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Alcoholic Subtypes and Treatment Effectiveness

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ALCOHOLIC SUBTYPES AND
TREATMENT EFFECTIVENESS

by
John M. Zivich

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of Loyola University of Chicago in Partial Fulfillment
of the Requirements for the Degree of
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VITA.

The author, John M. Zivich, was born in East Chicago, Indiana, on September 27, 1944.

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CHAPTER I

INTRODUCTION

This research follows along lines suggested in the Second Special Report to the U.S. Congress on Alcohol and Health from the Secretary of Health, Education and Welfare (1974). The report states that problems have arisen where alcoholic treatment programs have attempted to make the patient fit the treatment modality they wished to offer. The report is likewise critical of the opposite approach, where programs throw a hodgepodge of treatments at each patient in the hopes that something might work. It suggests that what is needed is a matching of certain types of patients to the most suitable types of helping facilities, agencies, or methods of treatment. The report further states programs should maximize their effectiveness by identifying the type of alcoholic population they propose to serve, the goals most feasible for that population, and suitable methods to achieve those goals with that population. As part of such a process, the report says, "To create successful treatment programs it is necessary to identify the characteristics of alcoholic subpopulations in order
arrive at appropriate methods and goals" (p. 145). It was in such an attempt to identify characteristics of alcoholic subpopulations that Zivich (1979) achieved a strong replication of alcoholic subtypes originally determined through the use of personality measures by Vincent Nerviano (1976). Having been able to achieve a cross-validation of the subtypes, indicating they may be characteristics discernible in any large sample of alcoholics, it is now reasonable to carry the research beyond the work of Nerviano and Zivich's previous study and to investigate the relationship between the subtypes and treatment effectiveness. The fact that the existence of the subtypes has not, up till now, been taken into consideration in treatment planning means that men of very different psychological makeups are currently all receiving identical treatment under their common label of alcoholic. It is possible, however, to cite but one example, that the same group therapy program that is effective in involving a notype alcoholic, one who is relatively strong psychologically and typified by his scores lying near the mean on personality measures, might overstimulate a schizoid alcoholic and precipitate withdrawal, aggressive outbursts, or further decompensation. The eventual goal of research such
as this study is to aid in maximizing treatment
effectiveness by providing a basis for intelligent
selection among treatment alternatives for various
types of alcoholics. This study itself focuses on
whether treatment, as constituted at a large
municipal treatment center stressing group and milieu
therapy is differentially effective for the various
alcoholic subtypes.
CHAPTER II

REVIEW OF THE RELATED LITERATURE

A great deal of previous research involving personality measurement and alcoholics has had as its goal the identification of "the alcoholic personality." Whether such a personality is a forerunner or an outgrowth of alcoholism has been a subject of controversy. A great number of measures have been administered to both alcoholic and nonalcoholic populations and the results scrutinized in the hopes of delineating the personality features characteristic of the alcoholic. Although individual personality variables have on occasion been found that differentiate the two groups in a particular study, the cumulative picture presented from the various studies reveals a great deal of diversity present in the personality structure found among alcoholics (e.g., see reviews by Skinner, Jackson, & Hoffman, 1974; Sutherland, Schroeder, & Tordella, 1950; Syme, 1957). The homogeneity of alcoholics' symptoms does not flow from a single, shared personality. Rather, abuse of alcohol seems to be a behavior adopted by people manifesting a variety of traits and needs.
Further, even the successful identification of alcoholics as a group does not provide the information needed to tailor treatment to best meet the needs of members within that group. Yet we find studies in the literature indicating that different types of treatment centers draw different types of alcoholics, that different types of alcoholics indicate varying forms of treatment are beneficial, and that certain personality variables in alcoholics can be related to willingness to continue treatment.

English and Curtin (1975) report success in differentiating alcoholics from a half-way house, a state hospital, and a Veterans Administration hospital on the basis of MMPI profiles. Price and Curlee-Salisbury (1975) were able to sort patients into three groupings on the basis of their responses as to what aspects of a treatment program had helped them. These researchers were then able to identify different MMPI profile patterns for the groups. The first group found inpatient treatment and individual counseling helpful and had a sociopathic-emotionally unstable MMPI pattern. The second group found hospitalization helpful but not individual counseling. Their MMPI pattern was labelled depressive-neurotic. The third group felt their hospitalization had little therapeutic value and had an MMPI pattern labelled depressive-psychophysiologic.

In their study, Allen and Dootjes (1968) report that
alcoholics who were less autonomous and more self-abasing were more willing to continue in treatment as it was constituted at the clinic in their study. Such a subgroup difference interacting with type of treatment can be critical, as evidenced by the fact that Armor, Polich and Stambul (1976) report amount of treatment as being significantly associated with treatment outcome.

**Previous Attempts At Delineating Subtypes**

Clinicians working directly with alcoholics have long had a sense that they were not dealing with a uniform population. One long-standing attempt at division using personality features is the essential-reactive differentiation introduced by Knight (1937). Essential alcoholics were said to be marked by an early onset of drinking in the absence of any precipitating events and a basic orality. They were seen as immature, emotionally dependent, and unable to maintain relationships. Reactive alcoholics were somewhat more developmentally advanced and began their drinking at a later age, usually after a precipitating event.

Rudie and McGaughran (1961) devised their Essential-Reactive Alcoholism Scale in an attempt to provide an objective instrument for establishing the above distinction. Employing it, they divided alcoholics
into two types. Essential alcoholics were reported as generally operating on a more primitive developmental level. Their responses reflected a more psychopathic adjustment pattern, a preoccupation with self-comfort, and the presence of unmonitored feeling and emotion. Reactive alcoholics were seen to possess more complex defense systems, to experience anxiety and guilt to a greater degree, to show greater ability to successfully conduct interpersonal relations, and to have assimilated more cultural values.

Sugarman, Reilly, and Albahary (1965) hypothesized that a general maturity dimension would underlie the essential-reactive distinction in the same fashion that Zigler and Phillips (1962) had found it to underlie the process-reactive distinction in schizophrenia. Sugarman, et al. did find a positive relationship between the Essential-Reactive Scale scores and maturity as measured by the Phillips-Zigler Social Competence Index.

Levine and Zigler (1973) confirmed the finding that the Essential-Reactive Scale is related to a general maturity dimension on the Phillips-Zigler Index. They see the essential alcoholic as resembling the developmentally more immature individual described by Phillips and Zigler (1964) whose life style is characterized by self-indulgence and turning against
others, and the reactive alcoholic as the more developmentally advanced individual whose life style is characterized by turning against the self. They go beyond this to state that the result of their administration of the Essential-Reactive Scale, exclusive of the items referring directly to alcohol, constitutes a better measure of maturity level than the Phillips-Zigler Index.

A subdivision of alcoholics mentioned here for the prominence it has achieved in the literature, though it itself is not based on personality structure, was proposed by Jellinek (1960). He viewed alcoholism as a disease of a progressive nature and delineated four types of alcoholics. He described alpha alcoholics as manifesting psychological dependence on alcohol but not loss of control, beta alcoholics as manifesting physiological complications but not physiological or psychological dependence, gamma alcoholics as manifesting psychological loss of control in drinking and physiological tolerance to alcohol, and delta alcoholics as the same as gamma plus manifesting an inability to abstain from drinking. His subdivision proved to be quite influential and the literature is filled with allusions to his types. Walton (1968) did examine two of the types in regards personality differences. He sorted
alcoholic admissions into gamma and delta types and then evaluated differences in the personality attributes of the two groups by means of ward-behavior ratings and personality tests. Gamma alcoholics (loss of control) were rated as self-punitive, more hostile with the aggression directed toward themselves, depressed, less stable emotionally, less extroverted, and less apt to distort their replies to create a favorable impression. They differed most from delta alcoholics in their fear of potentially disruptive, precariously controlled impulses. Delta alcoholics (inability to abstain) were relatively free from self-blame. Today Jellinek's conception that alcoholism as a disease of a progressive nature with the physiological effects of alcohol triggering uncontrolled drinking is the subject of controversy. For example, Merry (1966) found no increase in the level of self-reported "craving" when alcohol was secretly added to a "vitamin" mixture administered to alcoholics. Marlatt, Demming, and Reid (1973) reported that the individual's expectancy of the alcoholic content of a drink determined his drinking rate, rather than the actual presence of alcohol, as one would expect if loss of control drinking in alcoholics was a physiological response.
The MMPI and Subtypes

The Minnesota Multiphasic Personality Inventory has been used to identify alcoholic subtypes in a number of studies. Brown (1950) found he could subdivide an alcoholic population into neurotic (high D) and psychopathic (4-9) types based on their MMPI profiles.

Rohan, Tatro, and Rotman (1969) found two major subgroups of alcoholics in their studies of MMPI profiles, a depressed neurotic group and a psychopathic group. They made a further distinction within the psychopathic group between the psychopathic-reaction type, whose scale 4 score lowered with treatment, and the structural psychopathic personality, whose scale 4 score remained high.

As part of his study, Price (1975) identified a sociopathic group, a depressive-neurotic group, and a group he labelled depressive-psychophysiologic on the basis of their MMPI results.

Goldstein and Linden (1969) felt most previous approaches to the classification of alcoholics suffered from being dichotomous in nature, with the exception of Jellinek's division for which there has been little support in the form of quantitative research. Studies working with a dichotomous approach have generally found one homogenous group and the remainder formed a
second somewhat heterogeneous group. However, reviewing previous studies revealed the existence of a number of such groups. Goldstein and Linden's study was undertaken to attempt to establish quantitative support for multiple alcoholic types. Using the MMPI, they identified four types. The profile of Type I with only scale 4 above 70, they state, was commonly associated with the diagnosis of psychopathic personality, emotional instability. Type II, a 2-7 profile, usually is diagnosed psychoneurosis, involving either anxiety reaction or reactive depression. Type III had no scales above 70, the three highest being 4-9-2, which is most commonly associated with a primary diagnosis of alcoholism. Type IV also has a 4-9 profile, but the configuration of the overall profile differentiates it from Type III. Goldstein & Linden concluded that their study supports the contention that people exhibiting addictive behavior are grossly similar only in terms of overt behavioral symptomology and that attempts at treatment should not ignore the differences in underlying personality dynamics for which the addictive behavior may have been symptomatic. It should be noted that Goldstein & Linden found that at least part of the Type II group change over time to yield a Type I profile, the neurotic profile becoming a more characterological one as neurotic symptoms are reduced. They
also caution that the Type IV profile only occurred 10 times out of a total sample of 497 cases, but was included as it appeared in both the original and replication sample.

Whitelock, Patrick, and Overall (1971) reported finding four profile patterns in their sample of MMPI records of alcoholics. Three of these matched the first three of Goldstein and Linden (1969) above, but the last profile pattern differed from Type IV of which Goldstein and Linden had found so few cases. Like Goldstein and Linden, they had one profile pattern that could be described as anxious-depressive neurotic and three that were associated with psychopathic personality patterns suggestive of hostility and impulse control problems. Whitelock, et al. noted that the amount of self-reported alcohol abuse was much higher in the neurotic group. They proposed that alcohol-abusing patients could be divided into two groups representing severe abuse and less severe abuse. They hypothesize that those with the neurotic pattern will be found to be the more severe abusers. Whitelock, et al. note that those men who experience greater subjective discomfort may be the most severe abusers of alcohol, although, since they fit other diagnostic categories, they may not represent the preponderance of those given the diagnosis of alcoholism.
Berzins, Ross, English, and Haley (1974) found two addictive personality patterns on MMPI profiles among opiate addicts. Type I showed elevations on Scales 2, 4, and 8. Type II had a single peak on Scale 4. The two types represented approximately 40% of the total population, a classification rate similar to that of Goldstein and Linden (1969) above.

Magar, Wilson, and Helm (1970) identified four distinct personality types from MMPI profiles of alcoholic patients at a state hospital. These types were labelled passive-aggressive, depressive-compulsive, schizoid-pre-psychotic, and passive-dependent. Magar, et al. further noted that young men (ages 21 to 31) were concentrated in the passive-aggressive group and middle-aged men were most frequently depressive-compulsive. There were no passive-dependent types in either the youngest (21-30) or oldest (51-60) age groups. The schizoid-pre-psychotic and the depressive-compulsive groups seemed to show the greatest disturbance, and the passive-aggressive group the least.

Bean and Karasievich (1975) used cluster analysis of MMPI profiles to identify four personality types in an alcoholism treatment unit at a V.A. hospital. The types were labelled psychotic (6-8), latent schizophrenic (8-1-2), neurotic (2-1-4), and psychopathic (4-9).

Mozdzierz, Macchitelli, Planek, and Lottman (1975)
used the MMPI in conjunction with the Guilford-Zimmerman Temperament Survey (GZTS) to examine personality differences between alcoholics who had had one or two traffic accidents versus those that had had five or more. The high accident group was higher on the Ma and lower on the D scales of the MMPI. They scored higher on the ascendance scale and lower on the Restraint and Personal Relations scales of the GZTS. The low accident group's responses indicated submissiveness, comfort-seeking through group identification, a tendency to internalize conflict, and overcontrolled mode of expression. The high accident group showed tendencies of domination, impulsivity and recklessness, a high level of energy, and an external mode of expression.

The use of the MMPI to identify alcoholic subtypes has encountered certain difficulties. There have been some problems with cross-validation studies and, as can be seen, a certain lack of agreement amongst the various studies. In looking for consistency across the various studies, it seems that a division between profiles associated with a psychopathic personality and profiles associated with other varying psychopathologies repeatedly appears. The latter group seems most often to show a neurotic pattern, either depressed or anxious. There are indications of the existence of other groups, smaller
in size and less stable in composition. Their appearance may depend on how high a percentage of the total population the researcher is attempting to classify. Further, members of groups other than the psychopathic personality group may show different patterns either as a result of treatment or increasing age.

In addition to the varying results and relative instability introduced when trying to use the MMPI to achieve more than a two-way classification, the ability of the MMPI to classify a sufficient percentage of the overall alcoholic population has been questioned (e.g., Fowler and Coyle, 1968, who reported that the major MMPI actuarial systems classify only about 25% of alcoholics into types).

Finally, some research has already been done looking for possible relationships between personality as measured by the MMPI and treatment outcome, and the results have not been encouraging. Kish and Hermann (1971) report finding no relation between improvement as determined by questionnaire at three, nine and twelve months after treatment and personality as measured by the MMPI. Heilbrun (1971) found only that a patient could be classified a better risk if $S_c$ was 59 or less and $M_a$ 53 or less. Cripe (1974) reported finding only a lower $L$ score on admission and a greater increase in $K$ after treatment as more often present in treatment success. Krasnoff (1976) reported the
opposite with completers of a treatment program scoring slightly higher on L. The L score for both groups in both studies was very close to the mean for the general population. Gellens, Gottheil, and Alterman (1976) using Rohan's classification system for alcoholics based on the MMPI (see Rohans, et al., 1969 and above) found no relation between personality and drinking behavior at time of treatment, at six months, at one year, and at two years after treatment.

Other Personality Inventories and Subtypes

Such research findings have encouraged investigation into whether other global personality measures might be better suited to the task of classifying alcoholic subtypes. Partington and Johnson (1969) used the Differential Personality Inventory along with case history and demographic data to distinguish five personality types. Type I, representing 20% of the patients, was described as composed of young, unstable, antisocial alcoholics. Type II, 19% of the patients, was composed of relatively intelligent, conforming, and light-drinking patients who sometimes lose cognitive and emotional control. Type III alcoholics, 10% of the patients, were described as older, more neurotic, and possessed of poor motivation for abstinence. Type IV, 24% of the population, was described as more defensive and less antisocial than any other group. Type V alcoholics, 28% of those checked, were described
as the heaviest and most frequent drinkers, but otherwise best adjusted.

Skinner, et al. (1974) report establishing and cross-validating eight distinct bipolar personality dimensions, defining a cluster of persons at each pole of each dimension through the use of the Differential Personality Inventory and the MMPI. The five most clearly established dimensions were (1) acute anxiety vs. denial and blunted affect, (2) antisocial attitudes vs. hypochondriacal preoccupation, (3) hostile-hallucinatory syndrome vs. neurotic depression, (4) neurotic disorganization vs. hostile paranoid, and (5) emotional instability vs. interpersonal conflict and depression. The authors note that the subject's MMPI profiles correspond to the profiles of other types of psychiatric patients, suggesting that alcoholics might be classified according to general personality types. Hoffman, Jackson, and Skinner (1975) presented a factor analysis of this same data. They reported seven factors which accounted for 65.7% of the variance. They were (1) hypochondriacal complaining, (2) denial vs. anxiety, (3) depressed withdrawal, (4) interpersonal conflict and social alienation, (5) persecutory ideas, (6) cognitive dysfunction, and (7) response bias.

Golightly and Reinehr (1969) used the Sixteen
Personality Factor Questionnaire (16-PF) to assign diagnoses to alcoholics by comparison of their results to criterion patterns established by the Institute for Personality and Ability Testing. Of the 59 men, 38 were classified as neurotic, 12 as psychotic, and 9 as character disorders.

