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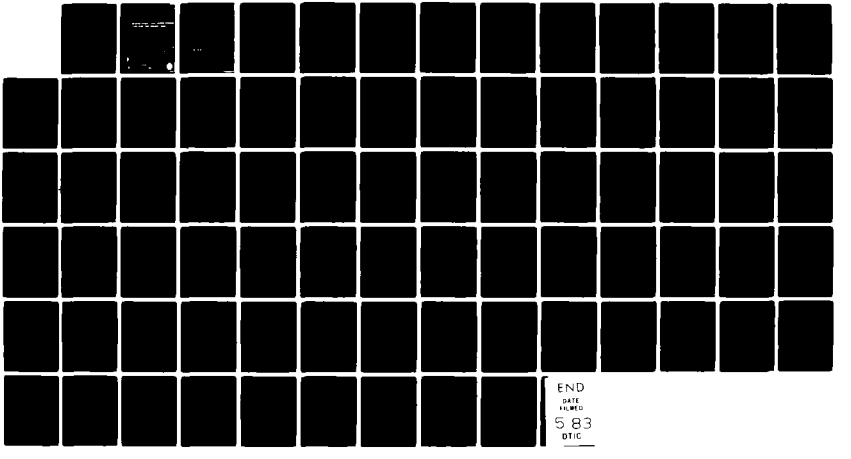

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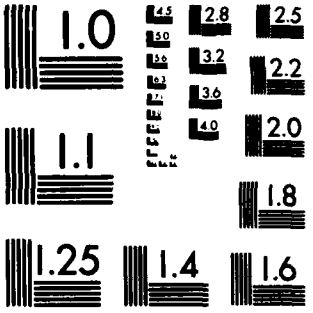

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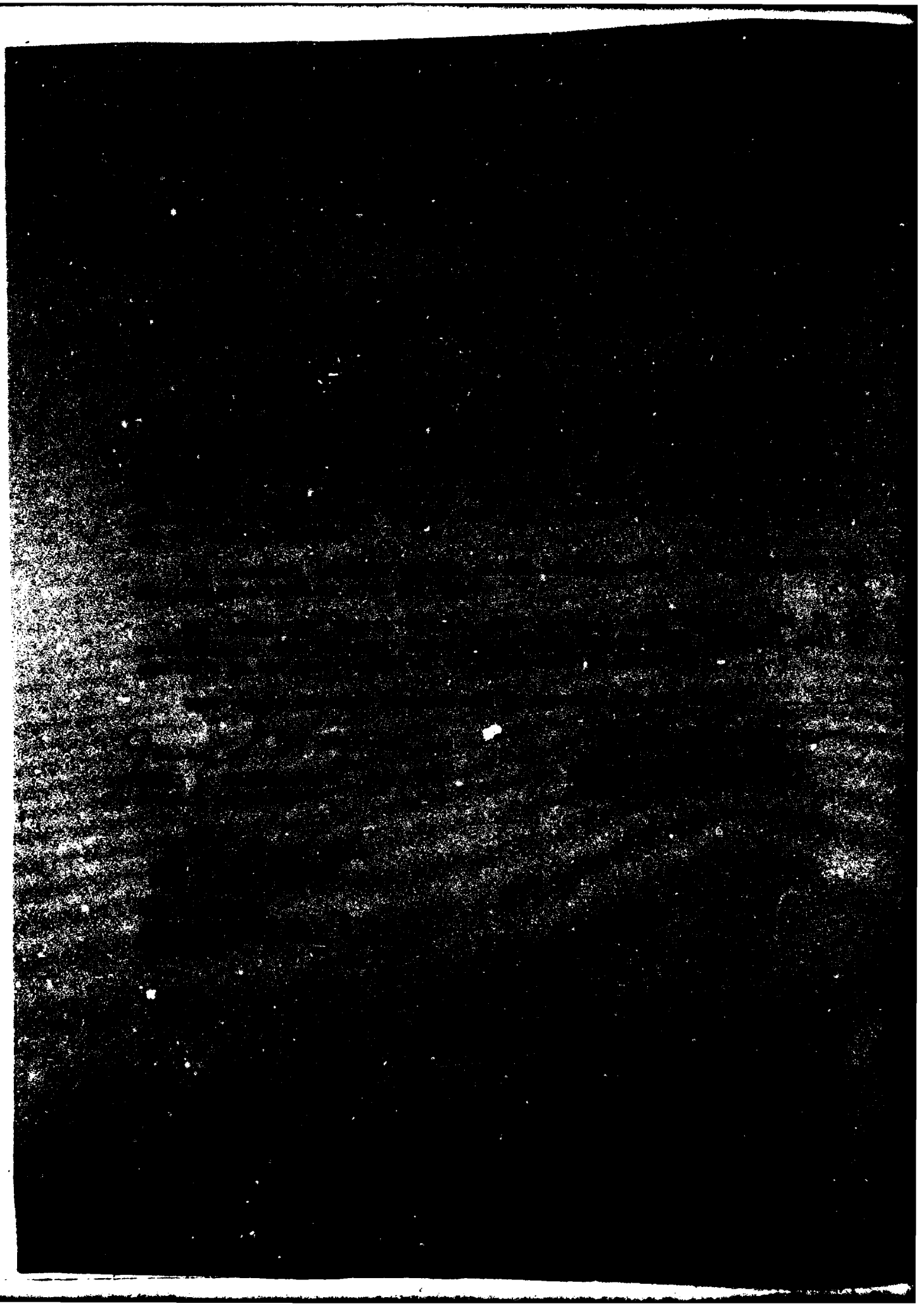

