of Chicago Press, 1947.)

CHAPTER IV

RESULTS

The intercorrelations of the items are presented on Table II. The number for each row and column corresponds to the number assigned to each item in the preceding chapter. A full definition of each item may also be found in that chapter. The correlations were computed to two decimal places. Unless preceded by a minus sign, the correlations are positive. The decimal points have been omitted in this table, and in Tables III and IV, for the sake of clarity and composition.

The correlation matrix presented in Table II was factor analyzed by Thurstone's¹ complete centroid method. Factorization was continued until no significant variance remained. The matrix yielded eight factors. The loadings for these factors, given to three decimal places, are given in Table III. Since they were computed from correlations significant to only the second decimal place, they should not be considered as significant at the third place. All loadings shown in Table III are to be considered positive unless preceded by a minus sign. The decimal points have been omitted

1 L. L. Thurstone, Multiple Factor Analysis. (Chicago: University of Chicago Press, 1947.)

in this table. Communalities are given in the column headed " h^2 ."

The eight factors were rotated by pairs graphically, and the indicated rotations computed algebraically. All rotations were orthogonal. The resulting rotated factor loadings are given in Table IV. A comparison of the final communalities with the original communalities reveals no significant differences. As in Table III, all loadings are to be considered positive unless preceded by a minus sign. The factor loadings in Table III represent the yield from a total of 44 rotations, although the final structure was evident at a much earlier period in the computation.

Loadings above .35 were considered significant, since loadings above this cutting point could occur by chance but rarely. The significant factor loadings are shown in Table V. As can be seen from this table, most factors include some test variance. The names and interpretations for these factors are given in the following chapter.

TABLE II
CORRELATION MATRIX

	1	2	3	4	5	6	7	8	9
1		09	00	13	-10	25	24	-19	-28
2	09		20	-09	-04	41	23	00	-16
3	00	20		-22	-11	35	30	23	03
4	13	-09	-22		42	11	10	-02	03
5	-10	-04	-11	42		00	-09	21	33
6	25	41	35	11	00		37	20	40
7	24	23	30	10	-09	37		37	11
8	-19	00	23	-02	21	20	37		47
9	-28	-16	03	03	33	40	11	47	
10	11	31	09	42	34	72	14	19	37
11	11	13	32	07	00	-02	05	56	21
12	50	00	13	34	05	64	30	-18	18
13	32	07	-07	39	32	35	05	20	-01
14	-54	-16	34	04	13	-21	-06	19	25
15	24	05	15	-15	-42	-29	03	01	-33
16	03	09	-13	40	34	02	-08	04	34
17	-30	-04	-04	-18	-02	08	-02	-29	26
18	00	39	45	10	-09	60	20	09	09
19	21	-05	09	09	00	16	22	11	13
20	00	13	39	14	03	39	17	10	14
21	05	25	54	08	-02	30	19	39	09
22	-21	-49	07	27	29	-28	-11	08	21
23	-17	-22	43	29	38	-08	02	09	02
24	11	09	00	29	18	01	19	-10	-30
25	-21	-01	-15	01	-24	02	-21	23	-15
26	00	-37	34	10	19	-07	24	19	05
27	24	37	33	03	14	35	23	29	15

TABLE II (continued)

CORRELATION MATRIX

	10	11	12	13	14	15	16	17	18
1	11	11	50	32	-54	24	03	-30	00
2	31	13	00	07	-16	05	09	-04	39
3	09	32	13	-07	34	15	-13	-04	45
4	42	07	34	39	04	-15	40	-18	10
5	34	00	05	32	13	-42	34	-02	-09
6	72	-02	64	35	-21	-29	02	08	60
7	14	05	30	05	-06	03	-08	-02	20
8	19	56	-18	20	19	01	04	-29	09
9	37	21	18	-01	25	-33	34	26	09
10		27	48	37	-31	-29	28	-03	11
11	27		-13	01	05	14	08	-02	30
12	48	-13		-04	-15	02	-04	-05	16
13	37	01	-04		-38	-01	-10	08	17
14	-31	05	-15	-38		29	-02	00	10
15	-29	14	02	-01	29		-53	-61	-07
16	28	08	-04	-10	-02	-53		-42	10
17	-03	-02	-05	08	00	-61	-42		05
18	11	30	16	17	10	-07	10	05	
19	38	06	04	11	-19	09	-10	-18	15
20	19	18	19	19	18	-04	22	21	20
21	34	43	32	09	16	04	04	-03	29
22	09	34	00	19	30	04	-08	04	06
23	40	19	32	-08	16	-31	26	23	06
24	29	-20	11	11	-08	01	20	-21	25
25	-10	17	-11	-17	-03	02	10	02	00
26	-14	05	11	-05	00	18	-02	-29	05
27	34	29	58	00	09	21	09	-05	22

TABLE II (continued)