Lawlis and Rubin (1971) identified three groups of alcoholics by use of the 16-PF. Group I was described as inhibited and neurotic, Group II as sociopathic, and Group III as aggressive neurotic. Two attempts at replication were made. Representatives of Groups I & III were found in all three samples, but in one sample a schizoid group seemed to emerge in place of the sociopathic Group II. Zelhart (1972) examined the traffic records of some of the subjects from the Lawlis and Rubin study. He found that Group I, inhibited neurotic, had the fewest violations and Group III, aggressive, had the most.

Hoy (1969) had investigated differences between those who remained and those who left an eight-week treatment program as reflected by their 16-PF scores. Those who left were found to have scored significantly higher than those who stayed on Extroversion and Surgency.

Nerviano (1973) working with two samples, each
containing 200 alcoholics, was able to use the 16-PF to delineate two subtypes in the first sample and replicate his finding in the second. The first group encompassed 26% of the sample and was described as highly anxious and introverted. The second group, comprising 5% of the sample, was described as dependent and conforming.

Nerviano (1974) reported a factor analysis of the scores on the 16-PF of 400 alcoholics in his 1973 study. He found two main factors. Factor I, Cattell's Adjustment vs. Anxiety factor accounted for 20.3% of the total variance. The factor's loading differed from what is encountered in the general population in the strong relationship present between anxiety and Factor G, Expediency vs. Conscientiousness. Nerviano states the results suggest that the interaction of stress and anxiety in some alcoholics may produce behaviors which seem indicative of an asocial personality, but are really due to anxiety and a neurotic lifestyle. Factor II was identified as Cattel's Introversion vs. Extroversion factor. It accounted for 11.9% of the total variance and its loadings were quite similar to what is found in the general population.

Nerviano (1976) attempted to classify alcoholics by the use of Murray's need dimensions as measured by the Personality Research Form (PRF) in conjunction with
Cattell's trait dimensions as measured by the 16-PF. Factor analysis yielded 5 factors from the PRF, impulse control, social ascendency, defendency, intellectual-aesthetic interests, and dependency. The 16-PF yielded 2 factors, anxiety and extroversion. Clustering procedures produced seven profile types which classified 49% of the population and which could be labelled with general psychiatric diagnoses. The profiles are characterized as (1) obsessive-compulsive (14.5%), (2) impulsive (8.5%), (3) aggressive-paranoid (8%), (4) passive-dependent or inadequate personality (6%), (5) avoidant-schizoid personality (6%), (6) asocial schizoid or asthenic (3.1%), and (7) passive-independent or narcissistic (3%).

In surveying this review of previous research, several key points for the current study seem readily apparent. They are: a) the heterogeneity of personalities present in alcoholic populations, b) the ability of personality measures to reveal constellations of personality features indicative of various subtypes of alcoholics, and c) the at least partial overlap of a sizeable portion of alcoholic populations with general psychiatric populations when compared on the basis of personality features. Brown (1950) noted that the MMPI profiles of his neurotic alcoholics resembled those of...
psychopaths in general more than the two alcoholic groups resembled each other. Levine and Zigler (1973) found support for the idea that a general developmental dimension underlies the process-reactive distinction in schizophrenia and the essential-reactive distinction in alcoholics, and is also usable to make discriminations within psychiatric and normal populations.

Certainly, there have been previous studies where an alcoholic population has been classified by use of diagnostic categories. For example, Devito, Flaherty, and Mozdzierz (1970) as part of their study examined an alcoholic population in terms of assigned DSM-II diagnoses. However, the diagnoses could be made only after individual psychiatric interviews and extensive staff observation of the subjects while in the treatment facility. In addition to the staff time required and the necessary time lag entailed between admission and the point at which a diagnosis is made, the subjectivity present in the diagnostic process makes comparability of such a study difficult.

Skinner et al. (1974) using standardized instruments, the Differential Personality Inventory and the MMPI, to classify alcoholics, speculated that, aside from uncontrolled drinking behavior, alcoholic patients may be little different from other types of psychiatric patients. The researchers indicated an alternate
possibility would be the presence of a substantial portion of the alcoholic population that could be described with psychiatric diagnoses plus the delineation of several personality patterns unique to alcoholism. Skinner, Reed, and Jackson (1976) investigated the degree to which the eight modal profiles derived from the first study with alcoholics would generalize to other psychiatric and normal populations. They found the greatest degree of similarity of classification among male prison inmates and psychiatric patients who had been repeatedly hospitalized. However, they found several of the profiles pervasive even among college students. They see such attempts as laying a foundation for an objective diagnostic system of psychopathology.

Nerviano's study (1976) seemed a promising approach in that such a procedure could yield information early enough into treatment that the information could be used in treatment planning. The approach is further recommended by the fact that the results of his analysis closely paralleled that arrived at by Devito et al. (1970). Devito's methodology had required more time-consuming evaluation procedures that were more demanding on staff and more subjective in nature. The classifications were thus less usable than Nerviano's. However, Nerviano's study has needed to be cross-validated. Also, Nerviano employed the PRF, Form AA, which was designed to be used with a
college population (Jackson, 1974) as opposed to the newer PRF, Form E, that was designed to extend the use of the PRF to populations other than college populations. Form E contains the same 22 scales which were, in fact, derived from items from the older parallel forms through the use of improved item-analysis procedures. Wording has been simplified to extend its range of usefulness to less educated and less intelligent populations (Jackson, 1974). One must suspect that Nerviano's success with the college form was related to the fact that he indicated the mean estimated I.Q. of the alcoholic population he tested to be 107.

Scope of the Current Study

Zivich (1979), in an attempt to replicate the findings of Nerviano (1976), classified alcoholics into subtypes using the PRF, Form E, and the 16-PF, Form A. The use of the PRF, Form E, opens the possibility of future use of the procedure with a broader range of alcoholics. Form A of the 16-PF was the same as used in Nerviano's study and was retained as both Cattell and Eber (1972) and Hoy (1969), working specifically with alcoholics, had warned of poor equivalence between Forms A and B. The study provided a strong replication of Nerviano's findings through both factor analysis and cluster analysis. The five
most common alcoholic subtypes found by Nerviano, aggressive, obsessive-compulsive, impulsive, schizoid, and passive-dependent, were cross-validated in the new sample. The study suggested that there be a three-way division of the residual group of those not clustered into subtypes by the initial analysis. It proposed the residual group be divided into a) a sixth subtype, a relatively common pattern whose members remained unclustered because they exhibited features that caused their profiles to correlate highly with both the obsessive-compulsive and passive-dependent clusters, b) a mixed group, whose profiles were characterized not by their near mean scores but rather by the fact that each exhibited relatively high correlations to more than one subtype, and c) a true notype cluster characterized by near mean scores on their profiles. As that study constituted at the same time both a replication of Nerviano's subtypes and the first stage of this current research effort, it will be reported in detail as the first phase of the current study. In it the subjects were clustered into subtypes whose treatment outcome was then monitored. The current study proceeds to examine the previously unexplored area of the relationship of these alcoholic subtypes to treatment effectiveness. Baseline data on alcohol consumption prior to treatment was gathered. A follow-up was conducted at one, three,
and six months after discharge to determine alcohol consumption during those periods. A relative change index was employed to compare consumption before and after treatment.

As it could be reasonably anticipated that the cluster analysis of the personality inventories would leave a portion of the sample unclassified, an additional measure, the Gottschalk-Gleser Content Analysis Scales (Gottschalk, Winget and Gleser, 1969), was employed on tape-recorded interviews with the subjects. In addition to providing valuable additional data on subjects who remain unclustered by the personality inventories, these scales would seem particularly useful for a number of reasons. In view of the emphasis the treatment program places on group therapy, it was deemed desirable to attempt to assess in as direct a fashion as possible the patient's ability to enter into constructive and satisfying interpersonal relationships and to ascertain the amount of anxiety and hostility present in those relationships. The instrument offered scales suited to that purpose. The scoring of these scales is not based on self-assessing responses by the alcoholic, but on an actual sample of behavior, given in an interpersonal context, which is then analysed. The scales are designed to be sensitive to psychological states of less lasting nature than the traits the personality inventories seek
to measure (Gottschalk & Gleser, 1969). Consequently, it was hoped that varying reactions from the introduction of stimuli into the interview situation would be registered. The projective nature of the Gottschalk-Gleser technique may allow it to provide additional insight by contrasting with the two objective personality inventories. An important methodological consideration in this regard is that alcoholics will frequently test extraordinarily low in certain pronounced characteristics of themselves on overt measures. On the Gottschalk-Gleser Scales, counter-manifestations of traits are scorable.

Hypotheses

1. The first hypothesis investigated in this research effort was that the patterns found by Nerviano (1976) represent true alcoholic subtypes which are present in the current sample of alcoholics. These subtypes had been described by Nerviano as (1) obsessive-compulsive, (2) impulsive, (3) aggressive-paranoid, (4) passive-dependent, (5) schizoid, (6) asthenic, and (7) narcissistic.

The next group of hypotheses concerns the relationship of the subtypes found to treatment effectiveness. Four of the groupings determined in the first phase of the study, notypes, obsessive-compulsives,
passive-dependents, and obsessive-dependents, are
given a good prognosis, and the other four, aggressives,
impulsives, schizoids, and mixed types, are given a
poor prognosis. Thus the following is hypothesized:

2. The mean improvement achieved by the notype
group is significantly greater than that of the poor
prognosis group.

3. The mean improvement achieved by the obsessive-
compulsive group is significantly greater than that of
the poor prognosis group.

4. The mean improvement achieved by the passive-
dependent group is significantly greater than that of
the poor prognosis group.

5. The mean improvement achieved by the obsessive-
dependent group is significantly greater than that of the
poor prognosis group.

6. The mean improvement achieved by the aggressive
group is significantly less than that of the good
prognosis group.

7. The mean improvement achieved by the impulsive
group is significantly less than that of the good
prognosis group.

8. The mean improvement achieved by the schizoid
group is significantly less than that of the good
prognosis group.

9. The mean improvement achieved by the mixed
group is significantly less than that of the good prognosis group.

The remaining hypotheses concern the Gottschalk-Gleser Scales. Subjects whose scores on these scales meet following conditions are assigned a good Gottschalk prognosis: a) the Human Relations score is greater than or equal to the mean for all subjects; b) the Anxiety, Hostility Outward, Hostility Inward, and Ambivalent Hostility scores are all less than or equal to the mean for all subjects. This is associated with the following hypothesis:

10. The mean improvement achieved by the group assigned a good Gottschalk prognosis is significantly greater than that achieved by the other subjects.

11. The mean improvement achieved by subjects whose Hostility Outward score is greater than the mean for all subjects is significantly less than that achieved by the other subjects.

12. Of those men recording Anxiety, Hostility Outward, or Ambivalent Hostility scores above the mean for all subjects on the card portraying male-female interaction, the mean improvement achieved by those subsequently assigned to therapy groups containing both male and female patients or a female therapist is significantly less than that achieved by men assigned
to all-male treatment groups.

**Time of Test Administration**

Previous research indicates that the time of test administration to alcoholics in treatment must be taken into consideration. Ends and Page (1959), Rohan, Tatro, and Torman (1969) and Shaffer, Hanlon, Wolf, Foxwell, and Kurland (1962) report significant changes on the MMPI testing before and after treatment, especially on the depression scale. Wilkinson, Prado, Williams and Schnadt (1971), testing during the first and eleventh week of treatment, found significant differences on virtually all MMPI scales. In general, personality test scores will show increased improvement the longer the period of abstinence and treatment prior to testing. Vanderpool (1966), testing alcoholics with different blood alcohol levels, found that alcoholics with more alcohol in their systems had significantly poorer self-concepts. Libb and Taulbee (1971) reported that MMP profiles are more malignant if testing is done before detoxification. Frankel and Murphy (1974) recorded such results using the MMPI and testing before and after an 84 day alcoholic treatment program. Hoffman, Nelson, and Jackson (1974), using the Differential Personality Inventory, found significant test-retest differences on 19 of 27 personality scales for groups tested on the first and then the twelfth day after admission, and also on the same 19 scales for a group tested on the 14th and again on the 26th day after admission. Gibson
and Becker (1973) reported such changes testing during the first, third, fourth, fifth, sixth, and tenth week of treatment using the Beck and Zung depression scales, and Smith and Layden (1972) recorded similar changes testing after one and six weeks with a mood-adjective check list. Clearly length of abstinence and time in treatment affect personality test results.

Chess, Neuringer, and Goldstein (1971) and Smith and Layden (1972) reported that the most significant changes tend to occur between admission and the period of approximately one to three weeks of treatment.

Secondly, the studies noted that the changes occur where measures are exploring the psychotic and neurotic dimension as opposed to measures of personality and character disorder (Frankel & Murphy, 1974; Hoffman et al., 1974; Rohan et al., 1969; Smith & Layden, 1972).

There is some previous research involving the particular instruments in this study. Hoffman (1971), using the PRF with alcoholics in their second week of treatment and again four weeks later, found statistically significant differences on eight of twenty-one scales. However, the differences were so small that the author himself describes them as "statistically significant, but of such a small magnitude that they are not meaningful" (p. 950). Test-retest reliabilities ranged from 0.56 to 0.95. Hoffman's distinction between
statistical significance and sufficient magnitude to indicate meaningful differences bears noting. In their previously reported study using the DPI, Hoffman et al. (1974) found statistically significant differences on nineteen of twenty-seven scales, but reported that the rate of change was slower after detox, that test-retest reliability for all scales fell in the acceptable range, and that all subjects maintained similar rankings within their group.

Hoy (1969) used the 16-PF with alcoholics before and after treatment and reported low test-retest reliability, -0.04 to 0.68, but he did his initial testing prior to detoxification. Also, his results are based on retesting not only after a lapse of time and intervening treatment, but with alternate forms A and B in addition. Hoy acknowledges that Cattell himself had reported relatively low equivalence coefficients between the forms, and Hoy's research, too, led him to agree that such was the case. The fact that Hoy tested before detoxification, that he was using the test to seek change brought about by treatment, and that he retested with what is not a truly parallel form make his results more understandable.

In summary, change can be expected with increasing periods of abstinence and treatment, psychotic and neurotic features will diminish whereas features of personality and character disorder will show greater
stability, and the most significant amount of change might be expected to occur between admission and one to three weeks of treatment. For purposes of the present study in a center with a six-week treatment program, it can be seen that it was impossible to select a time of administration so that no subsequent change could be expected. The time selected, after two to three weeks of abstinence and one to two weeks of treatment, should have allowed time for the most significant amount of expected change to occur. Additional delay could unduly bias the sample by the further exclusion of men who drop out of the program in the earlier stages of treatment. Time of admission was uniform for all subjects and the caution must be borne in mind that the results are reflective of alcoholics in the early stages of treatment. It should be noted that Nerviano (1976), who derived the subtypes that the first phase of this study attempted to cross-validate, also delayed test administration until the subjects had been detoxified and stabilized for at least one week (see Appendix A for more detailed data on time of test administration for this study).

**Alcohol Consumption As An Outcome Measure**

There has been some controversy surrounding the use of alcohol consumption as an outcome measure in the
treatment of alcoholism. Hill and Blane (1967) cautioned against the uncritical use of abstinence as a criterion. They delineated the problem well in citing one faction who attach more legitimacy and value to the goal of curtailment of drinking behavior which the other faction would see more as symptom removal and espouse instead the goal of "mental health." They cite studies in which patients who achieved abstinence were still seen clinically as aggressive, anxious, psychotic, inadequate personalities, or as dependent on A.A. as they once had been on alcohol. This point is an important one which must be given careful consideration. It is worth noting that Hill and Blane do state that of the research studies they did review, covering an eleven-year span (1952-1963), in almost half the studies drinking behavior was the only criterion employed and in almost all it was the major criterion. They also indicate that the use of abstinence as a criterion would be justified if subsequent research showed it to be correlated with the other indices of mental health.

More recently Emrick (1974) reviewed some 271 separate studies published in English from 1952 through 1971 that reported specific responses of patients to some form of psychologically orientated alcoholism treatment. In examining outcome criteria he lumped together data on closely related dimensions to create
criterion clusters. He reports that 80% of the studies employed the criterion of drinking amount or frequency. Few of the remaining 18 other clusters were found to be used in even 10% of the studies, and had the analysis been done on separate criterion, as opposed to clusters, the lack of consistent use across studies of other criterion would have been even more startling. Even more importantly, Emrick found that in 70% of the entries there existed a strong positive relationship between drinking outcome and the other very diverse measures of general well being. In 45% of the cases the probability of chance producing the relationship could be rejected at the .01 level, and in the remaining 25% of the instances chance probability was greater than .01 but less than .10. Emrick notes that drinking outcome was related positively with outcome on dimensions in the following clusters with rejection of the null hypothesis at the .05 level or better: affective-cognitive, work situation, interpersonal relationships in the home, mixed variables, social situation, and Alcoholics Anonymous attendance. He further noted that though no conclusions can be drawn about the remaining criteria because they were not used in a sufficient number of studies to provide adequate data for analysis, available observation suggested to him many positive relationships might exist. The finding of a strong positive relationship in 70% of the instances is even more impressive in view of this limiting factor. Emrick concludes, "Clearly drinking behavior
can be used as a major criterion in alcoholism studies" (p. 529).