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Alcohol/drug abuse; alcoholism; psychological/personality testing; multimethod personality assessment; personality profile; Personality Research Form (PRF); Jackson Personality Inventory (JPI); Minnesota Multiphasic Personality Inventory (MMPI) scale 4 (Pd).

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The approach of this study involved multimethod personality assessment via a composite profile derived by averaging self-report inventory/questionnaire data, direct self-ratings, and peer ratings, all based on a common set of construct definitions. The personality dimensions appraised included the traits of the Personality Research Form (PRF) and Jackson Personality Inventory (JPI), along with demographic information and additional pertinent variables:

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20. ABSTRACT (Continued)

androgyny, i.e., masculinity and femininity subscales of the PRF ANDRO scale; and an MMPI/scale-4-derived subscale, viz., Pd-AA, developed by the author.

The investigation was primarily exploratory, but specific hypotheses were tested regarding the PRF-JPI traits of aggression, autonomy, impulsivity, anxiety, conformity, and responsibility, as well as the androgyny and Pd-AA variables. Data were also gathered relating to short-term retesting and degree of congruency among the three modes of trait estimation: inventory, self-ratings, and ratings by others.

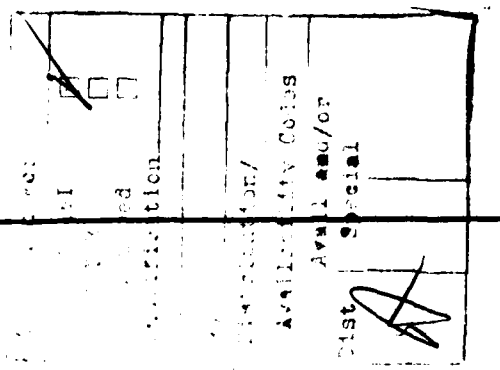
The experimental and control samples were comprised of adult male volunteers. Alcoholic data were collected from 36 inpatients in an approximately 4.5-week alcoholism treatment program in a VA hospital; and control data, from 42 city fire fighters.

Study results are presented mainly in terms of extensive ANOVA and correlational analyses. Based primarily on the mean-composite data, the VA-test group scored significantly higher than the controls on achievement, aggression, autonomy, understanding, anxiety, breadth of interest, complexity, and PD-AA; and lower on responsibility and desirability. The VA-retest subjects scored higher than the controls on anxiety, complexity, interpersonal affect, organization, and Pd-AA; and lower on conformity and responsibility. Age-group differences were found on complexity, energy level, responsibility, risk taking, and value orthodoxy.

Multivariate findings regarding the JPI and Pd-AA dependent variables indicate a significant overall interactive effect of the VA-test- versus retest-group and age-group independent variables. Interaction is apparent on complexity, interpersonal affect, and social adroitness.

