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An Analysis of the Personality Disorders Associated with Chronic Alcoholism As Revealed By the Clinical Use of the Minnesota Multiphasic Personality Inventory

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AN ANALYSIS OF THE PERSONALITY DISORDERS ASSOCIATED WITH CHRONIC ALCOHOLISM AS REVEALED BY THE CLINICAL USE OF THE MINNESOTA MULTIPHASIC PERSONALITY INVENTORY

by

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Recognition is also given to Jack Dabney, social worker for Douglas County Hospital, for his sincere and conscientious interest in the problems of alcoholism and for his providing of testing opportunities.

Appreciation is also afforded my family, who maintained vigilance over our domicile in Colorado Springs, Colorado, while these scholastic efforts were being pursued.

Lastly, I alone am responsible for the final form and mistakes of this thesis.

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CHAPTER I

THE PROBLEM AND DEFINITIONS OF TERMS USED

For several years there has been a difference of opinion as to the cause and the effects of, and the treatment for, alcoholism. These opinions have been equally expressed by professional workers and lay people in the field and have ranged through describing alcoholism as a disease, a moral lapse, and a crime. The majority of these claims have been expressed from limited observation and shallow understanding. Very little research has been done from a personality structure viewpoint.

I. THE PROBLEM

Statement of the problem. It is the purpose of this study (1) to assess and diagram the personalities of chronic alcoholics with objective criteria, and (2) to show the relationship between the profiles thus charted and the personality profiles of so-called normal persons.

Importance of the study. Personality development has long been stressed as the most important factor in satisfactory human relationships. Unfortunately, the

unsatisfactory development of personality has resulted in unsatisfactory interhuman relationships. The attempt to assess personalities objectively and to measure areas of maladjustment has been one of great debates in the scientific world. In this study an attempt has been made to allow the examinee to express his concepts of varied situations as he, the examinee, sees proper for himself. The results were compared with answers to identical questions asked of normal persons.

In 1956, there were an estimated 65,000,000 users of alcohol in the United States. Theoretically, these are all potential chronic alcoholics. During this time there were about 3,500,000 individuals classified as excessive drinkers, and this includes about 750,000 who could not face life without alcohol. Alcoholics constitute about 13.2 per cent of the first admissions to mental hospitals yearly. This percentage represents an estimated total of 60,000,000 man-days lost from employment a year.[1] About 50 per cent of the American adults drink alcoholic beverages, and of these about 6 per cent become excessive and

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[1]James C. Coleman, Abnormal Psychology and Modern Life (second edition; Chicago: Scott, foresman and Company, 1956), p. 413.

compulsive drinkers.[2] This means that about 3 per cent of the American adult population become serious users of alcohol. If one considers the current population as 185,000,000, excessive drinking is mounting from an absolute standpoint.[3] This would mean that there are about 5,500,000 excessive drinkers today, including over 1,000,000 alcoholics.[4]

II. DEFINITIONS OF TERMS USED

Personality. Personality is not something separate and apart from ability or achievement but includes them; it refers, rather, to the manner and effectiveness with which the individual meets his personal and social problems and, indirectly, the manner in which he impresses his fellows. The individual's ability and past achievement are always part of his current attempts to deal with his problems intelligently.

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[2] L. P. Thorpe, B. Katz, and R. T. Lewis, The Psychology of Abnormal Behavior (New York: The Ronald Press, 1961), p. 347.

[3] E. M. Jellinek, "Estimating the Prevalence of Alcoholism: Modified Values in the Jellinek Formula and an Alternative Approach," Quarterly Journal of Studies on Alcoholism, XX (1959), 261-69.

[4] E. M. Jellinek, "The Interpretation of Statistics on the Consumption of Alcohol," Quarterly Journal of Studies on Alcoholism, XXI (1960), 383-93.

Personality disorders. For the purpose of this study a personality disorder is defined as a disorder of behavior that is manifested chiefly in motivation and by social maladjustment rather than primarily in emotional or intellectual disturbances.[5]

Alcoholism. A chronic disease, or disorder of behavior, characterized by the repeated drinking of alcoholic beverages to an extent that exceeds customary dietary use in ordinary compliance with the social drinking customs of the community and that interferes with the drinker's health, interpersonal relations, or economic functioning.[6]

Chronic alcoholism. For the purpose of definition, chronic alcoholism shall be interpreted to mean the behavior of a person who cannot restrain his emotions and terminate his consumption of alcohol. The chronic alcoholic always tries to be in an intoxicated condition. This individual has a continuous problem, including a history of alcoholism.

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[5]Horace B. English and Ava Champney English, A Comprehensive Dictionary of Psychological and Psychoanalytical Terms (New York: Longmans, Green and Company, 1958), p. 383.

[6]Mark Keller and John R. Seeley, The Alcohol Language (Toronto: University of Toronto Press, 1958), p. 6.

CHAPTER II

REVIEW OF THE LITERATURE

Much has been written in recent years regarding the prevalence of alcoholism, chronic alcoholism, and the progressive steps leading to them. There are several socially acceptable labels for these phenomena. Research on the abnormalities and behavior patterns resulting from excessive drinking is incomplete. Very little work of a purely objective nature has been completed which identifies the personality factors associated with chronic alcoholism. These factors may very well be the contributing elements to alcoholism. More research which assesses the affected individual in light of his personality, thinking, and judgment pattern in relation to so-called "normal persons" is necessary.

I. LITERATURE ON THE EXPLANATION OF CHRONIC ALCOHOLISM

Jellinek, of the Yale Center of Alcoholic Studies, described the chronic alcoholic as one who loses control over his alcoholic consumption, usually after an extensive

period of excessive drinking.[1] In this group the excessive drinking is symptomatic of maladjustment.

Blakeslee, in his booklet Alcoholism--A Sickness That Can Be Beaten, declared that alcoholism is a sickness.[2] He also classified it into three types: (1) the symptomatic alcoholic, (2) the true addict, and (3) the secondary addict; but he found it necessary to classify the symptoms into three additional groups with a lengthy explanation of each.

Coleman, of the University of California at Los Angeles, devoted almost a complete chapter in his book Abnormal Psychology and Modern Life, and made more than twenty other references, to alcoholism throughout the book.[3]

Lindgren, in his book Psychology of Personal and Social Adjustment, described the chronic alcoholic as one who takes refuge from anxiety and differs from persons who employ other escape mechanisms only in that the alcoholic's

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[1]E. M. Jellinek, "Phases of Alcohol Addiction," Quarterly Journal of Studies on Alcoholism, XIII (1952), 673-78.

[2]Alton L. Blakeslee, Alcoholism--A Sickness That Can Be Beaten, Public Affairs Pamphlet No. 118 (twelfth edition; New York: Public Affairs Committee, Inc., 1957), p. 1.

[3]James C. Coleman, Abnormal Psychology and Modern Life (second edition; Chicago: Scott, Foresman and Company, 1956), p. 664.

method is chemical rather than emotional.[4] In our culture the habitual escape from anxiety through alcohol and drugs is not condoned because of the likelihood that habitual users may become burdens on, if not menaces to, society.

Lolli saw addiction to alcohol as "an expression of lopsided growth; infantile traits in one part of the person coexists with mature traits in another."[5]

The research literature dealing with the existence of an alcoholic personality was reviewed by Southerland, Schroeder, and Tordella. They found researchers largely in disagreement and concluded that "no satisfactory evidence has been discovered that justifies a conclusion that persons of one type are more likely to become alcoholic than persons of another type." However, Vogel, Isbell, and Chapman asserted that a vast majority of addicts are fundamentally emotionally immature, childlike persons, who have never made a proper adaptation to the problems of living.[6]

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[4]Henry Clay Lindgren, Psychology of Personal and Social Adjustment (New York: American Book Company, 1953), p. 419.

[5]G. Lolli, "The Addictive Drinker," Quarterly Journal of Studies on Alcoholism, X (1949), 404-14.

[6]E. H. Southerland, "Personality Traits and the Alcoholic," Quarterly Journal of Studies on Alcoholism, XI (1950), 547-61.

Fox and Lyon, in their work Alcoholism, Its Scope, Cause and Treatment, had this to say about the common factors of alcoholics:

> Various as they may be, alcoholics nevertheless do reveal four common characteristics by whatever different descriptive terms investigators may use. They are listed as egocentricity, low tolerance for tension, dependence, and a sense of omnipotence. I suggest these are compensatory for a deep underlying sense of inadequacy. I submit that very early in life unfortunate family relationships, especially parent-child relationships, mark the alcoholic with a deep persistent sense of rejection so that ever after he is painfully insecure. . . . The painful insecurity appears in behavior as an egocentricity, ever defensively "en garde" to protect the frail ego against the strong threats, much as one's whole attention in a crowd can be absorbed in protecting a sore toe from being stepped upon.[7]

Coleman did a splendid job of explaining what an alcoholic does, how he becomes an alcoholic, and how he eventually may die as a result of the complications of alcoholism. Coleman also considered the symptoms of other personality disorders, of neurotic disorders, and of psychotic disorders.[8] A good explanation of personality disorders is found in An Atlas for the Clinical Use of the Minnesota Multiphasic Personality Inventory.[9]

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[7]Ruth Fox and Peter Lyon, Alcoholism, Its Scope, Cause and Treatment (New York: Random House, 1955), p. 82.

[8]Coleman, op. cit., pp. 398-414.

[9]Starke R. Hathaway and Paul E. Meehl, An Atlas for the Clinical Use of the MMPI (Minneapolis: The University of Minnesota Press, 1951).

Thus far, alcoholism has been described in terms of manifest behavior which is quite obvious to the observer. Alcoholism is described in terms of the action of persons addicted to alcohol without any reference to the cause, only the effect. This approach is not difficult as the necessary equipment to make such an observation is a sober person with recording equipment to compile statistics on behavior displayed by an alcoholic as he progresses from the casual social drinker stage to the addiction phase of deterioration.

CHAPTER III

MATERIALS USED AND THE GROUP STUDIED

The material used in this research was the Minnesota Multiphasic Personality Inventory Test booklet and necessary scoring equipment. The only intelligence requirement for taking the test was that the examinee be able to read and understand the English language.[1] This was in accordance with the test constructors' instructions and was determined by the psychiatrist who examined the patient in this area. The method employed in administration of the test was comfortably seating the examinee in a quiet or semiquiet room and reading the instructions aloud to him. This research was limited to male American adults who had been committed five or more times to Douglas County Hospital by the Omaha Board of Mental Health and diagnosed as chronic alcoholics by the psychiatrist.

I. THE GROUP USED

The patients used in this research were men who had been committed to Douglas County Hospital because of

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[1] Starke R. Hathaway and J. Charnley McKinley, Booklet for the Minnesota Multiphasic Personality Inventory (New York: The Psychological Corporation, 1943).

alcoholism. Although other patients on this ward were permitted to take the test, the results were not used. The test results were not used from patients with marked paranoid trends, without alcoholism, and several alcoholic patients who had not been committed five or more times. They were permitted to take the test to avoid conflict on the ward. The group that was used was composed of men from various job levels, such as unskilled, semiskilled, and professional. There was no attempt to differentiate between job levels because the samples were too small.

These patients had spent a total of 10,779 days in Douglas County Hospital since initial commitment, at a cost of $118,000 to the Douglas County taxpayers in direct expense. No total cost could be determined because of spasmodic financial demands made by the families of the alcoholics on the department of public welfare for the family support.

II. THE MINNESOTA MULTIPHASIC PERSONALITY INVENTORY

The Minnesota Multiphasic Personality Inventory was used exclusively as the measuring instrument. It was believed that this instrument, with its method of assessment of personality disorders, was perhaps the most objective on the market at the time of the study.