CORRELATION MATRIX

	19	20	21	22	23	24	25	26	27
1	21	00	05	-21	-17	11	-21	00	24
2	-05	13	25	-49	-22	09	-01	-37	37
3	09	39	54	07	43	00	-15	34	33
4	09	14	08	27	29	29	01	10	03
5	00	03	-02	29	38	18	-24	19	14
6	16	39	30	-28	-08	01	02	-07	35
7	22	17	19	-11	02	19	-21	24	23
8	11	10	39	08	09	-10	23	19	29
9	13	14	09	21	02	-30	-15	05	15
10	38	19	34	09	40	29	-10	-14	34
11	06	18	43	34	19	-20	17	05	29
12	04	19	32	00	32	11	-11	11	58
13	11	19	09	19	-08	11	-17	-05	00
14	-19	18	16	30	16	-08	-03	00	09
15	09	-04	04	04	-31	01	02	18	21
16	-10	22	04	-08	26	20	10	-02	09
17	-18	21	-03	04	23	-21	02	-29	-05
18	15	20	29	06	06	25	00	05	22
19		07	12	-21	-01	20	03	06	55
20	07		15	15	40	-05	10	11	05
21	12	15		-04	10	-11	-04	18	38
22	-21	15	-04		49	00	25	24	-04
23	-01	40	10	49		53	09	04	19
24	20	-05	-11	00	53		30	02	05
25	03	10	-04	25	09	30		31	-07
26	06	11	18	24	04	02	31		17
27	55	05	38	-04	19	05	-07	17	

TABLE III
UNROTATED FACTOR LOADINGS

	1	2	3	4	5	6	7	8	h^2
1	293	-589	-212	216	071	157	-128	-047	573
2	209	-423	348	294	116	410	-203	-174	683
3	420	123	-521	-317	314	-130	-236	-158	760
4	438	083	521	-061	120	-157	109	-195	563
5	393	330	381	-226	256	-258	233	-120	660
6	662	-359	239	408	-321	-045	155	-123	935
7	428	-181	242	-145	157	125	-025	226	387
8	393	316	-348	-161	-272	088	415	108	667
9	319	358	-225	317	185	-267	-136	-192	542
10	792	-115	-159	-247	174	126	095	-341	898
11	370	330	-313	-171	-198	160	275	-201	554
12	524	-280	-106	097	216	228	234	378	670
13	363	-148	-155	-274	-078	221	-344	231	479
14	-096	-512	-410	-131	-147	-163	396	-241	720
15	-162	309	207	-690	-193	-186	-149	247	796
16	355	277	321	-284	334	314	-130	-135	632
17	-130	-175	-173	426	-485	171	112	510	796
18	470	-662	319	061	-309	-169	-186	-133	940
19	334	-298	096	-158	-160	-113	-106	-093	293
20	367	226	-137	075	-307	048	-023	088	315
21	480	094	-371	-150	-069	121	-097	060	432
22	092	560	243	232	157	220	-134	-085	530
23	421	467	301	-222	277	-167	-384	186	821
24	250	-169	-448	230	138	-343	-209	-195	563
25	-017	-200	078	212	116	-329	254	-046	280
26	174	250	034	435	159	182	-157	156	391
27	567	-183	277	-315	-248	-175	283	305	796

TABLE IV
ROTATED FACTOR LOADINGS (ORTHOGONAL)

	1	2	3	4	5	6	7	8	h^2
1	361	196	-533	248	060	213	-067	-079	574
2	496	-191	-494	-208	289	-071	096	-124	683
3	-192	483	039	345	496	299	-124	135	760
4	459	-001	347	-227	346	138	-142	147	563
5	237	034	533	-234	294	099	-164	378	662
6	818	221	-098	-239	-114	348	072	-180	955
7	488	-002	027	192	225	-082	104	209	389
8	030	712	279	008	-180	-068	143	142	663
9	-172	165	127	-153	258	571	187	098	534
10	421	622	-045	032	494	141	-206	160	899
11	-099	676	203	046	191	005	068	026	553
12	485	274	-247	222	020	045	257	434	677
13	217	216	-049	485	275	-120	197	-141	479
14	-002	-020	-256	732	-272	102	-024	-181	720
15	-100	-147	683	377	102	-343	-114	-106	792
16	178	045	209	053	658	-257	074	215	630
17	458	266	-169	134	-357	147	562	024	792
18	861	-016	-138	247	-263	161	-116	-121	945
19	398	090	039	175	110	097	-187	-194	293
20	112	368	199	-002	-002	098	307	-153	315
21	081	522	-029	196	201	084	249	-026	429
22	-120	018	194	-427	342	-029	414	081	530
23	045	-204	546	189	559	103	323	122	820
24	-097	213	-225	147	093	632	-099	-075	550
25	129	-140	-040	-103	-282	293	-212	184	292
26	076	-032	144	-157	181	143	532	099	397
27	697	200	403	253	-131	-042	-071	133	793

TABLE V
SIGNIFICANT FACTOR LOADINGS

Item Number	Source	Variable	Loadings
Factor I			
18	Wechsler	High Performance	861
6	Behavioral	Delinquency	818
27	Wechsler	Number shock	697
2	Behavioral	Low schooling	496
12	Behavioral	Open conflict with parents	485
7	Behavioral	Negative to therapy	488
17	Behavioral	Psychological complaints	458
4	Behavioral	Suicide attempts or threats	459
10	Behavioral	Early sex experience	421
20	Wechsler	Low Arithmetic	398
1	Behavioral	Low age	361
Factor II			
8	Behavioral	Multiple marriage	712
11	Behavioral	Early marriage	676
10	Behavioral	Early sex experience	622
21	Wechsler	Picture Arrangement and Picture Completion greater than Block Design and Digit Symbol	522
3	Behavioral	Histrionic behavior	483
19	Wechsler	Low Information to Comprehension	368
Factor III			
15	Behavioral	Physical complaints	683
23	Rorschach	Immature M	546
5	Behavioral	Use of drugs, alcohol	533
27	Wechsler	Number shock	404
1	Behavioral	Low age	-533
2	Behavioral	Low schooling	-494

