

**PERSONALITY DIFFERENCES BETWEEN CRIMINALS AND NONCRIMINALS
AS MEASURED BY THE MINNESOTA MULTIPHASIC PERSONALITY INVENTORY**

A THESIS

APPROVED

Committee

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Dean of the College

PERSONALITY DIFFERENCES BETWEEN CRIMINALS AND NONCRIMINALS
AS MEASURED BY THE MINNESOTA MULTIPHASIC PERSONALITY INVENTORY

A THESIS

Submitted to the Faculty of
Sam Houston State Teachers College
in Partial Fulfillment of the Requirements
for the Degree

MASTER OF ARTS

by

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NOT
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TABLE OF CONTENTS

CHAPTER	PAGE
I. INTRODUCTION	1
A New Program	1
The Problem	3
Previous Studies of Personality Differences Between Criminals and Noncriminals	3
II. DESCRIPTION OF THE TESTING PROGRAM AND THE MMPI	8
Advantages	10
Scoring	10
Single Trait Interpretation	11
III. ADMINISTRATION OF TESTING	15
Inmate Group	15
Control Group	17
IV. RESULTS OF THE STUDY	19
Description of Possible Score Ranges	19
Hypochondriasis	19
Depression	19
Hysteria	19
Psychopathic Deviation	20
Masculinity-Femininity	20
Paranoia	20
Psychasthenia	20
Schizophrenia	20
Hypomania	20
Distribution of Scores	21
General Overlapping of Scores	23
Hypochondriasis	23
Depression	23
Hysteria	23

CHAPTER	PAGE
Psychopathic Deviation	23
Masculinity-Femininity	24
Paranoia	24
Psychasthenia	24
Schizophrenia	24
Hypomania	24
Significant Area of Overlapping	25
Hypochondriasis	25
Depression	25
Hysteria	25
Psychopathic Deviation	26
Masculinity-Femininity	26
Paranoia	26
Psychasthenia	26
Schizophrenia	26
Hypomania	26
Significant Overlapping	26
Scores Above "Normal"	31
Hypochondriasis	31
Depression	31
Hysteria	31
Psychopathic Deviation	31
Masculinity-Femininity	31
Paranoia	33
Psychasthenia	33
Schizophrenia	33
Hypomania	33
"Normal" and "Abnormal" Profiles	33
General Observations	34
Comparison of Mean Scores	34
Significance of Differences Between Means	38
V. SUMMARY AND CONCLUSIONS	41
BIBLIOGRAPHY	44

LIST OF TABLES

TABLE	PAGE
I. Comparative Raw Score Distributions of the Control and Inmate Groups for Each Scale of the MMPI	22
II. Percentages of Control and Inmate Groups Within, Above, and Below Significant Areas of Overlapping for Each Scale of the MMPI	29
III. Percentages of Control and Inmate Groups Making "Abnormal" and "Normal" Scores on Each Scale of the MMPI	32
IV. Mean Scores of Control and Inmate Groups for Each Scale of the MMPI	35
V. Significance of Differences Between the Means of the Control and Inmate Groups for Each Scale of the MMPI	39

LIST OF FIGURES

FIGURE	PAGE
1. Original Form of the MMPI Profile Chart	12
2. Recently Developed MMPI Profile Chart	13
3. Profile Chart Showing Scores of the Significant Areas of Overlapping	28
4. Profile of Mean Scores of Control and Inmate Groups for Each Scale of the MMPI	37

CHAPTER I

INTRODUCTION

Those interested in criminal behavior have long wondered whether criminals are psychologically different from noncriminals. For the last twenty-five years this problem has been investigated many times by means of personality testing.

Among those interested in the problem are the officials of the Texas Prison System. During the last two and one-half years, a new administration under the able direction of O. B. Ellis, General Manager, has made fresh approaches to many of the problems that face the institution.

A NEW PROGRAM

A long range program of improvement has been undertaken, including extensive building construction and improvement of the existing physical plant, purchase of modern equipment, addition of new recreational facilities, and the introduction of more scientific and humane methods for dealing with prison inmates. Needless to say, considerable improvement and success have resulted. A more nearly complete outline of this program may be found in A Program for the Improvement of the Texas Prison System, by O. B. Ellis.¹

¹ O. B. Ellis, A Program for the Improvement of the Texas Prison System, 12-13.

A fresh approach to the problems of the prison system has resulted from the realization that these problems are not exclusively the product of external forces. The administration now endeavors to treat each inmate as a man with a problem. How much is actually known about the individual? What is known of his personality? What does he think? How will he act? Is he a good or poor rehabilitative prospect? These are some of the questions for which an answer has been sought.

The wish to find an answer to these questions, together with the genuine desire to re-educate the inmate before he is returned to society, has magnified the need for a program of psychometric testing and classification. Such a testing program has been adopted by the Texas Prison System and has been conducted with the assistance of the Sociology Department of Sam Houston State Teachers College under the direction of Dr. Rupert C. Koeninger. The aim has been to determine the relationship of the various problems to the mental and psychological conditions of the inmates and thereby to gain information that is pertinent in the classification, rehabilitation, and re-education of the inmates and thus to ascertain the possible course of action that might be indicated.

After due consideration and agreement between the Texas Prison System and the Sociology Department of Sam Houston State Teachers College, the Minnesota Multiphasic Personality Inventory (hereafter to be referred to as the MMPI), an objective pencil-and-paper inventory, was chosen for use as a possible instrument in the testing program. It was hoped that it would answer some of the many questions, aid in the process of inmate classification, and make for better understanding

of those entering the institution. A more complete description of the MMPI may be found in Chapter II.

THE PROBLEM

The aim of this paper is to answer a question that has been paramount since the beginning of the present program: Do the personalities of the inmates of the Texas Prison System differ from the personalities of noncriminals? The present and future success of classification and administration depends a great deal upon an answer to this question. Other steps toward proper rehabilitation and re-education of inmates can be directed more successfully after a conclusion to this problem has been reached. Perhaps through this and other such studies those interested may be helped to form a sounder philosophy toward Wilson and Pescor's ideal:

The modern conception of the prison is a place where society not only is protected by the fact that the criminal is locked up and, therefore, incapable of inflicting further injury during the period of his incarceration, but also a place where he can be reformed, so that when he is released, the desire to commit anti-social acts will no longer dominate him.²

PREVIOUS STUDIES OF PERSONALITY DIFFERENCES BETWEEN CRIMINALS AND NONCRIMINALS

Personality tests have been used many times in the study of criminals and their personalities, but few investigations of this nature

² J. G. Wilson and M. J. Pescor, Problems in Prison Psychiatry, 25-26.

have been made with the MMPI. Only a brief summary of the work of experimenters on the questions very closely related to the one at hand will be given.