This test is a psychometric instrument designed ultimately to provide, in a single test, scores on nine personality disorders.[2] The point of view determining the importance of a trait in this case is that of the clinical or personnel worker who wishes to assay those traits which are commonly characteristic of disabling psychological abnormality.[3] The instrument itself comprises 566 statements covering a wide range of subject matter--from the physical conditions to the moral and the social attitudes of the individual being tested. There are 313 items used in the scales exclusive of the MF scale. Many of these items are used in more than one scale. Personality characteristics may be assessed on the basis of scores on nine clinical scales originally developed for use with the inventory. The scales are: Hypochondriasis, Depression, Hysteria, Psychopathic Personality, Masculinity-Femininity, Paranoia, Psychasthenia, Schizophrenia, and Hypomania. Because of the insignificance, from a clinical typology point of view, the MF scale is not discussed.[4] Although

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[2]Starke R. Hathaway and J. C. McKinley, Minnesota Multiphasic Personality Inventory Manual (New York: The Psychological Corporation, 1951), p. 5.

[3]Ibid.

[4]Starke R. Hathaway and Paul E. Meehl, An Atlas for the Clinical Use of the MMPI (Minneapolis: The University of Minnesota Press, 1951), p. ix.

the scales are named according to the abnormal manifestation of the symptomatic complex, they have all been shown to have meaning within the normal range.[5] In the presentation of the results the usual procedure is to translate the raw score of the measured trait into a standard score (the T score) and plot it on the profile chart. The T score then becomes the raw score plus the K score. The K score is used essentially as a correction factor to sharpen the discriminatory power of the clinical variables measured by the inventory.[6] The T score is further explained by the formula $T = 50 + \frac{10(X_i - \overline{X})}{s}$. The standard values were assigned on the profile by taking the nearest integral value of T in the formula, where X_i is the raw score, and $\overline{X}$ and s the mean and standard deviation of the raw scores from the normative group. The chief normative group for standardization of the scales, in the test design, consisted of visitors to the University Hospitals and the out-patient department.[7] This procedure permitted analysis of the relative strength of various phases, the pattern which is usually more important than the presence of any one phase to an abnormal degree.[8]

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[5] Hathaway and McKinley, MMPI Manual, p. 18.

[6] Ibid., p. 12.

[7] Ibid.

[8] Ibid.

III. THE TECHNIQUE USED

Any patient on the ward at the time of testing who desired to be tested was tested after permission was obtained by the Hospital social worker. This was done to avoid clearly distinguishing favoritism, biases, or prejudices between alcoholic and other diagnosed patients. After the tests were completed, a search of the records was made to determine the staff doctor's diagnosis and to ascertain the number of admissions to the hospital for alcoholism. The test results were used only from those patients who had been committed five or more times with a primary diagnosis of alcoholism. As there was only one ward to which mental, incompetent, or alcoholic patients were assigned, the tester could not always tell from the patient's statements whether he was alcoholic or not. Therefore, the patient's diagnosis and number of commitments were verified through the record office after testing.

After the patients were comfortably seated, as described above, each was given a pencil, an answer sheet which was suggested by the test constructors, and the test booklet. The standard directions were then read to them.

The examinee was instructed to take as much time as he needed to complete the test but to give his first

impression as the answer to each question. He often asked for an interpretation of the question and also stated that the question could be answered true sometimes and false at other times. He was always told to answer the question as it generally applied to himself. This was in keeping with the instructions in the test booklet, and no additional pressure was exercised.

CHAPTER IV

RESULTS AND DISCUSSION

The responses were scored, using the key provided for each of the ten personality characteristics and the three non-clinical scores. These scores were then converted from the raw scores to the T scores by use of the table provided for that purpose in the Minnesota Multiphasic Personality Profile Inventory Manual.[1]

I. ANALYSIS IN SUBGROUP

The answer sheets were then subdivided into three subgroups, as equal in number as possible, but differing in terms of the number of admissions to the hospital for alcoholism. A mean score for each of the clinical scales was plotted on a profile chart. The non-clinical scores were for validation comparison, and as they were all within the normal range, with the exception of the F factor which was an insignificant degree above normal,[2] they

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[1]Starke R. Hathaway and J. Charnley McKinley, Minnesota Multiphasic Personality Inventory Manual (revised edition; New York: The Psychological Corporation, 1951).

[2]The test constructors consider the range of scores of normal persons to be between 46 and 54 and that at times the score within the normal range is meaningful.

are not discussed further. Table I provides statistical data concerning the relationship between the responses to the scales and the number of commitments. It was believed that there may be a relationship between the ages of alcoholics and the number of commitments. However, as can be observed in Table I, there is an insignificant difference between the scales and the relationship of the scale to the mean age of the patients or the mean number of commitments. The three highest scores in the profile are believed to be the true indicators of personality disorders.

The first subgroup (Subgroup A, Figure 1) consisted of nineteen patients who had been committed to Douglas County Hospital a minimum of five and a maximum of nine times. The mean age of this subgroup was 48.4 years, and the mean number of commitments was 7.2. The mean scores of this group could provide a clinical picture on the profile chart of a personality whose extreme abnormality (schizophrenic T score 78) was held in check by his acting out in a compulsive nature (psychasthenic T score 82) and his denial of deep emotional responses to his severe unacceptable social behavior (psychopathic deviate T score 80). But there are many other possible interpretations. The conclusion that alcoholics, or even those who sometimes drink to excess, are prepsychotic or schizophrenic is

TABLE I

MEAN OF T SCORES OF ALCOHOLIC PATIENTS BY GROUPS ACCORDING TO THE MINNESOTA MULTIPHASIC PERSONALITY INVENTORY

Non-clinical				Validity				Clinical									
N	Gr.	Age	Comm.	?	L	F	K	Hs	D	Hy	Pd	MF	Pa	Pt	Sc	Ma	Si
19	A	48.4	7.2	0:0	51	53	54	72	66	62	80	54	54	82	78	60	53
18	B	48.0	14.1	0.0	51	59	53	71	65	61	82	58	56	76	73	62	52
17	C	50.0	33.4	0.0	48	57	56	69	63	61	73	55	56	77	72	64	49
54	D	48.8	18.2	0.0	50	56	54	70	64	61	78	55	55	78	74	62	51
					46	46	46	46	46	46	46	46	46	46	46	46	46
Normal Scores					54	54	54	54	54	54	54	54	54	54	54	54	54

The Minnesota Multiphasic Personality Inventory

Starke R. Hathaway and J. Charnley McKinley

THE PSYCHOLOGICAL CORPORATION
522 Fifth Avenue
New York 36, New York

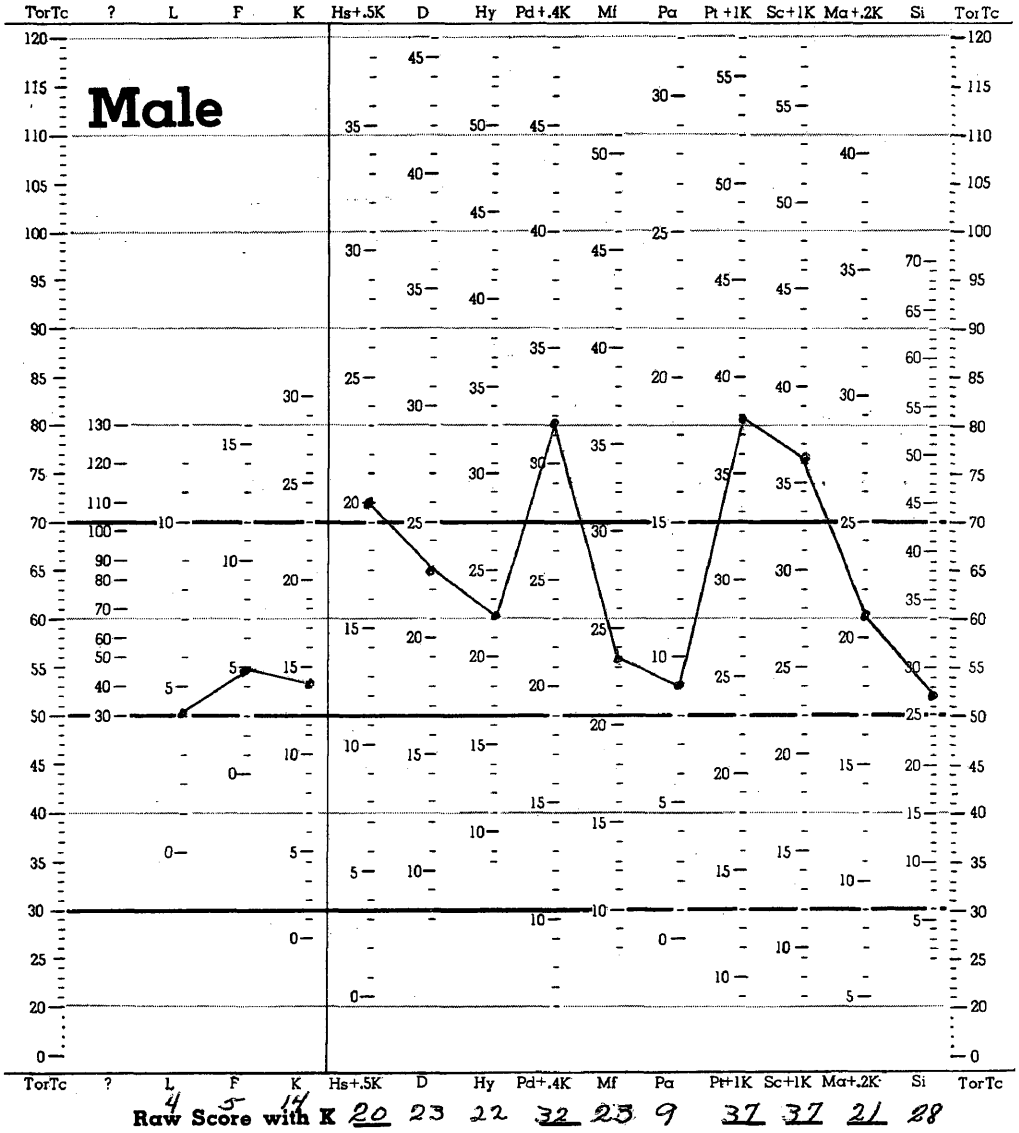

FIGURE 1

SUBGROUP A: PROFILE OF MEAN T SCORES OF NINETEEN CHRONIC ALCOHOLIC MALE PATIENTS WHOSE MEAN AGE WAS 48.4 AND WHOSE MEAN NUMBER OF COMMITMENTS WAS 7.2

probably not justified.[3] The schizophrenia scale does not necessarily measure schizophrenia. The professional worker may be dealing with persons who perceive and conceive differently from others without being schizophrenic. Perhaps he does act out in a compulsive manner, but not necessarily as a defense against further breakdown. Perhaps he does deny and isolate deep emotional responses to his severe unacceptable social behavior, but this is an interpretation. Other analyses have to be considered, e.g., coding and item tabulation, before there can be greater certainty. These other analyses appear in the sections (II and III) following this one.

The second subgroup (Subgroup B, Figure 2) consisted of eighteen patients who had been committed to Douglas County Hospital a minimum of ten and a maximum of twenty times. The mean age of this subgroup was 48.0 years, and the mean number of commitments was 14.1. Mean scores were computed and plotted as was done with Subgroup A. The mean scores of Subgroup B seemed to provide a clinical picture of the same personality disorders and similar structures as were found in Subgroup A. The

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[3]Clarence Wilbur Taber, Taber's Cyclopedic Medical Dictionary (eighth edition; Philadelphia: F. A. Davis Company, 1959), p. 136.