TABLE V (continued)
SIGNIFICANT FACTOR LOADINGS

Item Number	Source	Variable	Loadings
Factor IV			
14	Behavioral	Female operations	732
13	Behavioral	Broken homes	485
3	Behavioral	Histrionic behavior	345
15	Behavioral	Physical complaints	377
22	Wechsler	Intelligence	-427
Factor V			
16	Behavioral	Behavioral complaints	658
23	Rorschach	Immature M	559
3	Behavioral	Histrionic behavior	496
10	Behavioral	Early sex experience	494
17	Behavioral	Psychological complaints	-357
Factor VI			
24	Rorschach	Aggressive M and FM	632
9	Behavioral	Divorced	556
6	Behavioral	Delinquency	348
Factor VII			
17	Behavioral	Psychological complaints	562
26	Rorschach	Anatomical and sexual content	532
22	Wechsler	Intelligence	414
Factor VIII			
12	Behavioral	Open conflict with parents	434
5	Behavioral	Use of drugs, alcohol	378

CHAPTER V

IDENTIFICATION AND DISCUSSION OF FACTORS

Factor I - Inadequate Socialization

Factor I is characterized by the behavioral items: delinquency, low schooling, open conflict with parents, psychological complaints, negative attitude toward therapy, suicide attempts, low age, and early sex experience. The test items loading this factor are high Performance IQ, number shock, and low Arithmetic. This first factor accounts for a large part of the total variance including the largest total number of items as well as items with the most highly significant loadings. The most significant variables on Factor I are high performance IQ and a history of delinquency, followed closely by number shock. Considering the behavioral items as defining a factorial dimension of personality, it seems apparent, at least for this sample, that high Performance IQ and number shock are fairly pure measurements of this dimension.

In attempting to identify the common factor element underlying these items, it is convenient to speak of "individuals." It should be kept in mind, however, that, strictly speaking, one cannot translate directly from the behavior items loading on a factor to the total personality of an individual. If this is done for the purpose of facilitating

discussion, two assumptions are made: (1) the hypothetical "individual" is highly endowed with the factor element in question, and (2) this element is an important and pervasive determinant of his behavior. With these limitations in mind, one might say that the prototypical woman loading high on this factor would be a young individual with a history of rebellious, delinquent behavior, who has left school before completing eleven grades, who is in conflict with her parents, is resistive to therapeutic attempts to bring about changes, reacts to stress situations by attempts or threats of suicide, and defies the general cultural restrictions on pre-marital sexual activity.

From a psychoanalytic viewpoint, this is behavior generally associated with the character disorders rather than with the neuroses. Fenichel¹ has described this kind of behavior as "alloplastic," that is directed against the external world and motivated by a need for the immediate discharge of tension. A major characteristic of the character disorder is the external nature of the conflict. Neurotics, as such, suffer from internal conflicts and pressures. This is to say that neurosis is a deviation from the usual course of development in which there is an adequate compromise between the needs of the individual and the demands of the society.

1 O. Fenichel, Psychoanalytic Theory of Neurosis. (New York: W. W. Norton, 1945.)

in which he lives. The neurotic typically responds to these restrictions too completely and is forced to renounce the direct satisfaction of many of his needs and strivings. They are renounced, repressed, or distorted in order that he may achieve some security.

The character disorders on the other hand, have resisted the process of socialization; the individual has not adequately introjected the values of his culture. Actively or passively, he resists acculturation with the result that his behavior remains insufficiently controlled, and he finds himself in constant and more or less open conflict with, or rebellion against, the restrictions of society. Of course, this opposition will vary considerably in form in different individuals, ranging from a generalized rebellion in all areas of adjustment to a more limited opposition in very specific areas. Keynoting the behavior, regardless of the form or extent of the opposition, however, is the lack of acceptance of the culture's values and demands.

All the behavior loading Factor I may be considered as falling into the category of externalized conflicts or an inadequate acceptance of the processes of socialization. The most significant behavioral loading on Factor I is a history of delinquency. There are many explanations for the etiology of this behavior. In general, however, the psychological explanations are in agreement that delinquency stems from a

poor introjection of societal or parental standards. The usual family pattern in which this occurs is one in which the rewards for adopting the mores and ways of the society are inadequate.² The child's sacrifices are unpleasant, and he is offered little in love and security to cancel the hostility and aggression he feels as a result of the forced submission to the demands of his society. He becomes not only indifferent to societal standards, but becomes openly hostile to them. Another family pattern in which this may occur is that described by Levy³ in his discussion of maternal overprotection. This group is less frequent than the former, but the net result is the same. The indulgent overprotection results in a lack of serious pressure to conform and eventually leads to indifference and contempt for the restrictions and demands of society.