Schuessler and Cressey, in their "Personality Characteristics of Criminals," point out:

In general the studies examined are characterized by a tendency merely to apply a personality test without reference to a hypothesis about personality elements and criminal behavior. Some testing was done primarily for screening purposes and only incidentally as a way of contrasting criminals and noncriminals, but even these comparisons generally involved the assumption, expressed or implied, that personality differences between criminals and noncriminals exist.³

In the investigation of differences between criminals and non-criminals by use of objective personality tests other than the MMPI, Schuessler and Cressey state:

Of 113 such comparisons, 42 per cent showed differences in favor of the noncriminals, while the remainder were indeterminate. The doubtful validity of many of the obtained differences, as well as the lack of consistency in the combined results, makes it impossible to conclude from these data that criminality and personality elements are associated.⁴

In their discussion of the MMPI, Schuessler and Cressey say:

Studies with Minnesota Multiphasic Personality Inventory are discussed here since the norms are the average scores of persons clinically diagnosed as suffering from the several categories of emotional disturbance. This questionnaire has been given only several times to delinquents but its adequacy as a device for discriminating between delinquents and nondelinquents is certain to be explored.⁵

3 K. F. Schuessler and D. R. Cressey, "Personality Characteristics of Criminals," American Journal of Sociology, LV, (1950), 476-484.

4 Ibid., 476.

5 Ibid., 479.

Capwell⁶ gave the MMPI twice to the same groups of girls and found that, with the exception of the lie (a validity check) and hysteria scores on the first testing and the hysteria scores on the retest, the delinquents' scores were nearer the abnormal than were the nondelinquents. When 52 pairs of tests were matched for intelligence, the inventory differentiated significantly in all but the hypochondriasis score.

In a later study Monachesi⁷ compared groups of both delinquent boys and girls. Although the critical ratios were not so large, the differences found between the two groups of girls closely resembled those obtained by Capwell. The delinquent boys were not consistently differentiated from the nondelinquents, as evidenced by the fact that the critical ratios were significant on only five of the nine personality characteristics. However, as Schuessler and Cressey point out, the difference between delinquent boys and girls in emotionality as measured by the MMPI (or any other personality questionnaire) may be due to a difference in the types of offense committed by boys and girls. It is possible that for the same type of offense the average scores for delinquent boys and for delinquent girls would not differ a

6 D. E. Capwell, "Personality Patterns of Adolescent Groups: II, Delinquents and Nondelinquents," Journal of Applied Psychology, XXIX (1945), 289-297.

7 E. D. Monachesi, "Some Personality Characteristics of Delinquents and Nondelinquents," Journal of Criminal Law and Criminology, XXXVIII (1948), 487-500.

great deal.⁸

In the investigation by Benton and Probst,⁹ the psychiatric diagnoses and MMPI diagnoses of seventy-six neuro-psychiatric patients were compared. The following critical ratios of agreement resulted:

<u>Trait</u>	<u>Critical Ratio</u>
Hypochondriasis	1.5
Depression	1.9
Hysteria	.3
Psychopathic Deviation	2.6
Masculinity-Femininity	1.5
Paranoid Trend	3.2
Psychasthenia	1.3
Schizophrenia	3.2
Hypomania	(Not rated)

Probably the best study with the MMPI available to date is that of Franklyn D. Fry. This investigation was based on the testing of 207 inmates of state prisons and 236 college students. The principal results showed that "The male prisoners, with a difference that was significant at the 5% level of confidence or higher: (a) exceeded the male college students in the categories of hypochondriasis, depression, psychopathic-deviation, paranoia, schizophrenia, and hypomania (b) were exceeded by the male college students in the category of abnormal sexual interests."¹⁰

⁸ Schuessler and Cressey, op. cit., 479.

⁹ A. L. Benton and K. A. Probst, "A Comparison of Psychiatric Rating With Minnesota Multiphasic Personality Inventory Scores," The Journal of Abnormal and Social Psychology, XLI (1946), 75-76.

¹⁰ F. D. Fry, "A Study of the Personality Traits of College Students, and of State Prison Inmates as Measured by the Minnesota Multiphasic Personality Inventory," Journal Of Psychology, XXVIII (1949), 439-449.

In conclusion it may be stated that the MMPI has an acceptably high diagnostic value when applied to group situations. This is borne out not only by the investigations mentioned above, but also by its widespread use as a diagnostic device by psychiatrists, clinical psychologists, schools, and industrial organizations. Final evaluation, of course, awaits further study, and more extensive accumulation and analysis of data. Experimentation toward revision and further improvement of the instrument is still in progress.

CHAPTER II

DESCRIPTION OF THE TESTING PROGRAM AND THE MMPI

A preliminary account of the testing program at the Texas Prison System may be found in Personality Survey of Prison Inmates by Use of the Minnesota Multiphasic Personality Inventory,¹¹ by Alvin Cummings, which explains the need for objective personality testing, the fundamentals of the MMPI, testing procedures, and test results up to that time. The classification of inmates by the MMPI and the results of the continued testing program may be found in An Experimental Personality Classification System for Prison Inmates Based on the MMPI, with Special Emphasis on Psychopathic Deviation,¹² by Edwin Piper.

A brief summary of the testing program of the Texas Prison System, together with a description of the MMPI and its use in that program, is in order before a discussion of the subsequent testing procedure is presented.

Three tests are used in the program: The New Stanford Achievement Test, a measure of academic performance in standard primary and secondary school subjects; the Otis Quick Scoring Intelligence Test, a standard intelligence quotient test; and the MMPI. The first two tests are

11 Alvin Cummings, "Personality Survey of Prison Inmates by Use of the Minnesota Multiphasic Personality Inventory," (Unpublished Master's thesis, Sam Houston State Teachers College, Huntsville, Texas, 1949.)

12 Edwin Piper, "An Experimental Classification System for Prison Inmates Based on the MMPI, with Special Emphasis on Psychopathic Deviation," (Unpublished Master's thesis, Sam Houston State Teachers College, Huntsville, Texas, 1950.)

important to this investigation only in determining whether the MMPI, which is not applicable to illiterates or mental defectives, shall be administered.

The MMPI was developed in 1943 by Hathaway and McKinley of the University of Minnesota. The test consists of five hundred and sixty-six true-false statements derived from the symptom-trait associations of eight hundred neuro-psychiatric patients and nine hundred non-pathological members of the general population, and has been arbitrarily classified into twenty-six categories. The arrangements are as follows:¹³

1. General health--9 items
2. General neurology--19 items
3. Crinal nerves--11 items
4. Motility and coordination--6 items
5. Sensibility--5 items
6. Vasomotor, trophic, speech, secretory--10 items
7. Cardiorespiratory system--5 items
8. Gastrointestinal system--5 items
9. Genitourinary system--5 items
10. Habits--19 items
11. Family and marital--26 items
12. Occupational--18 items
13. Educational--12 items
14. Sexual attitudes--16 items
15. Religious attitudes--19 items
16. Political attitudes-law and order--45 items
17. Social attitudes--72 items
18. Affect-depressive--32 items
19. Affect-manic--24 items
20. Obsessive and compulsive states--15 items
21. Delusions, hallucinations, illusions, ideas of reference--31 items
22. Phobias--29 items
23. Sadistic, masochistic trends--7 items
24. Morale--33 items
25. Masculinity-femininity--55 items
26. Items to indicate whether the individual is trying to place himself in an improbably acceptable light--15 items

¹³ S. R. Hathaway and J. C. McKinley, Manual for the Minnesota Multiphasic Personality Inventory, 2-3.