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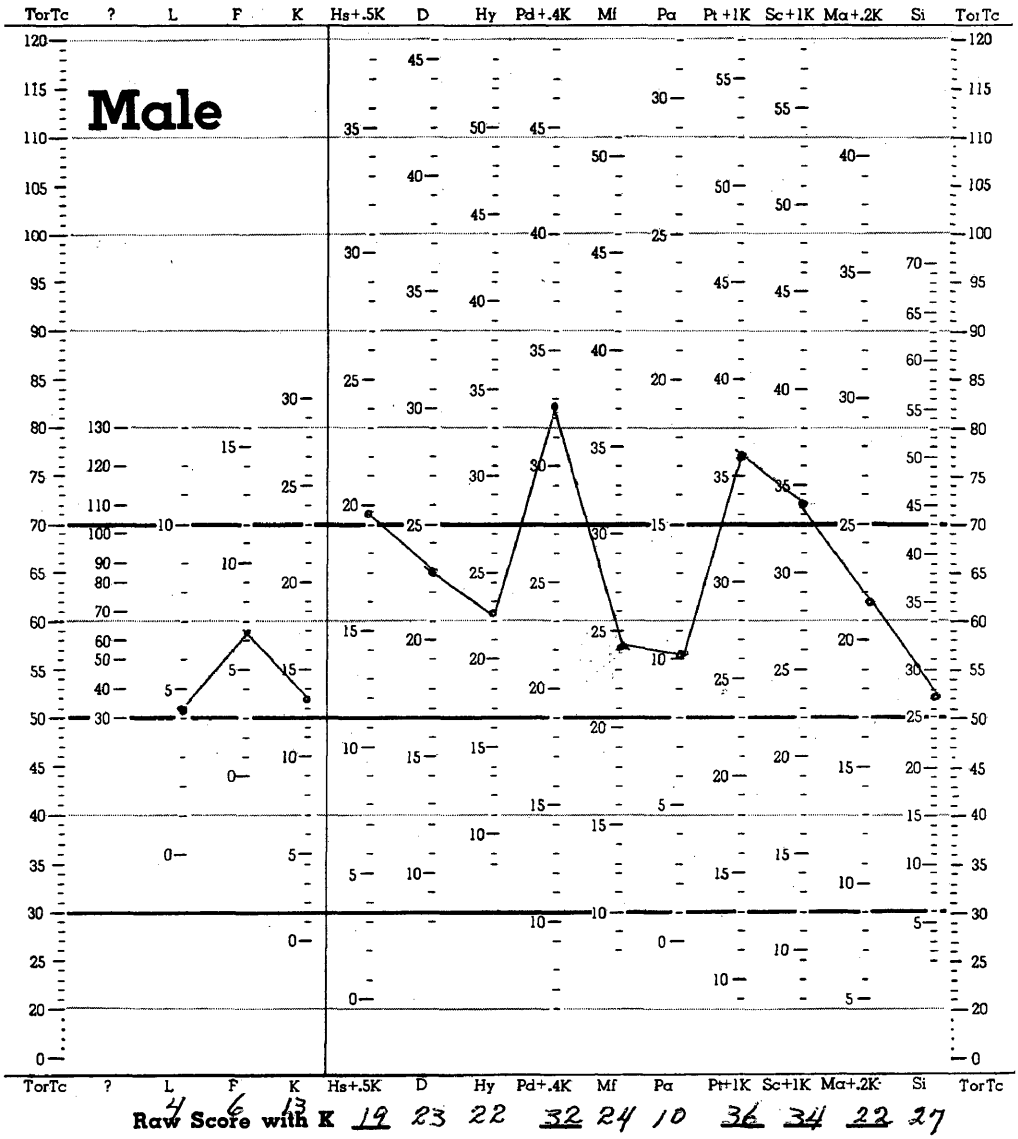

FIGURE 2

SUBGROUP B: PROFILE OF MEAN T SCORES OF EIGHTEEN CHRONIC ALCOHOLIC MALE PATIENTS WHOSE MEAN AGE WAS 48.0 AND WHOSE MEAN NUMBER OF COMMITMENTS WAS 14.1

schizophrenic T score was 73, the psychasthenic T score was 76, and the psychopathic deviate T score was 82.

The third group (Subgroup C, Figure 3) consisted of seventeen patients who had been committed a minimum of twenty-one times and no maximum number of times. Mean scores were computed and plotted as before. The mean number of commitments was 33.4, and the mean age was fifty years. The schizophrenia T score of 72 is comparable to 78 for Subgroup A and 73 for Subgroup B. The psychasthenia T score of 77 was again higher than the schizophrenia score. The psychopathic deviate T score of 73 was once again slightly higher than the schizophrenia score.

The profile chart of Subgroup D (Figure 4) indicates the mean scores of all patients tested. This was done to compare the ages of patients with the number of commitments and the types of maladjustment with the degree of maladjustment. The results were again compared with the scores of normal persons. As could be expected after a comprehensive study of the three groups, the profile chart presents a pattern of very marked deviation in the psychopathic deviate scale, which is three standard deviations above the normal, and the psychasthenia and schizophrenia scales, which are two standard deviations above the normal.

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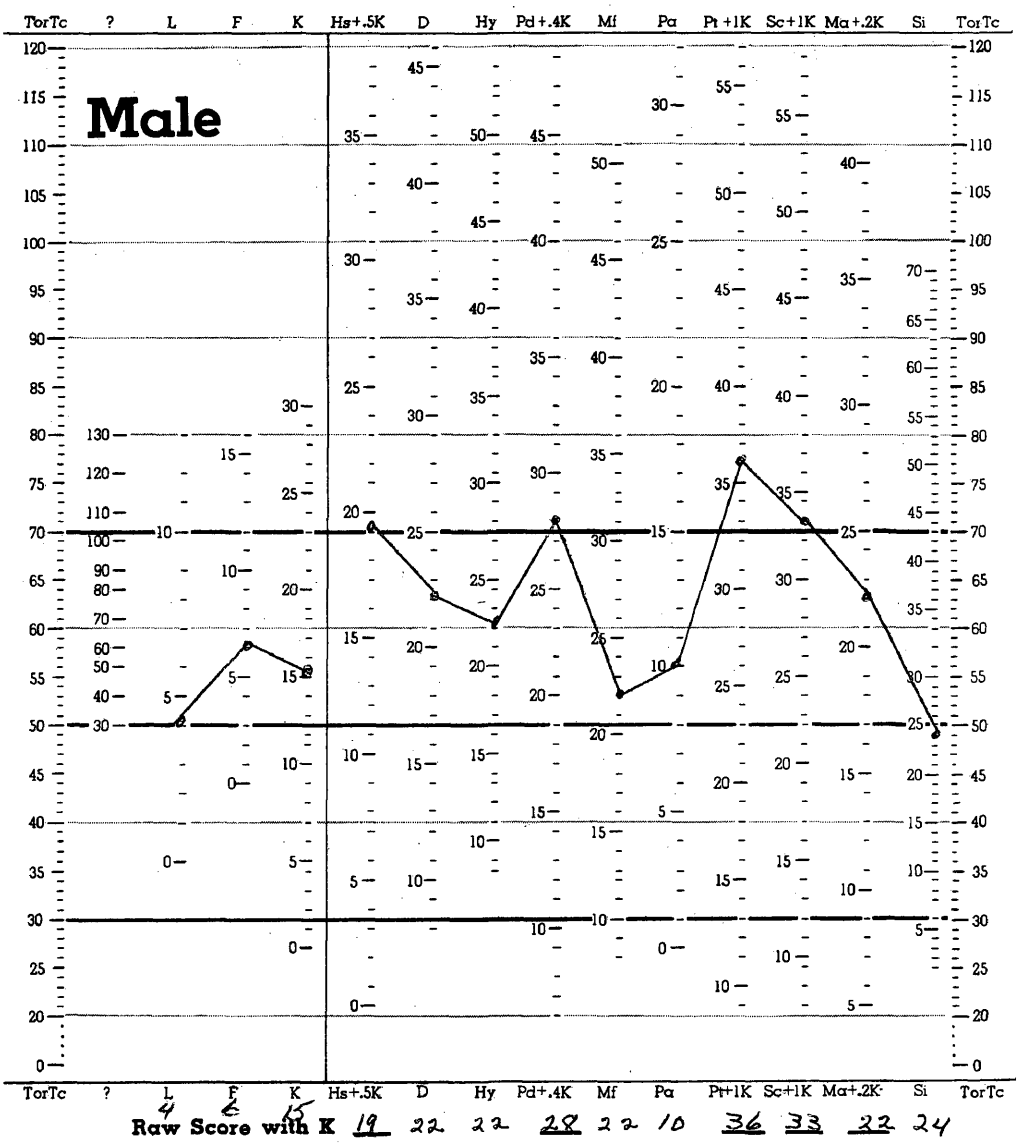

FIGURE 3

SUBGROUP C: PROFILE OF MEAN T SCORES OF SEVENTEEN CHRONIC ALCOHOLIC MALE PATIENTS WHOSE MEAN AGE WAS 50.0 AND WHOSE MEAN NUMBER OF COMMITMENTS WAS 33.4

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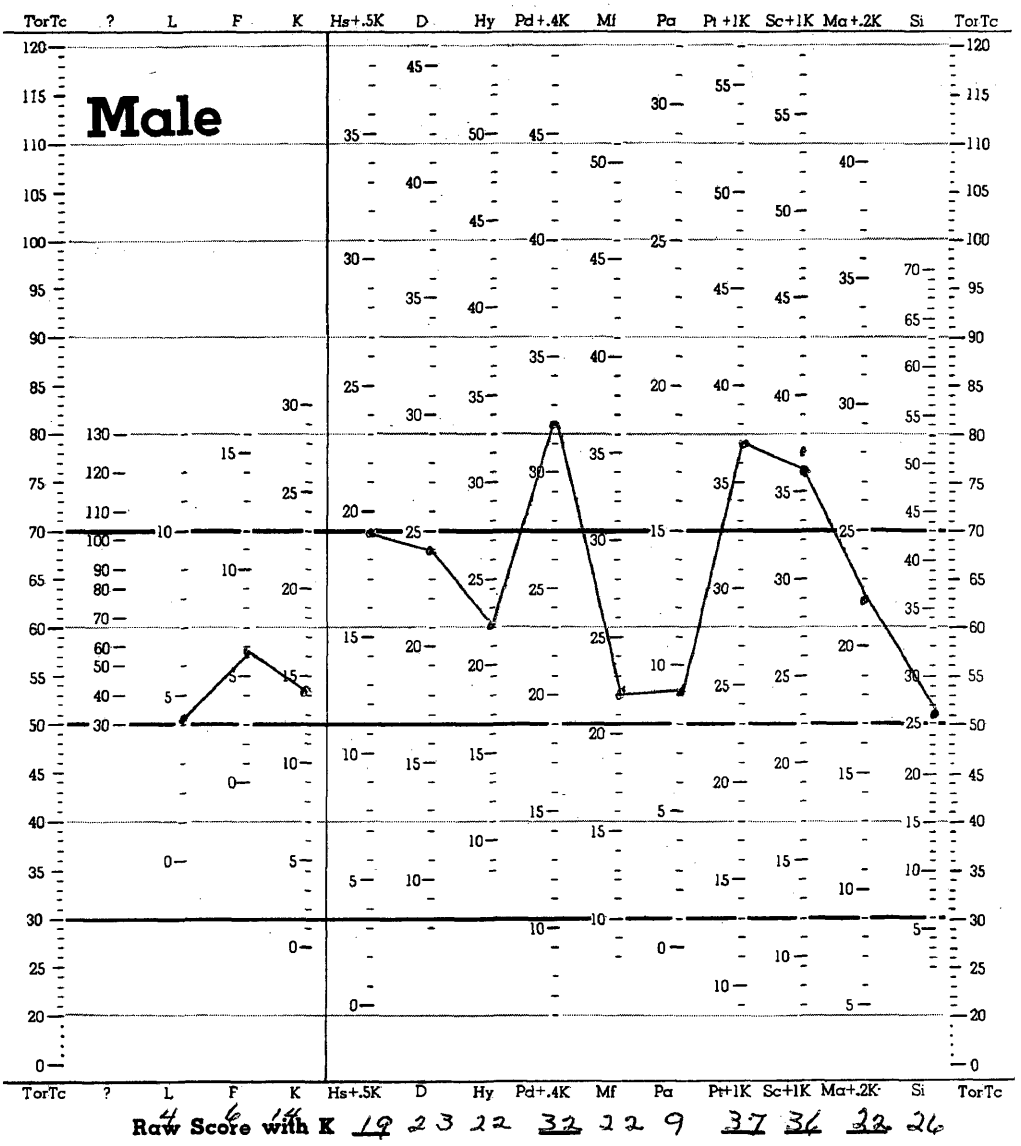

FIGURE 4

SUBGROUP D: PROFILE OF MEAN T SCORES OF FIFTY-FOUR CHRONIC ALCOHOLIC MALE PATIENTS WHOSE MEAN AGE WAS 48.8 AND WHOSE MEAN NUMBER OF COMMITMENTS WAS 18.2

Because this study and evaluation was limited to the patients studied, the results should not be generalized as being all inclusive or as applicable to any other patients. This research is a study of only the patients tested.

