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Intellectual Capacities of Chronic Alcoholics

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INTRODUCTION

The problems of chronic alcoholics have enjoyed a vogue among research workers in the social science fields for many decades, but only in the past few years has the problem of alcoholism been presented to the public in the light of an illness rather than as a symptom of shiftlessness, or as Arms (1) termed it, "moral turpitude."

In the city of Omaha, the problems of the chronic drinker usually find their way to the Douglas County Hospital, where an attempt is made to readjust the alcoholic while "drying him out." The possibility of adequate treatment for the causes underlying the chronic use of alcohol is usually defeated by time and space limitations. The hospital staff is anxious that methods be developed for the diagnosis and brief therapy of the alcoholic. It was this interest that made this study possible.

Much research has been devoted to the problems of the effect of alcohol upon the mental capacities, but little has been published regarding the application of popular psychological instruments to the problem. The long term chronic alcoholic seems to have eluded the scrutiny of psychological investigators. It is the opinion of this author that the study of a group of men who have allowed the use of alcohol to reduce

their social, intellectual, and economic standards to pathological limits will be of value to all who are interested in the problems of alcoholism.

STATEMENT OF THE PROBLEM

It is the purpose of this paper to present the results of an investigation of the mental capacities of a group of forty chronic hospitalized male alcoholics, and to describe the special mental abilities and deficiencies that were uncovered by the use of the Wechsler-Bellevue Intelligence Scale.

HISTORY OF THE PROBLEM

Though the literature does not abound with studies of alcoholic mental capacities, a number of interesting investigations have been reported.

Halpern (2), using the Wechsler-Bellevue Scale (referred to as W-B in this paper) and a number of personality and attitude tests, studied forty-seven alcoholics at Bellevue Hospital in New York.

Of the forty-seven patients studied, nine were women and thirty-eight were men. All were or had been compulsive drinkers. Nineteen of the patients reported being less dependent upon alcohol, but, of the remaining twenty-eight, eighteen were still confirmed drunkards at the time of the study.

The ages in Halpern's group ranged from twenty-nine to sixty-three years with a mean of forty-two years. Twelve were college graduates, eight had some college training, eleven were high school graduates, eight had some high school, and six had varying amounts of grade school education. The group included a lawyer, a professor, and an engineer.

Halpern found a mean IQ of 114.9 with a standard deviation of 14.3. IQ's ranged from seventy-three to 139. The Verbal Scale IQ of this group averaged 114.7 with a standard deviation of 13.55. This is not significantly higher than the mean Performance Scale IQ of 118.8 with a standard deviation of 13.8.

The mean subtest score for the Verbal tests was 11.7, and the mean subtest score of the Performance tests was 10.2. The average scores for each of the subtests were as follows:

Comprehension	12.3
Information	13.1
Digit Span	10.1
Arithmetic	10.5
Similarities	12.7
Picture Arrangement	10.0
Picture Completion	11.5
Block Design	10.7
Object Assembly	9.8
Digit Symbol	9.0

Halpern cites the Digit Span test as the only subtest in the battery which varies significantly from the mean subtest score.

Halpern concluded that there was no pattern which would have differentiated any of her alcoholics from the group of non-alcoholics upon which the W-B was standardized. There was no mental deterioration reported in this study. The only consistant trait noted by Halpern, was a marked dislike for any problem involving arithmetic reasoning or number concepts.

Roe and Shakow (7), using the 1916 standardization of the Standford-Binet, analysed the performance of forty-six alcoholics in terms of mental age (in months), mean vocabulary scores, digit span forward, digit span backward, and invididual test items. Thirty of the subjects in this group were diagnosed Chronic Alcoholic with Psychoses and sixteen were diagnosed Acute Alcoholic Psychosis.

Table I summarizes the results of this study. It compares the performances of the two alcoholic groups to a group of forty-two normal adult males.

Roe and Shakow reported no significant differences between the normal males and the acute alcoholics. The chronic drinkers, on the other hand, differed from the normal group in a number of ways:

1. The mean age of the chronic group was ten years higher than that of the normal group.

2. The chronic alcoholics were less educated than the normals.

3. The chronic group had more semi-skilled and unskilled laborers and fewer businessmen.

4. All scores made by the group of chronic alcoholics averaged significantly below the test score means of the normal group with the exception of the vocabulary test.