All the other items of behavior associated with delinquency on Factor I seem clearly related to this factorial dimension of personality. Individuals with external conflicts who are in open rebellion with the demands of society are more apt to come to the attention of the authorities, or to be brought for treatment at an early age, since their

2 R. W. White, The Abnormal Personality. (New York: The Ronald Press, 1948.)

3 D. M. Levy, Maternal Overprotection. (New York: Columbia University Press, 1943.)

rebellion is more dramatic and is usually evident at an earlier period. As part of this rebellious adjustment, it is expected that they will defy the restrictions imposed by schooling. Since their conflicts are largely external, there is very little motivation for change in their own behaviors, and they resist or reject the pressures of therapy. Early sex experience is but another expression of their resistance to conformity or their inability to postpone need reduction. A major expression of their conflict with the culture is their open defiance and conflict with parents, the major representatives of the culture. Suicide attempts as defined in this study have all been unsuccessful and are another indication of the impulsive and dramatic manner in which these individuals react to frustration.

Factor I then is considered to be a factor of rebellion against the demands of society. The constellations of behavior on this factor are often associated with the concepts of psychopath, sociopath, impulsive character disorder, narcissistic character disorder, delinquent, or adolescent rebellion. It is quite likely that the trait systems represented by Factor I may account for a large part of the behavior associated with these diagnostic groups.

A similar factor has been isolated by Cattell.⁴ The

⁴ R. B. Cattell, Description and Measurement of Personality. (New York: World Book, 1946.)

negative pole of his Factor C is characterized by items such as impulsivity, delinquency, rebellion, emotional character disorders, resistance to therapy, and good mechanical ability. Concerning the factor, Cattell reports:⁵

This is one of the two most important source traits in determining character...There is much scattered evidence that this is the trait which is conspicuously low both in delinquents and in neurotics... It may not be too speculative, even on the evidence yet available in the rating field, to interpret the factor as one of well-integrated will power, as opposed to a poor dynamic organization of the ego. The individual at the lower pole experiences dissatisfaction and undischarged irrationality which he is unable to control. (p. 60)

Burt⁶ describes his factor of General Emotionality as being most successful in distinguishing between delinquents and non-delinquents. Cattell considers this factor of General Emotionality identical to his own Factor C and agrees that it plays a significant role in giving rise to delinquent behavior.⁶

The very high loading on delinquency, as well as a marked similarity between the remaining items on Factor I of the present study and Cattell's Factor G, indicate that a match between these factors is very likely.

The test items loading Factor I are high Performance IQ, number shock, low Arithmetic score. Recent research has

5 R. B. Cattell, op. cit. (p. 60)

6 C. L. Burt, The Young Delinquent. (London: University of London, 1948.)

firmly established the relationship between a relatively high Performance score and delinquent, rebellious behavior.^{7 8 9 10} Varley¹⁰ has pointed out the relationship between performance superiority and rebellious behavior and concludes:

What is the relationship between the adjustment of these individuals and their scores on intelligence tests? It might be expected that the lack of interest in, or rebellion against school, together with a small degree of cultural interests, should result in a lower score on verbal tests, in which success appears to depend to a great extent upon school activity or scholarly pursuits. In practical situations on the other hand, they are more experienced and often highly practiced. This should result in a relatively higher score on performance tests. (p. 30)

In her study Varley showed a strong relationship between behavioral indications of a poor acceptance of cultural values and a Wechsler Performance IQ higher than Verbal IQ. It would seem that the major portion of the variance of the items of her study could be accounted for by Factor I

7 S. W. Bijou, "The psychometric pattern approach as an aid to clinical analysis - a review," Amer. J. Ment. Def., 46:354-362, 1942.

8 W. B. Altus and J. H. Clark, "Subtest variations on the Wechsler-Bellevue for two clinical groups," J. Consult. Psychol., 13:444-448, 1949.

9 W. M. Verniaud, "Psychological Patterns as a Diagnostic Aid in Child Guidance." (Doctoral Dissertation: University of Houston, 1949.)

10 M. B. Varley, "Behavioral Correlates of Psychometric Patterns." (Doctoral Dissertation: University of Texas, 1952.)

of the present study. Her rationale suggests that this relationship is based on the relatively poor assimilation of school-like material found in the verbal section of the Wechsler-Bellevue. This hypothesis is entirely consistent with the findings of the present study. Low Arithmetic score, and more significantly, multiple protests during this test are indications of their resistiveness to material which is of little immediate use to them. Arithmetic items are avoided, as are all mental problems; quite literally, thinking gives these people a headache.

In the psychoanalytical discussions of character disorders, considerable stress is placed upon the role of thinking, verbal symbolism, and the ego processes. Through the process of thinking and other conceptual behavior the ego is able to delay the impulses and demands of the organism, as well as come to terms with the demands of the environment. It is here hypothesized that this development of symbolic skills is related to use and availability of the verbal material represented in most verbal intelligence tests. This is not to say that thinking is necessarily synonymous with the use of words, but that there is a close relationship between them.

Murphy¹¹ advanced a similar hypothesis when he sug-

¹¹ G. Murphy, Personality: A Biosocial Approach to Origin and Structure. (New York: Harper, 1947.)

gested a relationship between the richness and variety of verbal symbolism and the development of the self-system. A highly defined self-system in which there are many infinitely structured roles, demands the skilled use of verbal tools. On the Wechsler-Bellevue an indication of the relative development of verbal skills can be obtained from a comparison of Performance and Verbal IQ's. The performance tests rely much less on the availability and development of verbal skills than do the verbal tests.