II. CODE ANALYSIS

The study thus far reveals, from a panoramic view, a profile in mean scores of chronic alcoholic patients grouped according to the number of times they had been committed for treatment. It is now necessary to unveil the profile and attempt to ascertain the dynamics involved and discover the alleged operants. To do this, it is necessary to use the coding system and regroup the sampling in groups according to the code index.[4]

The profiles were coded according to the instructions given by the test constructors (Appendix A). Code Index 1 allegedly consists of patients with abnormal concern of bodily functions as their major difficulty and includes only three patients from the total group of fifty-four. Although there is no way of actually determining the number of years of excessive drinking, the mean

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[4]Starke R. Hathaway and Paul E. Meehl, An Atlas for the Clinical Use of the MMPI (Minneapolis: The University of Minnesota Press, 1951), p. vii.

age of this group of fifty-four was 48.8 years as compared to the mean age of 44 for Hewitt's group of thirty-seven.[5] The average T score of this group for Code Index 1 was 53 as compared to 52.2 for Hewitt's group.[6] There were, however, seven additional patients who expressed hypochondriacal complaints as their second most serious interest, and nine additional patients whose third most important interest was in body functions. Although Hewitt suspected this, his test findings did not reveal this operant condition.[7]

There were ten patients with a primary code index of 2. The average T score was 77 as compared to Hewitt's results of 59.8.[8] The average age was 47.7 as compared to the average age of 44 for Hewitt's group.[9] This scale attempts to measure the depth of the clinically recognized symptom or complex depression. A high depression score may be the chief disability, or it may accompany, or be

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[5]George Schlager Welsh and W. Grant Dahlstrom, Basic Readings on the MMPI in Psychology and Medicine (Minneapolis: The University of Minnesota Press, 1956), p. 421.

[6]Ibid.

[7]Ibid.

[8]Ibid.

[9]Ibid.

the result of, other personality problems.[10] It indicates poor morale of the emotional type with feelings of uselessness and inability to assume a normal optimism with regard to the future. There were fourteen additional patients whose second highest score was in the depression category, and eleven of these had a primary code index of psychopathic deviate. Scores of nine additional patients gave them a tertiary depression code index.

The Code Index 3 is formulated to measure the degree to which the subjects compare with patients who have developed conversion-type hysteria symptoms. It has been found that this scale fails to identify a small number of very uncomplicated conversion hysterias which may be quite clinical and with a single or very few conversion symptoms.[11] Only two patients with a primary code index of hysteria were in this group. The average age of this group of two was fifty-six, and the average score was 77. However, eight additional patients had a secondary code index of hysteria. Five of the additional patients had a primary code index of psychopathic deviate. Eight patients had as a third high point the code index of hysteria.

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[10] Hathaway and McKinley, op. cit., p. 19.

[11] Ibid.

Of the fifteen patients discussed thus far in primary code index, none had a profile of the neurotic triad (1:2:3) and only one had the so-called inverted triad (3:2:1) which is so widely discussed by MMPI users.

The largest group was composed of those scoring high on the psychopathic deviate scale, which is identified as Code Index 4. There were twenty-eight patients in this group of the total of fifty-four patients studied. The mean T score of the psychopathic deviate group was 76 as compared with Hewitt's group mean score of 67.3.[12] The mean age of this group was 46.7. Nine additional patients had a secondary code index of 4, and seven had a tertiary psychopathic deviate score. The psychopathic deviate scale measures the similarity of the patient to a group of persons whose main difficulty lies in their absence of deep emotional response, their inability to profit from experience, and their disregard of social mores. Although sometimes dangerous to themselves and others, these persons are commonly likable and intelligent. They may often go on behaving like perfectly normal people for several years between one outbreak and another.[13]

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[12]Welsh and Dahlstrom, op. cit., p. 421.

[13]Hathaway and McKinley, loc. cit.

There were no patients with a primary code index of paranoia, two with paranoia as a secondary code index, and four with parandia as a third important code index.

The primary code index of psychasthenia measures the similarity of persons to psychiatric patients who are troubled by phobias or compulsive behavior. The phobias include all types of unreasonable fear of things or situations as well as overaction to more reasonable stimuli.[14] There were two patients in this group. The average age of these two patients was fifty-two, and their average score was 79. There were two additional patients with psychasthenia as a secondary factor in the index and three patients with psychasthenia as the tertiary score.

Three patients had a schizophrenia code index. The mean age of this group was fifty years, and their average schizophrenia score was 84. According to the Manual, this scale measures the similarity of the subject's responses to those of patients who are characterized by bizarre and unusual thought or behavior. This scale distinguishes about 60 per cent of observed cases diagnosed as schizophrenia.[15] Scores of three additional patients placed

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[14] Ibid.

[15] Ibid.

them with schizophrenia as their second code index and three as the third code index.

The hypomania scale clearly identifies about 60 per cent of diagnosed cases and yields a score in the 60 to 70 range for the remainder. It measures the personality factor characteristic of persons with marked overproductivity in thought and action.[16] Scores around 70 present a problem in normality which hinges more upon the direction of the overactivity than upon the absolute score. There were five patients in this group. The average age was 52.4 years. The average hypomania score was 74. Five patients' scores placed them in a secondary category of hypomania, and six patients' scores were in the hypomania category as the third important code index.

The score of only one patient, who was forty-nine years old, indicated a social scale as the primary code index. This code index is not clinical in the strict sense, but is being used chiefly with hospitalized patients in counseling and guidance work. One additional patient had the social scale as the second code index, and two had this as a third code indicator.

Thus it can be concluded that with the alcoholic patients studied there are at least some in every MMPI

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[16] Ibid.

category of personality disorders listed, except paranoia. The greatest number (twenty-eight) of the patients scoring high on the psychopathic deviate scale is quite revealing. Their frame of reference as to social norms and socially acceptable behavior is unusual, and this would place them in a behavior disorder group. Alcohol perhaps is a method employed by them to assist in their attempt to adjust to the social norms. One might think that being committed to a county hospital for treatment of their condition would account for their relatively high scores in the depressive scale, but these patients appeared quite contented and pleased on the ward before and after testing. Conversely, perhaps their seeming unconcern for the abnormal condition of their unusual situation would assist in accounting for their high psychopathic deviate scores. As had been said, it is not the kind or degree of personality disorder, but it is the degree that one can adjust to the society in which he chooses to live that describes his degree of normality.

III. ITEM-ANALYSIS TABULATION FOR TOTAL GROUP

The following formula was used to determine the magnitude of statistically significant differences between the alcoholic group and the MMPI normals.

$$P_2 - P_1 - \left(\frac{N_1 + N_2}{2N_1N_2}\right) = K\sqrt{\frac{P(1-P)}{N_1} + \frac{P(1-P)}{N_2}}$$

In this formula P is .50, N is the size of the alcoholic sample or 54, and N_2 is the size of the normal MMPI sample of 152. K is the constant which is 1.96 in solving for the significance at .05 and is 2.56 at the .01 level of significance.[17]

Using the 5 per cent level of significance, this formula indicated there must be at least 17 percentage points difference between the percentages in the two groups when either percentage was between 25 and 75. This would also require 15 percentage points difference in the two group scores if both scores were below 25 or above 75. At the 1 per cent level of significance the responses on any item must be 21 percentage points difference if the percentage on either group was between 25 and 75. If both percentages were less than 25 or more than 75, there must be 19 percentage points difference to be significant.

Using this formula for standard error of two independent proportions, it was found that there were 96 items with significant difference at the 1 per cent level or

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[17]W. Allen Wallis and Harry V. Roberts, Statistics: A New Approach (Glencoe, Ill.: Free Press, 1956), p. 429.

better and 35 additional items with significant difference at the 5 per cent level. In other words, there were 131 items at the 5 per cent or better significance level. These items are listed in Appendix C for further study and comparison. There is no recent research available with which these items could be compared. However, Hoyt and Sedlacek have reported that they have devised a scale by contrasting the replies of ninety-eight hospitalized alcoholics with frequency of response of the Minnesota normative group. The scale stood up well under cross-validation, the new group of alcoholics actually scoring higher than the derivational group (28.4 as opposed to 25.5). The normal subjects in their study scored significantly lower than either group of alcoholics (a mean of 20.0), but a composite group of psychiatric cases could not be differentiated from alcoholics (a mean of 26.4).[18]

Holmes found that in his study of seventy-two alcoholics 22 per cent of the items in his newly developed scale appeared in the Pd scale, 13.5 per cent on the D scale, and 37 per cent did not fall on any of the basic scales.[19]

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[18]Donald P. Hoyt and Gordon M. Sedlacek, "Differentiating Alcoholics from Normals and Abnormals with the MMPI," Journal of Clinical Psychology, XIV (1958), 69-74.

[19]W. O. Holmes, "The Development of an Empirical MMPI Scale for Alcoholism." Unpublished manuscript, 1953.

By further analysis of Appendix B, seven items in the hypochondriasis scale were significant at the .1 per cent level, twenty-two items in the depression scale, twenty-one items in the hysteria scale, twenty-six items of the psychopathic deviate scale, and twelve items in the paranoia scale. In addition, there were nine items in the psychasthenia scale of significance at the 1 per cent level, twelve items in the schizophrenia scale, nineteen in the hypomania scale, and twenty items in the social scale. These scales are not mutually exclusive and they include many of the same items. With the psychopathic scale including most of the items in Appendix C, the social scale including the next, and the depression and hysteria scales the last, some more doubt is cast upon the original conjecture concerning the schizophrenia scale.

It is interesting to note that, by determining a mean number of commitments for each group within the code indexes, the ten patients with a depression code index (two) averaged 23 commitments each. The highest number of commitments for any patient in this study (N = 54) was 66, and this patient had a depression code index. The three patients with Code Index 1 had an average number of commitments of 11.3, and the two patients with Code Index 3 had an average number of 12 commitments. The twenty-eight patients with a code index of 4 had an average number of

18 commitments. The two patients with Code Index 7 had an average of 16 commitments. The three patients with Code Index 8 had an average number of 14 commitments. The five patients with Code Index 9 had an average number of 17 commitments. It would appear that the patients with high depression scores encountered more difficulty in maintaining satisfactory social adjustment and required more hospitalization than any of the other indexes.

Again in reference to Appendix B, it can be seen that seven of the items in the hypochondriasis scale were significant at the 1 per cent level or better. This represents 27 per cent of the items in the scale. These items are:

9. I am about as able to work as I ever was.

51. I am in just as good health as most of my friends.

62. Parts of my body often have feelings like burning, tingling, crawling, or like "going to sleep."

153. During the past three years I have been well most of the time.

163. I do not tire quickly.

230. I hardly ever notice my heart pounding and I am seldom short of breath.

274. My eyesight is as good as it has been for years.

These questions deal primarily with physical conditions and how the patient compares his condition with the condition of others and with his previous condition. It would not be unpopular for a patient who is forty-eight years old to admit that he is not as strong and vigorous as he was earlier in life. Therefore, the age of the patient may cause him to be placed in a scale when he is responding quite normally to his condition. He now perceives differently, has a different self image, and by admitting this is quite different from the MMPI normals, where (N = 340) 181 were between ages twenty-six and forty-five.