TABLE I

SUMMARY OF THE DATA OF ROE AND SHAKOW

	Normal	Acute	Chronic
Mental Age	167.9 ± 4.0	156.9 ± 8.1	145.9 ± 5.4
Vocabulary	55.3 ± 1.9	55.9 ± 3.7	49.9 ± 3.0
Digits Forward	6.8 ± .16	6.06 ± .33	5.8 ± .28
Digits Backward	5.1 ± .18	4.5 ± .44	4.07 ± .30

Roe and Shakow concluded that the chronic alcoholic group showed a number of changes in mental functioning.

Using Wonderlic's Personnel Test, Form A, Arms (1) tested fifty-two members of Alcoholics Anonymous. From the results of this study Arms concluded that many chronic drinkers are of "superior intelligence."

Manson (5) conducted a study of the Educational Characteristics of Alcoholics, using an experimental group of 150 alcoholics. One-third of these drinkers

were hospitalized and two-thirds were members of Alcoholics Anonymous. The control group consisted of 165 non-alcoholics, either abstainers or social drinkers.

The subjects in Hanson's study were measured for vocabulary strength and for educational level obtained. The mean age for the male alcoholics in this study was 41.5, while the non-alcoholic males had a mean age of 39.3. The women alcoholics averaged 38.8 years while the female non-alcoholics had a mean age of 39.1. All were volunteers and, according to the author, well motivated.

Hanson concluded that alcoholics do not possess vocabularies significantly superior to non-alcoholics, but when equated for education, the male alcoholics were equal to or slightly higher than the non-alcoholics, and the female alcoholics were equal to or slightly lower than the non-alcoholic women. The alcoholics in this study expressed a marked dislike for mathematics and claimed preference for courses in the social studies area.

Trowbridge, Moore, and Gray used the Kent Emergency Scale and the Stanford-Binet with a group of alcoholics and found a mean mental age of thirteen years on both tests. They drew no conclusions, however, since their group was too homogeneous.

METHOD AND PROCEDURE

Population

Forty chronic hospitalized alcoholics comprise the group which was studied. The men were all patients in the Douglas County Hospital, and were committed for ten days or more for the relief of symptoms of acute intoxication. The men were all considered by the medical staff to be sufficiently sober for a true psychometric picture.

The group was selected on the basis of legal commitment and subsequent diagnosis as Chronic Alcoholic. The group was homogeneous only to the extent that the subjects were victims of the same affliction. The mean age of the group was forty-six years, with the range in ages from thirty-two to sixty-three years. Table II contains a breakdown of the educational and employment traits of the group.

Though many of the men had good jobs, all had suffered reduction of status to the role of family drunk in respectable families, or the role of habitué of skid row taverns in cases where no familial protection was afforded.

The control group for this study is made up of the

persons used in the standardization of the W-B Adult Scale.*

TABLE II

EDUCATIONAL AND EMPLOYMENT CHARACTERISTICS OF THE ALCOHOLIC SAMPLE

Job classification	No.	Years schooling	No.
Skilled	20	Some elementary	4
Unskilled	8	Finished elementary	14
Clerical and Sales	6	Some high school	3
Managerial	5	Finished high school	12
Professional	1	Some college	6
		Finished law school	1

Psychological Instruments Used

The choice of the Wechsler-Bellevue Intelligence Scale and the Minnesota Multiphasic Personality Inventory as instruments in this investigation was influenced by the necessity of using a standardized test which differentiated between specific skills and global capacity. Another need was for a tool which could indicate

*Since the Minnesota Multiphasic Personality Inventory was used in the analysis of clinical signs, the normative data for that test are also of interest (3).

abnormal modes of adjustment. It was felt that these two tests filled the needs of the problem better than any other popular clinical instruments.

Form I of the W-B was used to measure the mental capacity of the alcoholic group. This "individual" test is rated on a point scale consisting of eleven subtests whose combined weighted scores can be easily transposed to IQ's. The sum of the weighted scores of the first five tests* provides a basis for Verbal IQ rating, while the last five tests contribute to Performance IQ. The test requires individual administration by a trained administrator and takes approximately one hour to complete.