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The test purports to measure an individual's degree of abnormality in terms of nine personality traits: hypochondriasis, depression, hysteria, psychopathic deviation, masculinity-femininity tendency, paranoid trend, psychasthenia, schizophrenia, and hypomania. In addition to these, there are three validity scales and one correctional factor.

A complete and extensive description of the several personality traits measured by the MMPI may be found in Manual for the Minnesota Multiphasic Personality Inventory, by Hathaway and McKinley.¹⁴ These explanations may also be found in the investigations by Alvin Cummings previously mentioned in this paper.¹⁵

ADVANTAGES

The MMPI, for the purposes of the program at the Texas Prison System, has several distinct advantages. Administration and scoring of the test are relatively simple and sufficiently mechanical to be performed by persons without extensive technical training; the resulting scores may be numerically recorded on uniform charts. These charts are adaptable to standardized procedures of analysis, interpretation, and tabulation.

SCORING

Until recently, to score the test it was necessary to count the answers to the several scales, correct them for the K factor (one of the

¹⁴ Ibid., 8-14.

¹⁵ Cummings, op. cit., 1-26.

four validating scales), convert them by means of a table into T scores, which were then entered on a graph on which the trait and validating scales form the vertical axes and numbers from 0 to 120 the horizontal. (The original form of the profile chart may be seen in Figure 1, page 12.) Recent improvements have simplified this system and now it is necessary only to count the answers to the scales, correct them for K and enter them directly on the improved graph or profile chart. This is done by indicating the score for each scale on the graduated score-scale under the correct personality trait. (The new form of the profile chart may be seen in Figure 2, page 13.) Complete explanations for test scoring may be found in Personality Survey of Prison Inmates, an unpublished study by Elmer H. Ham.¹⁶

SINGLE TRAIT INTERPRETATION

In the single trait method of profile interpretation it is possible to appraise individually each of the scores of the several personality traits. The graph or profile chart of the MMPI is so constructed as to give an "ideal normal" score a value of 50, with every 10 units on the horizontal equal to one standard deviation (1σ). Thus, the score of 40 equals -1σ , 30 equals -2σ and so on. Also, the score of 60 equals $+1\sigma$, 70 equals $+2\sigma$, 80 equals $+3\sigma$, and so on through 120. Scores extending upward from fifty indicate increased seriousness in the intensity of the abnormality of the trait. Scores extending downward from fifty indicate that the subject has less than the "ideal normal" component of

¹⁶ Elmer H. Ham, "Personality Survey of Prison Inmates," (Unpublished study, Sam Houston State Teachers College, Huntsville, Texas, 1948) Chapter III.

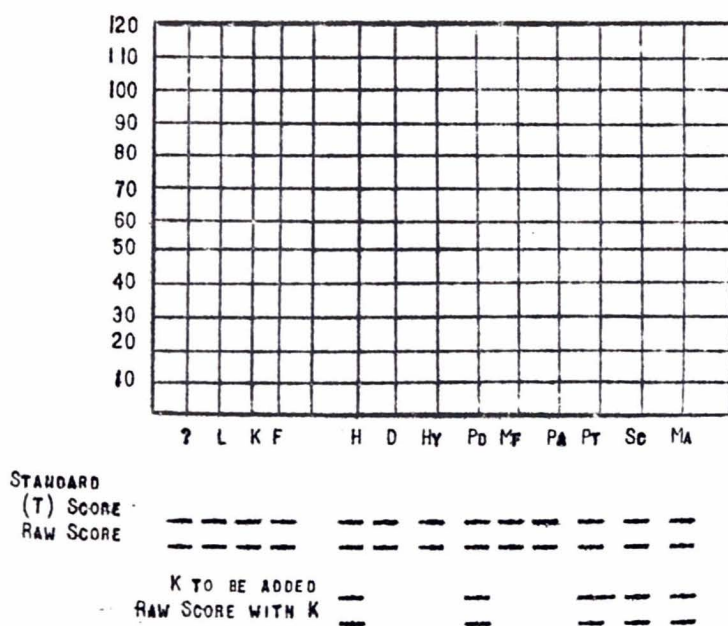


Figure 1

Original Form of the MMPI Profile Chart

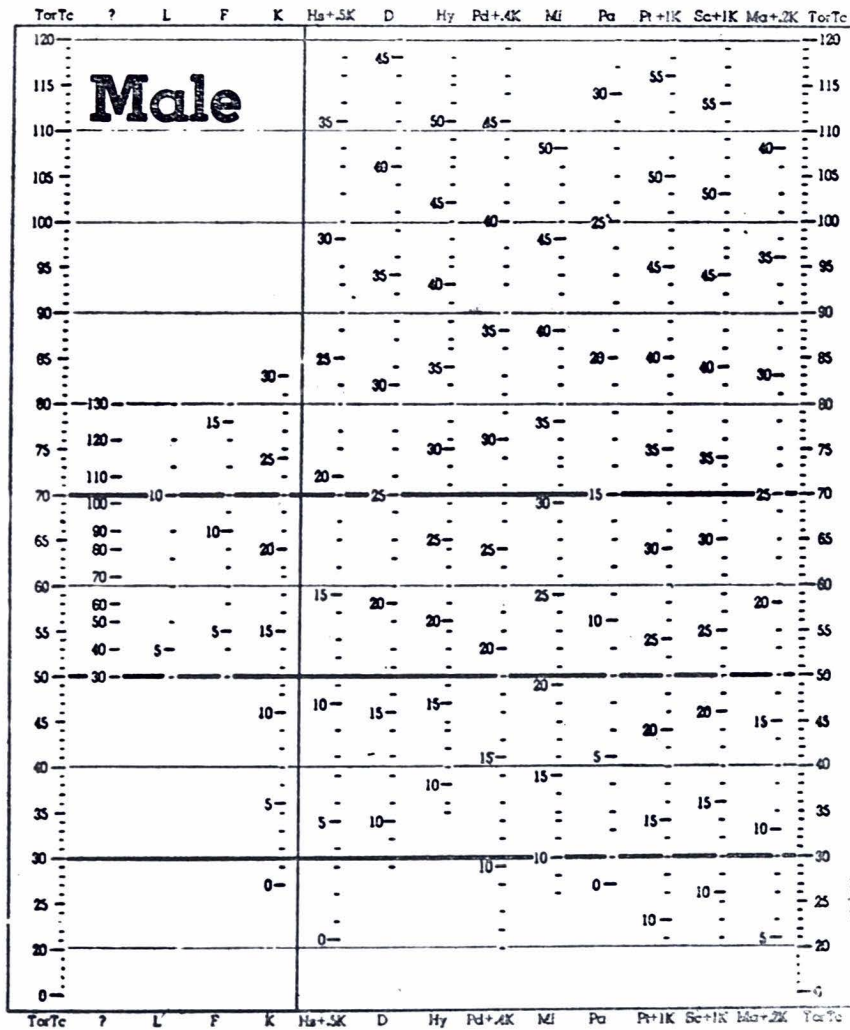


Figure 2

Recently Developed MMPI Profile Chart

the trait in his personality. These "subnormal scores" have not as yet been assigned any special significance. Further interpretation of these downward extending scores awaits additional study.