There are sixty items in the depression scale. The alcoholic group answered 36 per cent of these with an unpopular response. Twenty-two of these responses were significant at the 1 per cent or better level from the normal group. These items are not mutually exclusive but are used in the other scales also. They deal with the respondent's moods, attitudes about his present condition, and manner of measuring himself with others. Although he claims that his present condition does not disturb him, the item responses, when compared with normal responses, signify differently.

The hysteria scale utilizes sixty items, and 40 per cent of these items were answered unpopularly when

compared with the normal MMPI group. Twenty-one of these items were significantly different at the 1 per cent level from the MMPI normal group. As these items also overlap into the other scales, they also deal with opinions of the examinee and, in addition, assess some of his ideas concerning his mental conditions, concepts of social norms in relation to his identify, and interpersonal competencies. Not to be forgotten is this person's present illness, social standing, age, and earning power, which are being compared with those of the normal MMPI group. With the examinee's honest and frank opinion and evaluation of himself in light of the normal group, he may be seen as being more abnormal than he actually is.

The fifty items which are used in designing the psychopathic deviate scale are perhaps the most controversial in the entire test. The alcoholic patients scored 50 per cent of these items significantly different at the 1 per cent level from the normal MMPI group. While these items deal with personal concepts of social mores and values, it cannot be proven that they are wrong in their opinion of others. The more investigations that are conducted, the more is discovered concerning public officials and their social values that is not in good keeping with the concepts normal persons have had of them. This, then,

is an area of ambiguity and is misleading, to say the least, from a clinical point of view.

The psychasthenia scale is composed of forty-eight items. Nine of these items were significantly different at the 1 per cent level from the normal group. These items are:

8. My daily life is full of things that keep me interested.

36. I seldom worry about my health.

41. I have had periods of days, weeks, or months when I couldn't take care of things because I couldn't "get going."

67. I wish I could be as happy as others seem to be.

102. My hardest battles are with myself.

106. Much of the time I feel as if I have done something wrong or evil.

142. I certainly feel useless at times.

217. I frequently find myself worrying about something.

304. In school I found it very hard to talk before the class.

These items appear to have some relationship to the problem of psychasthenia. The clinical type of psychasthenia, however, is not currently used by the American Psychiatric Association.

The schizophrenia scale is composed of seventy-eight items, but only twelve of these were significantly

different at the 1 per cent level from the normal group. These items are:

41. I have had periods of days, weeks, or months when I couldn't take care of things because I couldn't "get going."

97. At times I have a strong urge to do something harmful or shocking.

156. I have had periods in which I carried on activities without knowing later what I had been doing.

187. My hands have not become clumsy or awkward.

307. I refuse to play some games because I am not good at them.

308. At times I have very much wanted to leave home.

311. During one period when I was a youngster I engaged in petty thievery.

318. In school I was sometimes sent to the principal for cutting up.

322. I worry over money and business.

323. I have had very peculiar and strange experiences.

324. I have never been in love with anyone.

363. At times I have engaged in being hurt by someone I loved.

Although this scale is able to distinguish about 60 per cent of observed cases diagnosed as schizophrenia, it does not consider some types of behavior, such as alcoholism. It is understood that sometimes, while intoxicated, alcoholics do things they are not able to recall

later. However, by admitting this in the scale, they are given credit toward schizophrenia. Several theories indicate that there are periods in life when petty thievery is normal. However, by admitting this attribute, the examinee is credited with a point toward schizophrenia. This also holds true with Item 323 which credits an affirmative response to the scale. As any person can see, the sample included persons such as construction workers and World War II pilots who have had a number of almost weird experiences. This scale, then, could be very misleading and should be used with healthy skepticism.

As no patients had a code index of paranoia and as the Si scale is not a clinical scale, they will not be discussed. It should also be remembered in scoring and interpreting the items that in some instances it is normal or popular to answer the items affirmatively and in other cases a negative response is popular.

There were nineteen of the forty-six items in the hypomania scale which were answered significantly different from the normals on the 1 per cent level. These items cover a wide variety of circumstances concerning attitides, ideas, and situations as a frame of reference for personal activity. It also covers personal opinions of others and their behavior. In reading each item, it is not always clearly understood why a person answering

unpopularly to these items should be included in a group of patients who are suffering from overproductivity in thought and action as is generally associated with this characteristic. This may partially account for the fact that this scale clearly identifies less than 60 per cent of the diagnosed cases.

There are many other kinds of item analyses possible which may lend even greater meaningfulness to the data. The above item analyses are suggestive but need more standardization work before there can be more certainty with regard to the data interpretation.

As this study is on alcoholics and the personalities associated with alcoholism, it is believed that further discussion of causation and other personalities is not in the province of this thesis.

IV. MISCELLANEOUS SCALES

Welsh presented a formula which is expected to yield an expected value of 50 for a normal or non-institutionalized personality.[20] The formula is used with the MMPI results and includes the scores on four scales and uses three basic features. The formula is expected to

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[20]Welsh and Dahlstrom, op. cit., p. 300.

yield an anxiety index (AI) to determine the degree of anxiety of the examinee. The formula:

$$AI = \frac{Hs + D + Hy}{3} + [(D + Pt) - (Hs + Hy)]$$

The symbols are the abbreviations of the scales on the MMPI, i.e., hysteria is abbreviated Hs, depression as D, hypochondriasis as Hy, and psychasthenia as Pt. Substituting the above symbols with the scale results of the alcoholic group results in:

$$AI = \frac{70 + 64 + 61}{3} + [(64 + 78) - (70 + 61)]$$

or AI = 76. In the comparison of the results obtained by this formula it is revealed that the alcoholic group has an anxiety index which is 26 points higher than the normal or non-institutionalized personality.

Welsh also has devised another formula which he believes measures the internalization ratio (IR).[21] He believes that some persons internalize their anxiety and with his formula he can detect and measure the internalization. The formula is:

$$IR = \frac{Hs + D + Pt}{Hy + Pd + Ma}$$

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[21] Ibid.

Substituting again with the MMPI scores from the alcoholic study:

$$IR = \frac{70 + 64 + 78}{61 + 78 + 62}$$

or IR = 1.09. Welsh expected the formula to yield a score of 1.0 or less for normal persons.

Welsh stated that "subjects who tend to have many somatic symptoms and subjective feelings of stress--who internalize their difficulties can be expected to obtain values above 1.00."[22] As a clinician must be able to measure the amount or degree of anxiety with respect to treatment, these scales may be very valuable. Thus with Welsh's scales we find alcoholics are classified as a group with a high anxiety index (AI = 76) and a group which internalizes their difficulties (IR = 1.09). The hypothetical construct "anxiety" may be a fertile field for investigation. Of course we may have different kinds of anxiety; neither schizophrenic nor alcoholic are considered to have continuous anxiety in a Freudian sense.

As noted in the study by Welsh, the IR was 1.01 for eighty schizophrenic patients in a state hospital.[23] This is comparable to the IR of this sample whose score was

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[22] Ibid.

[23] Ibid.

1.09. It is understood that IR decreases with age. Younger schizophrenia patients respond more favorably to treatment than older persons, which explains to a degree why alcoholic patients are difficult to treat successfully. Also in the study by Welsh, the group's AI was 64, which is more normal than that of the alcoholic group.[24] It is indeed interesting to note that the alcoholic group scores deviate more from the mean than do those of the diagnozed schizophrenic patients without alcoholism. Welsh also explained how patients with AI = 75 respond more favorably to treatment than do patients with AI = 63.[25]

Panton developed ten clinical subscales from the MMPI to provide prognostic material for custody risks of prisoners and to describe their ability to adjust in a prison community.[26] Within Panton's test are profiles of fifty prison alcoholics. These inmates scored extremely high (72) on the psychopathic deviate scale and also high (64) on the parole violation (Pa V) scale.[27] The parole violation scores indicate that the inmate will violate the

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[24] Ibid.

[25] Ibid.

[26] James H. Panton, "Development of a Prison Classification Inventory from the MMPI," Journal of Consultation, IV (July, 1958), 305-8.

[27] Ibid.

conditions of parole to the extent it will be necessary to return him to prison. Parolees who become unsuccessfully adjusted generally score below a T score of 58. The third highest score on Panton's scale was the escape scale (Ec) which indicates a tendency to avoid conflict arising in the inmate's adjustment by escaping or attempting to escape from prison.[28] This scale also coincides with the scores in the alcoholic study, as alcoholics obviously use alcohol to escape from conflict toward attempts to adjustment in society which they observe as threatening. The treatment for this type of behavior is ultimately continued confinement or reconfinement. The alcoholic prisoners may satisfy their dependency needs by the threat of escaping, which in reality lengthens their stay in confinement where their dependency needs are completely satisfied.

V. THE PATIENT'S REASONS FOR CHRONIC ALCOHOLISM

Each person tested with the Minnesota Multiphasic Personality Inventory was given the opportunity to explain his reasons for drinking and becoming an alcoholic. These reasons were many and varied, but the three most frequent

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[28] Ibid.

could be classified as follows: (1) I like it, (2) I got with the wrong crowd, and (3) I got out of work and got nervous.

The patients generally gave the following reason for chronic alcoholism: "I just got to drinking and didn't know when to stop." They could all look back over their behavior pattern and see their progress toward alcoholism, i.e., when they were social drinkers with a mixed group, then were having a few with the fellows, followed by regular drunks with the boys, then the need for a drink to "get well" after a drunk, leading to a few days drunk at a time, and finally drinking anything to stay drunk.

VI. THE PATIENT'S IDEAS ON CURING ALCOHOLISM

Unfortunately, none of the men tested thought that there would ever be a cure for alcoholism. They unanimously (N = 54) believed that people were trying to simplify the cause and the cure. They all thought that the problems and causations were so numerous and varied that a cure could never be found. They did say that <u>if</u> a cause were found and a cure effected, it would be one of a physical nature. At no time did any patient indicate that chronic alcoholism was of the nature of a psychological escape. Consideration of the belief that a cure

would evolve only from a physical source provides some analytical material which is presented in Chapter V.

Thus there is sufficient evidence that the patients tested displayed deviate thought patterns in response to both test questions and interviews. This abnormality was in the areas of unrealistic concepts and a denial of reality as it is ordinarily interpreted (schizophrenia score 74). Alcoholics readily admit they are alcoholic, but they have no insight and join with researchers in not being able to understand causative factors contributing to alcoholism. The alcoholic will use alcohol, which George Bernard Shaw said "makes a man cheaply happy by destroying his conscience,"[29] and behave inappropriately in terms of our culture.

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[29]Charles Neider (ed.), Essays of the Masters (New York: Rinehart and Company, Inc., 1956), p. 325.

CHAPTER V

SUMMARY AND CONCLUSIONS

> Give me your tired, your poor,
> Your huddled masses yearning to breathe free,
> The wretched refuse of your teeming shore.
> Send these, the homeless, tempest-tossed to me,
> I lift my lamp beside the golden door!
>
> --Emma Lazarus[1]

Thus was extended throughout the known world the invitation inscribed on the tablet of the Statue of Liberty in New York harbor. This theme, of course, has historical rather than current meaning. The United States experienced the response to this invitation through recipience of persons of every nationality, creed, color, and religion. The invitation is not overly extended today; but with the action, interaction, and reaction of these respondents, our nation has experienced civil wars, revolutionary wars, world wars, and has, as a result of the fusion of cultures, ideas, and concepts, witnessed the change of the cultural idea of the nation from one of a

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[1] "Statue of Liberty," The World Book Encyclopedia (Chicago: Field Enterprises, Inc., 1949), p. 4401.