Overall and Patrick (1972), in attempting to determine whether their previous finding of a single major factor of alcohol abuse would replicate, used a deliberately expanded wide-ranging 135 item questionnaire. Factor analysis again revealed one major factor loading heavily on all items concerned with amount of alcohol consumed accounting for 27.2% of the variance. Of the ten secondary factors, none accounted for more than 3.1% of the variance.

The question of the importance of pattern of consumption is associated with the question of legitimacy of use of drinking behavior as an outcome measure. Tomsovic (1974), studying 179 alcoholics approximately equally divided between binge and continuous drinkers with a one-year follow-up, found they tended to make the same relative improvement in drinking and social adjustment. Bowman, Stein, and Newton (1975), after examining the relative merits of four different manners of measuring patterns of alcohol consumption, those being quantity-frequency, quantity-frequency-variability, volume-variability, and volume-pattern, attempted to find evidence to support their hypothesis that both the amount and the pattern of an individual's consumption of alcohol is related in significant ways to other aspects of his life.
To their surprise, they found that volume is a useful predictor of social adjustment, while pattern of intake, either by itself or in combination with volume, is not a useful predictor. This result was at odds with previous studies that had found a relationship between pattern and certain demographic and behavioral measures, but the authors point out that the samples for the previous studies in which such a relationship was found was composed mostly of social drinkers. Bowman et al. conclude that for severe problem drinkers requiring hospitalization, it does not matter in what manner the beverage is drunk, "but only whether or not alcohol is consumed and if so, how much" (p. 1171). Another important finding of this study is that of all the variance in social adjustment which is associated with volume of intake, slightly more than half (51.2%) could be explained by the abstinent-drinking dichotomy alone. The rest of the variance is associated with the amount of alcohol consumed, indicating there is nearly as much relationship between how much an alcoholic drinks and his social adjustment as between whether or not he drinks and his social adjustment.

In view of the above findings, while freely granting that abuse of alcohol is not the only problem impeding good functioning by many alcoholics, a view certainly in accord with the overall investigation being undertaken in this research, its use as an outcome measure seems
appropriate. Armor et al. 1976, p. 29) state, "In emphasizing the value of multiple-outcome criteria, some researchers have made the error of discounting the relevance of the alcohol consumption criterion.... Although complete social and psychological recovery of clients is probably the ultimate goal of most treatment programs, the primary objective remains the elimination of excessive alcohol use and the gross signs of behavioral impairment that results from it." While drinking behavior may be viewed as a symptom, it is a behavior that can take on a life-threatening quality. Further, it has been shown to correlate highly with most of the other measures of general well-being ordinarily advocated, and to do so irrespective of pattern of consumption for drinkers whose problem is severe enough to require inpatient treatment. Finally, aside from the controversy of whether total abstinence is the only possible goal versus controlled drinking in alcoholic treatment, the data does show that for severe problem drinkers improvement on diverse indicators of general well-being is recorded as alcohol consumption drops, that such improvement goes unnoticed if one only attends to the abstinence-drinking dichotomy, and that some importance can rightfully be attached to lowered consumption of alcohol, aside from whether it is to be an acceptable goal or not. It is for the above reasons that alcohol consumption will
be employed as the outcome measure in this study and that attention will be given to actual amount of alcohol consumed, not just to the abstinent-drinking dichotomy.

**Self-Report Data By Alcoholics On Drinking**

Another point concerning the outcome measure meriting attention is possible bias introduced by its self-report nature. A study that bears on this point of source of follow-up information was done by Guze, Tuason, Stewart, and Picken (1963). They compared results of drinking histories obtained separately from subjects and their relatives. In the portion of the sample that was comprised of alcoholics, they found agreement in response between the alcoholics and their relatives in 74% of all the questions asked, disagreement occurring 26% of the time. However, it is to be noted that approximately 80% of the disagreement occurred because the subjects were admitting more drinking problems than relatives were acknowledging or of which they were aware. In only 6% of all the questions were the alcoholics indicating more benign responses about themselves than were their relatives. The authors conclude that the self-report data from the alcoholics was more accurate than the reports from their relatives in that, of those men diagnosed as alcoholic by
independent criteria, 97% could be so diagnosed by their own responses, but only 41% could be diagnosed as alcoholics from the responses given by relatives.

Armor et al. (1976) cite time-item reliability figures for self-report drinking from men treated in alcoholic treatment centers. As change in alcohol consumption might be expected after treatment, simple stability over time was not seen as an appropriate measure. They explain that the time-item method assumes that quantity and frequency items should change in the same way over time. Departures from this are considered error, but consistent change on both items for a given subject is considered true idiosyncratic change. Time-item reliabilities for intake to 30 days was found to be .85, from 30 days to six months .92, from intake to six months .86, and from intake to 30 days to six months .85.

In terms of validity, Armor et al. (1976), using data from the ATC Monitoring System, compared consumption reported in a number of experimental studies of severe alcoholic populations in a free-drinking environment and that calculated from self-report data of alcoholics given at intake. They found an extremely close correspondence of group means. In checking individual, as opposed to group validity, they compared results from a BAC (Blood Alcohol Content) test with an estimated
BAC level computed from self-reported consumption levels given by alcoholics at intake. They conclude that, even lumping borderline cases with those definitely underreporting, only 12% of the group appear to be distorting their true consumption by a serious amount. It is to be noted that it was found that a much greater percentage of the general, as opposed to the alcoholic, population, perhaps as much as the upper one-third of that distribution, underreported their consumption. It is felt that this is largely responsible for self-reports leading to a national consumption figure that is about half of the figure for national beverage sales. For this reason, it is particularly important to note the significantly lower level of distortion in self-reports found among alcoholics.

In conclusion, in view of the impossibility of direct observation and the findings that reports from relatives are prone to even greater inaccuracy than from the subjects themselves, self-report data will be used with an awareness that unavoidably one might expect underreporting in ten to fifteen percent of the cases.
CHAPTER III

METHOD

Subjects

The subjects of the present study were 102 male alcoholic inpatients at Chicago's Alcoholic Treatment Center.

Chicago's Alcoholic Treatment Center provides inpatient and outpatient services for persons requesting treatment for alcoholism. It operates under the auspices of Chicago's Commission for Rehabilitation of Persons and is supported by the City of Chicago.

The treatment program at the Center stresses milieu therapy involving patients in self-government and group therapy. Patients are required to attend the following activities: a) all orientation meetings; b) daily ward meetings; c) group therapy sessions; d) individual therapy sessions; e) educational meetings; f) one social security meeting; g) daily calisthenics; and h) work details. Optional activities include: a) Alcoholics Anonymous meetings; b) Board of Education Program; c) recreational and craft activities; d) religious discussions; e) vocational counseling sessions; and f) a married couples group.

All English-speaking males admitted between February 13 and May 8, 1978 were approached after the completion of one
week in the treatment program and encouraged to participate in the study. There was a total of 248 male admissions during this period. Of this total, 17 men were excluded as non-English-speaking and 49 men had left the Center prior to the beginning of the second week of treatment, 39 of these insisting on discharge against the advice of staff, four having been discharged for disciplinary reasons, four for medical reasons, and two having been absent without leave. Thus 182 men were asked to take part in the study. Eighty-four percent of those asked, or 152 men, agreed to participate. The majority of the 30 non-participants indicated no reason for their decision, but some reasons offered were they had too much to do, they already knew themselves, or they wanted to pull themselves together. Of the 152 volunteers, 102 men were tested and are the subjects of this study, 20 men left the Center before finishing testing (seven against staff advice, seven for disciplinary reasons, four absent without leave, one medical discharge, and one recalled to his job), 13 men said it was too time consuming and decided to not participate, 10 men submitted invalid protocols as determined by the validity scale (six of these subsequently indicating reading difficulty, one that he had answered randomly, and three displayed general confusion and lack of orientation), four men found they could not see the print adequately without prescription eyeglasses, and three men found the level of reading of the test inventories too difficult for them to actually attempt. The 102
subjects represent 67% of those who agreed to be in the study and 56% of those who were originallly asked to participate.

As for the demographic characteristics of the sample, 55.9% were black, 42.2% were white, and 2% were Hispanic. The racial composition of the overall male population admitted to the Center was 55% black, 35% white, and 10% Hispanic. Checking with chi square and an alpha level of .05, the sample's composition does differ significantly from the overall population, this resulting almost entirely from the underrepresentation of Hispanics due to the requirement of minimal reading ability in English for sample inclusion. This same requirement resulted in the only other difference to reach statistical significance between the sample and the overall male patient population at the Center. The average number of years of education for the sample was 11.4, as opposed to 10.5 for the overall population, with the difference significant at the .01 level. It is to be noted therefore that experimental procedure with its requirement that subjects possess minimal reading ability in English biased the sample in that Hispanics and the most poorly educated are underrepresented relative to the overall patient population.

In all other aspects, the sample was found to be comparable to the overall population. The average age of subjects in the sample was 38.7 years, with a range from
age 20 to age 64. The average age of the overall population is an almost identical 38.9 years.

A gross family income of under $3000 for the past year was reported for 70.6% of the sample and 70.1% of the overall population. In terms of employment, 86.3% of the sample and 88.5% of the population were not currently employed. An examination of living arrangements revealed that 59.6% of the sample and 54.6% of the overall patient population lived alone. Less than one-fifth of the sample and population were married. A picture of overall instability emerges, with little education, unemployment, and lack of family ties. In terms of variables more specifically related to alcohol, 26.4% of the sample and 28.2% of the overall patient population reported having an immediate family member with a drinking problem. Of the men in the sample, 56.9% had never received inpatient treatment for alcoholism before, 21.6% were readmissions to this Center, and 36.3% had prior affiliation with Alcoholics Anonymous. On all these measures, the sample was comparable to the overall population with no differences between them reaching significance. The average length of treatment for men who comprise the sample was 34.4 days, with a range extending from 15 to 42 days.

In addition to the information provided on the characteristics of the sample, the preceding seems to indicate that the sample drawn, with the exception of the previously noted underrepresentation of Hispanics
and the least educated, is fairly representative of the overall patient population at the Center from which it was drawn.

**Instruments**

All the subjects were administered the Personality Research Form, Form E, (PRF) the Sixteen Personality Factor Test, Form A, (16-PF) a standardized tape-recorded interview for use on the Gottschalk-Gleser Scales, and a questionnaire on alcohol consumption employed both to determine consumption prior to treatment and also during the follow-up period.

The PRF consists of 20 content scales and 2 validity scales. The starting point for the development of the scales was Henry Murray's personality variables. The scales are truly bipolar and a low score is not indicative simply of the absence of a need, but is as significant as a high score (see Appendix B for protocol).

In the test manual, Jackson (1974) presents reliability data for the PRF-E for both psychiatric and college populations. The figures for all scales for both populations fall in a range between 0.50 and 0.91 with the single exception of a 0.29 reliability for cognitive structure in the psychiatric sample. However, some change over time on the cognitive structure scale with a psychiatric population might be expected.

In terms of validity, in the manual Jackson (1974)
shows that the scales of the PRF-E show appropriate
correlations to similar measures in the Jackson Per-
sonality Inventory, the Jackson Vocational Interest Survey,
and the Bentler Psychological Inventory (BPI). For example,
orderliness on the BPI has a correlation of 0.81 with order
and 0.61 with cognitive structure on the PRF. The Bentler
Interactive Psychological Inventory (BIPI), which employs
behavior ratings of persons who know the target individual
and thus provides a heteromethod check, again showed
appropriate correlations, e.g. orderliness on BIPI showed
a correlation of 0.52 on order and 0.42 on cognitive structure
of the PRF. Jackson had previously presented convergent
validity data on the PRF-AA and BB using both behavior
ratings and a trait rating form on which the subjects
indicated the presence or absence of a trait in themselves.
Median correlations for both methods were above 0.50.
Discriminant validity was offered in the form of a factor
analysis which revealed that the PRF scales load an
appropriate factor. As the PRF-E is based on the PRF-AA
and BB and thus there is a very high part-whole correlation
between them which would necessitate similar findings,
Jackson has not recomputed multitrait-multimethod validity
for the PRF-E.

In use with alcoholics, the PRF has shown
negligible desirability bias (Hoffman & Nelson, 1971)
and adequate test-retest reliability with a range of
0.56 to 0.95 (Hoffman, 1971). Originally, Hoffman (1970) did report a relationship between an alcoholic's age and a number of scales. However, Gross and Nerviano (1973) were unable to replicate this finding even if a .10 probability level were employed. They did find in their sample that Understanding and Aggression were positively related to I.Q. and Abasement negatively related to I.Q. In view of this, the need for a replication of Nerviano's study (1976) with less intelligent alcoholics is even more indicated.

Form E of the PRF was selected for use as most appropriate for the patient population. Form E was designed to extend the use of the PRF to other than college populations. It contains all 22 scales which were, in fact, derived from the older parallel forms through the use of improved item-analytic procedures. Wording has been simplified to extend the range of usefulness to less educated and less intelligent populations (Jackson, 1974). To assure that this instrument was appropriate for the subjects of this study, a pre-testing was done on a separate sample of 22 patients from the Center. All 22 were able to complete the test validly, none recording a score on the infrequency scale that would indicate poor comprehension, passive non-compliance, or confusion (see Appendix C for the sample's distribution on the infrequency score).
The 16-PF is designed to measure Cattell's primary trait dimensions. Any one item contributes to the score of only one of the sixteen factors and correlations among the scale are low, each making a separate contribution. In terms of reliability, the manual (Cattell & Eber, 1972) reports the dependability coefficient, defined as the correlation between two administrations of the same test when the lapse of time is insufficient for the people themselves to change with respect to what is being measured. For male subjects on Form A with retesting within seven days, the figures for the various scales range between 0.58 and 0.83. In terms of validity, the manual indicates the test was designed for construct validity, with items chosen as being good measures of personality factors as represented in research analysis. A direct measure of such validity is obtained by correlating the scale score with the pure factor it was designed to measure. Such correlations for Form A range from 0.35 to 0.92. The 16-PF has been used by itself in the classification of alcoholics (see above Golightly & Reinehr, 1969; Hoy, 1969; Lawlis & Rubin, 1971; Nerviano & Gross, 1973; and Nerviano, 1974) (see Appendix D for protocol).

A taped interview was conducted with each subject which was evaluated through the use of the Gottschalk-
Gleser Content Analysis Scales. Specific content categories of these scales are differently weighted, the weighting initially having been done on the basis of clinical psychoanalytic theory and experience and then revised on the basis on empirical studies to improve predictive and concurrent validity. The unit of speech analyzed is the grammatical clause taken in its context. The scales take into consideration (1) frequency of occurrence of categories, (2) directness of representation, and (3) degree of personal involvement by the speaker.

The specific Gottschalk-Gleser scales employed in this study are Anxiety, Hostility Outward, Ambivalent Hostility, Hostility Inward, and the Human Relations Scale (see Appendix E). Reliabilities of the average score of any two independent scores, the method of scoring used in this study, reported by Gottschalk and Gleser (1969) are given in Table 1.

The Anxiety Scale is designed to measure "free" anxiety, as opposed to "bound" anxiety which would manifest itself in conversion and hypochondriacal symptoms, in compulsions, in doing and undoing, in withdrawal, etc. Gottschalk and Gleser do note, however, that some bound anxiety is registered in that the scoring takes account of displacement and denial. In terms of validity, Gottschalk and Gleser report a .84 product-moment correla-
Table 1

Estimated Reliability of Average Scores of Two Independent Scorers of Gottschalk-Gleser Scales

<table>
<thead>
<tr>
<th>Group</th>
<th>Anxiety</th>
<th>Hostility Outward</th>
<th>Ambivalent Hostility</th>
<th>Hostility Inward</th>
<th>Human Relations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychiatric Outpatients</td>
<td>0.89</td>
<td>0.88</td>
<td>0.87</td>
<td>0.94</td>
<td></td>
</tr>
<tr>
<td>Psychiatric Inpatients</td>
<td>0.84</td>
<td>0.93</td>
<td>0.96</td>
<td>0.91</td>
<td></td>
</tr>
<tr>
<td>Medical Patients</td>
<td>0.93</td>
<td>0.89</td>
<td>0.95</td>
<td>0.88</td>
<td></td>
</tr>
<tr>
<td>Students</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.85</td>
</tr>
</tbody>
</table>
tion between their anxiety scale and the anxiety scale rating on the Brief Psychiatric Rating Scale (Overall & Gorham, 1962), a .66 correlation with ratings of anxiety obtained in clinical psychiatric interviews, a .65 correlation with the acute anxiety scale on the Wittenborn Psychiatric Rating Scales (Wittenborn, 1955), and the demonstrated ability to differentiate psychiatric and normal subjects with the difference in group means significant beyond the .001 level. The types of measures to which it was compared were seen as appropriate as the Gottschalk-Gleser scales are not attempting to measure trait anxiety, but rather the immediate affect being experienced at the time of reporting.