A score of seventy is generally used as the line of demarcation between pathological and non-pathological intensity of scores. The authors of the test caution, however, against too rigid conformity to this rule and suggest that "useful interpretation will always depend upon the clinician's experience with a given group" and point out that a score in the seventies may be a low or borderline pathological score.¹⁷ Situational factors which may affect a score must also be taken into consideration. Certainly a depression score of slightly over seventy by a recently convicted prison inmate could not be considered as unusual, nor could it be assumed with any great degree of certainty that the subject's depression score is and will remain significantly above "normal."

However, for group use where clearly defined objective criteria are essential for purposes of classification and statistical manipulation, a dividing point between pathological and non-pathological scores is essential. As the score of seventy is already established and widely used, its use in the present investigation seems desirable.

17 Hathaway and McKinley, op. cit., 8.

CHAPTER III

ADMINISTRATION OF TESTING

INMATE GROUP

Between November 1, 1948 and February 7, 1950, one thousand six hundred and fifty-one inmates of the Texas Prison System were given the MMPI. All of those tested were recent "admissions" to the prison and had been at the institution only one to two weeks. These men were taken from "quarantine" where they had lived since their arrival and were awaiting classification. They had had no contact with other inmates of the prison system.

Depending upon the influx of new admissions to the prison, the inmates were tested on one or two days each week. If the incoming number was relatively small, testing was conducted on each Tuesday afternoon. If, however, the influx was larger, testing was conducted on both Tuesday and Friday afternoons to avoid having large groups. The number called each day to be tested varied from ten to forty men, depending upon the availability of those men who had the prerequisites. (Availability and prerequisites to be explained below.)

On the days immediately preceding testing days, a list was made of those men to be called for testing. This list contained only the names of those men who had made a score of 3.0 on the achievement test (which had been administered previously by the Education Department of the prison system). Upon their arrival to the testing room in the

Education Building, the inmates were informed that they were to be given an I.Q. test and a personality inventory. They were assured that the results of the tests would be held in strict confidence, that each man could obtain his test results, and that the tests were not compulsory. Few men ever refused to be tested and when they did so their refusals, whether genuine or not, were based upon illness, poor eyesight, and the like.

The I.Q. test was always administered first because it allows only thirty minutes for completion. The I.Q. was followed by the MMPI and the inmates were allowed to use the entire afternoon to complete the test if necessary.

Of the 1651 test results obtained, 1140 were valid: that is, all four of the validating scores on each of these tests were below 70. Tests with validating scores above 70 may not be rendered inaccurate (in whole or in part), but no satisfactory methods of interpreting and verifying these "invalid" tests have yet become available. This situation, together with the fact that a large number of the tests were valid on all four validity scales, excluded all profiles with one or more validity score of 70 or above from the investigation.

Of the 1140 valid profiles obtained, 935 were white men, 153 were Negroes, and 52 were Mexicans. Since a study based on racial differences does not fall within the scope of this investigation and since the control group was composed of white male college students, only the 935 valid profiles of white male prison inmates were considered.

Examination of the prison group tested showed that: (a) the inmate

age group ranged in ages from 17 to 65 years, with a mean age of 28 years, (b) their E.A. scores ranged from 3.6 to 11.0, with an average of 7.51, (c) their I.Q.'s ranged from 47 to 133, with a mean I.Q. of 90, (d) that 502, or 53.69 per cent, had been in prison at least one time previously, and (e) that 340 (36.36 per cent) were single, 488 (52.19 per cent) were married, and 107 (11.45 per cent) were divorced or widowed.

CONTROL GROUP

The control group composed of white male college students was given the MMPI in the same time interval as the prison group. The subjects were chosen from four colleges and universities: (1) a state technological college, (2) a state teachers college, (3) a Protestant Church university, and (4) a state university. In each case, an attempt was made to obtain a representative group of students. As in the prison group, required explanations were made and an I.Q. test was administered.

Of the tests given to college students, 374 profiles were found to be valid (with all validity scores below 70). It was found that in the control group: (a) I.Q. scores ranged from 82 to 136, with an average of 108, and (b) ages ranged from 17 to 57 years, with an average of 23 years.

The disadvantages of and probable effects on the validity of the comparison with the use of college students as a control group for norm-reference have been recognized and taken into consideration;

however, it was concluded that, in spite of the differences in socio-economic level and background between the control group and the inmate group, the comparison was sufficiently valid for the purposes of this investigation.

Plans are now under way for a comparison of prison inmates with equivalent socio-economic groups in the general noncriminal population, as well as a study of noncriminal siblings of tested inmates. These studies will also be under the joint auspices of the Texas Prison System and the Sociology Department of San Houston State Teachers College.

CHAPTER IV

RESULTS OF THE STUDY

DESCRIPTION OF POSSIBLE SCORE RANGES

The method of placing the raw scores of the several personality traits directly on the recently developed profile chart without conversion to T scores was explained in Chapter II. It is desirable at this time to describe the ranges of possible scores for each of the nine personality traits as measured by the MMPI.

Hypochondriasis. Raw scores for the hypochondriasis scale range from 0 through 38. The raw scores from 0 through 3 fall over two standard deviations (as indicated by the T score 30 on the profile chart) below the "ideal normal" (as indicated by the T score 50) and are considered "subnormal." Raw scores from 4 through 18 fall within two standard deviations (within T scores 30-70) below and above the "ideal normal" and are considered "normal." All raw scores from 19 through 38 are over two standard deviations above the "ideal normal" and are considered "abnormal."

Depression. Raw scores for the depression scale range from 8 through 46. Only the raw score 8 falls within the "subnormal" range. Raw scores from 9 through 24 fall within the "normal" and scores from 25 through 46 fall within the "abnormal" range.

Hysteria. Raw scores for the hysteria scale range from 8 through 54. There are no raw scores indicated for the "subnormal" range. Raw

scores from 8 through 27 fall within the "normal" range and scores from 28 through 54 within the "abnormal."

Psychopathic Deviation. Raw scores for the psychopathic deviation scale range from 6 through 48 with the scores 6 through 10 falling within the "subnormal" range and the scores from 11 through 27 falling within the "normal." All raw scores from 28 through 48 fall within the "abnormal" range.

Masculinity-Femininity. Raw scores for the masculinity-femininity scale range from 8 through 51. Raw scores from 8 through 10 are considered "subnormal", scores from 11 through 30 are "normal", and scores from 31 through 51 are considered "abnormal."

Paranoia. The raw scores for the paranoia scale range from 0 through 32. All raw scores above 0 and not exceeding 14 fall within the "normal" range and scores from 15 through 32 are considered "abnormal."

Psychasthenia. Raw scores for the psychasthenia scale range from 9 through 57 with scores from 9 through 13 falling within the "subnormal" range. Raw scores above 13 and below 32 are "normal" and scores from 32 through 57 are considered "abnormal."

Schizophrenia. The raw scores for the schizophrenia scale range from 7 through 58. Scores from 7 through 12 fall within the "subnormal" range, scores from 13 through 32 within the "normal" range, and scores from 33 through 58 within the "abnormal" range.