The subtests were devised or chosen by Wechsler (11) on the basis of validity as capacity measures at various levels and for the ability to be stimulating to a wide selection of people. The descriptions and names of the subtests are as follows:

> 1) Information test. This test consists of 25 questions in the area of general information. It is formulated on the assumption that acquisition of knowledge which is readily obtainable to a large majority of the population is indicative of mental capacity. The questions range in difficulty from number one, "Who was president of the United States before (the present president) him?", to "What is the Apocrypha?" Wechsler

*Wechsler included the vocabulary test in this latest revision making a total of eleven tests. Vocabulary (5A) can be used as an alternative verbal test or can be prorated into the verbal score.

claims that the Information test is one of the most satisfactory in the battery since scores decline least with age and correlate best with the total score (r = .67). It is, of course, of limited use with people of foreign or isolated culture.

2) Comprehension test. This test is often referred to as a test of common sense and seems to measure a person's ability to evaluate past experience. It is often useful to the clinician in affording insight into the subject's behavior in the case of bizarre or diverse answers. The questions cover common situations, such as: "Why are people who are born deaf usually unable to talk?" Questions are worded to avoid verbalization and language difficulties. The correlation between this test and the total score is .66 in the 20-34 age group and .68 in the 35-49 group.

3) Digit Span test. Memory for digits has long been considered a valid test of a subject's capacity. Non-structured tests of this type are often used in psychiatric settings to discover disorders in sensorium. The subject is asked to repeat digits forward and reversed. This test correlates poorly with the full score (r = .51), but it is such a keen method of screening mental defectives that it remains popular. Digit span declines rapidly with age and is usually very low in brain damage cases (particularly digits reversed.)

4) Arithmetical Reasoning test. Though education is known to exert an influence on this test's score, it is a popular method of measuring capacity. The difficulties which usually arise among persons with mathematical naivete are overcome by the use of simple and commonplace problems, such as: "How much are four dollars and five dollars?" The correlation between the Arithmetical Reasoning test and the full score is .63 for the 20-34 group and .67 for the 35-49 group.

5) Similarities test. The subject is presented with two words and asked to explain how they are alike. For example: "How are an orange and a banana alike?" Ability to do well on this test depends on the subjects ability to discriminate between superficial and essential likenesses. This subtest correlates highly with the full score (r = .73).

5A) Vocabulary test. This test is included in the Full Scale as an alternate to the Verbal Scale* since it has been found that vocabulary correlates so well with intelligence (11). The vocabulary list of the W-B consists of 42 words of increasing difficulty. This subtest score has been found to hold up well with age and correlates highly with the full score (r = .85).

6) Picture Arrangement test. This test consists of a series of pictures which are presented to the subject in disarranged order. The task is to place the pictures in the correct sequence. The subject must be able to size up the whole situation in order to do well on this test. He must grasp the basic idea of the cartoon or the process of solving the problem will be one of trial and error. This test is timed and, if the problem is solved by trial and error, the subject is penalized in time points. This test holds up poorly with age and correlates poorly with the full score (r = .51).

7) Picture Completion Test. This test consists of a number of drawings in which some important feature is missing. The subject is asked to name the missing part. The main shortcoming of this test is that it has a tendency to be too easy for most subjects. The subtest holds up well with age and correlates .61 with the full score.

8) Block Design test. A card is presented to the subject with a pattern printed on it. The task is to reproduce the pattern with a number of multicolored blocks. The author's hypothesis is that this task tests some form of ability to analyze and to synthesize (r = .73).

9) Digit Symbol test. The subject is required to substitute symbols for digits in this test. He is first introduced to the key in which the numbers one through nine are arranged over unfamiliar symbols. After a practice trial the subject attempts to match random numbers to the correct symbols. The performance on this test declines rapidly with age. The correlation between this test and the full scale is .673.

*The vocabulary test was used in this study in order to get an estimate of deterioration, but it was not prorated into the verbal or full scale IQ's.

10) Object Assembly test. This test consists of three form board or jig saw type puzzles which the subject assembles while being timed. The puzzles include a manikin, a hand, and a profile. The correlation is .41 for ages 20-34 and .51 for ages 35-49.

Wechsler's method of analysing clinical "signs" and his procedure for computing "Deterioration Quotient" (D.Q.) were utilized in this study.

The D.Q. is an expression of the ratio between the test scores which have been found to hold up with age and those which do not hold up. The ratio can be expressed in the following manner:

$$\frac{\text{Don't hold (tests which don't hold up)}}{\text{Do Hold (tests which do hold up)}} \times 100$$

Tests which have been found to hold up with age and mental deterioration are the following:

Information
Vocabulary
Picture Completion
Object Assembly.