The Gottschalk-Gleser scales deal separately with hostility directed outward, i.e., destructive, injurious, critical thoughts and actions directed to others, hostility directed inward, i.e., self-destructive, self-critical thoughts and actions, and ambivalent hostility, i.e., destructive, injurious, critical thoughts and actions of others to the self. Gottschalk and Gleser (1969) provide the following validity data. Hostility Outward with male subjects has been found to correlate significantly with the Oken Ratings of Immediate Hostility (Oken, 1960) in two separate studies (.64 & .50). A rank-order correlation of .76 was found
between analysts' ratings of total immediate hostility present in psychoanalytic interviews and tapes of those sessions scored by a technician using the Hostility Outward Scale. Thematic Apperception Tests scored for hostility by the method of Hafner and Kaplan (1960) and by the Hostility Outward Scale produced a rank-order correlation of .72 between the two sets of scores. Hostility Inward was found to correlate with the Hostility Inward Scale of the Wittenborn Rating Scales (Wittenborn, 1955) .66 and with the Beck Depression Inventory (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) in two studies (.47 & .34). Ambivalent Hostility has been found to correlate both with the Oken Ratings of Immediate Hostility (.32) and with the Beck Depression Inventory (.37).

The Human Relations Scale is designed to provide a quantitative estimate of an individual's degree of interest in and his capacity for constructive, mutually productive, or satisfying human relationships. Gottschalk and Gleser (1969) indicate a correlation of .51, significant beyond the .01 level, was found between pretreatment Human Relations Scale scores and amount of symptomatic improvement occurring with psychotherapy, as measured by pre- and post-treatment difference scores on a Psychiatric Morbidity Scale. They also report the scale to correlate with the affiliation, nurturance, and succorance scales of the Edwards Personal Preference Schedule (Edwards, 1954) (r's equaled .36, .53,
and .36, respectively).

A copy of the questionnaire used both in establishing a baseline for consumption of alcohol prior to treatment and to determine consumption during the follow-up period is found in Appendix F. It is an adaption of the drinking status segment of the National Institute On Alcohol Abuse and Alcoholism Client Intake Form. With it, the amount usually consumed and the frequency with which it was consumed is determined separately for each of three beverage categories, beer, wine, and hard liquor, for the period under consideration.

Procedure

The experimenter met with all new male admissions after they had completed their first week in treatment. It was explained that he was trying to learn more about alcoholics. Men who volunteered to take part in the study would be asked to fill out two questionnaires, to participate in a tape recorded interview, and to provide information on their alcohol consumption prior to treatment. It was further explained that participants would be contacted at one, three, and six months after discharge to determine how they had or had not benefited from treatment. Each subject was allowed to specify how they should be contacted for follow-up, and if the telephone was to be employed, to whom, if anybody, at that number the researcher could identify himself. Potential
subjects were assured that their decision to participate or not participate in the research would have no effect on any of their other activities at the treatment facility. Their right to withdraw from the project at any time without prejudice to themselves was explained. The fact that the focus of the research was on evaluating the effectiveness of the treatment program to serve different groups of people, as opposed to interest in the results of each subject as such, was made clear. The men were assured that their results would be regarded as confidential and that they would be assigned a code number for use on their answer sheets. The decision to participate was presented as an opportunity to aid in the improvement of the treatment program to the benefit of other alcoholics and as an opportunity to gain greater self-awareness. The experimenter agreed to meet individually and discuss the results of the personality questionnaires with each man who elected to participate and so wished. Interest in securing such information about themselves helped secure participants in this voluntary project, 84% of those asked electing to participate. The shared interested in the results also contributed to a generally serious and conscientious attitude toward the testing procedure (see Appendix G for a copy of the research volunteer agreement).

Subjects were administered the PRF-E and the 16-PF, Form A, in groups. After they had completed these inventories, each was individually interviewed. The first part of the
interview was tape recorded for analysis with the Gottschalk-Gleser Scales and consisted of three segments.

In the first segment, following the standard instructions for the Gottschalk-Gleser Scales, the subject was asked to talk about any interesting personal life experience. The second segment was the subject's response, following Thematic Apperception Test instructions, to a card picturing a group of men interacting. The third segment, again using TAT instructions, was the story the subject composed when presented with a card picturing a group of men and women interacting. The researcher then questioned the subject about his drinking history prior to treatment to complete the drinking status questionnaire. Arrangements for contacting the subject for follow-up were confirmed. The subject was offered the opportunity to have the results of the personality inventories explained to him.

Using the information supplied by the drinking status questionnaire, the average daily consumption of alcohol in terms of ounces of pure ethanol was computed for each subject for the month prior to treatment and for the follow-up periods. In performing the conversion, beer was treated as containing four percent alcohol, wine as containing twenty percent alcohol, as alcoholics tend to consume fortified wine as opposed to table wine, and hard liquor as containing forty percent alcohol.

In order to handle the data on consumption before
and after treatment in such a way that a full spectrum of potential improvement existed, with abstinence being the most desirable long-term outcome but not the only outcome termed "improved," and in such a way that change might be considered both relative to the patient's consumption at the onset of treatment and to the amount of change possible for that person from that level, a relative change index advocated by Stallings and Oncken (1977) was employed. It offered the added advantage of yielding an index on a +100 to -100 scale that is readily understandable.

Typed transcripts were prepared of the material for the Gottschalk-Gleser Content Analysis Scales which was then scored by two independent raters supplied with both the transcripts and the tape recordings of the interviews. These raters had been trained by the researcher in the use of the Gottschalk-Gleser method and had demonstrated an adequate level of proficiency by achieving interrater reliability above .80 (as specified in the manual, Gottschalk et al., 1969) on a separate sample of patient interviews for all scales to be employed in the study. The interrater reliability scores for the various scales were as follows: Anxiety, .95; Hostility Outward, .90; Hostility Inward, .93; Ambivalent Hostility, .93; and Human Relations, .90. A subject's score on a particular scale will be the mean of the scores assigned him by the two raters. The raters'
final scores were determined in accordance with the rules specified in the manual and employing the transformation given to correct for verbal fluency, prevent discontinuity, and reduce skewness. The lone exception to this was that the last portion of the transformation, the square root procedure to reduce skewness, could not be applied to the Human Relations Scale, as it is possible to have a negative raw score on this scale.

Follow-up interviews to determine alcohol consumption after discharge by completion of the drinking status questionnaire were conducted at one, three, and six months after discharge. The primary means of conducting these interviews was by telephone. Men either hospitalized or imprisoned were visited. Letters were used when all other means of achieving contact had been exhausted. One of the 102 subjects of the study died shortly after discharge, and as his death could not be linked to alcohol consumption following treatment, no outcome could be determined for him, and the subject pool was reduced to 101 men. It was possible to conduct interviews with the patient himself covering the full six month follow-up period in 74 cases. Information on the subject's drinking was acquired from a secondary source, a family member, friend, or professional with direct contact with the subject, in an additional 15 cases. It was impossible to obtain follow-up information for 12 subjects, one refusing cooperation and contact being
lost with the remaining 11. Thus follow-up information for the outcome measure was acquired for 89 of 101 subjects, or 88.1% of the sample.

The first phase of this research involved at the same time a clustering of the subjects into subtypes to determine differential effects of treatment on those subtypes and an examination of the formed subtypes themselves to see if they replicated the earlier findings of Nerviano (1976). The attempt at replication was divided into two parts involving first a factor analysis and then a cluster analysis. In order to prevent differences due to statistical handling of data from being confounded with differences due to the new sample in this attempt to cross-validate, statistical procedures employed were identical to those employed by Nerviano. Nerviano chose to base his derivation of typology on the PRF scales and to employ information provided by the 16PF as a source of information for further elaboration of the derived types. To determine the factor structure of the PRF, he used a principle components extraction and varimax rotation. This produced five factors, four of which Nerviano judged to be clinically relevant. He then chose the best marker scales for the four clinically relevant factors, and employed subject profiles composed of those 12 marker scales in his cluster analysis.

For the cluster analysis, Nerviano employed the Lorr correlational clustering procedure (TYPOL). It
first intercorrelated all the profiles composed of the 12 marker scales. It then determined which of the profiles had the largest number of profiles correlated with it above 0.50, a correlation significant at the 0.05 level. To this pivot profile were added profiles that had the highest average correlation to those in the cluster, until all profiles outside the cluster had average correlations with the clustered profiles that were below 0.50. To insure adequate separation of types, all unclustered profiles that had an average correlation with the established cluster above 0.40 (p. less than 0.10) were eliminated. Subsequent types were derived, in sequence by reselecting the best pivot profile from the remaining profiles and repeating the process.

The current study employed the same statistical procedures with its sample to determine if the subtypes would replicate as indicated in the first hypothesis.

Hypotheses two through twelve were tested by use of planned contrasts employing a one-tailed \( t \) test for significant differences and an alpha level of .05.
CHAPTER IV

RESULTS AND DISCUSSION

**Factor Analysis**

The varimax rotated factor matrix of the 21 PRF need scales is given in Table 2.

Nerviano (1976) described his first factor as contrasting scales that reflect spontaneity (Impulsivity, +.79; Play, +.63) with those indicative of restraint and inhibition (Cognitive Structure, -.79; Order, -.72). He labelled the factor Impulsive Control.

The first factor in the analysis of the data from the current study defines the same dimension, with the sign values of all scales simply reversed due to a different positioning of the rotated axes. Thus we see spontaneity (Impulsivity, -.84; Play, -.52) again contrasted with restraint (Cognitive Structure, .74; Order, .78).

Nerviano described his third factor as dealing with responsivity to threat and labelled it Defendency. It displayed the following loading: Defendence, +.81; Aggression, +.70; Abasement, -.66. The second factor of the current study, loading on Defendence (+.75), Aggression (+.69), and Abasement (-.63) seems clearly
Table 2
Varimax Rotated Factor Matrix of the 21 PRF Need Scales

<table>
<thead>
<tr>
<th>PRF Scale</th>
<th>I</th>
<th>II</th>
<th>III</th>
<th>IV</th>
<th>V</th>
<th>VI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abasement</td>
<td>-.254</td>
<td>-.631</td>
<td>-.084</td>
<td>.252</td>
<td>.343</td>
<td>-.120</td>
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<td>Achievement</td>
<td>.298</td>
<td>-.018</td>
<td>.172</td>
<td>.747</td>
<td>.064</td>
<td>-.024</td>
</tr>
<tr>
<td>Affiliation</td>
<td>.080</td>
<td>-.336</td>
<td>.032</td>
<td>.143</td>
<td>.361</td>
<td>.687</td>
</tr>
<tr>
<td>Aggression</td>
<td>-.348</td>
<td>.686</td>
<td>.037</td>
<td>.113</td>
<td>-.110</td>
<td>-.000</td>
</tr>
<tr>
<td>Autonomy</td>
<td>-.309</td>
<td>.220</td>
<td>.184</td>
<td>.194</td>
<td>-.609</td>
<td>-.086</td>
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<tr>
<td>Change</td>
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<td>-.063</td>
<td>.768</td>
<td>.056</td>
<td>-.155</td>
<td>.094</td>
</tr>
<tr>
<td>Cognitive</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Structure</td>
<td>.739</td>
<td>-.022</td>
<td>-.083</td>
<td>.191</td>
<td>.100</td>
<td>-.115</td>
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<td>.751</td>
<td>-.072</td>
<td>.024</td>
<td>.037</td>
<td>-.009</td>
</tr>
<tr>
<td>Dominance</td>
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<td>.239</td>
<td>.147</td>
<td>.701</td>
<td>.098</td>
<td>.247</td>
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<tr>
<td>Endurance</td>
<td>.266</td>
<td>-.158</td>
<td>.264</td>
<td>.707</td>
<td>-.235</td>
<td>.110</td>
</tr>
<tr>
<td>Exhibition</td>
<td>-.117</td>
<td>.191</td>
<td>.163</td>
<td>.185</td>
<td>.127</td>
<td>.777</td>
</tr>
<tr>
<td>Harmavoidance</td>
<td>.132</td>
<td>-.042</td>
<td>-.735</td>
<td>-.035</td>
<td>.336</td>
<td>-.134</td>
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<tr>
<td>Impulsivity</td>
<td>-.837</td>
<td>-.201</td>
<td>.052</td>
<td>-.104</td>
<td>-.089</td>
<td>.049</td>
</tr>
<tr>
<td>Nurturance</td>
<td>.143</td>
<td>-.218</td>
<td>.042</td>
<td>.301</td>
<td>.559</td>
<td>.032</td>
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<tr>
<td>Order</td>
<td>.778</td>
<td>.173</td>
<td>.016</td>
<td>.014</td>
<td>.069</td>
<td>-.022</td>
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<td>Play</td>
<td>-.519</td>
<td>.181</td>
<td>-.017</td>
<td>-.082</td>
<td>-.069</td>
<td>.463</td>
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<tr>
<td>Sentience</td>
<td>-.034</td>
<td>.334</td>
<td>.677</td>
<td>.204</td>
<td>.292</td>
<td>-.027</td>
</tr>
<tr>
<td>Social</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recognition</td>
<td>-.152</td>
<td>.449</td>
<td>-.035</td>
<td>.343</td>
<td>.509</td>
<td>.108</td>
</tr>
<tr>
<td>Succorance</td>
<td>.099</td>
<td>.055</td>
<td>-.063</td>
<td>.113</td>
<td>.767</td>
<td>.148</td>
</tr>
<tr>
<td>Understanding</td>
<td>.108</td>
<td>-.182</td>
<td>.690</td>
<td>.311</td>
<td>.094</td>
<td>-.021</td>
</tr>
<tr>
<td>Desirability</td>
<td>.636</td>
<td>-.284</td>
<td>-.011</td>
<td>.288</td>
<td>.078</td>
<td>.284</td>
</tr>
</tbody>
</table>
to be defining the same area.

The fourth factor that emerged from Nerviano's data was labelled by him Intellectual/Aesthetic Interests, and tapped Understanding (+.72), Sentience (+.65), Achievement (+.57), Nurturance (+.50) and Change (+.49). The area represented by this factor in Nerviano's data seems divided among two factors in the current study. Factor Three loads on Understanding (+.69), Sentience (+.68), and Change (+.77) and is additionally distinguished by Harmovoidance (-.74), while Factor Four loads on Achievement (+.75) and is also marked by Endurance (+.71) and Dominance (+.70).

The fifth factor that Nerviano found was labelled Dependency and was represented by the high need for Succorance (+.81) in contrast with the low need of Autonomy (-.64). Factor Five in the current study (Succorance, +.77; Autonomy, -.61) reveals presence of the same dimension in the current data.

Finally, Nerviano described his second factor as reflecting social participation and extroversion (Exhibition, +.75; Affiliation, +.73; Dominance, +.59). Factor Six from the replication data loads on Exhibition (+.78), Affiliation (+.69), and to a lesser degree on Dominance (+.25).

The results of the factor analysis in the replication seems to parallel quite closely Nerviano's
factor analysis. All five dimensions found by him are represented in the current data. One of his dimensions is split among two factors in the current analysis, and thus there are six as opposed to five factors. Even the ordering of the factors is the same, with the exception that his second factor, Social Ascendancy, is of much lower significance in the data from the replication sample, becoming the sixth factor.

Cluster Analysis and Hypothesis One

As mentioned previously, Nerviano (1976) decided to restrict the derivation of the typology to the 12 best marker scales for the four factors emerging from the analysis of the PRF that he felt clinically relevant. He discarded the factor Intellectual/Aesthetic Interests as not of sufficient clinical importance with the population under consideration. Thus the clustering was done with profiles composed of the following 12 scales: Impulsivity, Cognitive Structure, Order, and Play (from the Impulse Control factor); Exhibition, Affiliation, and Dominance (from the Social Ascendancy factor); Defendence, Aggression, and Abasement (from the Defendancy factor) and Succorance and Autonomy (from the Dependency factor). The remaining 9 PRF scales and the 16-PF scales were used for elaboration of the types after their derivation. Table 3 presents the clusters derived from the analysis of the data from
<table>
<thead>
<tr>
<th>PRF Scale</th>
<th>CLUSTER</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Abasement</td>
<td>-0.90</td>
</tr>
<tr>
<td>Affiliation</td>
<td>-1.29</td>
</tr>
<tr>
<td>Aggression</td>
<td>1.16</td>
</tr>
<tr>
<td>Autonomy</td>
<td>0.38</td>
</tr>
<tr>
<td>Cognitive Structure</td>
<td>-0.52</td>
</tr>
<tr>
<td>Defendence</td>
<td>1.43</td>
</tr>
<tr>
<td>Dominance</td>
<td>-0.71</td>
</tr>
<tr>
<td>Exhibition</td>
<td>-0.01</td>
</tr>
<tr>
<td>Impulsivity</td>
<td>1.33</td>
</tr>
<tr>
<td>Order</td>
<td>-1.13</td>
</tr>
<tr>
<td>Play</td>
<td>0.80</td>
</tr>
<tr>
<td>Succorance</td>
<td>0.24</td>
</tr>
</tbody>
</table>
the replication as characterized by their mean \( z \) score on each of these 12 scales.