The ANOVA findings regarding differences between the alcoholic and control groups are generally consistent with the hypotheses, which were based primarily on a sociopathic model suggested by the MMPI/Pd literature. The results are discussed as possibly indicating an alcoholism-related impairment-compensatory process.

Intercorrelation matrices and the results of considerable Q (profile) correlation analyses are discussed. The latter indicate significant discrepancy between the alcoholics' self-perceptions and peer ratings; strong positive associations between each of the single-method profiles and their mean-composite profile; and generally respectable test-retest correlations. The findings of this study support the use of multisource composite-score methodology in personality assessment.



SUMMARY

Whether from a social or individual perspective, alcohol abuse is a complex problem of staggering proportions. It is becoming increasingly serious, both within the United States and worldwide. Sundry theoretical models of alcoholism include moral, medical/disease, sociological, psychological, and eclectic paradigms. The motley conceptualizations offer a variety of concomitant definitions, causes, and interventions for the disorder. Professional, as well as lay, views of alcohol misuse range from an inherited illness to protracted suicide.

Psychological testing has played an important and prolific role in alcoholism-related research, but the overall results, though heuristic and suggestive, have been rather inconclusive, equivocal, and contradictory. Central to the alcohol-abuse literature has been the variously defined issue of "the alcoholic personality," i.e., distinguishable alcoholism-specific personality characteristics.

Particularly pertinent to the present investigation is the alcoholism literature involving relatively objective/structured personality assessment. Such work has used a variety of instruments, singly and in combination, but the MMPI has thus far dominated the scene. Its 2-4/4-2 profile has most typically been associated with alcoholic group-average findings; however, almost all of the MMPI scales, usually in combination with 2 or 4, have been reported as being more characteristic of alcoholics than nonalcoholics. Also, numerous MMPI-derived scales, some spawned specifically for assessment of alcoholism, have been discussed in the literature. Several provocative uses of the MMPI, along with a few recent factor analytic combinations of various tests, suggest distinguishable personality subgroups within the alcoholic population.

Based on my literature review, I concluded that some findings were sufficiently suggestive to merit more extensive empirical analysis. Research seemed especially indicated with such personality dimensions as impulsivity, anxiety, and self-esteem, along with dependency and other traits relating to interpersonal orientation and competence.

The general purpose of the present study was, with alcoholic and control samples, to investigate empirically apposite personality-profile issues within a relatively novel framework including both nomothetic group-differences information and more in-depth idiographic data. More specifically, my approach entailed multimethod personality assessment of the individual via a composite profile derived by averaging self-report inventory data, direct self-ratings, and peer ratings--all based on a common set of (inventory) construct/trait definitions. The personality dimensions/dependent variables included the traits of the Personality Research Form (PRF) and Jackson Personality Inventory (JPI), promising instruments with impressive psychometric credentials. Along with demographic information, I selected additional variables based upon apparent pertinence to the alcohol-abuse and personality literature: androgyny (i.e., masculinity and feminity subscales of the PRF ANDRO scale) and an MMPI/scale-4-derived subscale (viz., the Pd-AA--which I developed under an essentially rational, judgmental strategy).

The study was primarily exploratory, but I tested specific predictions regarding the PRF-JPI constructs of aggression, autonomy, impulsivity, anxiety, conformity, and responsibility. I also appraised Pd-AA and androgyny-related hypotheses and gathered data pertaining to short-term retesting (of the alcoholic subjects) and degree of congruency among the three modes of trait estimation: inventory/questionnaire, self-ratings, and ratings by others.

Subjects for the experimental and control groups were volunteer adult males. Alcoholic data were collected from inpatients in an approximately 4.5-week alcoholism treatment program in a Veterans Administrative (VA) hospital; control data, from city fire fighters.

Study results are presented in terms of extensive ANOVA and correlational analyses--including Q (or profile) correlation procedures--and occasional chi-square and t-test findings where appropriate.

The alcoholic and control samples were adequately matched in education level, IQ, and race; however, statistically significant group differences appear with age and marital status: the alcoholics were older and more likely to be separated or divorced. Age groups were formed for subsequent ANOVA purposes.