"melting pot" to one of a "compartmentalized pressure cooker."[2] The freedom experienced in America, which is depicted by the broken chain at the foot of the Statue of Liberty, is perhaps a major contributing factor to the anxiety neurosis so widespread in the nation.[3] The term "anxiety neurosis" is used metaphorically; "anxiousness" and "tension" would perhaps be more appropriate terms. A mature freedom, and a mature democracy, however, would probably cause less tension and anxiety than little freedom and little democracy. At least, this is our belief and hope. Chronic alcoholism is only one of the many conditions which are manifested in "unacceptable social behavior."

I. SUMMARY

To discover some of the possible personality disorders which may or may not be associated with alcoholism, a comprehensive study has been undertaken in this research. A county in Nebraska was chosen where alcoholism was

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[2]Edward C. McDonagh and Eugene S. Richards, Ethnic Relations in the United States (New York: Appleton-Century-Crofts, Inc., 1953), p. 18.

[3]James C. Coleman, Abnormal Psychology and Modern Life (second edition; Chicago: Scott, Foresman and Co., 1956), p. 17.

a social problem. When the problem drinkers became such social problems that they were referred to the Board of Mental Health by police or their families, they were admitted to the Psychiatric Ward at the County Hospital. They arrived at the hospital in various physical and emotional conditions.

After they were admitted to the ward, they were immediately stripped of all clothing, deloused if necessary, tubbathed, shaved, and put to bed. They were then examined by a doctor. A diet, medication schedule, and routine were immediately initiated. After a week or ten days of hospital care of the patient, the social worker obtained a social case history. Often this was only a supplement to the previous admission summary. The patient was then interviewed by a psychiatrist and diagnosed. As the patients used in this research project had previously been hospitalized at least four times for alcoholism, there was no disagreement in the diagnosis.

All patients who were admitted to Douglas County Hospital over a three-month period and diagnosed as chronic alcoholic were tested. This period was April, May, and June, and perhaps the patients admitted during this season did not give a true sample of the alcoholic population in the area. However, only those patients who had previously been committed four or more times were used

in this research. It was believed that the personalities of patients who had drunk excessively over a period of several years would show more deviation from normal than those of patients who had drunk excessively for a short length of time. Test results of fifty-four patients were used after the selection criteria described above were applied.

The chief normative group for standardization on the MMPI consisted of visitors to the University Hospitals and the Out-Patient Department. The mean age for the male normative group, which consisted of 229 married and 111 unmarried males, was 40.5 years. The ages of the normative group ranged from sixteen to sixty-five, inclusive. The mean age for the total alcoholic group was 48.8, and the ages ranged from twenty-eight to seventy-two years.

The test results were compared with the MMPI normals by five different methods. The answer sheets were first divided into three subgroups according to the number of commitments (see Table I, page 18). Subgroup A consisted of patients who had been committed five to nine times and diagnosed as chronic alcoholics. Subgroup B consisted of patients who had been committed ten to nineteen times, and Subgroup C consisted of patients who had been committed more than twenty times. These subgroup test results (see Table I) showed deviation from the

normal on all scales except paranoia, interest, and social. Test results on these scales were less than one standard deviation from the normal group. The difference between the subgroup scores was no more than .7 of one standard deviation on any one scale. This deviation was between Subgroup A and Subgroup C on the psychopathic deviate scale. Subgroup A scored highest on this scale with a T score of 80, or 3 standard deviation from normal. Subgroup C had a T score of 73, or 2.3 standard deviation from normal on this scale. The average age for Subgroup A was 48.4 years as compared with the average age of 50.0 years for Subgroup C. The average number of commitments for the patients in Subgroup A was 7.2 as compared with the average number of commitments of 33.4 for Subgroup C. Without further analysis of the sample, these results indicate that the severity of personality deviation from the normal is not in proportion to age or the time of social maladjustment which necessitated commitment to a hospital for treatment. The difference between the subgroup scores on the other scales was less than .5 standard deviation and is insignificant for discussion.

The test scores were then coded (see Appendix A) according to the MMPI Atlas. Code Index 1, which allegedly consists of patients with an abnormal concern of bodily functions, included only three patients of the

total of fifty-four. There were seven additional patients who expressed hypochondriacal complaints as their second most serious interest and nine additional patients whose third most important interest was in body functions. Hewitt suspected this in his research with the MMPI; however, his findings failed to substantiate his suspicions.[4] The depression code index is identified as Code 2. This scale attempts to measure the clinically recognized symptoms of complex depression. Although the alcoholic patients verbally admitted that they were generally content in the hospital, the scale indicated that this was not entirely true. There were ten patients with a primary depression code index. There were fourteen additional patients whose second highest score was depression and nine additional patients with a tertiary depression index. It was found, then, that thirty-three patients of the total (N=54) had a marked depression scale index on the three point evaluation. This is further supported by Bosselman, who stated that the alcoholic describes his physical feelings of gratification through drinking by the expression, "It picks me up."[5]

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[4]George Schlager Welsh and W. Grant Dahlstrom, Basic Readings on the MMPI in Psychology and Medicine (Minneapolis: The University of Minnesota Press, 1956), p. 420.

[5]Beulah Bosselman, Neurosis and Psychosis (Springfield, Ill.: Charles C. Thomas, Publisher, 1961), p. 73.

The neurotic triad (1:2:3) is widely discussed by MMPI users. None of the patients in this research obtained this code index, and only one patient obtained the inverted triad (3:2:1).

The coded results substantiate the deviation in the alcoholic psychopathic deviate scores. Twenty-eight of the fifty-four patients had a primary code index of 4, which is the code index for psychopathic deviate scale. Nine additional patients had a secondary code index of 4, and seven patients had a tertiary score of psychopathic deviate. While this scale allegedly measures the absence of deep emotional concern for others and the inability to profit from experience, there are other factors to be considered in relating this to the normative group. The normative group was younger and was not as consciously aware of the depression of 1930 or World War II conditions as was the alcoholic group. These differences in environmental and cultural factors have not been clinically evaluated to form a modern normal group.

No patients had a primary code of 6, which indicates abnormality in paranoia. There were, however, two patients with a secondary code index of 6 and four patients with a paranoia code index as a third important factor in diagnosis.

The primary code index for psychasthenia is 7. Psychasthenia indicates that the patients are troubled with phobic or compulsive behavior. There were two patients in this group, two additional patients with Code Index 7 as the second most important personality abnormality, and three additional patients with psychasthenia as a tertiary score.

The schizophrenia scale is referred to in the code as Index 8. There were only three patients of the total alcoholic group with this as a primary code index. There were three additional patients with schizophrenia as a secondary code index, and three additional patients with this as a tertiary score. The scale distinguishes about 60 per cent of the schizophrenia patients, and because these patients were of such extremely diverse cultural differences from the normative group, it is doubted if this scale has that much validity at the present time.

Code Index 9 refers to patients with hypomania as the chief difficulty. Five patients had this as a primary code index, and an additional five had 9 as a secondary code index. There were six patients who scored with hypomania as the third important code index. This scale also identifies about 60 per cent of the patients who have a final diagnosis of hypomania.

Only one patient obtained a primary code index of 0 or social interest. He was forty-nine years old and had been committed six times for alcoholism. One additional patient had 0 as a second code index.

Thus far it can be concluded that the alcoholic group has a wide range of variations from the normative group in all clinical scales except paranoia. The greatest difference in scores was 3 standard deviations from the normative group in the psychopathic deviate scale. The greatest difference in any one subgroup from the normative group was Subgroup A, which was 2.8 standard deviations above the normative group in the psychasthenia scale.

An item-analysis tabulation was then done to determine the magnitude of statistically significant difference between the alcoholic group and the MMPI normals. This was accomplished by the formula of Wallis and Roberts to solve for the relationship of two independent proportions on the 1 and 5 per cent levels.[6] It was found that there were ninety-six items with significant differences at the 1 per cent level or better and thirty-five additional items at the 5 per cent level or better. There was,

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[6] W. Allen Wallis and Henry V. Roberts, Statistics: A New Approach (Glencoe, Ill.: Free Press, 1956), p. 429.

therefore, a total of 127 items of significant difference at the 5 per cent level or better between the normal and the alcoholic group.

On the 1 per cent level of significance between the normative group and the alcoholic group there were seven items in the hypochondriasis scale, twenty-two on the depression scale, twenty-one on the hysteria scale, twenty-five on the psychopathic deviate scale, and twelve on the paranoia scale. In addition, there were nine items on the psychasthenia scale, twelve items on the schizophrenia scale, nineteen items on the hypomania scale, and twenty items on the social scale that were significantly different at the 1 per cent level of significance between the alcoholic group and the normative group. These scales are not mutually exclusive, and they include many of the same items. These items generally dealt with the present physical condition of the patients as related to prior physical conditions or self concepts. The alcoholics, although averaging only eight years older than the normative MMPI group, were evaluated almost twenty years after the norms were established for the normative group. The social and cultural changes that have taken place in America during this twenty-year period would strongly suggest a more modern method of determining the norm.

Other comparisons that were made between the normative group and the alcoholic group were Welsh's anxiety index (AI) score and his internalization ratio (IR) score.[7] It was found that the AI score on the total alcoholic group was 26 points higher than that which was expected of the normal group. The IR for the alcoholic group was 1.09 and a normal score was expected to be 1.00. Although Welsh completed his studies on a date more recent than that of the original MMPI scales, he used the MMPI normal evaluation in doing his research, and it is therefore questioned as to its validity for modern use.

There seems to be a great variation in the cultural values of a university metropolis such as Minneapolis and the state of Minnesota as compared with those of Omaha in Nebraska. The communities establish different social norms and values, and the populace is of much different ancestry. A social study of the demographic attributes of these two areas has as great a variance as have the various scales scores on the test. It seems, therefore, that tests should be validated within a comparable cultural environment in which it is to be used. Cultural artifacts contribute greatly to the personality structure, and

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[7]Welsh and Dahlstrom, op. cit., p. 300.

cultural norms and values contribute even more to the total personality and its concepts.

In summary, it can be said that the alcoholics tested in this research showed deviation in their personality assessment as viewed by the Minnesota normals. The major differences were in the psychopathic deviate and the psychasthenia scale which showed 2.8 standard deviations for the total group of fifty-four alcoholics from the total normal group of 340. The alcoholic group's scores showed 2.4 and 2.0 standard deviations on the schizophrenia and hypochondriasis scales, respectively, from the normal group.

It is believed that the norms for these scales have changed since the original validation. These changes are of a social and cultural nature as a result of technological change in industry and urbanization. It is believed that a test administered to a group should be validated by samples from the culture from which the examinee is a representation.

II. CONCLUSION

While it is agreed that this group of alcoholics showed some deviation from the normal group according to the MMPI, there are many other factors to be considered. These are cultural, psychosocial, and age factors. The

Minnesota test was validated and designated the normal group prior to World War II. This would have attempted to standardize a scale from subjects who had not had war time exposures. The average age of the normal male group was 40.5 years as compared with 48.8 years for the alcoholic group. The additional years of experience in occupation of the alcoholic group may contribute to the objectivity they use in interpersonal relationships. The chief normative group consisted of visitors to the University Hospital and to the Out-Patient Department. Although the assumption was made that these persons were in good health and not receiving treatment of any kind, this did not necessarily mean that they were free of any one of a number of emotional, non-disabling stresses or neuroses. Thus far it appears that the alcoholic has the oral character traits of the manic-depressive, the compulsive-repetitive pattern of compulsive neurotic and the intolerance of tension of the psychopath.[8] The statistics for this normative group appear valid for the era in which it was validated. But we are now living in a new era which is mastering space travel, protecting nations with unmanned missiles, and using atomic projectiles for artillery

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[8]Bosselman, op. cit., p. 73.

practice, a belief in which would have sounded like a crippling schizophrenia condition during the original validation era.