Tests which do not hold up with age and mental deterioration are the following:

Digit Span
Arithmetic
Block Design
Digit Symbol.

The sum of the weighted scores of the tests separated on the "hold" criteria is used in the expression of the ratio.

The analysis of clinical signs by Wechsler's method (11) is used as an aid in differential diagnosis. A sign is defined as a significant variation between a subtest score and the mean of the subtest scores of a given scale. A significant variation is computed by one of two methods.

1) If the Full Scale weighted score lies within the limits 80 to 110, a significant variation equals 2.

2) If the Full Scale weighted score falls beyond the limits 80 to 110, a significant variation is equal to the mean subtest score divided by 4.

If there is a wide difference between the Verbal Scale score and the Performance Scale score, the mean subtest scores and the variations are computed for each of the two shorter scales individually, rather than from the Full Scale score. Symbols used for the expression of signs are plus (+) and minus (-). One plus (+) indicates a variation of one significant unit above the mean. A double plus (+ +) indicates a deviation of two significant units above the mean. Negative deviations follow the same rule.

Analysis of the data provided by the MMPI is intended to provide insight into the peculiarities of mental functioning which may be found among alcoholics. The MMPI profiles were coded for presentation according to the High Point code devised by Hathaway (4).

"The eight coded clinical scales are indicated with the numbers 1, 2, 3, 4, 6, 7, 8, 9 in order from left to right in the usual profile arrangement; that is to say, omitting Mf, which would be 5.

1 = Hs	Hypochondriasis
2 = D	Depressive
3 = Hy	Hysteria
4 = Pd	Psychopathic Deviate
6 = Pa	Paranoia
7 = Pt	Psycasthenic
8 = Sc	Schizophrenic
9 = Ma	Hypermanic

"The writing of a code from an MMPI profile begins by identifying the highest T score value in the profile as found among the eight coded scales. The number assigned to this scale (according to the equivalents given above) is then written as the first number of the code. The scale numbers of the other profile points above T = 54 are written in the same way in order of decreasing T scores. Within the high-point code, a prime is placed to indicate the point where T = 70 line is crossed."

If the point is above T = 70, the prime (') is printed after it. If the point is below T = 70, the prime is printed before it.

Hathaway continues, "In writing the code, those code numbers that present T scores equal to one another of within one T score point of one another are underlined."

Testing Procedure

The members of the alcoholic group used in this study were committed patients at the Douglas County Hospital. The commitments were for ten days, but in many cases the period of treatment was much longer. A number of patients voluntarily committed themselves to avoid extreme alcoholic episodes, but the majority were committed by the courts or by relatives.

During the months that this study was in progress, every alcoholic whom the staff considered able to undergo examination was approached and told of this study. He was told that the examination results were purely research data and would in no way affect his stay in the hospital. Then the individual alcoholics were asked to volunteer to undergo testing. In this way a cooperative group was organized. The method of volunteering, however, was selective and screened a number of interesting cases from the examiner.

The tests were administered in a room provided by the hospital. The patients were interviewed individually for about thirty minutes before tests were administered. The W-B's took approximately one hour to administer while the MMPI's were finished in one to four hours. Rapport was easily established with all patients.

Statistical Treatment of Data

The W-B's (11) and the MMPI's (3) were scored according to directions in the test manuals. Derivations of Deterioration Quotients and Clinical signs are described by Wechsler.

The population sample used in the standardization of the W-B was treated as a sample of the normal population when compared to the sample obtained in this study.

Thus the data was tested for the significance of the difference between two samples of uneven size.