Based on the composite (or average of inventory, self-rating, and mean peer-rating) data and on only inventory-type scores for Pd-AA and desirability, the VA-test group scored significantly higher than the controls on achievement, aggression, autonomy, understanding, anxiety, breadth of interest, complexity, and Pd-AA. VA-test subjects scored lower than the controls on responsibility and desirability. Multivariate ANOVA analysis of all 39 dependent variables indicates that, overall, the VA-test and control samples differ significantly. No overall significant difference is revealed among the age groups, and no overall significant interaction effect between the VA-test-group versus control-group and the age-group independent variables.

Multivariate analysis of the composite data for the 15 JPI variables and the Pd-AA inventory scores indicates statistically significant overall VA-retest-group versus control-group effect and overall age-group effect, without significant interaction. Specifically, the VA-retest subjects scored significantly higher than the controls on anxiety, complexity, interpersonal affect, organization, and Pd-AA; and lower on conformity and responsibility. The significant age-group differences are on complexity, energy level, responsibility, risk taking, and value orthodoxy.

Multivariate findings regarding the JPI and Pd-AA dependent variables suggest a significant overall interactive effect of the VA-test versus VA-retest-group and age-group independent variables. Significant factor interaction is apparent on the complexity, interpersonal affect, and social adroitness traits.

The ANOVA findings regarding the alcoholic and control group dichotomy seem generally consistent with the hypotheses, which were based primarily on a

psychopathic/sociopathic model suggested by the MMPI/Pd literature. The results are discussed also as possibly indicative of an impairment-compensatory process.

The age-associated ANOVA data are discussed both in terms of significant main effects and significant interaction. The former are interpreted as essentially reflecting a positive age-conventionality/conservatism relationship, a nontrivial but nonetheless nonsurprising association. Significant interactive effects of the age-group and VA-test- and retest-group variables are judged to be evidence of an inverse relationship in the VA patients between age and a (generally appropriate) shift in personality trait scores over the course of the alcoholism treatment program. Intervention and future research implications are discussed with regard to the age-related findings and conclusions.

Overall, the ANOVA data support the multisource composite score as a personality assessment/research modus operandi.

Intercorrelation matrices of all 39 dependent variables/personality constructs are presented for the VA-test and control groups. Also, the results of considerable Q correlation analyses are discussed.

The Q/profile correlational findings, based on intercorrelations among the three single-method data sources (i.e., inventory, self-rating, and mean rating by others) and their mean-composite, suggest a significant tendency towards greater discrepancy between the alcoholics' self-perceptions and peer ratings than between those of the controls. The Q data also indicate strong positive relationships between each of the single-method profiles and the composite profile. Relatively speaking, however, the peer-rating (mean rating by others) method appears least impressive, correlating overall much lower with the composite profile than either of the other two data sources.

The VA test-retest/temporal-stability mean Qs, based on JPI data, are generally noteworthy. The highest Q correlations are provided by the inventory and composite profiles, followed by self-rating and, the least stable profile of the four, mean rating by others.

Besides germane alcohol-abuse-related personality findings, the correlational analyses, in concert with the ANOVA outcomes, supply additional evidence of the efficacy of the composite-score methodology in personality assessment. Based on the results of this study, I recommend this methodological technique for use in personality testing situations in both applied and research settings. Regarding the latter, specific alcohol-related foci are encouraged in areas of typological analysis, sex-role appraisal, the age variable, and the Pd-AA scale.

PREFACE

This report is based on my 1982 dissertation submitted to the University of Kentucky for a Ph.D. degree in clinical psychology. I want to express appreciation to my dissertation director, Dr. Jesse Harris, chairperson of the Department of Psychology, for his counsel and help during all phases of the research project. Special thanks are also due Dr. Juris Berzins for constructive comments on a preliminary draft of the manuscript. For their time, suggestions, and interest, I thank the remaining doctoral committee members: Drs. Dwight Auvenshine, Robert Baker, Gordon Liddle, and Gerald Slatin.

I am grateful to the staff and patients of the Alcohol Treatment Unit of the Veterans Administration Hospital, Lexington, Kentucky, and to the personnel of the Lexington Fire Department for their cooperation during data collection for this study.

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This research project was initiated while I was attending the University of Kentucky, under sponsorship of the Air Force Institute of Technology.