Hypomania. Raw scores for the hypomania scale range from 5 through 40. Scores from 5 through 9 are considered "subnormal", and scores from 10 through 24 are considered "normal." Raw scores of 25 through 40 fall

within the "abnormal" range.

DISTRIBUTION OF SCORES

The general distribution of raw scores of the inmate and control groups on each of the nine personality trait scales did vary, though perhaps not significantly. Comparative distributions of raw scores are presented in Table I. The data on this table indicates that some member of the control group made a lower score on all scales with the exceptions of the hysteria and masculinity-femininity traits. It may also be noted that some member of the inmate group made a higher score on all scales. The significance of these differences is minimized by the fact that frequency is low on the extremes of most of the scales. For example: Sixteen of the control group made a raw score of 0 on the hypochondriasis scale, only two made a raw score of 9 on depression, only one made a raw score of 9 on hysteria, only one made a raw score of 6 on psychopathic deviation, only one a score of 11 on masculinity-femininity, only one a score of 0 on paranoia, five a score of 0 on psychasthenia, three a score of 0 on schizophrenia, and four students a score of 9 on hypomania.

A like trend was found upon examination of the frequency of high scores made by the inmate group. Only two made scores of 33 on hypochondriasis, one a score of 41 on depression, one a score of 38 on hysteria, one a score of 41 on psychopathic deviation, four a score of 33 on masculinity-femininity, three a score of 21 on paranoia, one a score of 46 on psychasthenia, two a score of 47 on schizophrenia, and one a score of 36 on hypomania scale.

TABLE I
COMPARATIVE RAW SCORE DISTRIBUTIONS OF
THE CONTROL AND INMATE GROUPS
FOR EACH SCALE OF THE MMPI

Scale	Possible Score Ranges	Distribution of Control Group Scores	Distribution of Inmate Scores
Hypochondriasis	0 - 38	0 - 31	2 - 33
Depression	8 - 46	9 - 35	10 - 41
Hysteria	8 - 54	9 - 35	8 - 38
Psychopathic Deviation	6 - 48	6 - 33	14 - 41
Masculinity-Femininity	8 - 51	11 - 41	9 - 42
Paranoia	0 - 32	0 - 15	2 - 21
Psychasthenia	9 - 57	0 - 44	10 - 46
Schizophrenia	7 - 58	0 - 42	8 - 47
Hypomania	5 - 40	9 - 31	10 - 36

GENERAL OVERLAPPING OF SCORES

When the two groups were compared as to the distributions of the scores on each of the scales, the general area of overlapping -- that is, the area of scores common to both groups -- was as follows:

Hypochondriasis. Distribution of raw scores on hypochondriasis showed that the two groups lapped on the common scores from 2 through 31, with 329 (87.97%) of the control group and 933 (99.79%) inmates making scores within the 2 through 31 range. The remaining 45 (12.03%) of the control group made scores below 2 and the 2 remaining inmates (.21%) made above 31.

Depression. The two groups overlapped on the scores from 10 through 35 for depression. Of the control group 372 (99.47%) and of the inmates, 924 (98.82%) fell within these scores. The remaining members of the control group fell below the score of 10, and the remaining inmates made scores above 35.

Hysteria. The scores from 9 through 35 on hysteria were common to both groups with the entire control group and 925 (98.93%) inmates making scores from 9 through 35. Of the other inmates, 2 (.21%) made scores below 9, and 8 (.86%) made scores above 35.

Psychopathic Deviation. Scores 14 through 33 were common for both groups on psychopathic deviation. On this scale 318 (85.03%) of the control group and 834 (89.2%) inmates fell within the ranges. The remaining 56 (14.97%) of the control group made scores below 14, and the 101 (10.8%) remaining inmates made scores above 33.

Masculinity-Femininity. There was a general overlapping for both groups on raw scores 11 through 41 on the masculinity-femininity scale, with all of the control group and 932 (99.68%) of the inmate group falling within these bounds. Of the remaining 3 inmates, two made scores below 11, and the other made a score above 41.

Paranoia. The scores from 2 through 15 were common to both groups on the paranoia scale. Of the control group, 368 (98.4%) made scores within these ranges and 870 (93.05%) inmates made comparable scores. The remaining scores of the control group were below 2 with the remaining inmate scores (6.95%) falling above the score of 15.

Psychasthenia. Common psychasthenia scores ranged from 10 through 44, with 254 (67.91%) of the control group and 932 (99.68%) inmates making scores within that range. The remaining 120 (32.09%) of the control group made scores below 10 while the 3 remaining inmates made scores above 44.

Schizophrenia. Scores from 8 through 42 were common to both groups on the schizophrenia scale. Only 269 (71.93%) of the control group and 925 (98.93%) of the inmates fell within this range. The remaining members of the control group made scores below this range. The remaining inmates made scores above the general overlapping area.

Hypomania. Common hypomania scores ranged from 10 through 31 of the control group and 929 (99.36%) inmates conforming. Again, the remaining members of the control group made lower scores and the remaining inmates higher scores.

The above data shows that a large percentage of both groups overlapped or had common scores for each scale. The evidence also indicates that generally the remaining members of the control group made scores below the overlapping area with remaining inmate scores generally falling above this range.

SIGNIFICANT AREA OF OVERLAPPING

When the scores of the control and inmate groups for each of the nine personality trait scales were compared for the significant area of overlapping, a more significant result was obtained. This overlapping area was derived by including all scores that fall within one standard deviation above (plus) and below (minus) the mean score for each of the scales for each group.¹⁷

The possible scores for the significant area ranges were found to be:

Hypochondriasis. For the control group: 268 (71.66%), with 17.19% below the area and 10.43% above. For the inmate group: 696 (74.44%), with 10.8% below and 14.76% above.

Depression. For the control group: 290 (77.54%), with 10.96% below and 11.5% above the area. For the inmate group: 673 (71.98%), with 15.83% below and 12.19% above.

Hysteria. For the control group: 264 (70.59%), with 14.97% below the area and 14.44% above. For the inmate group: 691

¹⁷ $M - 1\sigma$ where M = Guessed mean - $\frac{fd}{N}$

(73.9%), with 12.41% below and 13.69% above.

Psychopathic Deviation. For the control group: 267 (71.39%), with 14.97% below and 13.64% above the area. For the inmates: 718 (76.79%, with 12.41% below and 10.8% above the area.

Masculinity-Femininity. Control group: 269 (74.6%), with 12.03% below and 13.37% above. Inmate group: 693 (74.12%), with 14.54% below and 11.34% above.

Paranoia. Control group: 286 (76.47%), with 14.44% below and 9.09% above. Inmates: 720 (77%), with 11.98% below and 11.02% above.

Psychasthenia. Control group: 241 (64.44%), with 20.05% below and 15.51% above. Inmates: 690 (73.80%), with 14.12% below and 12.08% above.

Schizophrenia. Control group: 223 (59.63%), with 25.4% below and 14.97% above. Inmate group: 717 (76.68%), with 10.27% below and 13.05% above.

Hypomania. Control group: 267 (71.39%), with 15.78% below and 12.83% above. Inmates: 671 (71.76%), with 13.8% below and 14.44% above.