The relative emphasis in an individual's life of verbal as opposed to non-verbal intelligence is an important aspect of his personality adjustment and is not a simple matter of differences in kinds of intelligence. It is suggested that a performance superiority is related to a constellation of behaviors indicative of poor acceptance of the values of the culture and of rebellion against the restrictions imposed by society. It is also hypothesized that this relationship is based upon the relative availability and use of verbal skills to mediate between internal and external demands.

Factor II - Surgency

The second factor is characterized by significant loadings on the behavioral items: multiple marriage, early marriage, early sexual experiences, and histrionic behavior. The significant loadings on the test items are Picture

Arrangement and Picture Completion higher than Block Design and Digit Symbol, and Information lower than Comprehension.

The second factor reflects an impulsive, histrionic adjustment, manifested by impulsive sexuality, temper tantrums, or fainting spells. Testwise, the prototypical individual loading high on this factor would do well on tests calling for the immediate and accurate perception of picture material, but would do relatively poor on a test relying on a ready fund of information.

Schafer,¹² in speaking of the performance of the narcissistic character disorders on the Picture Arrangement and Picture Completion tests, concludes that their success on these tests indicates their ability for shrewd and immediate anticipations. They are individuals characterized by an ability to size up situations, react to them immediately, and generally to their advantage. Success on these tests calls for an ability to grasp accurately and quickly the pertinent elements of a situation.

In the present study, another variable influences the pattern. The Picture Arrangement and Picture Completion tests were compared to success on Block Design and Digit Symbol. It is suggested that a major distinction between these pairs of tests is in the difference of susceptibility of

¹² R. Schafer, Clinical Application of Psychological Tests. (New York: International Universities Press, 1948.)

performance to effort intolerance. The Block Design and Digit Symbol tests are more time consuming and more easily subject to disruption due to changes in motivation or in frustration. Often, subjects who do well on the picture-type tests give up, refuse to go on, or complain vigorously during the Block Design and Digit Symbol tests, particularly after meeting with slight failure. In other words, the discrepancy between the Picture Arrangement plus Picture Completion, and Block Design plus Digit Symbol tests involves both a positive and negative explanation. Positively, some individuals are able to grasp quickly and accurately the meaning of the picture-type tests. Negatively, these same individuals may do poorly on the Block Design and Digit Symbol tests because of their inability to carry out work over an extended period of time because of their susceptibility to frustration.

The remaining test item loading on this factor is low Information to Comprehension. Success on the Information test is, relative to one's intelligence, determined by the scope and availability of general and factual knowledge. Individuals who do relatively well on this test may be thought of as having actively searched out and assimilated a good portion of the knowledge available to them in their environment. They have wide interests, and this is reflected in the amount of general information they possess. On the other hand, those who do poorly on this test are thought of as

having narrow interests. A low Information level relative to other indices of intelligence is one characteristic of Cattell's¹³ source trait of surgency. Those high in surgency have little need for the accumulation of scholastic or academic knowledge. Their goal is the practical, here and now, and they concern themselves very little with bits of information for future use or for the intrinsic value of scholastic achievement itself. The typical woman doing poorly on the Information test is, for example, very vague as to the location of London, knowing generally that "it is overseas somewhere."

It is suggested that the psychological concept or functional unity underlying the items on Factor II is surgency. Surgent individuals are cheerful, talkative, gregarious, humorous, and social.¹³ They release their energies with trigger-fast rapidity, but are unable to maintain this over an extended period of time. Surgent individuals give up easily and quickly. According to Cattell,¹³ surgency is one of the three largest source traits in the surface trait of extraversion.

The relationship between impulsive sexual behavior, as noted in this study, and the source trait of surgency has

13 R. B. Cattell, op. cit.

been noted by other authors. ^{14 15 16} Eysenck¹⁵ found that his extravert factor included sexual anomalies as well as narrow interests. These individuals were also described as having a quick sense of humor. The measure of this humor was accomplished by the use of comic strip pictures similar to those seen in the Picture Arrangement test of the Wechsler-Bellevue, as well as Binet-type pictures in which the subject is asked to note what is wrong or missing in this picture. The latter is similar to the Picture Completion test of the Wechsler-Bellevue. This ability to determine the humor and meaning of the picture material is apparently related to the ability of these individuals to grasp the gist of social and interpersonal situations and to respond to them immediately.

Another indication for the surgent basis of the behavior and test material on this factor is found in Cattell's¹⁴ Factor F. Under the positive pole of this surgency factor, Cattell includes Eysenck's¹⁵ extravert factor, as well as other items indicating effort intolerance, sexual impulsivity, and narrow interests. This surgency factor also has conspicuous positive loadings in the traits of cheerful, happy-go-

14 R. B. Cattell, op. cit.

15 H. J. Eysenck, Dimensions of Personality. (London: Routledge and Kegan Paul, 1947.)

16 J. M. William, "An analysis of humor and laughter," Amer. J. Psychol., 53:70-85, 1940.

lucky, proneness to error, and a low persistence in tests requiring strong concentration. There appears to be considerable similarity between these items and the items loading on Factor II of the present study and a match between these factors seems plausible.