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MULTIMETHOD PERSONALITY PROFILE ASSESSMENT METHODOLOGY: ALCOHOL ABUSERS VERSUS NONALCOHOLIC CONTROLS

INTRODUCTION

Alcohol abuse is probably the number one health problem in the United States today (172). The misuse of alcohol constitutes a serious and rapidly increasing social problem worldwide (202) and is "without question, the most serious drug problem" in the United States (138, p. 143), with conservative estimates of 10 million American problem drinkers and alcohol-abuse-related economic costs of $25 billion annually (139, cf. 117). Continuing with a social perspective,

> Alcoholism and problem drinking are generally found in association with most other social problems as well as other problems of individual health and well-being. Alcoholics, compared with nonalcoholics, have higher rates of physical and mental illness, are more frequently divorced or alienated from their families, are more apt to be involved in other forms of deviant behavior--crime, drug abuse, accidents, sexual nonfulfillment, suicide--and are more apt to be unemployed or maladjusted to both work and leisure. Alcohol problems illustrate a tendency toward a clustering of many forms of social pathology--a tendency for problems to beget problems. (183, p. 183)

Broad theoretical viewpoints or models of alcoholism include the moral model; the medical/disease model--including genetic, endocrinological, brain dysfunction, and biochemical theories; the sociological model--including cultural and subcultural theories; the psychological model--including psychodynamic, learning/behavioral, and interpersonal theories; and the eclectic or interdisciplinary approaches (188). The various conceptual perspectives express or imply somewhat diverse versions of the definition, cause(s), and amelioration of alcoholism. For example, problem drinking has been viewed as willful and immoral conduct, an illness per se or symptom, a deviant life style, a bad habit, etc. (144). Alcohol abuse has even been called "chronic suicide" (131). Lack of clear consensus notwithstanding, the zeitgeist appears currently to favor some form of the medical conceptualization (1). Davies (35, p. 72) has suggested a rather simple but comprehensive, nonparochial view of alcoholism as "intermittent or continual use of alcohol associated with dependency (psychological or physical) or harm in the sphere of mental, physical, or social activity" (cf. Keller, 104).

The use of psychological tests, especially pertaining to personality assessment, has played an important role in the study of alcoholism. The assessment efforts thus far have been mildly fruitful and heuristic but overall quite frustrating due primarily to mixed and inconclusive results. Neuringer and Clopton (143) concluded that

> The [alcoholism-psychological test] research reviewed . . . constitutes a mass of activity which has yielded bewildering results. There are some useful results among them, but they are far outweighed by the equivocal and contradictory findings of other studies. One would think that all that effort should have yielded more tangible and utilitarian outcomes. (p. 25)

Neuringer and Clopton's rather sweeping indictment of the extant research literature specified what they viewed as conceptualization deficiencies along with "poor methodology and naive research designs" (p. 26).

Transcending the methodological criticism of the literature, and adding to the general confusion, has been the controversial issue of "the alcoholic personality" or distinguishable alcoholism-specific personality characteristics. The controversy involves the utility and, at least indirectly, the justification of personality research in the area of alcohol abuse. Each of the opposing camps has marshalled considerable pro (e.g., 10, 67, 70, 75, 108, 126, 128, 129, 134, 167, 168) and con (e.g., 17, 105, 178, 189) empirical data regarding putative alcoholic-personality traits. Reviewers of the literature on the alcoholic personality also have been divided, with some (e.g., 6, 80) strongly supportive of the alcoholic-personality concept and others (e.g., 115, 184, 185) nonsupportive.

Following is a review of the empirical personality research literature re alcoholism. The review is organized according to the major projective, perceptual, and objective/structured tests, with primary emphasis on the latter.

LITERATURE REVIEW

Projective Assessment

The Rorschach Inkblot Test (160), associated with psychoanalytic theory, was used extensively to identify and diagnose alcoholism from approximately 1940 to 1960 (e.g., 13, 14, 18, 19, 61, 66, 70, 95, 101, 105, 109, 157, 164, 169, 170, 171, 175, 176, 178). Its use significantly diminished thereafter. Some alleged alcoholism-related personality characteristics derived from Rorschach studies are the following: oral fixation with passive, dependent features; psychopathy; low frustration tolerance; low perseverance; guilt and anxiety; egocentricity; emotional constrictedness and superficiality; deficient interpersonal functioning; stereotypic, pedantic cognitive style; and regression as a primary defense mechanism. However, the Rorschach literature pertaining to alcoholism is contradictory and equivocal, with extreme variability of results and consequent failure to demonstrate typical Rorschach patterns for alcoholics in general. Thus, the efficacy of the Rorschach in diagnosis and research with alcoholics is seriously questioned (47, 49, 137, 143, 184, 189, 205).