SIGNIFICANT OVERLAPPING

The significant areas of the two groups for each scale were then compared. That is, scores (for each scale) in the significant areas ($M \pm 1\sigma$) were compared and scores common to both groups were obtained. According to the method of computation used the scores

of the significant areas of overlapping were: (Also see Figure 3, page 28.)

<u>Scale</u>	<u>Scores</u>
Hypochondriasis	9 - 15
Depression	16 - 23
Hysteria	16 - 24
Psychopathic Deviation	24 (only)
Masculinity-Femininity	20 - 28
Paranoia	7 - 11
Psychasthenia	22 - 28
Schizophrenia	20 - 26
Hypomania	17 - 23

Comparisons were then made and the significant areas of overlapping computed. (See Table II) The distribution of scores according to the overlapping of the significant scores is different for the two groups. In the significant area of overlapping itself, no particular trend seems to predominate, although for certain scales the comparisons might be considered significant. In the depression, hysteria, masculinity-femininity, paranoia, and hypomania scales a majority of the populations of both the control and inmate groups are concentrated. In the hypochondriasis scale a majority of the inmate group falls within the significant area of overlapping while almost a majority (41.98%) of the control group does likewise. In psychasthenia, only 30.48% of the control group and 47.59% of the inmates fall within the significant area of over-

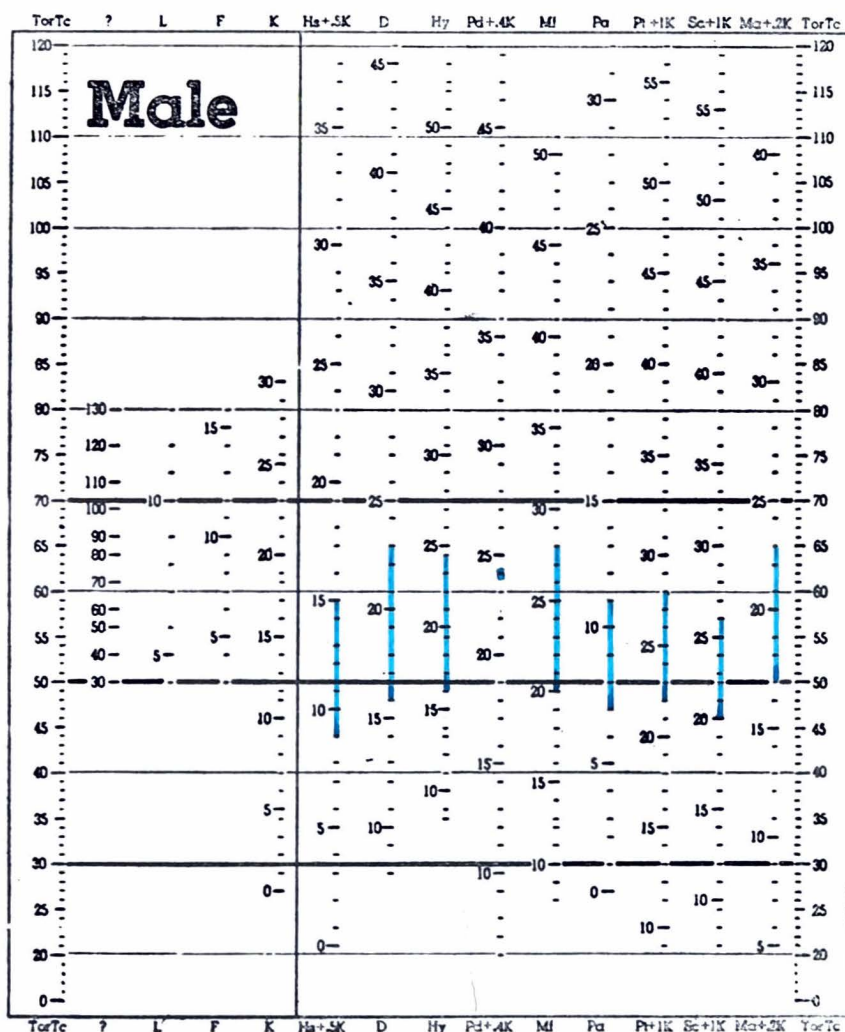


Figure 3

Profile Chart Showing Scores of the Significant Areas of Overlapping

TABLE II

PERCENTAGES OF CONTROL AND INMATE GROUPS WITHIN, ABOVE, AND BELOW
SIGNIFICANT AREAS OF OVERLAPPING
FOR EACH SCALE OF THE MMPI

Scale	Group	Significant Area of Overlapping	Remaining Scores Above	Remaining Scores Below
Hypochondriasis	Control	41.98	10.43	47.59
	Inmate	56.36	32.84	10.8
Depression	Control	61.5	11.5	27
	Inmate	56.47	32.51	11.02
Hysteria	Control	70.59	14.44	14.97
	Inmate	59.68	24.29	16.03
Psychopathic Deviation	Control	5.61	13.64	80.75
	Inmate	6.31	81.28	12.41
Masculinity-Femininity	Control	61.77	26.2	12.03
	Inmate	67.27	11.34	21.39
Paranoia	Control	56.68	9.09	34.23
	Inmate	51.98	36.04	11.98
Psychasthenia	Control	30.48	15.51	54.01
	Inmate	47.59	38.29	14.12
Schizophrenia	Control	30.22	14.97	54.81
	Inmate	46.42	43.31	10.27
Hypomania	Control	56.68	12.84	30.48
	Inmate	56.68	29.52	13.8

lapping. The schizophrenia scale is similar to that of the psychasthenia scale, with 30.22% of the control group and 46.42% of the inmate group falling within the area. The most significant difference concerning the area of overlapping itself is the psychopathic deviation scale, where only 5.61% of the control group and 6.31% of the inmate group fall.

The most significant trend in respect to the distribution of scores according to significant areas ($M \pm 1\sigma$) is found upon examination of scores that do not overlap (scores that are not common to both groups). On all scales except masculinity-femininity, a greater percentage of the remaining scores fall above the overlapping area for the inmates, while the reverse is true for the control group (whose scores fall below the overlapping area). On the masculinity-femininity scale a majority of the remaining control group scores fall above the overlapping area, with a majority of the remaining inmate scores falling below. On the psychopathic deviation scale, the most obvious and perhaps most significant difference results: 13.64% of the control group scores fall above the overlapping area and 80.75% fall below; 81.28% of the inmate group scores fall above and only 12.41% fall below the significant area of overlapping. A discussion of the primary significance of the psychopathic deviation scale may be found in the thesis by Piper which has already been mentioned in this paper.¹⁸

¹⁸ Piper, op. cit., 32-36.

SCORES ABOVE "NORMAL"

The two groups were next compared for scores over two standard deviations above the "ideal normal". The line of demarcation is indicated by 70 on the profile chart and was explained earlier in this chapter. The results obtained may be seen in Table III and are expressed below:

Hypochondriasis. Nineteen (5.08%) of the control group as compared to 168 (17.97%) of the inmates made "abnormal" scores on the hypochondriasis scale. The remaining 355 (94.92%) of the control group and 767 (82.03%) inmates made scores below the "abnormal."