In conclusion, the researcher agrees that the MMPI test results should be viewed only as rough approximations and used with other psychological tests critically analyzed in light of the cultural and social experiences of the subjects under study. This, then, would give a more scientific basis upon which to base a diagnosis. The item content analysis should be used only in relation to the cultural norm from which the examinee is a representation. Perhaps the patient's ideas concerning multiple causation and suggested cures should be weighed more heavily. The item content should be evaluated with subscales developed by Harris and Lingoes at the University of California, whose subscales employ terminology related to that of the American Psychiatric Association.[9]

III. RECOMMENDATIONS FOR FURTHER STUDY

With the everincreasing demand for additional facilities to accommodate the chronic alcoholic problem, it is suggested that:

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[9]Robert E. Harris and James C. Lingoes, "Subscales for the MMPI, an aid to Profile Interpretation" (Los Angeles: University of California School of Medicine, [n.d.]). (Mimeographed.)

1. Additional research be conducted with the MMPI to provide more validity and current normative data.
2. A selected group of alcoholics similar to the sample used in this research be counseled and later re-examined and observed to determine the degree of satisfactory adjustment.
3. A longitudinal study be conducted. This should be done by selecting senior high school students with MMPI profiles similar to those of the alcoholics of this research. The group should be divided into two subgroups of equal size, one group counseled and the other group not counseled. A follow-up when the individuals in the groups reached the mean age of the alcoholics in this research would determine effectiveness of counseling to prevent alcoholism.
4. A group of alcoholics could be retested after their release from the hospital. Protocols should be evaluated in the context of general society and culture, not just the hospitalization milieu.
5. Reliability studies are needed to determine how consistent the MMPI profiles are between and among chronic alcoholism.

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APPENDIX A

ALCOHOLIC PERSONALITIES OF THIS STUDY EXPRESSED IN MMPI CODES

APPENDIX A

ALCOHOLIC PERSONALITIES OF THIS STUDY EXPRESSED IN MMPI CODES

High Point Indicators	Complete Code				
1'42	1'423-69	(35)	4:	4:	15
192'	192'4873-	(57)	7:	6:	22
'104	'104273-9	(61)	2:	5:	15
'214	'214-38	(47)	5:	2:	13
21'9	21'9346-	(50)	3:	4:	13
'234	'2346-7810	(58)	6:	3:	27
'241	'241697-	(65)	5:	3:	14
243	2431'0769-	(65)	1:	7:	7
243'	243'1768-	(51)	4:	8:	12
24'0	24'037-69	(41)	7:	6:	15
240'	240'716398-	(50)	1:	6:	6
274	274816'309-	(4)	4:	11:	9
284	28473'609-	(78)	0:	11:	12
312	31246-	(65)	6:	3:	19
342	342978'61	(51)	2:	4:	13
412	4127'8930-	(57)	2:	6:	13
41'3	41'327-	(61)	2:	3:	17
413'	413'68908-	(78)	4:	7:	11
421'	421'37-68	(61)	4:	4:	4
42'1	42'13780-	(64)	4:	8:	17
423	4236'79-0	(110)	6:	8:	14
423	4237819-0	(50)	4:	3:	25
423-	423-89	(49)	7:	3:	15
426	42693-	(44)	2:	3:	6
42-6	42-608	(45)	3:	3:	13
428	42813'96-	(49)	4:	5:	6
428	4286'7-19	(44)	4:	14:	12
42'9	42'93187-	(55)	7:	4:	19
429	42963078-	(55)	0:	8:	8
4'31	4'316-90	(47)	7:	2:	22
431	43172-6	(49)	7:	3:	21
431	4317289-	(55)	4:	13:	5
431	431867-	(57)	6:	3:	25
437	4378261-90	(58)	6:	1:	25
439	438-860	(69)	2:	5:	14

APPENDIX A (continued)

High Point Indicators	Complete Code				
462	4623-0	(67)	6:	4:	19
473	473816-	(44)	13:	3:	26
4'-78	4'781-	(46)	4:	5:	12
486	486231-	(46)	6:	6:	19
489	48937-	(45)	5:	20:	24
492	49267318	(45)	3:	10:	11
496	49678'32-	(63)	5:	10:	12
49-6	49-6013	(38)	2:	2:	13
723	72380'916-	(54)	1:	8:	6
732'	732'419-	(80)	3:	1:	18
821	82179'4036-	(76)	0:	16:	7
879'	879'426-	(55)	0:	3:	17
897'	897'46031-	(68)	3:	12:	12
9'12	9'12347-	(61)	5:	4:	18
924	92437-6	(61)	4:	3:	11
941	94173286-0	(48)	61:	3:	13
9-61	9-617	(57)	5:	2:	14
96'4	96'4-32	(61)	1:	3:	7
047	0479-316	(41)	7:	4:	6

APPENDIX B

FREQUENCY OF RESPONSES

APPENDIX B

FREQUENCY OF RESPONSES

Responses to Scale Items in Percentage of Male Alcoholic Patients and Minnesota Normal Males

Minnesota Normals N=152			Item No.	Alcoholic Patients N=54			Scale Utilization
True	False	?		True	False	?	
92	3	2	2	85	15	0	Hs. Hy. D.
84	14	2	3	74	26	0	Hs. Hy. Pt.
13	81	6	5**	52	48	0	D.
49	44	7	6	52	48	0	Hy.
91	6	3	7	87	13	0	Hs. Hy.
80	11	9	8**	67	33	0	Hy. D. Pt. Pd.
98	1	1	9**	65	35	0	Hs. Hy. D.
2	97	1	10	4	96	0	Hy. Pt.
6	83	11	11*	22	78	0	Ma.
57	36	7	12	59	41	0	Hy.
7	87	6	13**	39	61	0	Ma.
39	52	9	15	39	61	0	Sc. Pt.
1	96	3	16	9	91	0	Pa. Pd.
95	1	4	17	91	5	4	Sc. Hs.
89	9	2	18	85	15	0	D. Hs.
82	4	14	20*	81	19	0	Pd.
21	75	4	21**	42	58	0	Ma. Pd.
5	95	0	22	2	98	0	Sc. Pt. Ma.
1	98	1	23	11	89	0	Hs. Hy.
5	89	6	24	13	87	0	Pa. Pd.
t	-	-	25	31	69	0	Si.
43	37	20	26**	48	52	0	Hy.

* Indicates significance on the 5 per cent level.

** indicates significance on the 1 per cent level.

NOTE. The letters t and f indicate the direction of the scoring on those for which frequencies of responses are unavailable: t indicates that True is the deviate direction; f indicates that False is the deviate direction.

APPENDIX B (continued)

Minnesota Normals N=152			Item No.	Alcoholic Patients N=54			Scale Utilization
True	False	?		True	False	?	
1	97	2	27	11	89	0	Pa.
3	94	3	29	15	85	0	Hs.
82	13	5	30	76	24	0	Hy. D.
13	81	6	32	22	78	0	Hy. D. Pt. Si. Pd.
8	87	5	33**	41	59	0	Si. Pd.
0	6	94	35	6	94	0	Pa. Pd.
81	14	5	36**	63	37	0	D. Pt.
96	4	0	37*	81	19	0	Pd.
17	89	4	38**	50	50	0	Pd.
28	68	4	39	20	80	0	D.
8	89	3	40	4	96	0	Sc.
13	82	5	41**	42	58	0	D. Sc. Pt.
3	89	8	42	13	83	4	Pd.
5	93	2	43	13	83	4	Hs. Hy. D.
1	98	1	44	2	98	0	Hy.
57	7	36	46**	37	63	0	D.
3	96	1	47	11	89	0	Hy. Sc.
93	3	4	51**	65	35	0	Hs. Hy. D.
14	83	3	52	17	83	0	Sc. D.
78	19	3	55	68	32	0	Hs. Hy.
65	15	20	57	74	26	0	D. Si. Ma.
20	24	56	58**	57	43	0	D.
26	62	12	59*	44	56	0	Ma.
5	81	14	61**	85	15	0	Pd.
16	79	5	62**	30	70	0	Hs.
87	8	5	63	80	20	0	Hs.
30	57	13	64**	57	43	0	D. Ma.
93	1	6	65*	83	17	0	Sc.
17	72	11	67**	78	22	0	D. Pt. Si. Pd.
85	14	1	68	81	19	0	Hs.
65	18	17	71*	83	17	0	Hy.
3	96	1	72	13	87	0	Hs.
6	74	20	73*	9	91	0	Ma.
2	97	1	76	9	91	0	Hy. Sc. Pt.
21	77	2	80	15	85	0	D.
6	87	7	82**	31	69	0	Si. Pd.
22	69	9	84**	61	39	0	Pd.
18	73	9	86	31	69	0	D. Pd. Pt.
93	3	4	88	85	15	0	D.

APPENDIX B (continued)

Minnesota Normals N=152			Item No.	Alcoholic Patients N=54			Scale Utilization
True	False	?		True	False	?	
43	47	10	89	44	56	0	Hy. D.
56	34	10	91**	36	64	0	Si. Pd.
28	52	20	93**	68	32	0	Hy. Pa.
13	82	5	94**	63	37	0	Pt. Pd.
61	36	3	95**	44	56	0	D.
76	19	5	96**	56	44	0	Pd.
20	75	5	97**	7	93	0	Sc. Ma.
38	32	30	98**	78	18	4	D.
57	25	18	99*	57	43	0	Si.
38	44	18	100**	72	28	0	Ma.
52	16	32	101**	85	15	0	Ma.
40	49	11	102**	87	13	0	Pd. Pt.
91	6	3	103*	78	22	0	Hy. Hs. Sc.
5	92	3	104	11	89	0	D. Sc.
72	22	6	105**	94	6	0	Ma.
3	95	2	106**	28	72	0	Pt. Pd.
87	8	5	107*	70	30	0	Hy. Pa. D. Pd.
7	92	1	108	13	87	0	Hs.
47	48	5	109**	81	19	0	Hy. Pa. Ma.
1	94	5	110	15	85	0	Pa. Pd.
30	61	9	111**	57	43	0	Si. Pa. Ma.
1	97	2	114	4	96	0	Hs. Hy.
17	61	22	117**	52	48	0	Si. Pa.
26	72	2	118**	56	44	0	Pd.
80	13	7	119	83	17	0	Ma. Sc. Si.
75	22	3	120*	61	39	0	Ma.
0	99	1	121	6	94	0	Pa. Sc.
86	3	11	122	89	11	0	Pt. D.
0	100	0	123	2	98	0	Pa.
41	34	25	124**	68	32	0	Hy. Pa. Si.
4	93	3	125	15	85	0	Hs.
t	-	-	126	57	43	0	Si.
14	73	13	127**	81	19	0	Ma. Pa. Pd.
81	12	7	128*	68	32	0	Hy.
25	70	5	129**	48	52	0	Hy.
85	14	1	130*	68	32	0	Hs. D.
76	19	5	131	67	33	0	D.
55	36	9	134	54	46	0	Ma. Pd.
29	64	7	136**	52	48	0	Hy.
92	3	5	137**	57	43	0	Hy. Pd.