The next most utilized projective assessment technique within the area of alcoholism is Murray's (136) Thematic Apperception Test (TAT; e.g., 6, 43, 65, 87, 108, 110, 122, 127, 157, 178). As with the Rorschach, serious methodological problems of the relevant research (such as lack of uniformity among

the various investigations regarding scoring procedures, stimulus cards, control group utilization, and statistical data analysis) render any conclusions tentative at best. Though equivocal, TAT findings appear to suggest alcoholic-personality characteristics of poor flexibility/adaptability under stress; latent dependent, aggressive, and hostile tendencies; low self-esteem; and high need for personal power accompanied by low inhibition.

Some personality-assessment studies with alcoholics have used projective drawing tasks, most commonly involving male subjects and some form of the draw-a-person technique (31, 88, 114, 198, 199). Analysis of the drawings, usually with nonalcoholic-psychiatric-patient and/or normal controls, suggested to the investigators alcoholic-specific personality traits of dependency conflicts, hostility toward females, sex-role identification conflicts, emotional immaturity, low self-confidence, and underdeveloped self-concept.

Perceptual Assessment

Witkin and associates' (200, 201) perceptual style variable of field dependence-independence has been used in alcoholism-personality research (e.g., 4, 27, 51, 94, 97, 102, 155, 201). By evaluating extensive data from a variety of perceptual (spatial orientation) tests as well as a multifaceted battery of assorted (primarily projective) personality assessment devices, on normal and deviant population samples, the Witkin group has proposed important, stable perceptual-style and personality interrelationships. The group found relative field-dependent perceptual functioning to be associated with relatively passive-dependent interpersonal orientation, impulsivity, poor insight, and low self-esteem. Conversely, perceptual field-independence appeared related to a more active coping style along with better insight and impulse control and more favorable self-regard. By far, most of the studies reported in the literature presented findings supportive of the hypothesis that alcoholics as a group tend to be more field dependent than nonalcoholics. The impression of strong support of the field-dependent position by the literature was given statistical support by Barnes (6), using probability pooling analysis of nine relevant studies.

Objective/Structured Assessment

More pertinent to the present study is the body of alcoholism-related research using relatively objective/structured personality assessment instruments. Such research thus far has been dominated by use of the Minnesota Multiphasic Personality Inventory (MMPI; 73). However, studies of alcoholics have also used other relatively structured personality tests such as the Edwards Personal Preference Schedule (EPPS; 39), the Eysenck Personality Inventory (EPI; 42), the Internal-External Locus of Control scale (I-E; 166), the Personality Research Form (PRF; 89), the Sixteen Personality Factor Questionnaire (16 PF; 26), and the Differential Personality Inventory (DPI; 93). Both the EPPS and PRF (as well as the Gough Adjective Check List; 59) are based on the seminal need system of Murray (135).

Regarding the MMPI alcoholism literature, group-average results have consistently indicated elevated 4 (Pd) and 2 (D) scales* (e.g., 16, 34, 56, 99, 112, 147, 148, 158, 180, 182). To a lesser extent than the 2-4/4-2 profile, a variety of other high point scales--i.e., 1 (Hs), 3 (Hy), 7 (Pt), 8 (Sc), and 9 (Ma)*--have been reported (e.g., 5, 112, 113, 130, 149), usually in combination with either scale 2 or 4. Such findings have been interpreted in terms of sociopathy and neurotic depression or anxiety. Machover et al. (123) interpreted elevated scale 5 (Mf)* findings for abstinent alcoholics contrasted with nonabstinent alcoholics as evidence of a significant homosexuality-alcoholism relationship.