The test items correlating with this factor are low Information relative to Comprehension and Picture Arrangement plus Picture Completion high relative to Block Design plus Digit Symbol. The significant loadings of these test items on Factor II indicate that they are good measures of, and related to, the dimension of personality defined by the factor of surgency.

Factor III - Hypochondriasis

Factor III is characterized by loadings on physical complaints, immature M, drugs and alcohol, number shock, and high age and education. This constellation of behaviors seems quite similar to the clinical diagnosis of chronic hysteria or hypochondriacal neurosis.

The test item loading this factor is immature M. This has been defined as a response on the Rorschach involving immature, childish, or affectively described human movement. Research into the predictive ability of the content of the Rorschach responses has been minimal. The presence of this item on Factor III is, however, evidence that at least this

item of Rorschach content may be a valid predictor of behavior. The typical hypochondriacal individuals are well known for their immaturity and childlike needs for constant attention and support.¹⁷ There is apt to be an underlying inadequacy in dealing with practical problems, and considerable gratification is achieved through intense body preoccupation. These individuals often express affect, for affect's sake, in a childish and at times uncontrollable manner. The world is not perceived by them in an adult fashion, but as a place where maturity is sacrificed in order to gain attention and support. In the older age group they are apt to be women, who throughout their lives have staked their self-esteem on the reception of attention and support, and the gratification of narcissistic needs. Active responsibility is avoided and with an increase in age, many of their props and supports are rapidly diminishing. With age, they lose their physical looks and the satisfaction youth affords. Generally at this age their children are striving for independence, or have already left home. This and other sources of gratification are lost to them, and their long standing immature and tenuous adjustment is bolstered by a preoccupation in their body in a desperate attempt to regain their lost satisfaction.

¹⁷ A. Maslow and B. Mittelmann, Principles of Abnormal Psychology. (New York: Harper, 1941.)

The relationship between immature M and behavior of a childish nature has been suggested by other authors.^{18 19} The presence in this study of immature M on a hypochondriacal factor is additional evidence for a relationship between this test item and a constellation of behaviors having an underlying element of immaturity.

Factor IV - Hysteria

The behavioral data defining the fourth factor are poor home background, low intelligence, temper tantrums or fainting spells, complaints of body dysfunction, and surgical removal of all or part of the reproductive organs.

It is possible that this constellation of behaviors is, for the present day woman, similar to the classical conversion hysteria. The conversion hysterias common in the nineteenth century are fast disappearing. The increased level of education and psychological sophistication has about made the grande hysterie of Janet's²⁰ day an anachronism.^{21 22} At

18 R. Schafer, op. cit.

19 G. H. Lubar, "Rorschach content analysis," J. Clin. Psychopath., 9:146-152, 1948.

20 P. Janet, Major Symptoms of Hysteria. (New York: MacMillan, 1920.)

21 O. Fenichel, op. cit.

22 A. H. Maslow and B. Mittelmann, op. cit.

present, crude hysterical phenomena are found almost entirely in the lower half of the intelligence range and generally from areas with considerable cultural lag.^{23 24} It is rare today that one sees a patient presenting pure conversion symptoms, although many hysterics do present fainting spells and temper tantrums as a part of the symptomatic picture. The present factor contains low intelligence, physical complaints, and emotionally labile behavior; all of these might be expected of the hysteric.

It is of some interest to note the high incidence (31%) of female surgery in the present sample. Research on the non-medical reasons for female surgery is scarce. Some authorities agree, however, that many operations are performed after long histories of vague and ill-defined complaints, and for what amounts to an attempt to relieve a psychiatric disability or lessen psychological tension.^{25 26} Ewalt²⁷ estimates that

23 J. C. Coleman, Abnormal Psychology and Modern Life. (New York: Scott, Foresman, 1950.)

24 J.D. Page, Abnormal Psychology. (New York: McGraw-Hill, 1947.)

25 K. Horney, "Psychogenic factors in functional female disorders," Amer. J. Obstet. Gynec., 25:694-704, 1933.

26 F. R. Lock and H. M. Sluder, "A method of diagnosing functional pelvic disease," Amer. J. Obstet. Gynec. 60:1121-1134, 1950.

27 J. Ewalt, M. D., Personal Communication.

about forty per cent of all hysterectomies performed by general practitioners in Texas are not medically necessary and stem from basically neurotic complaints. The finding in the present study can be construed as evidence of this hypothesis. It would be expected that if female operations were performed for only valid medical reasons, the incidences of the operations would distribute themselves throughout the population. The clustering of this item under a particular dimension is an indication of the psychological rather than medical reasons for many of the operations.

The patients at the University of Texas Medical Branch Hospitals are taken only on referral of practicing physicians. Usually the typical hysterical woman who comes to the hospital with a history of hysterectomy has passed through the hands of many physicians. They have varied medical and surgical treatment aimed at the relief of their vague and ill-defined complaint. For many of these patients, not only doctors and surgeons have been consulted, but faith healers, chiropractors, osteopaths, and even fortune tellers. By the time they have reached this hospital, they have had practically all that medicine and others can offer with the possible exception of formal psychotherapy. The practice of performing hysterectomies on women presenting persistent vague complaints is becoming very common, and the failure of these operations to produce lasting effects or even bring

significant relief is indicated by the large number of female psychiatric patients who, after submitting to surgery, still suffer the same disabilities and in many cases, an acute exacerbation. It is possible, however, that the present increase in the amount of psychiatric training for general practitioners will markedly diminish the incidence of these operations.