IQ scores or weighted scores were used in all comparisons of W-B results. The mean, standard deviation, critical ratio, and test of homogeniety of variances were computed for each IQ and subtest score. Symbols and formulas used in this study are as follows:

N	Number of cases
X	Observed value of item
S	Summation
$\bar{x}_1 = \frac{SX_1}{N_1} =$	Mean of experimental group
$\bar{x}_2 = \frac{SX_2}{N_2}$	Mean of control group
$s = \sqrt{\frac{Sx^2}{N-1}} =$	Standard deviation
$x = X - \bar{x} =$	Difference
$s^2 = \frac{Sx^2}{N-1} =$	Variance
$t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{s^2x_1}{N_1} + \frac{s^2x_2}{N_2}}} =$	Critical ratio
$F = \frac{\text{larger } s^2}{\text{smaller } s^2} =$	Homogeniety of variance. Homogeniety of variance

RESULTS

Statistical analyses and descriptions were compiled for each of the fourteen scores on the Wechsler-Bellevue Intelligence Scale. The mean, standard deviation, significance of the difference between two means (t value), and the test of homogeniety of variances (F value) were computed. The fourteen scores include Full Scale IQ, Verbal Scale IQ, Performance Scale IQ, Deterioration Quotient, and the weighted scores of each of the ten subtests.

Table III presents the statistical analysis of the Full Scale IQ. This table is presented as a sample of the analysis also given Verbal IQ, Performance IQ, Deterioration Quotient, and the weighted scores of the ten subtests. The IQ's of each of the forty alcoholics are listed, and the mean, standard deviation, t value, and F value are computed. The mean of means and the average standard deviations of the normative group are also presented.

Table IV presents the means, standard deviations, value of t, and value of F of each of the fourteen measures. A single apostrophe (') following the value of t indicates that value is at the one percent level

of confidence (the value could be expected to occur only one time in one-hundred random samples). A double apostrophe (") following the value of t indicates that value is at the five percent level of confidence (the value could be expected to occur only one time in twenty random samplings). The hypothesis that there is no real difference between the means of the experimental and control group is rejected at these levels.

The F column values on Table IV are labeled in the same manner as the t values. One apostrophe indicates an F value at the two percent level on confidence, and a double apostrophe indicates an F value at the ten percent level of confidence. The hypothesis that the variance of one group is not significantly greater than the variance of the other is rejected at these levels.

The alcoholics in this study demonstrated mean IQ scores in Full Scale, Verbal Scale, and Performance Scale, which were significantly higher than the scores of the normal group, at the one percent level of significance. There was also a significant difference in the variation among the two groups in Full Scale IQ and Performance Scale IQ at the ten percent level of confidence.

The mean Deterioration Quotient of the alcoholic sample was significantly lower than the normal Deteri-

Table III

STATISTICAL ANALYSIS OF FULL SCALE IQ

F = Test of homogeniety of variances
t = Significance of difference between two means
s = Standard Deviation
$\bar{x}$ = Mean

Weighted Scores	x	x^2
91	16	256
125	18	324
102	5	25
120	13	169
99	8	64
120	13	169
97	10	100
113	6	36
102	5	25
108	1	1
102	5	25
99	8	64
122	15	225
113	6	36
114	7	49
106	1	1
75	32	1024
101	6	36
116	9	81
122	15	225
102	5	25
81	26	676
100	7	49
83	24	576
106	1	1
86	21	441
110	3	9
113	6	36
119	12	144
101	6	36
112	5	25
129	22	484
114	7	49
118	11	121
103	4	16
116	9	81
113	6	36
109	2	4
103	4	16
115	8	64
4280		5824