Tarter (186) reported higher acquiescence-scale scores for inpatient male alcoholics relative to nonalcoholic male psychiatric and nonpsychiatric control groups. Limited research with additional MMPI-derived scales indicated that alcoholics as a group tend to score higher than controls concerning such traits as prejudice, pharisaic virtue, anxiety (5), and hostility (72); and lower on social dominance, social responsibility (5), and ego strength (45, 182).

MMPI comparisons of alcohol versus drug (other than alcohol) abusers have found group-average profile similarities (15, 76) as well as discriminating differences (147). Findings of group comparative studies of alcoholic and psychiatric patients using MMPI data suggested differing personality patterns (86, 121, 161, 182).

Several special empirically derived MMPI alcoholism scales have been developed to discriminate alcoholics from other groups. The results of replicative studies thus far have been mixed and inconclusive; but one reviewer, Miller (132), recommended the Rich and Davis scale (156)--actually a revised or composite scale constructed on the basis of item overlap between the Button (20), Hampton (68), and Hoyt and Sedlacek (86) scales--for distinguishing alcoholics from nonalcoholic normals; the MacAndrew scale (120) for discriminating alcoholics from psychiatric outpatients; and the Rosenberg scale (163)--a composite scale consisting of common items from the Holmes (84), Hoyt and Sedlacek, and MacAndrew scales--for use with a psychiatric inpatient population.

Recent findings of MMPI longitudinal research (82, 99, 118) provided validating support for the MacAndrew and Rosenberg scales and suggested relative stability (i.e., moderate test-retest correlations) of distinguishing prealcoholic personality characteristics: impulsive, nonconforming, and gregarious (elevated F, 4, and 9 scales*) but without gross maladjustment. The longitudinal findings also suggested that other personality traits (such as depression and various neurotic symptoms) frequently associated with alcoholism may be consequences of excessive drinking history rather than prodromes.

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* Scales: 1--hypochondriasis (Hs); 2--depression (D); 3--hysteria (Hy); 4--psychopathic deviate (Pd); 5--masculinity-femininity (Mf); 7--psychasthenia (Pt); 8--schizophrenia (Sc); 9--hypomania (Ma); frequency (F).

Indirect support of the longitudinal findings has been provided by fairly consistent MMPI findings of significant posttreatment improvement on scales 1, 2, and 7, suggesting that these scales may be reflecting effects of chronic alcohol abuse; also by less consistent findings of scale-4 stability over treatment (41, 46, 158, 159, 173, 197). However, some researchers (79, 111, 159, 179) emphasize apparent overall personality stability over treatment and argue that obtained posttreatment scale changes often barely reach statistical significance and fall short of clinical significance.

Finally, several studies (16, 53, 76, 140, 161, 194, 203) have used the MMPI to distinguish subgroups within the general alcoholic population; e.g., psychopathic versus neurotic types, which were found by Whitelock et al. (194) to differ in self-reported degree of alcohol abuse. Such findings of apparently diverse and distinct MMPI profile types among alcoholics suggest that the common practice of using only an alcoholic group-average MMPI profile may obscure important relationships. Indeed, profile differences between alcoholic subgroups have sometimes been as great or greater than the differences between alcoholics and nonalcoholics.

Research using the EPPS and alcoholics (44, 58, 63, 125, 153, 154, 197) appears marked by equivocality, lack of replication, and essentially negative findings. The EPPS has not proven very effective in distinguishing alcoholics from normals (other than a somewhat consistent finding of elevated achievement and heterosexuality scale scores for alcoholics and heavy drinkers) or in predicting treatment dropouts.

EPI findings of elevated neuroticism scores appear to be fairly consistent, with no significant difference on the extraversion-introversion dimension, for alcoholic samples relative to normals (40, 103, 162, 191), and with younger alcoholics more neurotic than older ones (162). The EPI does not appear useful for separating alcoholics from other clinical groups (6, 174).

The I-E Locus of Control findings thus far appear mixed and inconclusive. Most studies report that alcoholics are internally oriented regarding perceived control of reinforcement (30, 37, 57, 60, cf. 11), but other studies have found perceived external orientation (21) or no significant difference (38) relative to a variety of comparison groups. Criticisms (21, 77) of the I-E literature dealing with alcoholics, primarily on methodological grounds (such as the use of inappropriate comparison groups), have attempted to account for the equivocal results.