Nerviano describes his subtypes in terms of being high (+) or low (-) on a given scale relative to the mean. The first type derived in the replication \((n=16, 15.7\%)\) bears strong resemblance to his Type C to which Nerviano attached the diagnostic label aggressive/paranoid personality or explosive personality. He described them as moderately impulsive \((Impulsivity+, Cognitive Structure-, Order-).\) The current Type 1 shows the same configuration, Impulsivity+, Cognitive Structure-, and Order-. The earlier study indicated this group to be markedly extropunitive \((Dependency - Defendence+, Aggression+, Autonomy-).\) Again the current Type 1 matches, Defendence+, Aggression+, and Autonomy-.

Nerviano indicated his type to be emotionally independent \((Dependency - Succorance-, Autonomy+).\) The current group is fairly nondescript on this dimension, slightly positive on Autonomy \((0.38)\) but also on Succorance \((0.24).\) Both the original and the replication type is below the mean on Affiliation, but the current group is nondescript on Exhibition \((-0.01)\) and slightly below the mean on Dominance \((-0.71),\) whereas the original type was above the mean on these scales.

Type 2 derived in the current study \((n=13, 12.7\%)\) also shows good correspondence to one of the original types, Type A, labelled by Nerviano obsessive-compulsive
personality. Nerviano describes this type as characterized by highly pervasive Impulse Control (Impulsivity-, Cognitive Structure+, Order+, Play-). This forms a perfect match with Type 2 from the replication. Also both types are above the mean on Exhibition (Exhibition+), tend to inhibit aggression (Aggression-), and fall below the mean on Autonomy (Autonomy-). Difference is apparent only on the Dominance and Affiliation scales, where Nerviano's type was above the mean and the replication type falls slightly below the mean (Dominance, -0.10; Affiliation, -0.47).

The means from the third cluster (n=4, 3.9%) in the current study delineate a subtype that parallels Nerviano's Type B, impulsive trait disorder. Nerviano stated Type B subjects were characterized by a broad lack on Impulse Control (Impulsivity+, Cognitive Structure-, Order-, Play+). The subjects in this study's third cluster correspond in all regards. Nerviano additionally noted that his subjects tend to be less dominant (Dominance-) and have need for assistance from others (Succorance+). The replication subjects show the same qualities.

Type 4 from the current study (n=5, 4.9%) fits Nerviano's description for his Type E, schizoid personality. He describes these men as avoiding social interaction (Affiliation-, Dominance-), prepared
for harm from others (Defendence+) and desiring to be unattached (Autonomy+), all equally true of Type 4 in the replication. One difference does appear in that the original group was below the mean on exhibition, whereas the replication group is slightly above (exhibition, +0.70).

Finally, the fifth cluster derived in the replication (n=4, 3.9%) pairs with Nerviano's Type D, passive-dependent personality. He describes these men as submissive (Dominance-), seeking control from others (Autonomy-), and self-abasing (Abasement+). While the original group was below the mean on Aggression, the replication group scored right at the mean ($z$ of 0.01) and, unlike Nerviano's group, was slightly above the mean on Defendency (0.34).

Nerviano's study did derive two additional clusters that did not emerge as clusters in the replication, Type F, labelled asthenic personality, and Type G, labelled narcissistic personality. However, it should be noted that Nerviano was working with a much larger sample (366 subjects) and that neither of the missing types represented more than 3% of his sample. For such types to not be represented in sufficient quantities to form clusters in a sample the size of the one used in the current study, 102 subjects, seems readily understandable.

The five types, based on Nerviano's five largest
clusters, seemed to be clearly represented in the sample of the replication study. Nerviano followed a procedure whereby after the pure types were derived, he hand assigned some untyped profiles which almost met the inclusion criteria to the appropriate types. He achieved a classification of 49% of his total sample. In the current study, 41.2% of the total sample was classified without benefit of hand assigning untyped profiles that almost met the inclusion criteria. It was decided to refrain from this procedure because the purpose of the study was not to attempt to achieve the highest classification rate possible, but to see if the alcoholic subtypes would, in fact, replicate and to prepare the way for research concerning the characteristics of those subtypes. It was felt the pure types would better serve such research purposes.

Another related point of particular significance to any subsequent research concerns the composition of the untyped group. Nerviano had described these profiles as nondescript, typically having average values on all measures. As explained previously, the TYPOL analysis, in order to achieve separation of types, eliminates profiles that correlate highly with an established cluster, but not highly enough to warrant inclusion in that cluster. A case by case inspection
of data from the current study revealed that such eliminated profiles often correlated highly with other subsequently derived subtypes, but were not considered because of their high correlation with the previously derived subtype. Such profiles, showing high correlation to more than one subtype, remain untyped, even though they are quite different from profiles unclustered because all scores on them were near the mean. In the current study, 34 profiles showed low correlations to all of the subtypes and had near average scores on the various scales. These, it is suggested, are best considered as true notypes. However, the remaining 26 unclustered profiles were found to be so because of high correlations to more than one subtype. One pattern, correlating both with the Type 2 profile, obsessive-compulsive, and the Type 5 profile, passive-dependent, appeared with enough frequency, six profiles, to suggest it might be worth investigating as a distinct subtype whose clinical picture did not lend itself to the either/or format of the current analysis. The remaining 20 profiles again present a mixed picture, however with no pattern appearing with sufficient frequency to justify separate consideration. Nevertheless, it is strongly felt that it would be unproductive to lump these profiles with the true notypes.
and their more average scores, and future researchers may do well to retain such profiles in a separate, mixed category. The establishment of such a mixed category was the procedure followed in the present study.

The strong replication of Nerviano's earlier findings (1976) through both factor analysis and cluster analysis supports this study's first hypothesis that the patterns that emerged are reflective of alcoholic subtypes that can be expected to be found among diverse alcoholic populations. In emerging in the current study, the subtypes have shown their presence in two fairly divergent alcoholic samples. Nerviano's sample was drawn at a Veteran's Administration hospital. The current sample is from a municipal treatment center. His sample had a mean age of 44 years, while the current sample has a mean age of 38.7 years. His sample was described as mostly White, while a majority of the current sample is Black. Nerviano used Form AA of the PRF, while this study used the simplified Form E. In spite of all these differences, five subtypes that can be described as (1) aggressive, (2) obsessive-compulsive, (3) impulsive, (4) schizoid, and (5) passive-dependent were once again found to be clearly present.

In addition to replicating the subtypes, the first phase of the study assigned all the subjects to one of eight categories, the five replicated subtypes, the sixth
subtype, obsessive-dependent, exhibiting a profile that had correlated with both the obsessive-compulsive and passive-dependent profiles, the mixed category, and the true notypes. This permitted an exploration of the remaining hypotheses.

Other Hypotheses

As predicted in the second hypothesis, the mean improvement achieved by the notype group was greater than that of the poor prognosis group, \( t (81) = 1.667, p = 0.049. \) It had been theorized that since the men in this category were the best adjusted, their drinking behavior was least likely to be connected to psychological problems. It was felt that the impact of inpatient treatment as constituted at the treatment center, which was seen as removing a person from established patterns of alcohol abuse, allowing time for adjustment to environmental upheavals, and educating the person on the dangers of alcohol abuse, would be greatest on such men. The program was seen as less capable of handling problems of psychological adjustment expected to be interwoven with the drinking problems of many of the subjects.

The fact that this hypothesis was supported and with a category that encompassed one third (33.3%) of the entire sample seems doubly significant in that it tends to support the general theory of this research, that there is a relationship between psychological adjustment
and alcoholism treatment outcome. The fact that the notype group recorded the greatest improvement of any of the eight categories is all the more impressive in view of the fact that their mean alcohol consumption prior to treatment, though not radically different than that of the other groups, was the highest recorded for the eight categories. Clearly these men were alcoholics, but alcoholics of a particular subtype.

The third hypothesis had predicted that the mean improvement achieved by the obsessive-compulsive group was expected to be greater than that of the poor prognosis group, but this was not supported, $t(81) = 0.260, p = 0.398$. It had been felt that of those men exhibiting adjustment problems, there was greater chance that those with neurotic symptoms might be aided by the treatment program, as opposed to those with signs of personality and trait disorders. Whether that proved true or not cannot be determined, but it is clear in any case that treatment did not result in greater improvement with their drinking problems for these men than those assigned a poor prognosis. The rigidity of these men may have worked against them. The fact that the clustering technique led to the formation of a sixth subtype, obsessive-dependent, with a profile that had correlated with the profiles of both the obsessive-compulsive and passive-dependent subtypes, exercised some influence here, as those men comprising the new subtype had a much greater mean improvement than those in the obsessive-compulsive subtype or the passive-
dependent subtype.

The fourth hypothesis states that the mean improvement of the passive-dependent group was expected to be greater than that achieved by the poor prognosis group. It was not supported, \( t (81) = 0.625, p = 0.267 \). In addition to the possible effect of some of the potential members of this group also being assigned to the sixth subtype, as was just discussed, greater improvement for this group had been predicted, not because of a belief that treatment would affect a change in adjustment, but rather the belief that treatment would be able to capitalize on the style of adjustment exhibited. It was felt that members of this subtype would be most amenable to receiving continued support on an outpatient basis. However, none of the group received follow-up treatment at the center, and 75% did not attend any Alcoholics Anonymous meetings. The hypothesis had been based on the belief that a better bridge would be present between inpatient treatment and support available after discharge. This did not prove to be the case. Also, the small number of subjects in the grouping constituted a problem here. All but one of the subjects in this grouping did quite well, but with the small number of subjects in the group, that lone subject's score was enough to prevent the possibility of the hypothesis being supported.

The fifth hypothesis stated that the mean improvement of the obsessive-dependent group was expected to be greater than that achieved by the poor prognosis group. This was not
supported, $t (81) = 0.786, p = 0.217$. Here again it seems that an insufficient number of subjects made it difficult to test the hypothesis. All the members of this group did quite well, and their mean score on the relative chance index, +44.75, nearly equaled that of the notype group, +45.45. However, with so few subjects in the group, it would have required remarkable scores for the hypothesis to have been supported. As every member of this subgroup did exceed the mean improvement of the poor prognosis group as hypothesized, something other than mere chance seemed to be operative and further analysis seemed justified. As sample size represented a problem, a nonparametric test seemed most appropriate. Siegel (1956) states that with sample sizes as small as $n = 6$, there is no alternative to using nonparametrics unless the nature of the population distribution is known exactly. The assumptions of normal distribution and homogeneity of variances, necessary for the $t$ test, are not required by the nonparametrics. Using the binomial test (Siegel), the probability that all four members of the subgroup exceeded the improvement of the poor prognosis group is 0.06 and suggests some support for the hypothesis.

The sixth hypothesis stated that the mean improvement of the aggressive group was expected to be less than that of the good prognosis group. It failed to be supported, $t (81) = 0.90, p = 0.186$. These men did record the third worst improvement score of the eight groups, but it was not low enough to sustain the hypothesis. It had been felt that men
in this group would lack the ability to cooperate in treatment and consequently meet with early discharge or receive minimal benefit from treatment. It is possible that some of the men who would have been most stereotypical of this aggressive and somewhat paranoid group refused cooperation in this voluntary research effort. Also, men subject to disciplinary discharges early in treatment before testing could be undertaken were thus excluded. A larger sample inclusion might well have led to this hypothesis being supported.

The seventh hypothesis, stated that the mean improvement of the impulsive group was expected to be less than that of the good prognosis group, and it failed to be supported, $t_{(81)} = -0.699, p = 0.244$. Not only was the hypothesis not supported, but since this group recorded the highest mean improvement score, the group's misassignment to the poor prognosis group made it all the more difficult to sustain the other hypotheses that were being tested against the mean of the poor prognosis group. This hypothesis had been based on the belief that the members of this group would not remain in a voluntary treatment program for a sustained period, but rather leave impulsively. In fact, the average length of stay at the Center for this group was the longest of any of the eight groups. One possibility is that the structure of the program is such that impulsive decisions to leave treatment cannot come to fruition with sufficient rapidity to prove damaging. Also, the researcher
failed to take adequate account of the fact that as the
mean number of days in treatment before testing could be
initiated was 12.9, those men prone to impulsively leave
treatment would have had ample opportunity to have done so,
leaving a residual group that, for whatever reasons, were
quite committed to treatment. As a selection factor may
have thus left in this group men who were able to not let
their chief adjustment problem, impulsivity, interfere
with their treatment, it becomes more understandable that
the group met with such success.

The eighth hypothesis stated that the mean improve­
ment of the schizoid group was expected to be less than
that of the good prognosis group. This hypothesis was
supported, $t (81) = 1.863, p = 0.033$. It had been felt
that men in this category, having the greatest adjustment
problem of the eight categories, in addition to a drinking
problem, would be least able to benefit from treatment as
constituted at the alcohol treatment center. Just as the
hypothesis concerning the men of the best adjusted
alcoholic category, the notypes, was sustained, here the
hypothesis concerning the least adjusted subtype is also
sustained. The mean relative change index score for this
group was the lowest of that recorded for the eight
categories. Again, the general theory that effectiveness
of treatment for alcoholism is related to adjustment as
reflected in reoccurring subtypes finds some support.
The ninth hypothesis stated that the mean improvement of the mixed group was expected to be less than that achieved by the good prognosis group. It was not supported, \( t (81) = 1.1777, p = 0.121 \). This hypothesis had been based on the belief that the generally poor adjustment of the group would reduce chances of treatment success in a program designed principally to focus on alcohol abuse problems. The group did record the second lowest mean relative change index score, but it was not quite low enough to sustain the hypothesis.

The remaining hypotheses, ten through twelve, concern the Gottschalk-Gleser Scales. The interrater reliability scores for these scales in this study were as follows: Anxiety, 0.60; Hostility Outward, 0.82; Hostility Inward, 0.73; Ambivalent Hostility, 0.79; and Human Relations, 0.43. The reliability of the Human Relations Scale in particular does not seem adequate. This scale is the least developed of the Gottschalk-Gleser Scales employed in the study. Detailed lists of scorable examples for the scale's various categories were not available to aid the scorers, as they were for the other scales. A decision was made to employ the scale because it was designed to measure an important area of interest, the ability to enter into constructive and satisfying interpersonal relationships, and because it was felt that adequate scoring reliability could be achieved, as it had been
achieved on a smaller sample during the training of the raters.

The tenth hypothesis stated that the mean improvement achieved by the group assigned a good Gottschalk prognosis was expected to be greater than that achieved by the other subjects. Subjects whose scores met the following conditions had been assigned a good Gottschalk prognosis:

a) their Human Relations score had to be greater than, or equal to, the mean for all subjects;
b) their Anxiety, Hostility Outward, Hostility Inward, and Ambivalent Hostility scores had to be less than, or equal to, the mean for all subjects. There had been 89 subjects on whom it had been possible to obtain treatment outcome information. One of the 89 had refused to cooperate with the Gottschalk-Gleser procedure. The criteria set forth divided the remaining 88 subjects into two groups, one group containing 15 subjects that were assigned a good Gottschalk prognosis and the other group consisting of the remaining 73 subjects. The mean relative change index score for the good prognosis group was +46.33 as opposed to +36.25 for the other subjects, but the effect was not strong enough to support the hypothesis, \( t (86) = 1.228, p = 0.112. \)

The eleventh hypothesis stated that the mean improvement achieved by subjects whose Hostility Outward score was greater than the mean for all subjects was expected to be less than that achieved by other subjects. This resulted in a division of the 88 subjects into a group of 17 with
high Hostility Outward scores and the remaining 71 subjects. The hypothesis was not supported, \( t (86) = -0.236, p = 0.407 \). It is hard to explain this result unless the hostility levels present, though higher than that of the other subjects, were not elevated enough to interfere with treatment, those patients most hostile having already been discharged from the treatment center prior to testing or refusing cooperation with the research.

The twelfth hypothesis stated that of those men recording Anxiety, Hostility Outward, or Ambivalent Hostility scores above the mean for all subjects on the card portraying male-female interaction, the mean improvement achieved by those subsequently assigned to therapy groups containing both male and female patients or a female therapist was expected to be less than that achieved by those men subsequently assigned to an all-male treatment group. This hypothesis involved 64 subjects who were above the mean on one of the three scales on the male-female card. Follow-up information was successfully obtained on 57 of the subjects, 28 of whom were subsequently assigned to therapy groups containing both men and women or which had a female therapist, and 29 of whom were assigned to all-male treatment groups. The hypothesis itself was not supported, \( t (54) = -1.487, p = 0.072 \). The results suggested that almost the reverse of the hypothesis was taking place, that men exhibiting indications of disturbed male-female relations
were achieving greater improvement if assigned to a group which included female patients or had a female therapist. Further exploration of the data confirmed that this was the case for such men assigned to treatment groups containing women patients, $t(54) = -2.038, p = 0.023$, but not so when the group was all-male but with a female therapist, $t(54) = -0.565, p = 0.288$. It would seem that the presence of women peers, fellow patients as opposed to an authority figure such as a woman therapist, may have somehow contributed to increased treatment effectiveness for men showing signs of having difficulties relating to women. They may have been able to transfer an increased ability to relate to women developed under the controlled conditions of the therapy group to their relationships outside of treatment, with the improved relations contributing to reduced alcohol abuse. Further research is needed to confirm and explain this interesting result.