IQ range: 75-129

$$\bar{x} = \frac{Sx}{n} \quad \frac{4280}{40} = 107$$

$$s = \sqrt{\frac{Sx^2}{n-1}} = \sqrt{\frac{5824}{39}} = 12.22$$

$$t = \frac{\bar{x} - \bar{m}}{\sqrt{\frac{s^2}{n} + \frac{s^2}{n}}}$$

$$= \frac{107 - 99.88}{\sqrt{\frac{149.33}{40} + \frac{229.21}{646}}}$$

$$= \frac{7.12}{\sqrt{4.10}} = 3.52$$

$$F = \frac{\text{larger } s^2}{\text{smaller } s^2}$$

$$= \frac{229.21}{149.33} = 1.53$$

$\bar{x}_2 = 99.89$

$s_2 = 15.13$

TABLE IV

COMPARISON OF THE ALCOHLIC SAMPLE TO THE NORMAL SAMPLE

Means, Standard deviations, Values of t and of F

Name	Mean		S.D.		t	F
	Alcohlics	Normals	Alcohlics	Normals		
Full IQ	107.00	99.88	12.22	15.13	3.52'	1.53"
Verbal IQ	107.30	99.58	13.37	14.72	3.52'	1.21
Performance IQ	105.90	100.60	11.76	15.03	2.66'	1.64"
D.Q.	76.55	90.60	16.66	4.60	5.31'	10.71'
Information	11.12	9.72	2.99	3.56	2.80'	1.42
Comprehension	11.30	9.55	2.63	3.14	3.98'	1.42
Digit Span	8.57	8.60	2.80	3.37	-.06	1.42
Arithmetic	9.05	8.28	4.29	3.05	1.12	1.98'
Similarities	10.15	9.10	3.47	2.89	.02	1.42
Vocabulary	10.52	****	2.70	****		
Picture Arr.	7.70	7.90	3.21	3.15	.04	1.04
Picture Comp.	10.90	8.52	3.44	3.18	4.25'	1.17
Block Design	7.80	8.30	3.31	3.24	-2.89'	1.87'
Object Assembly	9.37	8.82	4.38	3.20	2.45"	1.87'
Digit Symbol	7.15	7.35	6.76	3.07	1.33	1.39

Number of cases in standardization (normal) samples:
Full Scale and Verbal Scale equal 646.
D.Q. and Performance Scale equal 426.

oration Quotient. There is far less than one chance in a hundred that such a low D.Q. will be found on the basis of random sampling. The variance of the alcoholic group is significantly greater than the variance of the normal group in this measure. The F value in this case far exceeds the two percent level of confidence.

Mean subtest weighted scores which were found to be significantly different at the one percent level of confidence are Information, Comprehension, and Picture Completion. Object Assembly was found to be significantly higher for the alcoholics at the five percent level of confidence.

Subtest variance was found to be significantly greater for the alcoholics at the two percent level of confidence in the Arithmetic Reasoning, Block Design, and Object Assembly subtests.

Table V contains a list of the individual sign analyses of each of the forty alcoholics. At the bottom of the table is a tabulation of the frequency of each subtest variation.

In the Picture Completion test, twenty-three of the forty alcoholics earned scores which were significantly higher than the mean subtest score for the

TABLE V

ANALYSIS OF CLINICAL SIGNS

Test S	1	2	3	4	5	6	7	8	9	10
1	+	+	-	0	0	--	0	--	++	+
2	0	0	-	0	0	-	-+	0	0	0
3	0	0	0	0	0	0	0	0	0	0
4	+	0	0	0	0	0	0	+	0	-
5	+	+	--	-	0	++	++	--	--	0
6	+	0	0	0	0	-	0	0	0	+
7	0	0	0	0	-	0	+	0	0	-
8	0	0	0	-	0	-	0	+	0	0
9	0	0	0	0	0	0	0	0	0	-
10	-	+	-	0	+	0	+	--	++	-
11	++	-	0	0	0	--	+	-	++	-
12	0	0	0	-	0	-	++	+	--	0
13	0	0	0	0	0	-	+	-	+	0
14	--	++	+	0	0	--	0	0	+	0
15	0	+	-	-	+	0	+	0	0	--
16	0	+	0	-	0	0	+	--	+	0
17	+	+	0	--	0	-	--	--	+	--
18	+	++	0	--	+	+	++	+	++	0
19	0	0	--	0	+	0	+	-	0	0
20	0	0	0	0	0	0	0	0	0	-
21	+	++	-	--	+	-	+	0	0	-
22	0	+	0	++	--	--	0	0	++	0
23	0	0	0	0	-	0	0	0	-	-
24	0	+	0	+	--	0	+	0	0	-
25	0	+	-	0	++	--	++	0	+	-
26	+	0	0	--	0	0	--	0	0	++
27	0	0	-	0	0	0	++	0	--	0
28	+	0	-	0	0	0	0	0	++	--
29	0	0	0	+	0	0	+	-	+	0
30	0	0	0	-	0	++	++	--	--	+
31	++	0	0	-	0	0	0	+	0	0
32	0	0	-	0	0	++	+	--	0	-
33	-	0	0	++	0	+	++	--	-	0
34	0	0	+	-	0	++	0	-	-	0
35	+	+	+	--	0	-	0	0	++	-
36	++	0	++	0	0	0	--	0	0	--
37	0	0	0	0	+	-	+	0	0	0
38	0	0	-	+	0	0	0	0	0	-
39	+	0	--	-	+	0	++	0	-	0
40	+	0	-	0	0	0	+	0	0	0