Depression. Thirty-four (9.09%) of the control group as compared to 253 (27.06%) of the inmates made scores above the "normal" on the depression scale. The remaining 340 (90.91%) students and 682 (72.94%) inmates made scores below the "abnormal."

Hysteria. Of the control group, 16 (4.28%) and 128 (13.69%) of the inmates made "abnormal" scores on hysteria. The remaining 358 (95.72%) of the control group and 807 (86.31%) inmates made scores below the "abnormal."

Psychopathic Deviation. Only 18 (4.81%) of the control group, as compared to 550 (58.82%) inmates, made scores above "normal" on the psychopathic deviation scale. The other 346 (95.19%) of the control group and 385 (41.18%) inmates made scores below the "abnormal."

Masculinity-Femininity. The trend is somewhat reversed on the masculinity-femininity scale, with 64 (17.11%) of the control group and 50 (5.35%) of the inmates making "abnormal" scores.

TABLE III
 PERCENTAGES OF CONTROL AND INMATE GROUPS
 MAKING "ABNORMAL" AND "NORMAL" SCORES ON EACH SCALE
 OF THE MMPI

Scale	<u>"Abnormal" Scores</u>		<u>"Normal" Scores</u>	
	<u>Control</u> Group	<u>Inmate</u> Group	<u>Control</u> Group	<u>Inmate</u> Group
Hypochondriasis	5.08	17.97	94.92	82.03
Depression	9.09	27.06	90.91	72.94
Hysteria	4.28	13.69	95.72	86.31
Psychopathic Deviation	4.81	58.82	95.19	41.18
Masculinity-Femininity	17.11	5.35	82.89	94.65
Paranoia	.53	11.02	99.47	88.98
Psychasthenia	7.75	15.72	92.25	84.28
Schizophrenia	3.74	13.05	96.26	86.95
Hypomania	9.63	21.18	90.37	78.82

Paranoia. Only 2 (.53%) of the control group, as compared to 103 (11.02%) of the inmates made "abnormal" scores on the paranoia scale.

Psychasthenia. Twenty-nine (7.75%) of the control group and 147 (15.72%) of the inmates made scores above "normal" on the psychasthenia scale.

Schizophrenia. Fourteen (3.74%) students made "abnormal" scores on the schizophrenia scale, as compared to 122 (13.05%) inmates.

Hypomania. Thirty-six (9.63%) of the control group, as compared to 198 (21.18%) of the inmates made scores above "normal" on the hypomania scale. The remaining 338 (90.37%) students and 737 (78.82%) inmates made scores below the "abnormal."

"NORMAL" AND "ABNORMAL" PROFILES

The control and inmate groups were next compared as to the number and per cent of "normal" and "abnormal" profiles (test results) in each group. This was done by selecting from each group all test results in which no score of the nine personality traits measured was above the line of demarcation between the "normal" and "abnormal." ($M + 2\sigma$, as indicated by 70 on the profile chart.)

This selection showed that 211 (56.42%) of the control group made scores that fell within "normal" limits (below 70) on all of the personality traits measured. Of the inmate group, however, only 200 (21.39%) made scores in which all personality traits measured were "normal." In other words, the test results of over one-half of

the control group showed no score above the "normal" range and that only slightly over one-fifth of the inmate group did likewise.

By the same selection it was found that 163 (43.58%) of the control group and 735 (78.61%) of the inmate group had test results in which one or more scale scores fell in the "abnormal" range.

GENERAL OBSERVATIONS

It is obvious after analyzing the data contained in the preceding pages that the control group and the prison inmates differ by the simple comparison of the percentages of scores above 70 (i.e., those in the "abnormal" ranges). The percentages of scores in the "abnormal" ranges for the inmate group exceeds those of the control group on every scale except masculinity-femininity. A comparison of the percentages of "normal" profiles of the two groups is also significant.

It has become evident that the degree of differences between the two groups is not the same for all personality traits measured, and that in some cases these differences are not great. It could not be concluded from this evidence, however, that personality differences between the two groups do not exist.

COMPARISON OF MEAN SCORES

The mean scores for the two groups on each of the nine personality traits were then compared. Table IV expresses the means in raw scores.

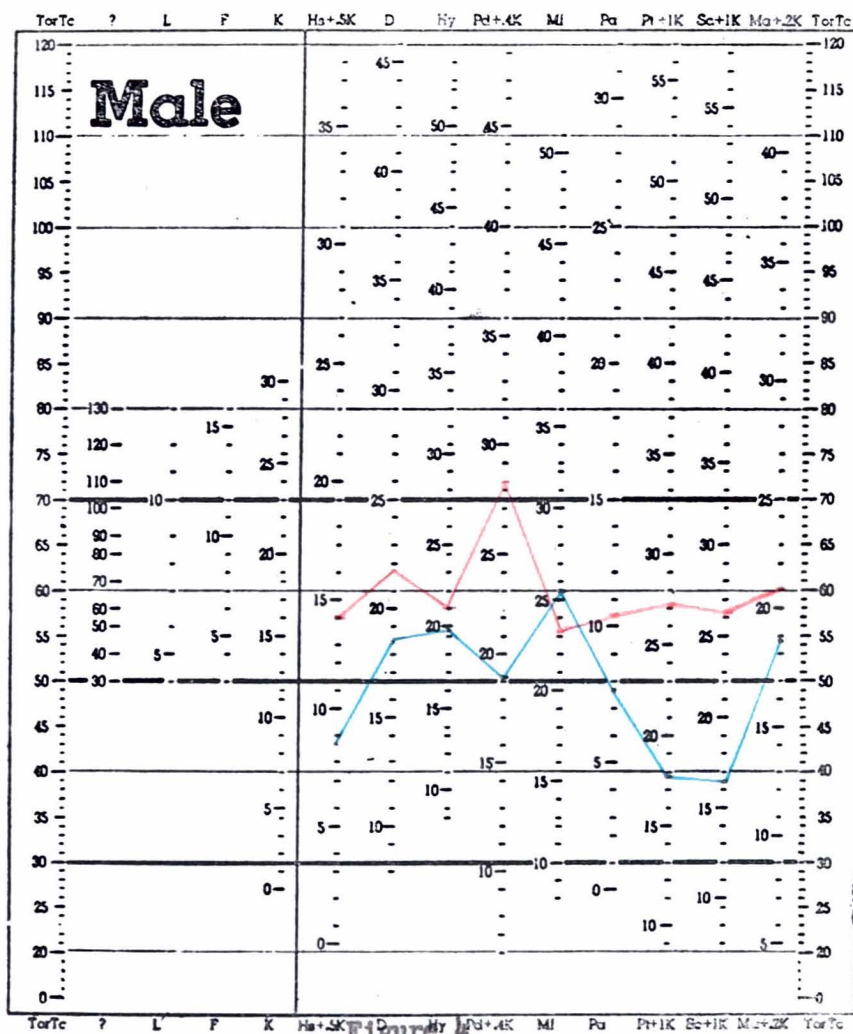
Observation of the data contained in this table shows that