Other research has isolated a factor similar to Factor IV of the present study. Cattell²⁸ describes his Factor I as being characterized by demanding, dependent, infantile, hypochondriacal, neurotic, and general emotionality. Eysenck²⁹ isolated a hypochondriacal factor under which he lists the traits of hypochondriasis, fainting, somatic anxiety, dyspepsia, and hypochondriacal personality. Cattell matches this factor of hypochondriasis with his Factor I. While a match between Factor IV of the present study and Cattell's Factor I must be highly speculative, there are some striking similarities. Factor IV includes hypochondriasis, fainting, temper tantrums, and female surgery. With the exception of female surgery, all of these are included in Cattell's Factor I. This match is, however, tentative particularly since the low intelligence and broken home items on

28 R. B. Cattell, op. cit.

29 H. J. Eysenck, op. cit.

Factor IV are not to be found in Cattell's Factor I.

Factor V - Immature Dependency

This factor is characterized by significant loadings on behavioral complaints, histrionic behavior, and early sexual activity. The test item loading this factor is immature M. This factor does not account for much of the total variance, but it does have high loadings on those items grouped in it. The most significant loading on this factor is behavioral complaints. Under this item were included all complaints involving expressed difficulty in interpersonal relationships; these ranged from complaints of open conflict to the more vague and ill-defined complaints such as an inability to get along with people or of not being loved by others. The majority of the complaints falling in this category were of the latter type; that is, vague complaints of "not being loved by others," or an "inability to get along with people." Along with these complaints of a behavioral nature, the remaining case history items define an emotional labile and sexually impulsive individual.

In general this seems to be a factor of emotional dependence. The nature of the presenting complaints is "people aren't caring for me." There is an inability to feel secure or comfortable in the presence of others. In the neurotic, this need for love, attention, and support is often

insatiable, as with most neurotic needs.³⁰ When these needs are not gratified, histrionic demonstrations often result.

Testwise, the significant feature of this factor is the presence of immature M. The high loading of immature M on this factor indicates that part of the variance of this test item stems from this dimension of immature, emotional dependence.

This factor seems to have been established by earlier research. Cattell³¹ lists under his Factor G items such variables as emotional dependence on others, quitting, autisms, impulsiveness, changeability, unsteady emotional mood, and neurotic instability. These items can be compared with the behavior isolated in the present research, and it is possible that they represent the same factorial dimension of personality. This match must be tentative, however, because of the relatively small number of items loading on Factor V of the present study.

Factor VI - Aggression

This factor is characterized by significant loadings on aggressive content in either human or animal movement responses on the Rorschach, divorced status or open conflict with present marital partner, and delinquency. All the items

30 K. Horney, The Neurotic Personality of Our Times. (New York: Norton, 1937.)

31 R. B. Cattell, op. cit.

of this factor may be considered as involving aggression or hostility in some form, and, despite the small number of items characterizing the factor, the underlying or basic element seems clearly to be an aggressive or hostile attitude. The test item loading this factor is aggressive content to the movement responses. Other research has shown a relationship between this type of content and aggressive or hostile behavior.^{32 33} The significant loading of this item on Factor VI is a further indication of this relationship.

The relationship between aggressive Rorschach content and aggressive behavior is a good example of the projective hypothesis. The unstructured inkblots call forth active organization on the part of the subject, and this process of organization and the resulting perception will be determined in part by the subject's own needs and motives. It is to be expected that aggressive content reflects a more basic attitude on the part of the subject. There is little in the inkblots themselves to suggest a quality of aggression on the part of the figures seen. If, during the course of the testing, the figures are described as being in some kind of

32 A. Elizur, "Content analysis of the Rorschach with regard to anxiety and hostility," J. Proj. Tech., 13:247-284, 1949.

33 L. Gorlow, N. Zimet, and H. Fine, "Anxiety and hostility Rorschach scores," J. Consult. Psychol., 16:73-76, 1952.

aggressive activity, this may be considered to be the addition of the subject. In the present research the demonstrations of a relationship between qualitative aspects of the movement content on the Rorschach test and specific dimensions of personality adjustment suggests that the Rorschach movement responses may be a fruitful area for future research.

Factor VII - Anxiety

This factor is characterized by significant loadings on psychological complaints, anatomy and sex responses on the Rorschach, and intelligence. At first glance the assignment of any psychological meaning to these diverse items seems difficult. However, factorial findings may be in agreement with recent research, which has shown a definite relationship between clinical and experimental measures of anxiety and the production of anatomy and sex responses on the Rorschach.^{34 35}

The most significant loading on this factor is psychological complaints. Much of the variance of this item stems from complaints involving fears and tension which are direct expressions of anxiety. Foster³⁶ found that in a study of

³⁴ J. Rav, "Anatomy responses in the Rorschach test," J. Proj. Tech., 15:433-443, 1951.

³⁵ R. M. Eichler, "Experimental stress and alleged indicators of anxiety," J. Abn. Soc. Psychol., 46:344-355, 1951.