Subtest Sign Frequency

++	3	3	0	2	1	4	9	0	7	1
+	12	10	3	3	7	2	14	5	6	3
0	22	26	22	21	28	20	15	22	19	19
-	2	1	11	9	2	9	0	5	4	13
--	1	0	4	5	2	5	2	8	4	4

TABLE VI

CODED MMPI "HIGH POINT" PROFILES

AND CLINICAL DIAGNOSES

	Coded Profiles	Clinical Diagnosis
1.	42'913	P Psycopathic Deviate
2.	no high point code	P Alcoholism
3.	'398746	B Hysteroid
4.	no high point code	B Alcoholism
5.	9'426	Ps Manic Depressive
6.	no high point code	B Alcoholism
7.	'3214	B Hysteroid
8.	no high point code	B Alcoholism
9.	2'61	P Depressive
10.	4'	P Alcoholism
11.	'4263	B Alcoholism
12.	9'4876	Ps Manic Depressive
13.	'4	B Alcoholism
14.	79'42863	P Obsessive-Compulsive
15.	2134'6	B Manic Depressive
16.	123784'69	Ps Schizophrenia, Mixed
17.	6'243	Ps Paranoid
18.	9'1476	Ps Manic-Depressive
19.	769'2843	P Obsessive Compulsive
20.	1236784'	Ps Paranoid Schizophrenic
21.	'1	B Alcoholism
22.	'296	B Alcoholism
23.	'6	B Paranoid tendencies
24.	'61983	B Paranoid tendencies
25.	no high point code	B Alcoholism
26.	4'	P Psycopathic Deviate
27.	'17	B Hysteroid
28.	7'8	P Obsessive-Compulsive
29.	87412639'	Ps Schizophrenic, Mixed
30.	no high point code	B Alcoholism
31.	478196'32	Ps Schizophrenic, Mixed
32.	147'863	Pschoneurotic, Mixed
33.	'293	P Manic Depressive
34.	'462378	B Alcoholism
35.	no high point code	B Alcoholism
36.	91'348627	Ps Manic-Depressive
37.	2471'389	Ps Manic-Depressive
38.	47'831	Ps Psycopathic Deviate
39.	4'97862	Ps Psycopathic Deviate
40.	4'76239	Ps Psycopathic Deviate

P equals Psychoneurotic
Ps equals Psychotic
B equals Simple Adult Maladjustments.

Performance Scale tests. The Information, Comprehension, and Object Assembly subtests show significantly higher scores for more than one-fourth of the patients. Digit Span, Arithmetic Reasoning, Picture Arrangement, Block Design, and Digit Symbol subtests proved to be significantly difficult for more than one-fourth of the sample.

Picture Completion, Object Assembly, and Digit Symbol subtests were the only tests in the battery on which less than half of the alcoholics showed no significant subtest variation.

Table VI presents the coded MMPI profiles together with the differential diagnosis made for each patient on the basis of the interview, W-B, and MMPI results. Although a number of the patients had the same diagnosis, no high frequency of any single syndrome other than alcoholism was noted.

A frequency tabulation of MMPI profile projections for each of the eight clinical scales is presented on TABLE VII. Here again the frequency of similar diagnosis is not significant enough to warrant any assumption of an "alcoholic pattern."

TABLE VII

FREQUENCIES OF MMPI "HIGH POINT" PROJECTIONS

ABOVE T = 54

MMPI SCALES	T-54-69	T-Over 69	Total
Hypochondriasis	8	9	17
Depressive	13	7	20
Hysteria	16	4	20
Psychopathic Deviate	13	12	25
Paranoid	17	5	22
Psycasthenic	8	10	18
Schizophrenic	12	4	16
Manic	9	8	17

INTERPRETATION

The Wechsler-Bellevue Intelligence Scale measured the global capacity and ten specific mental abilities of the forty hospitalized chronic alcoholics. These specific abilities are by no means proven to be "pure" mental skills. They are, rather, tasks which have been found to indicate, to a large extent, how well a person can perform on unfamiliar problems. The scores of these tested mental abilities are doubtlessly affected by personality factors, health factors, and motivational factors. Standardized examination procedure controls only the test situation, but the many other factors which affect test scores are uncontrollable.

Utmost caution must be used in the interpretation of this data. The alcoholic sample used in this study was by no means a random sample or a cross section of the entire alcoholic population. Hospitalization by legal commitment and voluntary submission to examination are extremely selective factors. The results of this study, however, do provide basis for some deduction.