In reviewing the findings of this study, several key points stand out. The successful cross-validation of alcoholic subtypes in a sample with substantially different demographic characteristics suggest that these patterns may well be pervasive among alcoholics. Further, even with no provision currently being made to tailor treatment in light of the subtypes' existence, a relationship has been demonstrated between the types and treatment outcome. In this initial study it consisted of the least adjusted
subtype, the schizoid group, showing the least improvement from treatment, while the best adjusted, the notypes, showed significantly greater improvement than other patients. The tests of the other hypotheses did not reach significance, and so the particular findings of each must be looked upon as the results of chance, but the fact that in almost every case, working with so many hypotheses, improvement level was greater or less, as predicted, is hard for chance to explain, and suggests that further research, able to detect more subtle differences, may substantiate the influence of the other subtypes. Statistical support for the fact that the findings are not reflective of mere chance being operative is provided by the application, once again, of the binomial test (Siegel, 1956) to determine the probability that the improvement level of the various subtypes was greater or less, as predicted, seven out of eight times. The test shows $p = 0.03$, a strong argument against the results reflecting the randomness of chance. Further, if, to avoid the problems associated with small sample size and the accompanying difficulties of assuming normal distribution and homogeneity of variance, this same nonparametric procedure, the binomial test, is used to analyse the fact that the improvement level of 54 of the 89 subjects was greater or less, as predicted on the basis of their subtypes, again $p = 0.03$, and it is possible to reject the notion that the findings are reflective of mere chance. The findings
suggest that if these patterns are pervasive among alcoholics, a treatment program that addresses only the drinking problem of its alcoholics is providing adequate treatment for the notype group, but not addressing significant treatment issues of the other patients. As for the impact on treatment outcome of the various subtypes, the fact that it does not readily manifest itself when no provision has yet been made in treatment planning for such differences does not mean that once this new knowledge is capitalized on that the effects won't become visible. A treatment that isn't too bad a fit, or an ill-fitting treatment, can be equally so for several subtypes masking differences. Further research with tailored treatment planning in light of this new knowledge is needed.

It should also be noted that several features of this study itself made securing adequate results difficult and could be improved upon by further research. In addition to the newness of the research area, certainly the most glaring problem hampering the research was an insufficient sample size to provide an adequate number of subjects for testing in the less common subtypes. This came about due to practical limitations on the scope of the current study, but it is suggested that future research be initiated with a sample at least double, or more ideally triple, the current sample size. Secondly, the ability to sustain any of the hypotheses was hampered by the misassignment of the
subjects in the impulsive subtype to the poor prognosis group. As the subjects in the impulsive subtype actually recorded the highest improvement of any subtype, and all the subtypes assigned a good prognosis had to significantly exceed the improvement of the poor prognosis group benefitting from the performance of the impulsive subtype, the magnitude of the impact of this error can be seen. Performing a post hoc analysis contrasting the good and poor prognosis groups excluding the impulsive subtype entirely showed the difference between the two prognosis groups to be significant, $t(81) = 1.956$, $p = 0.027$.

Thirdly, the current sample, as mentioned previously, was marked with a predominance of instability in life style, having little education, high unemployment, and few family ties. Facing such severe environmental difficulties, it is amazing that the impact of personality variables can become evident at all. Although further research is dictated, as the personality features found in this study may have, in fact, been present due to the subjects' struggles with such environmental problems, it is suggested that it might be more possible to detect the influence of personality features in a sample where the impact of environmental issues was not so overwhelming.

In regards the hypotheses involving the Gottschalk Scales, only the unexpected finding of the significantly greater improvement made by men exhibiting signs of
difficulties relating to women who were assigned to treatment groups containing women patients seems worth exploring further. Confirmation of this result by future research would suggest that screening be employed to see that it is such subjects that are assigned to therapy groups containing both men and women patients.
SUMMARY

A review of previous research indicates the possibility that certain reoccurring personality patterns represent true alcoholic subtypes that can be expected to be present in any sizable alcoholic sample. This study, involving 102 men from Chicago's Alcoholic Treatment Center, achieved a cross-validation of five potential subtypes originally identified by Nerviano (1976) using two personality inventories, the 16 PF and the PRF. The replication involved both factor analysis and cluster analysis. The five replicated subtypes are (1) aggressive, (2) obsessive-compulsive, (3) impulsive, (4) schizoid, and (5) passive-dependent. Two of Nerviano's subtypes, asthenic personality and narcissistic personality, each of which only represented three percent of his larger sample, were not found as clusters in the smaller sample of this study. The study suggests the consideration of a sixth subtype, obsessive-dependent, a mixed category, and a category of notypes.

The relationship between the subtypes and treatment outcome is investigated. Principal findings of this phase of the study suggest that there is a relationship between adjustment, as represented by the subtypes, and
alcohol treatment success. The least adjusted of the
groups, the schizoid subtype, recorded the least improve­
ment in terms of alcohol consumption over a six-month
follow-up period, while the best adjusted group, the notypes,
registered significantly greater improvement than other
subjects. The effect of the other individual subtypes on
treatment effectiveness was not clearly established, and
reasons for this and possible approaches for future research
to pursue are discussed. Support was found for the ability
to associate a good or bad prognosis with a subject based
on his subtype.

The study also found that men who exhibited signs of
difficulties in relationships with women recorded significant­
ly greater improvement if assigned to a treatment group
containing women as well as men patients. Further research
is needed to confirm this finding.


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APPENDIX A
APPENDIX A

Data on Time Of Test Administration

<table>
<thead>
<tr>
<th>Number of Days After Admission Testing Initiated&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Median</th>
<th>Mode</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>12.9</td>
<td>2.3</td>
<td>13</td>
<td>12</td>
</tr>
</tbody>
</table>

<sup>a</sup> n=102
APPENDIX B
DIRECTIONS

On the following pages you will find a series of statements which a person might use to describe himself. Read each statement and decide whether or not it describes you. Then indicate your answer on the separate answer sheet. If you agree with a statement or decide that it does describe you, answer TRUE. If you disagree with a statement or feel that it is not descriptive of you, answer FALSE.

In marking your answers on the answer sheet, be sure that the number of the statement you have just read is the same as the number on the answer sheet.

Answer every statement either true or false, even if you are not completely sure of your answer.
1. I like to be the first to apologize after an argument.
2. People should be more involved with their work.
3. I am quite independent of the people I know.
4. I go out of my way to prevent anyone from getting the best of me.
5. I find that I can think better when I have the advice of others.
6. The main joy in my life is going to new places and seeing new sights.
7. I very seldom make careful plans.
8. It is usually quite easy for me to admit I am wrong.
9. I feel confident when directing the activities of others.
10. I don't have the staying power to do work that must be very accurate.
11. At a party I enjoy entertaining others.
12. To me, crossing the ocean in a sailboat would be a wonderful adventure.
13. Often I stop in the middle of one activity in order to start something else.
14. I feel no great concern for the troubles of other people.
15. I spend quite a lot of time keeping my belongings in order.
16. People consider me a serious, reserved person.
17. The motion of water in a river can almost hypnotize me.
18. I would not consider myself successful unless other people thought I was.
19. If I feel sick, I don't like to have friends or relatives fuss over me.
20. There are many activities that I prefer to reading.
21. I have never bought anything in a store.
22. I am quite able to make correct decisions on difficult questions.
23. I would never call attention to any of my weaknesses.
24. I seldom set standards which are difficult for me to reach.
25. I choose hobbies that I can share with other people.
26. When I bump into a piece of furniture, I don't usually get angry.
27. I delight in feeling unattached.
28. When I find a good way to do something, I avoid trying new ways.
29. When I go on a trip I prepare a timetable beforehand.
30. I would get into a long discussion rather than admit I am wrong.
31. I would make a poor military leader.
32. When I hit a snag in what I am doing, I don't stop until I have found a way to get around it.
33. I am more of a listener than a talker.
34. I don't ever go walking in places where there might be poisonous snakes.
35. I am careful to consider all sides of an issue before taking action.
36. I would rather have a job serving people than a job making something.
37. I feel comfortable in a somewhat disorganized room.
38. I spend a good deal of my time just having fun.
39. I rarely notice the texture of a piece of clothing.
40. I will not go out of my way to behave in an approved manner.
41. I would like to be married to a protective and sympathetic person.
42. I like to read several books on one topic at the same time.
43. I could easily count from one to twenty-five.
44. I am never able to do things as well as I should.
45. One of my good points is that I never mind when others make fun of me.
46. I enjoy difficult work.
47. I seldom put out extra effort to make friends.
48. I think that certain people deserve to be "put in their places."
49. Family obligations make me feel important.
50. I would not like to work at the same job all of my life.
51. I like to be with people who change their minds often.
52. I don't mind having my mistakes pointed out to me at times when other people can hear.
53. I would like to be a judge.
54. If I run into great difficulties on a project, I usually stop work rather than try to solve them.
55. I like to be in the spotlight.
56. I think it would be fun to be a test pilot for experimental jet planes.
57. I often say the first thing that comes into my head.
58. It doesn't affect me one way or another to see a child being spanked.
59. When writing something, I keep my pencils sharpened.
60. Most of my friends are serious-minded people.
61. I like to feel sculptured objects.
62. When I am doing something, I often worry about what other people will think.
63. I prefer not being dependent on anyone for assistance.
64. I would rather work in business than in science.
65. I can run a mile in less than four minutes.
66. My life is full of interesting activities.
67. I don't like running errands for others, even my friends.
68. I have rarely done extra studying in connection with my work.
69. I go out of my way to meet people.
70. I seldom feel like hitting anyone.
71. People who try to regulate my conduct with rules are a bother.
72. I like to go to stores with which I am quite familiar.
73. Before I ask a question, I decide exactly what it is I need to find out.
74. People find it very hard to convince me that I am wrong on a point.
75. I avoid positions of power over other people.
76. I am willing to work longer at a project than are most people.
77. The idea of acting in front of a large group doesn't appeal to me.
78. I try to get out of jobs that would require using dangerous tools or machinery.
79. I am pretty cautious.
80. Babysitting would be a rewarding job for me.
81. I am often disorganized.
82. At times I get fascinated by some unimportant game and play with it for hours.
83. I have never seen a statue that reminded me of a real person.
84. I don't buy things just because my friends will like them.
85. I try to share my burdens with someone who can help me.
86. I am more at home in an intellectual discussion than in a discussion of sports.
87. I have never talked to anyone by telephone.
88. I believe people tell lies any time it is to their advantage.
89. I have often let others take credit for something I have done rather than be impolite about it.
90. I will not be satisfied until I am the best in my field of work.
91. I don't really have fun at large parties.
92. When I am irritated, I let it be known.
93. I would feel lost and lonely roaming around the world alone.
94. I believe the more hobbies I have the better.
95. I tend to start right in on a new task without thinking about the best way to do it.
96. I usually let unkind things someone might say about me pass without making any reply.
97. I try to control others rather than permit them to control me.
98. If I get tired while playing a game, I generally stop playing.
99. Others think I am lively and witty.
100. I like to live dangerously.
101. When I go to the store, I often come home with things I had not intended to buy.
102. I have never done volunteer work for charity.
103. A place for everything and everything in its place is the way I like to live.
104. I would prefer a quiet evening with friends to a loud party.
105. Sometimes I feel like stepping into mud and letting it ooze between my toes.
106. I constantly try to make people think highly of me.
107. The person I marry won't have to spend much time taking care of me.
108. I tend to shy away from intellectual discussions.
109. I usually wear something warm when I go outside on a very cold day.
110. If someone gave me too much change I would tell him.
111. I would never allow someone to blame me for something which was not my fault.
112. I try to work just hard enough to get by.
113. People consider me to be quite friendly.
114. I rarely get angry either at myself or at other people.
115. I could live alone and enjoy it.
116. Changes in routine bother me.
117. Often when I telephone someone, I make a list of things to discuss.
118. I don't like people to joke about what they feel are my weaknesses.
119. I don't like to have the responsibility for directing the work of others.
120. I have spent hours looking for something I needed to complete a project.
121. I seldom try to call attention to myself.
122. I would never want to be a forest-fire fighter.
123. Rarely, if ever, do I do anything reckless.
124. I often take young people under my wing.
125. I often forget to put things back in their places.
126. Most of my spare moments are spent relaxing and amusing myself.
127. I don't care whether I drink water from a fine glass or from a paper cup.
128. If I have done something well, I don't bother to call it to other people's attention.
129. I want to be sure someone will take care of me when I am old.
130. I like magazines offering thoughtful discussions of politics and art.
131. I make all my own clothes and shoes.
132. I would be willing to do something a little unfair to get something that was important to me.
133. Several people have taken advantage of me but I always take it like a good sport.
134. I would work just as hard whether or not I had to earn a living.
135. I would not be very good at a job which required me to meet people all day long.
136. I would work just as hard whether or not I had to earn a living.
137. I would not be very good at a job which required me to meet people all day long.
138. Stupidity makes me angry.
139. I respect rules because they guide me.
140. If faced by a good argument, I am usually willing to change my position even on important issues.
141. I would like to play a part in making laws.
142. If I have to pack a suitcase, I usually organize it very well.
143. One of my favorite pastimes is sitting before a crackling fire.
144. I did many very bad things as a child.
145. Sometimes I let people push me around so they can feel important.
146. My goal is to do at least a little bit more than anyone else has done before.
147. If I discover a cave I would explore it right away, even if I was not sure how risky it was.
148. I see no reason to change the color of my room once I have painted it.
149. I have often broken things because of carelessness.
150. I have little interest in leading others.
151. I usually make decisions without consulting others.
152. I would not explore an old deserted house on a dark night.
153. I have a lot of trouble keeping an accurate record of my expenses.
154. I resent being punished.
155. I see no reason to change the color of my room once I have painted it.
156. When I make something I want to know exactly what it will look like when finished.
157. I am proud of those of my accomplishments which are recognized by others.
158. If I become tired I set my work aside until I am more rested.
159. I did many very bad things as a child.
160. If I want to know the answer to a question, I sometimes look for it for days.
161. Sometimes when a friend is in trouble, I cannot sleep because I want so much to help.
194. When I am dressing for a party, I look for something that will be liked by other guests.
195. I prefer to face my problems by myself.
196. I really don’t know what is involved in any of the latest cultural developments.
197. Sometimes I see cars near my home.
198. I am glad I grew up the way I did.
199. If someone accidentally burned me with his cigarette I would certainly mention it to him.
200. In my work I seldom do more than is necessary.
201. I spend a lot of time visiting friends.
202. If someone does something I don’t like, I seldom say anything.
203. I would like to be alone and my own boss.
204. I would be content to live in the same town for the rest of my life.
205. I try to plan my future so that I can tell what I will be doing at any given time.
206. I tend to react strongly to remarks which find fault with my personal appearance.
207. I feel uneasy when I have to tell people what to do.
208. I rarely let anything keep me from an important job.
209. I never attempt to be the life of the party.
210. I have no strong desire to drive a motorcycle.
211. I have a reserved and cautious attitude toward life.
212. People like to tell me their troubles because they know I will help them.
213. I rarely clean out my bureau drawers.
214. I pride myself on being able to see the funny side of every situation.
215. I don’t get any particular enjoyment from having my neck massaged.
216. It seems foolish to me to worry about my public image.
217. If I ever think that I am in danger, my first reaction is to look for help from someone.
218. I do almost as much reading on my own as I did for classes when I was in school.
219. I have never had any hair on my head.
220. I often question whether life is worthwhile.
221. When someone bumps into me in a crowd, I usually say I am sorry.
222. I often set goals that are very difficult to reach.
223. Sometimes I have to make a real effort to be sociable.
224. I often make people angry by teasing them.
225. I like to do whatever is proper.
226. I get annoyed with people who never want to go anywhere different.
227. I can feel comfortable even when I have a number of unanswered questions in mind.
228. If someone finds fault with me I just listen quietly.
229. The ability to be a leader is very important to me.
230. I don’t have the energy to do some of the things I would like.
231. I seldom feel shy when I am the center of attention.
232. I would enjoy learning to walk on a tightrope.
233. Most people feel that I act impulsively.
234. If I could, I would hire a nurse to care for a sick child rather than do it myself.
235. If I remove an object from a shelf, I always replace it when I have finished with it.
236. I believe in working toward the future rather than spending my time in fun now.
237. I think that my sense of touch is more sensitive than that of most people.
238. Nothing would hurt me more than to have a bad reputation.
239. When I was a child, I disliked it if my mother was always worrying about me.
240. I seldom read extensively on any one subject.
241. I have traveled away from my home town.
242. I am always prepared to do what is expected of me.
243. I try not to let anyone else take credit for my work.
244. People seldom think of me as a hard worker.
245. My friendships are many.
246. I avoid criticizing others under any circumstances.
247. I would like to have a job in which I didn’t have to answer to anyone.
248. I like to return to the same vacation spot year after year.
249. I don’t like to go into a situation without knowing what I can expect from it.
250. When people say insulting things about me I usually get back at them by pointing out their faults.
251. Most community leaders do a better job than I could possibly do.
252. I will continue working on a problem even with a severe headache.
253. People think I am quite shy.
254. I avoid some hobbies and sports because of their dangerous nature.
255. My thinking is usually careful and purposeful.
256. It is very important to me to show people I am interested in their troubles.
257. My personal papers are usually in a state of confusion.
258. I try to make my work into a game.
259. I could not possibly identify flowers just by their fragrance.
260. I don't go out of my way to earn the high esteem of people I know.
261. I like to be with people who take a protective attitude toward me.
262. I would enjoy being a scientist who was studying the effects of the sun on our earth.
263. I have never ridden in an automobile.
264. My daily life includes many activities I dislike.
265. When people try to make me feel important, I feel uncomfortable.
266. As a child I worked a long time for some of the things I earned.
267. I don't spend much of my time talking with people I see every day.
268. Sometimes I feel like smashing things.
269. I usually try to share my problems with someone who can help me.
270. I would like the type of work which would keep me constantly on the move.
271. When I take a vacation I like to go without detailed plans.
272. I don't mind being teased about silly things I have done.
273. I am quite effective in getting others to agree with me.
274. When I get to a hard place in my work I usually stop and go back to it later.
275. When I am in a crowd, I want others to notice me.
276. Exploring dangerous sections of a city sounds like fun to me.
277. Sometimes I get several projects started at once because I don't think ahead.
278. I don't like it when friends ask to borrow my possessions.
279. There is no excuse for a messy desk.
280. I never play jokes on people, and prefer not to have them played on me.
281. I like to run through heaps of fallen leaves.
282. My social standing is important to me.
283. I would rather act on my own than have a superior help me.
284. I would rather build something with my hands than try to develop scientific theories.
285. I have never felt sad.
286. I am one of the lucky people who could talk with my parents about my problems.
287. I do not particularly enjoy being the object of someone's jokes.
288. It doesn't really matter to me whether or not I become one of the best in my field.
289. I trust my friends completely.
290. If someone hurts me, I just try to forget about it.
291. I am quite independent of the opinions of others.
292. My friends can almost always tell what I'm going to do in a situation.
293. I don't like to start a project until I know the best way to proceed.
294. If someone accused me of making a mistake, I would call attention to his mistakes.
295. I am not very insistent in an argument.
296. If people want a job done which requires patience, they ask me.
297. I feel uncomfortable when people are paying attention to me.
298. I don't like to go near trucks carrying explosive materials.
299. I am not one of those people who blurt out things without thinking.
300. Seeing an old or helpless person makes me feel that I would like to take care of him.
301. I often have a hard time finding the thing I want among my belongings.
302. I often do something for no reason at all except that it sounds like fun.
303. I would never spend my money on a steam bath.
304. I don't care if my clothes are unstylish, as long as I like them.
305. I usually tell others of my misfortunes because they might be able to assist me.
306. I have a great curiosity about many things.
307. I try to get at least some sleep every night.
308. Many things make me feel uneasy.
309. I remember my failures more easily than my successes.
310. I don't mind working while other people are having fun.
311. Often I would rather be alone than with a group of friends.
312. I get a kick out of seeing someone I dislike appear foolish in front of others.
313. I don't want to be away from my family too much.
314. I like to change the pictures on my walls frequently.
315. I often start work on something when I have only a very hazy idea of what the end result will be.
316. I don't get angry when people laugh at my errors.
317. I would like to be an executive with power over others.
318. When other people give up working on a problem, I usually quit too.
319. I am never one to sit on the sidelines at a party.
320. I think I would enjoy mountain climbing.
321. I find that thinking things over very carefully often destroys half the fun of doing them.
322. I am not always willing to help someone when I have other things to do.
323. I keep my possessions in such good order that I have no trouble finding anything.
324. I usually have some reason for the things I do other than just my own amusement.
325. I enjoy the feeling of mist and fog.
326. The good opinion of one's friends is one of the chief rewards for living a good life.
327. As a child, I disliked having to be dependent on other people.
328. Studying the history of ideas has no appeal to me.
329. Sometimes I feel thirsty or hungry.
330. I am careful to plan for my distant goals.
331. When standing in line, I don't let other people get ahead of me.
332. I am not really very certain what I want to do or how to go about doing it.
333. I try to be in the company of friends as much as possible.
334. I rarely swear.
335. My greatest desire is to be independent and free.
336. It would take me a long time to get used to living in a foreign country.
337. When I talk to a doctor, I want him to describe in detail any illness I have.
338. I never allow anyone to talk me down on an important issue.
339. I would not want to have a job enforcing the law.
340. Even when I am feeling quite ill, I will continue working if it is important.
341. I could never be a popular singer because I am too shy.
342. I get worried even watching a trapeze artist so I would never actually try it myself.
343. I generally rely on careful reasoning in making up my mind.
344. I feel most worthwhile when I am helping someone who is disabled.
345. Being in a cluttered room doesn't bother me.
346. I enjoy parties, shows, games — anything for fun.
347. I rarely sit and watch the water at a beach or stream.
348. I don't try to "keep up with the Joneses."
349. I often seek other people's advice.
350. When I was a child, I read almost every book in my house and often went to the library.
351. I have attended school at some time during my life.
352. I find it very difficult to concentrate.
APPENDIX C