TABLE IV
MEAN SCORES OF CONTROL AND INMATE GROUPS
FOR EACH SCALE OF THE MMPI

Scale	Mean for Control Group	Mean for Inmate Group
Hypochondriasis	8.75	14.1
Depression	18.38	21.69
Hysteria	19.82	21
Psychopathic Deviation	19.09	28.31
Masculinity-Femininity	25.49	23.11
Paranoia	7.7	10.41
Psychasthenia	17.73	27.18
Schizophrenia	16.4	26.17
Hypomania	18.78	21.06

differences between the means of the nine personality traits for the two groups appear significant. The mean scores for the inmate group exceed those of the control group on all scales except masculinity-femininity. This scale and its relative insignificance for purposes of the Texas Prison System was discussed in the investigations by Piper which has already been mentioned in this paper.¹⁹ On the masculinity-femininity scale, the mean of the control group exceeds that of the inmates by 2.38 units. On the hypochondriasis scale the mean of the inmate group exceeds the mean of the control group by 5.35 units, on the depression by 3.31 units, on hysteria by 1.18 units, on psychopathic deviation by 9.22 units, on paranoia by 2.71 units, on psychasthenia by 9.45 units, on schizophrenia by 9.77 units, and on hypomania by 2.28 units. These differences in means may be more readily observed by referring to Figure 4, page 37. Observation of the profile chart indicates that the most outstanding difference in means is that of psychopathic deviation. Not only is there a raw score difference of 9.22 units between the inmates and the control group but also: (1) the control group mean falls very little above the "ideal normal" and (2) the inmate group mean falls above 70 and is therefore in the "abnormal" range. There are discrepancies between the means of other scales (i.e., hypochondriasis, paranoia, psychasthenia, and schizophrenia) but since these scores for both the inmate and control groups fall well within the "normal" range no particular significance can be

¹⁹ Piper, op. cit. 20-21.



Profile of Mean Scores of Control and Inmate Groups
for Each Scale of the MMPI

KEY

- Control Group
- Inmate Group

attached to the differences.

SIGNIFICANCE OF DIFFERENCES BETWEEN MEANS

On the basis of scores on each of the nine personality traits made by the inmate and control groups, the significance of differences between the means were computed.²⁰ These significant differences (designated by T) were obtained by the ratio of the observed differences between the means of the populations of the two groups to the standard error of the means of the two groups. The significance of differences between the means of the inmate and control groups for each of the nine personality traits measured may be found in Table V.

²⁰ Formulae used are from William Addison Neiswanger, Elementary Statistical Methods, (New York, 1947), as follows:

$$\sigma = \sqrt{\frac{fd^2}{N} - \left(\frac{fd}{N}\right)^2}$$

$$\sigma_M = \frac{\sigma_s}{\sqrt{N - 1}}$$

$$\sigma_{M_1 - M_2} = \sqrt{(\sigma_{M_1})^2 + (\sigma_{M_2})^2}$$

$$T = \frac{M_1 - M_2}{\sigma_{M_1 - M_2}}$$

TABLE V
SIGNIFICANCE OF DIFFERENCES BETWEEN THE MEANS
OF THE CONTROL AND INMATE GROUPS
FOR EACH SCALE OF THE MMPI

Scale	T
Hypochondriasis	15.44
Depression	11.78
Hysteria	4.09
Psychopathic Deviation	31.04
Masculinity-Femininity	7.65
Paranoia	14.64
Psychasthenia	16.72
Schizophrenia	17.63
Hypomania	8.87

The question now arises, How large must T be to justify the conclusion that the means of the two groups did not come from the same population and that their differences are too great to be explained by random errors of sampling? Usually, the dividing line is set at the 1 in 100 probability level. If there is only one chance or less in 100 that a difference so large or larger could have occurred as a result of random errors, it is usually assumed that it did not.²¹ If $T = 2.576$, only 1 per cent of the area of the normal curve will lie beyond the range of the mean plus and minus this value . . . if $T = 2.576$, the difference cannot be attributed to random errors of sampling."²²

The significance of differences between means of the several scales of the MMPI as computed in this study range from 4.09 for hysteria to 31.04 for psychopathic deviation. Based on these significant differences, the probability level is less than 1 in 1,000; i.e., there is less than 1 chance in 1,000 that the means of the two groups could possibly have come from the same population.

21 Ibid., 355.

22 Ibid., 355-356.

CHAPTER V

SUMMARY AND CONCLUSIONS

In this investigation, 935 white male inmates of the Texas Prison System and 374 white male college students have been compared for their scores on the nine personality traits as measured by the Minnesota Multiphasic Personality Inventory.

On the initial comparison, according to distribution of scores of the two groups on the various scales of the test, the two groups began to differ. Members of the control group made a lower score on all but two of the traits measured and members of the inmate group made higher scores on all of the scales.

In the significant area of overlapping the two groups were compared for scores that were common for both. No outstanding results were obtained in the areas where the groups had common scores, but in the case of the scores that did not fall within the overlapping areas a significant trend resulted. On the hypochondriasis, depression, psychopathic deviation, paranoia, psychasthenia, schizophrenia, and hypomania scales a significantly larger per cent of the remaining scores of the control group fell below the significant overlapping area. On the masculinity-femininity scale the process was reversed for the control group and on the hysteria scale the percentages were almost identical. On the hypochondriasis, depression, hysteria,

psychopathic deviation, paranoia, psychasthenia, schizophrenia, and hypomania scales a significantly larger per cent of the remaining scores of the inmate group fell above the significant overlapping area. (Again, the reverse was true for the masculinity-femininity scale.) That is to say, that for the significant area of overlapping, the control group scores that did not overlap extended downward and for the inmate group the scores that did not overlap extended upward.

In the comparison of scores above "normal" (above 70) the trend continued with very small percentages of the control group's scores falling in the "abnormal" range on all scales except masculinity-femininity (and here it was 17.11%). Comparatively larger percentages of the inmate scores fell above "normal" on the hypochondriasis (17.97%), depression (27.06%), hysteria (13.69%), psychopathic deviation (58.82%), paranoia (11.02%), psychasthenia (15.72%), schizophrenia (13.05%), and hypomania (21.18%) scales. Only 5.35% of the inmate group made "abnormal" scores on masculinity-femininity.

Only about one-fifth of the inmate group as compared to over one-half of the control group showed test results in which all scores fell below the "abnormal" range (below 70).

Comparison of the mean scores on each of the personality traits for the two groups was the most significant result obtained. The inmate group, with a difference that was significant on the 1 in 1,000 probability level exceeded the control group in all categories except masculinity-femininity. (On this scale the control group exceeded the inmates at the same level.)

In conclusion it may be said that in the testing program at the Texas Prison System a significant difference is being found between the personalities of criminals and noncriminals as measured by the MMPI. The personality inventory may, therefore, be used as a valuable index to inmate personality and as an instrument in obtaining a basis for an understanding of prison inmates and their problems. Its adequacy in predicting the adjustment of inmates to prison life, in aiding in inmate job-assignment, and in assisting in rehabilitative programs should be explored more fully.

The Texas Prison System made a great stride forward in its attempt to understand its inmates by adoption of the MMPI as part of the classification program. It is hoped that the full possibilities of the inventory will be explored and that new and greater strides may be made toward a fuller understanding of the criminal and his problems.

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