APPENDIX B (continued)

Minnesota Normals N=152			Item No.	Alcoholic Patients N=54			Scale Utilization
True	False	?		True	False	?	
13	82	5	138**	46	54	0	D. Si.
54	32	14	141	56	44	0	Hy. Pd.
34	59	7	142**	63	37	0	Pt. D.
31	63	6	143	46	54	0	Ma. Si.
28	65	7	145	22	78	0	D.
21	67	12	147**	61	39	0	Hy. Si.
39	54	7	148	44	56	0	Ma.
0	99	1	151	0	100	0	Pa.
71	26	3	152	63	37	0	D. Pt.
97	3	0	153**	76	24	0	Hs. D. Hy.
93	7	0	154	87	13	0	D.
61	30	9	155	67	33	0	Hs. D. Pd.
3	96	1	156**	28	68	4	Sc. Ma.
8	87	5	157	18	82	0	Sc. Pa. Ma.
3	96	1	158*	20	80	0	D. Pa.
3	93	4	159	15	85	0	Sc. D. Pt.
61	19	20	160**	18	82	0	Hy. D.
3	95	2	161	6	94	0	Hs.
24	70	6	162**	56	44	0	Hy.
80	13	7	163**	61	39	0	Hs. Hy.
90	3	7	164	98	2	0	Pt.
24	68	8	166**	57	43	0	Ma.
20	66	14	167	22	78	0	Ma.
3	96	1	168	9	91	0	Sc.
44	49	7	170	48	52	0	Pd. Hy.
29	61	10	171**	52	44	4	Ma. Pd. Si.
22	71	7	172	35	65	0	Si. Hy.
89	5	6	173**	61	39	0	Pd.
73	26	1	174	61	39	0	Hy.
90	9	1	175	78	22	0	Hs. Hy.
98	1	1	177	100	0	0	Sc.
94	3	3	178	94	6	0	Sc. D. Pt.
7	90	3	179	9	91	0	Hy. Sc.
31	62	7	180	31	69	0	Hy. Ma. Si. Pd.
59	29	12	181	48	52	0	Ma.
2	96	2	182	13	87	0	Sc. D. Pt.
34	48	18	183**	18	82	0	Pd.
12	85	3	186**	46	54	0	Hy.
89	8	3	187**	68	32	0	Sc.
58	38	4	188	50	50	0	Hs. Hy.

APPENDIX B (continued)

Minnesota Normals N=152			Item No.	Alcoholic Patients N=54			Scale Utilization
True	False	?		True	False	?	
2	97	1	189	13	87	0	Hs. Hy. Pt. D.
87	12	1	190	96	4	0	Hs. Hy.
26	71	3	191	20	80	0	D.
96	4	0	192*	80	20	0	Hs. Sc. Hy.
79	20	1	193	83	17	0	Si. D.
3	96	1	194*	20	80	0	Ma. Sc.
98	1	1	196	100	0	0	Sc.
23	70	7	201	39	61	0	Hy. Si. Pd.
0	99	1	202	6	94	0	Pa. Sc.
92	5	3	207*	78	22	0	D.
29	51	20	208*	31	69	0	Si. D.
1	98	1	210	2	98	0	Sc.
11	84	5	212	13	87	0	Sc. Ma.
4	94	2	213	13	87	0	Hy.
3	97	0	215**	92	8	0	Pd.
4	91	5	216*	22	78	0	Pd.
28	69	3	217**	70	30	0	Pt.
95	1	4	220	98	2	0	Sc.
29	61	10	222	30	70	0	Ma.
9	88	3	224**	48	52	0	Pd.
26	70	4	226	18	82	0	Ma.
53	38	9	228**	80	20	0	Ma.
58	28	14	229	61	39	0	Si.
66	24	10	230**	31	69	0	Hs. Hy.
36	50	14	231**	17	83	0	Si. Pd.
16	52	32	232**	18	82	0	Ma.
32	49	19	233**	30	70	0	Ma. D.
25	68	7	234*	44	56	0	Hy.
48	41	11	235	48	52	0	Pd.
7	87	6	236	22	78	0	Si. D.
54	9	37	237**	46	54	0	Pd.
28	69	3	238*	48	52	0	Hy. Pt. Sc. Ma.
8	85	7	239**	54	46	0	Pd.
39	54	7	240	52	48	0	Ma.
20	75	5	241	22	78	0	Sc. D.
85	11	4	242**	61	39	0	D.
91	7	2	243*	76	24	0	Hs. Hy.
21	68	11	244**	56	44	0	Pd.
5	90	5	245	13	87	0	Pd.

APPENDIX B (continued)

Minnesota Normals N=152			Item No.	Alcoholic Patients N=54			Scale Utilization
True	False	?		True	False	?	
35	57	8	248*	26	74	0	D. Pd.
24	58	18	250**	46	54	0	Ma.
3	96	1	251*	20	80	0	Sc. Ma.
79	14	7	253	74	26	0	Hy.
54	30	16	254	54	46	0	Si.
28	67	5	259	26	74	0	Sc. D.
82	14	4	262	87	13	0	Si.
30	65	5	263	39	61	0	Ma. D.
16	77	7	265*	33	67	0	Hy.
3	91	6	266*	20	80	0	Sc. Pt. Ma.
28	65	7	267	35	65	0	Hy. Ma. Si. Pd.
49	33	18	268	59	41	0	Pa. Ma.
70	25	5	270**	39	61	0	D.
16	71	13	271	22	78	0	Ma. D.
82	12	6	272	96	4	0	D.
3	97	0	273*	18	82	0	Hs. Sc.
68	26	6	274**	35	65	0	Hs. Hy.
1	96	3	275	6	94	0	Pa.
83	5	12	276	91	9	0	Sc.
21	69	10	277*	39	61	0	Ma.
22	73	5	278	30	70	0	Si.
20	63	17	279*	37	63	0	Hy. Ma.
89	9	2	281	83	17	0	Hs. Sc. Pa. Si.
27	67	6	282	26	74	0	Sc.
6	83	11	284	13	87	0	Pa. Pd.
88	7	5	285	98	2	0	D.
29	24	47	287**	44	56	0	Pd.
1	98	1	288	13	87	0	D.
67	20	13	289**	56	44	0	Ma. Hy. Pd.
7	87	6	290**	35	65	0	D.
1	98	1	291	2	98	0	Sc. Pa.
28	64	8	292	37	63	0	Hy. Si.
5	94	1	293	6	94	0	Pa. Pd.
83	16	1	294**	28	72	0	Pa.
t	-	-	295	30	70	0	Pd.
54	41	5	296	50	48	2	Si. D.
19	67	14	297	20	80	0	Sc.
26	57	17	298**	56	44	0	Ma.
19	49	32	299**	30	70	0	Pa.
5	92	3	301*	22	78	0	Sc. Pt.

APPENDIX B (continued)

Minnesota Normals N=152			Item No.	Alcoholic Patients N=54			Scale Utilization
True	False	?		True	False	?	
96	4	0	302	85	15	0	Sc.
7	91	2	303	20	80	0	Sc.
20	75	5	304**	41	59	0	Pt. Si.
5	91	4	305	15	85	0	Pa.
90	3	7	306	87	13	0	Sc.
19	78	3	307**	48	52	0	Sc.
21	75	4	308**	54	46	0	Sc.
88	7	5	309*	68	32	0	Sc. Si.
82	4	14	310	85	15	0	Sc.
17	79	4	311**	48	52	0	Sc.
1	97	2	312	6	94	0	Sc.
31	57	12	313**	65	35	0	Pa.
39	52	9	314	35	65	0	Pa.
1	96	3	315	4	96	0	Sc.
31	57	12	316**	57	43	0	Pa. Si.
13	71	16	317*	31	69	0	Pa.
80	11	9	318**	65	35	0	Sc.
22	61	17	319**	44	56	0	Pa.
13	84	3	320	9	91	0	Sc.
21	72	7	321	37	63	0	Pt. Si.
15	74	11	322**	56	44	0	Sc.
8	87	5	323**	37	63	0	Sc.
28	60	12	324**	4	96	0	Sc.
7	89	4	325	17	83	0	Sc.
5	95	0	326	4	96	0	Pa.
40	49	11	327**	80	20	0	Pa.
13	81	6	328	11	89	0	Sc.
40	55	5	329	52	48	0	Pt.
86	13	1	330	80	20	0	Sc.
0	94	6	331	7	93	0	Sc.
6	93	1	332	15	85	0	Sc. Si.
5	89	6	333	7	93	0	Sc.
10	84	6	334*	26	74	0	Sc.
15	78	7	335	11	89	0	Sc.
22	71	7	336	24	76	0	Pt. Si.
13	81	6	337	13	87	0	Pt.
7	82	11	338**	30	70	0	Pa.
0	98	2	339	6	94	0	Sc.
32	65	3	340	44	56	0	Pt.
3	96	1	341	2	98	0	Si. Pa. Sc.

APPENDIX B (continued)

Minnesota Normals N=152			Item No.	Alcoholic Patients N=54			Scale Utilization
True	False	?		True	False	?	
11	84	5	342	4	96	0	Pt. Si.
24	71	5	343	33	67	0	Pt.
14	83	3	344	18	82	0	Pt.
7	88	5	345	9	91	0	Sc.
19	78	3	346	18	82	0	Pt.
81	7	12	347	89	11	0	Pa.
43	49	8	348	52	48	0	Pa.
6	89	5	349	7	93	0	Sc. Pt.
2	98	0	350	4	96	0	Sc.
2	98	0	351	13	87	0	Pt.
9	86	5	352	15	85	0	Pt.
76	19	5	353	72	28	0	Pt. Si.
1	99	0	354	13	87	0	Sc.
7	92	1	355	11	89	0	Sc.
21	70	9	356	9	91	0	Sc. Pt.
24	65	11	357	35	65	0	Pt. Si.
7	88	5	358	9	91	0	Pt.
12	80	8	359	22	78	0	Pt. Si.
1	99	0	360	2	98	0	Sc. Pt.
26	67	7	361*	44	56	0	Pt.
13	71	16	362	26	74	0	Pt.
13	82	5	363**	46	54	0	Sc.
1	90	9	364*	17	83	0	Sc. Pa.
5	90	5	365	13	87	0	Pa.
5	91	4	366	17	83	0	Sc. Pt.
75	18	7	371	81	19	0	Si.
14	81	5	377**	26	74	0	Si.
30	61	9	383	33	67	0	Si.
52	31	17	391	59	41	0	Si.
24	70	6	398**	48	52	0	Si.
24	19	57	400**	39	61	0	Si.
23	71	6	411	31	69	0	Si.
35	16	49	415**	33	67	0	Si.
22	66	12	427	37	63	0	Si.
67	19	14	436	72	28	0	Si.
70	23	7	440	70	30	0	Si.
37	55	8	446**	81	19	0	Si.
70	21	9	449	83	17	0	Si.
77	16	7	450	85	15	0	Si.
77	11	12	451	83	17	0	Si.

APPENDIX B (continued)

Minnesota Normals N=152			Item No.	Alcoholic Patients N=54			Scale Utilization
True	False	?		True	False	?	
20	66	14	455**	61	39	0	Si.
93	4	3	462	83	17	0	Si.
10	80	10	469	13	87	0	Si.
14	83	3	473	22	78	0	Si.
94	5	1	479	89	11	0	Si.
30	63	7	481**	63	37	0	Si.
63	29	8	482	78	22	0	Si.
10	85	5	487	24	76	0	Si.
25	73	2	505	26	74	0	Si.
76	18	6	521	76	24	0	Si.
f	-	-	547	78	22	0	Si.
t	-	-	549	20	80	0	Si.
38	49	13	564	44	56	0	Si.

APPENDIX C

DISTINGUISHING ITEMS IN SCALE USAGE

APPENDIX C

DISTINGUISHING ITEMS IN SCALE USAGE

Items Used in the Scales That Show a Significant Difference at the 1 Per Cent Level or Better between Alcoholic Males and Normal Males

5	8	9	13	21	26	33	36	38	41	46	51
58	61	62	64	67	82	84	91	93	94	95	96
97	98	100	101	102	105	106	109	111	117	118	124
127	129	136	137	138	142	147	153	156	160	162	163
166	171	173	183	186	187	215	217	224	228	230	231
232	233	237	239	242	244	250	270	274	287	289	290
294	298	299	304	307	308	311	313	316	318	319	322
323	324	327	328	363	377	398	400	415	446	455	481