Data On Pre-Testing With The PRF

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<sup>a</sup> Score of 4 or higher indicates invalid protocol.
WHAT TO DO: Inside this booklet are some questions to see what attitudes and interests you have. There are no “right” and “wrong” answers because everyone has the right to his own views. To be able to get the best advice from your results, you will want to answer them exactly and truly.

If a separate “Answer Sheet” has not been given to you, turn this booklet over and tear off the Answer Sheet on the back page.

Write your name and all other information asked for on the top line of the Answer Sheet.

First you should answer the four sample questions below so that you can see whether you need to ask anything before starting. Although you are to read the questions in this booklet, you must record your answers on the answer sheet (alongside the same number as in the booklet).

There are three possible answers to each question. Read the following examples and mark your answers at the top of your answer sheet where it says “Examples.” Fill in the left-hand box if your answer choice is the “a” answer, in the middle box if your answer choice is the “b” answer, and in the right-hand box if you choose the “c” answer.

EXAMPLES:
1. I like to watch team games.
   a. yes, b. occasionally, c. no.
2. I prefer people who:
   a. are reserved,
   b. (are) in between,
   c. make friends quickly.
3. Money cannot bring happiness.
   a. yes (true), b. in between, c. no (false).
4. Woman is to child as cat is to:
   a. kitten, b. dog, c. boy.

In the last example there is a right answer—kitten. But there are very few such reasoning items.

Ask now if anything is not clear. The examiner will tell you in a moment to turn the page and start.

When you answer, keep these four points in mind:

1. You are asked not to spend time pondering. Give the first, natural answer as it comes to you. Of course, the questions are too short to give you all the particulars you would sometimes like to have. For instance, the above question asks you about “team games” and you might be fonder of football than basketball. But you are to reply “for the average game,” or to strike an average in situations of the kind stated. Give the best answer you can at a rate not slower than five or six a minute. You should finish in a little more than half an hour.

2. Try not to fall back on the middle, “uncertain” answers except when the answer at either end is really impossible for you—perhaps once every four or five questions.

3. Be sure not to skip anything, but answer every question, somehow. Some may not apply to you very well, but give your best guess. Some may seem personal; but remember that the answer sheets are kept confidential and cannot be scored without a special stencil key. Answers to particular questions are not inspected.

4. Answer as honestly as possible what is true of you. Do not merely mark what seems “the right thing to say” to impress the examiner.
1. I have the instructions for this test clearly in mind.
   a. yes,  b. uncertain,  c. no.

2. I am ready to answer each question as truthfully as possible.
   a. yes,  b. uncertain,  c. no.

3. I would rather have a house:
   a. in a sociable suburb,
   b. in between,
   c. alone in the deep woods.

4. I can find enough energy to face my difficulties.
   a. always,  b. generally,  c. seldom.

5. I feel a bit nervous of wild animals even when they are in strong cages.
   a. yes (true),  b. uncertain,  c. no (false).

6. I hold back from criticizing people and their ideas.
   a. yes,  b. sometimes,  c. no.

7. I make smart, sarcastic remarks to people if I think they deserve it.
   a. generally,  b. sometimes,  c. never.

8. I prefer semiclassical music to popular tunes.
   a. true,  b. uncertain,  c. false.

9. If I saw two neighbors' children fighting, I would:
   a. leave them to settle it,
   b. uncertain,
   c. reason with them.

10. On social occasions I:
    a. readily come forward,
    b. in between,
    c. prefer to stay quietly in the background.

11. It would be more interesting to be:
    a. a construction engineer,
    b. uncertain,
    c. a writer of plays.

12. I would rather stop in the street to watch an artist painting than listen to some people having a quarrel.
    a. true,  b. uncertain,  c. false.

13. I can generally put up with conceited people, even though they brag or show they think too well of themselves.
    a. yes,  b. in between,  c. no.

14. You can almost always notice on a man's face when he is dishonest.
    a. yes,  b. in between,  c. no.

15. It would be good for everyone if vacations (holidays) were longer and everyone had to take them.
    a. agree,  b. uncertain,  c. disagree.

16. I would rather take the gamble of a job with possibly large but uneven earnings, than one with a steady, small salary.
    a. yes,  b. uncertain,  c. no.

17. I talk about my feelings:
    a. only if necessary,
    b. in between,
    c. readily, whenever I have a chance.

18. Once in a while I have a sense of vague danger or sudden dread for reasons that I do not understand.
    a. yes,  b. in between,  c. no.

19. When criticized wrongly for something I did not do, I:
    a. have no feeling of guilt,
    b. in between,
    c. still feel a bit guilty.

20. Money can buy almost everything.
    a. yes,  b. uncertain,  c. no.

21. My decisions are governed more by my:
    a. heart,
    b. feelings and reason equally,
    c. head.

22. Most people would be happier if they lived more with their fellows and did the same things as others.
    a. yes,  b. in between,  c. no.

23. I occasionally get puzzled, when looking in a mirror, as to which is my right and left.
    a. true,  b. uncertain,  c. false.

24. When talking, I like:
    a. to say things, just as they occur to me,
    b. in between,
    c. to get my thoughts well organized first.

25. When something really makes me furious, I find I calm down again quite quickly.
    a. yes,  b. in between,  c. no.

(End, column 1 on answer sheet.)
26. With the same hours and pay, it would be more interesting to be:
   a. a carpenter or cook,
   b. uncertain,
   c. a waiter in a good restaurant.

27. I have been elected to:
   a. only a few offices,
   b. several,
   c. many offices.

28. “Spade” is to “dig” as “knife” is to:
   a. sharp, b. cut, c. point.

29. I sometimes can’t get to sleep because an idea keeps running through my mind.
   a. true, b. uncertain, c. false.

30. In my personal life I reach the goals I set, almost all the time.
   a. true, b. uncertain, c. false.

31. An out-dated law should be changed:
   a. only after considerable discussion,
   b. in between,
   c. promptly.

32. I am uncomfortable when I work on a project requiring quick action affecting others.
   a. true, b. uncertain, c. false.

33. Most of the people I know would rate me as an amusing talker.
   a. yes, b. uncertain, c. no.

34. When I see “sloppy,” untidy people, I:
   a. just accept it,
   b. in between,
   c. get disgusted and annoyed.

35. I get slightly embarrassed if I suddenly become the focus of attention in a social group.
   a. yes, b. in between, c. no.

36. I am always glad to join a large gathering, for example, a party, dance, or public meeting.
   a. yes, b. in between, c. no.

37. In school I preferred (or prefer):
   a. music,
   b. uncertain,
   c. handwork and crafts.

38. When I have been put in charge of something, I insist that my instructions are followed or else I resign.
   a. yes, b. sometimes, c. no.

39. For parents, it is more important to:
   a. help their children develop their affections,
   b. in between,
   c. teach their children how to control emotions.

40. In a group task I would rather:
   a. try to improve arrangements,
   b. in between,
   c. keep the records and see that rules are followed.

41. I feel a need every now and then to engage in a tough physical activity.
   a. yes, b. in between, c. no.

42. I would rather mix with polite people than rough, rebellious individuals.
   a. yes, b. in between, c. no.

43. I feel terribly dejected when people criticize me in a group.
   a. true, b. in between, c. false.

44. If I am called in by my boss, I:
   a. make it a chance to ask for something I want,
   b. in between,
   c. fear I’ve done something wrong.

45. What this world needs is:
   a. more steady and “solid” citizens,
   b. uncertain,
   c. more “idealists” with plans for a better world.

46. I am always keenly aware of attempts at propaganda in things I read.
   a. yes, b. uncertain, c. no.

47. As a teenager, I joined in school sports:
   a. occasionally,
   b. fairly often,
   c. a great deal.

48. I keep my room well organized, with things in known places almost all the time.
   a. yes, b. in between, c. no.

49. I sometimes get in a state of tension and turmoil as I think of the day’s happenings.
   a. yes, b. in between, c. no.

50. I sometimes doubt whether people I am talking to are really interested in what I am saying.
   a. yes, b. in between, c. no.

(End, column 2 on answer sheet.)
51. If I had to choose, I would rather be:
   a. a forester,
   b. uncertain,
   c. a high school teacher.

52. For special holidays and birthdays, I:
   a. like to give personal presents,
   b. uncertain,
   c. feel that buying presents is a bit of a nuisance.

53. "Tired" is to "work" as "proud" is to:
   a. smile, b. success, c. happy.

54. Which of the following items is different in kind from the others?
   a. candle, b. moon, c. electric light.

55. I have been let down by my friends:
   a. hardly ever,
   b. occasionally,
   c. quite a lot.

56. I have some characteristics in which I feel definitely superior to most people.
   a. yes, b. uncertain, c. no.

57. When I get upset, I try hard to hide my feelings from others.
   a. true, b. in between, c. false.

58. I like to go out to a show or entertainment:
   a. more than once a week (more than average),
   b. about once a week (average),
   c. less than once a week (less than average).

59. I think that plenty of freedom is more important than good manners and respect for the law.
   a. true, b. uncertain, c. false.

60. I tend to keep quiet in the presence of senior persons (people of greater experience, age, or rank).
   a. yes, b. in between, c. no.

61. I find it hard to address or recite to a large group.
   a. yes, b. in between, c. no.

62. I have a good sense of direction (find it easy to tell which is North, South, East, or West) when in a strange place.
   a. yes, b. in between, c. no.

63. If someone got mad at me, I would:
   a. try to calm him down,
   b. uncertain,
   c. get irritated.

64. When I read an unfair magazine article, I am more inclined to forget it than to feel like "hitting back."
   a. true, b. uncertain, c. false.

65. My memory tends to drop a lot of unimportant, trivial things, for example, names of streets or stores in town.
   a. yes, b. in between, c. no.

66. I could enjoy the life of an animal doctor, handling disease and surgery of animals.
   a. yes, b. in between, c. no.

67. I eat my food with gusto, not always so carefully and properly as some people.
   a. true, b. uncertain, c. false.

68. There are times when I don't feel in the right mood to see anyone.
   a. very rarely,
   b. in between,
   c. quite often.

69. People sometimes warn me that I show my excitement in voice and manner too obviously.
   a. yes, b. in between, c. no.

70. As a teenager, if I differed in opinion from my parents, I usually:
   a. kept my own opinion,
   b. in between,
   c. accepted their authority.

71. I would prefer to have an office of my own, not sharing it with another person.
   a. yes, b. uncertain, c. no.

72. I would rather enjoy life quietly in my own way than be admired for my achievements.
   a. true, b. uncertain, c. false.

73. I feel mature in most things.
   a. true, b. uncertain, c. false.

74. I find myself upset rather than helped by the kind of criticism that many people offer one.
   a. often, b. occasionally, c. never.

75. I am always able to keep the expression of my feelings under exact control.
   a. yes, b. in between, c. no.

(End, column 3 on answer sheet.)
76. In starting a useful invention, I would prefer:
   a. working on it in the laboratory,
   b. uncertain,
   c. selling it to people.

77. “Surprise” is to “strange” as “fear” is to:
   a. brave,  b. anxious,  c. terrible.

78. Which of the following fractions is not in the same class as the others?
   a. 3/7,  b. 3/9,  c. 3/11.

79. Some people seem to ignore or avoid me, although I don’t know why.
   a. true,  b. uncertain,  c. false.

80. People treat me less reasonably than my good intentions deserve.
   a. often,  b. occasionally,  c. never.

81. The use of foul language, even when it is not in a mixed group of men and women, still disgusts me.
   a. yes,  b. in between,  c. no.

82. I have decidedly fewer friends than most people.
   a. yes,  b. in between,  c. no.

83. I would hate to be where there wouldn’t be a lot of people to talk to.
   a. true,  b. uncertain,  c. false.

84. People sometimes call me careless, even though they think I’m a likable person.
   a. yes,  b. in between,  c. no.

85. “Stage-fright” in various social situations is something I have experienced:
   a. quite often,  b. occasionally,  c. hardly ever.

86. When I am in a small group, I am content to sit back and let others do most of the talking.
   a. yes,  b. in between,  c. no.

87. I prefer reading:
   a. a realistic account of military or political battles,
   b. uncertain,
   c. a sensitive, imaginative novel.