³⁶ A. Foster, "Psychiatric Diagnosis and Cultural Factors." (unpublished research)

ten thousand Army psychiatric patients, the psychiatric diagnosis of anxiety state occurred significantly more frequently in the higher intelligence range than did the diagnosis of hysteria.

The identification of this present factor as an anxiety factor must be tentative since the small number of items loading on the factor are not sufficient to define adequately an underlying functional unity. However, the high loading on psychological complaints, as well as, intelligence and anatomy and sex responses on the Rorschach, strongly suggests this identification.

Factor VIII (residual factor)

The factor loads only two items, neither of which is much beyond the level of significance. Since this is an insufficient number of items to define the factor, and since the items involve little variance, the factor is assumed to be residual and no attempt has been made to interpret it.

CHAPTER VI

SUMMARY AND CONCLUSIONS

The present investigation was an attempt to demonstrate a relationship between particular psychometric patterns and external criteria. The hypothesis of the study was that a relationship did exist between aspects of psychometric performance and other measures of behavior, and that this relationship could be shown by means of a correlational analysis.

The subjects for this study were a group of 100 randomly selected female psychiatric patients at the University of Texas Medical Branch Hospitals. Patients with known neurological disorders were excluded. The records of all subjects were checked for the presence or absence of certain behavioral and psychometric items. The results were intercorrelated by means of tetrachoric correlations and the resulting matrix factor analyzed by Thurstone's¹ complete centroid method. Eight factors were extracted and rotated orthogonally.

The factor analytic method was utilized in the present study since it afforded the most parsimonious means of extracting the underlying relationships between the test data and the behavioral data. That is, factorial constellations of the behavioral data were considered external criteria

¹ L. L. Thurstone, Multiple Factor Analysis. (Chicago: University of Chicago Press, 1947.)

against which the test data could be validated or given meaning.

The following factors were extracted from the correlation matrix:

Factor I - Inadequate Socialization

This factor was identified as representing a constellation of behaviors in which the major characteristic is an inadequate assimilation of the values and restrictions of the culture and a rebellion against them. It was suggested that this is a factor similar in content to Cattell's Factor C. The test factors of high Performance IQ, number shock, and low Arithmetic significantly loaded this factor and seem to be fairly pure measures of it.

Factor II - Surgency

The second factor was identified as a surgency factor. It is characterized by the behavioral items: early and multiple marriage, early sexual activity, and histrionics. The test items loading this factor were Picture Arrangement plus Picture Completion greater than Block Design plus Digit Symbol, and Low Information to Comprehension. The superiority of the surgent individual on the Picture Arrangement and Picture Completion tests was felt to stem from the ability to quickly grasp and perceive humorous and social situations in combination with their low effort tolerance. The low Information score was attributed to their lack of general cultural

knowledge and narrow interests. This factor seems to be a good match with Cattell's Factor F.

Factor III - Hypochondriasis

This third factor was identified as a hypochondriacal factor. The constellation of behaviors loading on this factor describe a hypothetical individual who is apt to be somewhat elderly and educated, who reacts to stress by reliance on drugs or alcohol, and who is immature and labile in her emotional expression. The test item loading this factor was immature M, and it was concluded that perceptions on the Rorschach involving immature, childish, and affective descriptions may be directly referable to similar basic attitudes in the subject.

Factor IV - Hysteria

This factor was identified as a hysterical factor. It was characterized by a high loading on female surgery, poor home background, labile emotionality, and limited intelligence. Aside from the low intelligence score, none of the test items included in the present study loaded this factor. A tentative match was made between this factor and Cattell's Factor I.

Factor V - Immature Dependency

This factor is characterized by dependent relationships, emotional lability, and early sexual activity. There is some similarity between this factor and Cattell's Factor G,

and immature M seems to be a good measure of it. It was also concluded that immature M on the Rorschach stems from adjustment mechanisms similar to those which give rise to other immature behavior.

Factor VI - Aggression

This factor was highly loaded with items identified as having a common element of aggression or hostility. The presence of aggressive movement responses on this factor was taken as evidence of a relationship between the qualitative aspect of Rorschach responses and other aspects of personality adjustment. In the present factor it was concluded that aggressive movement content on the Rorschach is an indicator of aggressive or hostile behavior.

Factor VII - Anxiety

This factor was identified as an anxiety factor. The presence of anatomy and sex responses on this factor was taken as evidence of the relationship between the clinical manifestations of overt anxiety and these responses. Because of the limited number of items loading this factor, however, a positive identification is impossible, and its identification as an anxiety factor must be speculative.

Factor VIII - (residual factor)

This factor was considered a residual factor, and no attempt was made to interpret it.

With one exception (Rorschach color responses), all the test items utilized in this study loaded on one or more of the seven significant factors. Loadings ranging from .50 to .89 could occur by chance only infrequently and were taken to indicate a strong relationship between the test items and the personality variables represented by the factor space.

It is significant that each of the seven factors loads both behavioral and psychometric data. This demonstration of common factor variance is evidence that the behavioral data and psychometric data utilized in this study are, in part at least, surface representations of common functional unities. This is considered to be strong support for the hypothesis that a relationship does exist between behavior, as represented by scores on psychological tests, and behavior, as observed in clinical and other extra-test situations.

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