This study reaffirmed the widespread professional opinion that alcoholism is usually a symptom of some greater syndromic picture rather than a completely separate disorder in itself.

No apparent pattern of subtest scores was found on the W-B, and no specific syndrome of personality disorder is evident on the MMPI. However, inspection of the clinical signs and the coded MMPI profiles show two unmistakable trends. The first is that alcoholic subtest variation tends to be abnormally wide, and the second is that most alcoholics demonstrate functional behavior abnormalities. These two trends are compatible in that wide variation in subtest performance is very often indicative of psychotic or psychoneurotic personality makeup.

The alcoholics in this group scored well above the average in Full Scale IQ, although few of them can be considered intellectually superior. This incidence of above average performance may indicate that the alcoholic's environmental difficulties do not stem from lack of sufficient mental endowment.

This group performed significantly high on the Verbal scale which is composed of Information, Comprehension, Digit Span, Arithmetic Reasoning, and Similarity subtests. Of these subtest scores, Information and Comprehension were significantly higher than the mean scores of the normal population, indicating that the alcoholics have a wide fund of general knowledge and are possessed of what the layman calls, "common sense." Other subtests in this group were average.

This group also performed significantly high on Performance IQ, which is made up of Picture Arrangement, Picture Completion, Block Design, Object Assembly, and Digit Symbol subtests. Of these subtests, performance was significantly high in Picture Completion and Object Assembly. This may be considered to be an indication that, as a group, these men have the ability to grasp detail and to place things in proper relationships. Although this group was significantly poor in the Block Design test, which might indicate a relatively poor ability to analyze and synthesize, scores were not low enough to handicap the alcoholics in any way.

The test results show a significant amount of deterioration. The results also show that the alcoholic is likely to be psychotic or psychoneurotic. This last finding makes it difficult to decide whether deterioration is due to the cumulative effect of alcohol or due to the effects of poor motivation or intellectual withdrawal. Since the amount of deterioration demonstrated in the Wechsler-Bellevue test results was so pronounced, it may be assumed that significant amounts of brain damage have occurred. Further research is indicated.

Further clinical information indicates that the diagnosis of chronic alcoholism or of alcoholism with psychoneuroses or psychoses should be based upon a study of the mental status of the patient as well as the personality structure. Gross and fine defects in

sensorium can be measured with the Wechsler-Bellevue Scale and the extent of organicity can be roughly ascertained. The alcoholic, in general, does not drink because he is cerebrally incompetent, rather, he becomes cerebrally incompetent because he drinks. The amount of incompetence plays a major part in the degree of maladaptive behavior. Therefore, prognosis of any alcoholic should take into consideration the degree of intellectual impairment and the dynamic compensations for this increasing lack of cerebral competence.

SUMMARY

The problems of the chronic alcoholic have enjoyed particular note in the past few years. In Omaha, the Douglas County Hospital cares for most of the chronic alcoholics.

This paper describes a clinical investigation of forty chronic alcoholics at the Douglas County Hospital. The drunkards were tested with the Wechsler-Bellevue Intelligence Scale and the Minnesota Multiphasic Personality Inventory, and the results were analyzed to show if the group differed in any way from a normal group.

It was found that the alcoholics were superior on a number of measures, and that their global mental capacity was above average. It was also noted that many of the alcoholics showed obvious symptoms of functional behavior pathology.

Further analysis of the results of this testing program revealed that the alcoholics have demonstrated defects in mental functioning and that they are deteriorating mentally at an abnormal rate.

CONCLUSIONS

1. The average IQ of the chronic alcoholics in this study was significantly higher than that of the normal sample.

2. Of the ten subtests in the Wechsler-Bellevue Intelligence Scale, the alcoholics performed significantly higher than the normals in Information, Comprehension, Picture Completion and Object Assembly. The alcoholics were significantly lower than normal in the Block Design subtest.

3. There is no pattern of Wechsler-Bellevue signs which could be considered to be indicative of alcoholism; however, in a majority of the cases, subtest variation was wide enough to indicate some form of psychopathology.

4. Chronic alcoholism is usually associated with a psychoneurosis or psychosis.

5. Chronic alcoholism is usually associated with excessive mental deterioration, as measured by the Wechsler-Bellevue Intelligence Scale.

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