88. When bossy people try to “push me around,” I do just the opposite of what they wish.
   a. yes,  b. in between,  c. no.

89. Business superiors or members of my family, as a rule, find fault with me only when there is real cause.
   a. true,  b. in between,  c. false.

90. In streets or stores, I dislike the way some persons stare at people.
   a. yes,  b. in between,  c. no.

91. On a long journey, I would prefer to:
   a. read something profound, but interesting,
   b. uncertain,
   c. pass the time talking casually with a fellow passenger.

92. In a situation which may become dangerous, I believe in making a fuss and speaking up even if calmness and politeness are lost.
   a. yes,  b. in between,  c. no.

93. If acquaintances treat me badly and show they dislike me:
   a. it doesn’t upset me a bit,
   b. in between,  c. I tend to get downhearted.

94. I find it embarrassing to have praise or compliments bestowed on me.
   a. yes,  b. in between,  c. no.

95. I would rather have a job with:
   a. a fixed, certain salary,
   b. in between,
   c. a larger salary, which depended on my constantly persuading people I am worth it.

96. To keep informed, I like:
   a. to discuss issues with people,
   b. in between,
   c. to rely on the actual news reports.

97. I like to take an active part in social affairs, committee work, etc.
   a. yes,  b. in between,  c. no.

98. In carrying out a task, I am not satisfied unless even the minor details are given close attention.
   a. true,  b. in between,  c. false.

99. Quite small setbacks occasionally irritate me too much.
   a. yes,  b. in between,  c. no.

100. I am always a sound sleeper, never walking or talking in my sleep.
    a. yes,  b. in between,  c. no.

(End, column 4 on answer sheet.)
101. It would be more interesting to work in a business:
   a. talking to customers,
   b. in between,
   c. keeping office accounts and records.

102. "Size" is to "length" as "dishonesty" is to:
   a. prison,  b. sin,  c. stealing.

103. AB is to dc as SR is to:
   a. dp,  b. pq,  c. tu.

104. When people are unreasonable, I just:
   a. keep quiet,
   b. uncertain,
   c. despise them.

105. If people talk loudly while I am listening to music, I:
   a. can keep my mind on the music and not be bothered,
   b. in between,
   c. find it spoils my enjoyment and annoys me.

106. I think I am better described as:
   a. polite and quiet,
   b. in between,
   c. forceful.

107. I attend social functions only when I have to, and stay away any other time.
   a. yes,  b. uncertain,  c. no.

108. To be cautious and expect little is better than to be happy at heart, always expecting success.
   a. true,  b. uncertain,  c. false.

109. In thinking of difficulties in my work, I:
   a. try to plan ahead, before I meet them,
   b. in between,
   c. assume I can handle them when they come.

110. I find it easy to mingle among people at a social gathering.
   a. true,  b. uncertain,  c. false.

111. When a bit of diplomacy and persuasion are needed to get people moving, I am generally the one asked to do it.
   a. yes,  b. in between,  c. no.

112. It would be more interesting to be:
   a. a guidance worker helping young people find jobs,
   b. uncertain,
   c. a manager in efficiency engineering.

113. If I am quite sure that a person is unjust or behaving selfishly, I show him up, even if it takes some trouble.
   a. yes,  b. in between,  c. no.

114. I sometimes make foolish remarks in fun, just to surprise people and see what they will say.
   a. yes,  b. in between,  c. no.

115. I would enjoy being a newspaper writer on drama, concerts, opera, etc.
   a. yes,  b. uncertain,  c. no.

116. I never feel the urge to doodle and fidget when kept sitting still at a meeting.
   a. true,  b. uncertain,  c. false.

117. If someone tells me something which I know is wrong, I am more likely to say to myself:
   a. "He is a liar,"
   b. in between,
   c. "Apparently he is misinformed."

118. I feel some punishment is coming to me even when I have done nothing wrong.
   a. often,  b. occasionally,  c. never.

119. The idea that sickness comes as much from mental as physical causes is much exaggerated.
   a. yes,  b. in between,  c. no.

120. The pomp and splendor of any big state ceremony are things which should be preserved.
   a. yes,  b. in between,  c. no.

121. It bothers me if people think I am being too unconventional or odd.
   a. a lot,  b. somewhat,  c. not at all.

122. In constructing something I would rather work:
   a. with a committee,
   b. uncertain,  c. on my own.

123. I have periods when it's hard to stop a mood of self-pity.
   a. often,  b. occasionally,  c. never.

124. Often I get angry with people too quickly.
   a. yes,  b. in between,  c. no.

125. I can always change old habits without difficulty and without slipping back.
   a. yes,  b. in between,  c. no.

(End, column 5 on answer sheet.)
126. If the earnings were the same, I would rather be:
   a. a lawyer,
   b. uncertain,
   c. a navigator or pilot.

127. "Better" is to "worst" as "slower" is to:
   a. fast,  b. best,  c. quickest.

128. Which of the following should come next at the end of this row of letters: xooooxooooxxx?
   a. oxxx,  b. ooxx,  c. xooo.

129. When the time comes for something I have planned and looked forward to, I occasionally do not feel up to going.
   a. true,  b. in between,  c. false.

130. I can work carefully on most things without being bothered by people making a lot of noise around me.
   a. yes,  b. in between,  c. no.

131. I occasionally tell strangers things that seem to me important, regardless of whether they ask about them.
   a. yes,  b. in between,  c. no.

132. I spend much of my spare time talking with friends about social events enjoyed in the past.
   a. yes,  b. in between,  c. no.

133. I enjoy doing "daring," foolhardy things "just for fun."
   a. yes,  b. in between,  c. no.

134. I find the sight of an untidy room very annoying.
   a. yes,  b. in between,  c. no.

135. I consider myself a very sociable, outgoing person.
   a. yes,  b. in between,  c. no.

136. In social contacts I:
   a. show my emotions as I wish,
   b. in between,
   c. keep my emotions to myself.

137. I enjoy music that is:
   a. light, dry, and brisk,
   b. in between,
   c. emotional and sentimental.

138. I admire the beauty of a poem more than that of a well-made gun.
   a. yes,  b. uncertain,  c. no.

139. If a good remark of mine is passed by, I:
   a. let it go,
   b. in between,
   c. give people a chance to hear it again.

140. I would like to work as a probation officer with criminals on parole.
   a. yes,  b. in between,  c. no.

141. One should be careful about mixing with all kinds of strangers, since there are dangers of infection and so on.
   a. yes,  b. uncertain,  c. no.

142. In traveling abroad, I would rather go on an expertly conducted tour than plan by myself the places I wish to visit.
   a. yes,  b. uncertain,  c. no.

143. I am properly regarded as only a plodding, half-successful person.
   a. yes,  b. uncertain,  c. no.

144. If people take advantage of my friendliness, I do not resent it and I soon forget.
   a. true,  b. uncertain,  c. false.

145. If a heated argument developed between other members taking part in a group discussion, I would:
   a. like to see a "winner,"
   b. in between,
   c. wish that it would be smoothed over.

146. I like to do my planning alone, without interruptions and suggestions from others.
   a. yes,  b. in between,  c. no.

147. I sometimes let my actions get swayed by feelings of jealousy.
   a. yes,  b. in between,  c. no.

148. I believe firmly "the boss may not always be right, but he always has the right to be boss."
   a. yes,  b. uncertain,  c. no.

149. I get tense as I think of all the things lying ahead of me.
   a. yes,  b. sometimes,  c. no.

150. If people shout suggestions when I’m playing a game, it doesn’t upset me.
   a. true,  b. uncertain,  c. false.

(End, column 6 on answer sheet.)
151. It would be more interesting to be:
   a. an artist,
   b. uncertain,
   c. a secretary running a club.

152. Which of the following words does not properly belong with the others?
   a. any,  b. some,  c. most.

153. "Flame" is to "heat" as "rose" is to:
   a. thorn,  b. red petals,  c. scent.

154. I have vivid dreams, disturbing my sleep.
   a. often,
   b. occasionally,
   c. practically never.

155. If the odds are really against something's being a success, I still believe in taking the risk.
   a. yes,  b. in between,  c. no.

156. I like it when I know so well what the group has to do that I naturally become the one in command.
   a. yes,  b. in between,  c. no.

157. I would rather dress with quiet correctness than with eye-catching personal style.
   a. true,  b. uncertain,  c. false.

158. An evening with a quiet hobby appeals to me more than a lively party.
   a. true,  b. uncertain,  c. false.

159. If the odds are really against something's being a success, I still believe in taking the risk.
   a. yes,  b. in between,  c. no.

160. I like it when I know so well what the group has to do that I naturally become the one in command.
   a. yes,  b. in between,  c. no.

161. I somewhat dislike having a group watch me at work.
   a. yes,  b. in between,  c. no.

162. Because it is not always possible to get things done by gradual, reasonable methods, it is sometimes necessary to use force.
   a. true,  b. in between,  c. false.

163. In school I preferred (or prefer):
   a. English,
   b. uncertain,
   c. mathematics or arithmetic.

164. I have sometimes been troubled by people's saying bad things about me behind my back, with no grounds at all.
   a. yes,  b. uncertain,  c. no.

165. Talk with ordinary, habit-bound, conventional people:
   a. is often quite interesting and has a lot to it,
   b. in between,
   c. annoys me because it deals with trifles and lacks depth.

166. Some things make me so angry that I find it best not to speak.
   a. yes,  b. in between,  c. no.

167. In education, it is more important to:
   a. give the child enough affection,
   b. in between,
   c. have the child learn desirable habits and attitudes.

168. People regard me as a solid, undisturbed person, unmoved by ups and downs in circumstances.
   a. yes,  b. in between,  c. no.

169. I think society should let reason lead it to new customs and throw aside old habits or mere traditions.
   a. yes,  b. in between,  c. no.

170. I think it is more important in the modern world to solve:
   a. the question of moral purpose,
   b. uncertain,
   c. the political difficulties.

171. I learn better by:
   a. reading a well-written book,
   b. in between,
   c. joining a group discussion.

172. I like to go my own way instead of acting on approved rules.
   a. true,  b. uncertain,  c. false.

173. I like to wait till I am sure that what I am saying is correct, before I put forth an argument.
   a. always,
   b. generally,
   c. only if it's practicable.

174. Small things sometimes "get on my nerves" unbearably, though I realize they are trivial.
   a. yes,  b. in between,  c. no.

175. I don't often say things on the spur of the moment that I greatly regret.
   a. true,  b. uncertain,  c. false.

(End, column 7 on answer sheet.)
176. If asked to work with a charity drive, I would
   a. accept,
   b. uncertain,
   c. politely say I'm too busy.

177. Which of the following words does not belong
   with the others?
   a. wide,  b. zigzag,  c. straight.

178. “Soon” is to “never” as “near” is to:
   a. nowhere,  b. far,  c. away.

179. If I make an awkward social mistake, I can
   soon forget it.
   a. yes,  b. in between,  c. no.

180. I am known as an “idea man” who almost
    always puts forward some ideas on a problem.
    a. yes,  b. in between,  c. no.

181. I think I am better at showing:
    a. nerve in meeting challenges,
    b. uncertain,
    c. tolerance of other people’s wishes.

182. I am considered a very enthusiastic person.
    a. yes,  b. in between,  c. no.

183. I like a job that offers change, variety, and
    travel, even if it involves some danger.
    a. yes,  b. in between,  c. no.

184. I am a fairly strict person, insisting on always
    doing things as correctly as possible.
    a. true,  b. in between,  c. false.

185. I enjoy work that requires conscientious, ex­
    acting skills.
    a. yes,  b. in between,  c. no.

186. I’m the energetic type who keeps busy.
    a. yes,  b. uncertain,  c. no.

187. I am sure there are no questions that I have
    skipped or failed to answer properly.
    a. yes,  b. uncertain,  c. no.

(End of test.)
### EXAMPLES
1. I like to watch ball games.
   - a. yes
   - b. no
   - c. occasionally
2. I prefer people who:
   - a. are reserved
   - b. (are) in between
   - c. make friends quickly
3. Money cannot bring happiness.
   - a. yes (true)
   - b. in between
   - c. no (false)
4. Woman is to child as cat is to:
   - a. kitten
   - b. dog
   - c. boy

### ANSWER SHEET: THE 16 P. F. TEST, FORM A

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**FILL IN THE BOX COMPLETELY. ERASE ENTIRELY ANY ANSWER YOU WISH TO CHANGE.**

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**NORMS USED:**
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Subject #

Segment: Free Association
   Card I
   Card II

Word Count:

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SCORE
Subject #

Segment: Free Association
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   Card II

Word Count: 

HUMAN RELATIONS SCALE

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TOTALS

SCALE TOTAL

SCORE
**DRINKING STATUS QUESTIONNAIRE**

1. At the time of your admission, how long had it been since your last drink?
   - [ ] 1 - 6 days
   - [ ] 7 - 29 days
   - [ ] 1 - 5 months
   - [ ] 6 - 11 months

2. What was your longest "dry" period in the three months prior to admission?
   - [ ] none
   - [ ] 1 - 2 days
   - [ ] 3 - 6 days
   - [ ] 1 - 2 weeks
   - [ ] 3 - 4 weeks
   - [ ] 5 - 8 weeks
   - [ ] over 2 months

3. How many days did you drink during the month prior to being admitted here? __________

4. How many days did your most recent drinking bout last? ________

5. Did you drink any beer during the month prior to your admission? __________

6. If yes, about how often did you drink any beer?
   - [ ] 3 or more times a day
   - [ ] 2 times a day
   - [ ] once a day
   - [ ] nearly every day
   - [ ] 3 or 4 times a week
   - [ ] once or twice a week
   - [ ] 2 or 3 times a month
   - [ ] about once a month
   - [ ] less than once a month but at least once a year
   - [ ] less than once a year or never

7. When you drank beer, what was the amount you drank most of the time? __________

8. What is about the most beer you are likely to drink on an occasion? __________

9. How frequently do you drink this maximum amount?
   - [ ] most of the time
   - [ ] more than half the time
   - [ ] less than half the time but not infrequently
   - [ ] infrequently
10. Did you drink any wine during the month prior to your admission? 

15. Did you drink any hard liquor during the month prior to your admission? 

11. If yes, about how often did you drink any wine? 

   (Blank) 3 or more times a day  
   (Blank) 2 times a day  
   (Blank) once a day  
   (Blank) nearly every day  
   (Blank) 3 or 4 times a week  
   (Blank) once or twice a week  
   (Blank) 2 or 3 times a month  
   (Blank) about once a month  
   (Blank) less than once a month but at least once a year  
   (Blank) less than once a year or never  

12. When you drank wine, what was the amount you drank most of the time? 

16. If yes, about how often did you drink any hard liquor? 

   (Blank) 3 or more times a day  
   (Blank) 2 times a day  
   (Blank) once a day  
   (Blank) nearly every day  
   (Blank) 3 or 4 times a week  
   (Blank) once or twice a week  
   (Blank) 2 or 3 times a month  
   (Blank) about once a month  
   (Blank) less than once a month but at least once a year  
   (Blank) less than once a year or never  

13. What is about the most wine you are likely to drink on an occasion? 

17. When you drank hard liquor, what was the amount you drank most of the time? 

18. What is about the most hard liquor you are likely to drink on an occasion? 

14. How frequently do you drink this maximum amount? 

   (Blank) most of the time  
   (Blank) more than half the time  
   (Blank) less than half the time but not infrequently  
   (Blank) infrequently  

19. How frequently do you drink this maximum amount? 

   (Blank) most of the time  
   (Blank) more than half the time  
   (Blank) less than half the time but not infrequently  
   (Blank) infrequently
Appendix G
RESEARCH VOLUNTEER AGREEMENT

I volunteer to take part in the research project conducted by Mr. John Zivich at Chicago's Alcoholic Treatment Center. I understand that my participation will include filling out questionnaires, taking personality inventories, and an interview which will be tape recorded.

I give the researcher permission to examine my medical records. I understand that all information obtained in this study about me personally will be regarded as confidential.

I understand that I will be contacted one month, three months, six months, and one year after discharge from C.A.T.C., so that it may be determined how I have benefited from treatment. I give the researcher permission to request this information from my family or other agencies if I cannot be reached directly.

I understand that the purpose of this study is to learn more about how the characteristics of people treated for alcoholism affect the outcome of their treatment. I understand that a decision not to take part in this research will not affect my involvement in other activities at Chicago's Alcoholic Treatment Center. I understand that I may withdraw from the project at any time without prejudice to myself.

Date_________________________ Signature_________________________________
The dissertation submitted by John M. Zivich has been read and approved by the following committee:

Dr. Frank J. Kobler, Director
Professor, Psychology, Loyola

Dr. Alan S. DeWolfe
Professor, Psychology, Loyola

Dr. James E. Johnson
Associate Professor, Psychology, Loyola

Dr. Stuart Meshboum
Director of Research, Chicago's Alcoholic Treatment Center

The final copies have been examined by the director of the dissertation and the signature which appears below verifies the fact that any necessary changes have been incorporated and that the dissertation is now given final approval by the Committee with reference to content and form.

The dissertation is therefore accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

Date: September 20, 1979

Director's Signature: [Signature]