To date, PRF research with alcoholics has been limited but promising. On 16 of the 20 PRF personality variables, Hoffmann (78) found significant differences between a hospitalized male alcoholic group and a nonalcoholic control group. The alcoholics scored significantly higher than the controls in abasement, affiliation, cognitive structure, harm avoidance, nurturance, order, and succorance; significantly lower in achievement, aggression, autonomy, change, dominance, endurance, exhibition, play, and sentience; and essentially the same in defendence, impulsivity, social recognition, understanding, and (the two validity scales) desirability and infrequency. Hoffmann also reported significant differences on 15 PRF scales among age subgroups of his alcoholic sample; however, these age-personality relationships were not replicated in a later study (64).

Alcoholics appear consistently distinguishable from the general population via the 16 PF (26, 36, 48, 62, 107). The alcoholics tend to score significantly lower on ego strength/emotional maturity (factor C) and higher on anxiety indicators (factors O, Q4, and the higher-order anxiety factor); findings have not been consistent on extraversion-introversion, intelligence, impulsiveness, and sensitivity (factors A, B, F, and I respectively). The 16 PF also has been used to show significant personality differences between Jellinek's (96) alcoholic types (192), and between alcoholics and other addictive groups (28). However, the 16 PF apparently cannot separate alcoholics from neurotics (48, 54, 165). Nor has the 16 PF proven very useful in predicting dropouts from inpatient alcoholism treatment programs (63), a general finding with personality tests. Findings have been inconsistent concerning changes in alcoholics' 16 PF scores with treatment (85, 180). Recent attempts have been made to delineate distinct subgroupings of alcoholics with the 16 PF, via cluster analysis (116) and the Lorr multivariate typing technique (142), but the personality typologies thus defined appear related more to the particular statistical clustering techniques and testing samples used than to meaningful alcoholic population subgroups (6).

The personality-assessment alcoholism research literature also includes some recent studies using more than one psychological test. With various paper-and-pencil measures (including scales from the MMPI and EPPS) of dependency, Snibbe (179) found a sample of male outpatient alcoholics significantly more dependent than a normal comparison group. (Hoffmann's (78) PRF results on the assessed dependency of alcoholics were confirmatory, but the findings of Goldstein et al. (52) were not.) Hoffmann et al. (81) intercorrelated and factor analyzed the MMPI and DPI responses of a large sample of male inpatient alcoholics, concluding that these two personality inventories assess highly related areas of psychopathology. They found considerable heterogeneity of psychopathology within the sample and suggested the following seven-factor typology of alcoholics: hypochondriacal complaining, denial versus anxiety, depressed withdrawal, interpersonal conflict and social alienation, persecutory ideas, cognitive dysfunction, and response bias. Another factor analytic study (141) with a large sample of hospitalized male alcoholics correlated PRF and 16 PF data in an attempt to derive prototype alcoholic subgroups. Substantial convergence between the two inventories was indicated and a typology proposed: obsessive-compulsive, impulsive, aggressive-paranoid, submissive, avoidant-schizoid, asocial-schizoid, and narcissistic.

Significant equivocality of the personality assessment literature on alcoholism notwithstanding, I have not perceived quite the degree of theoretical and empirical disarray cited by Neuringer and Clopton (143). Convergent findings at least suggestive of deserving hypotheses (pertaining to such variables as impulsivity, depression, anxiety, and self-esteem, along with dependency and various other factors having to do with social/interpersonal orientation and competence) appear to justify, if not demand, additional research with alcoholic groups and subgroups.

Present Research Problem

The general purpose of this study was to undertake personality assessment research with alcoholic and nonalcoholic (control) population samples. Relevant and important personality profile issues were investigated empirically

within a relatively novel framework including both conventional nomothetic group differences and more in-depth idiographic data.

J. Harris (69) recently presented a conceptual argument, with empirical support, for multimethod personality assessment of the individual via a composite profile derived by averaging self-report inventory data, self-ratings, and peer ratings, all based on a common set of construct definitions. Harris' theoretical formulation was supported empirically by data regarding temporal stability and discriminant validity.

Harris (69) used Jackson's PRF, cited as

> . . . a meticulously constructed instrument involving a rational selection of pools of items related to single constructs, bipolar dimensions, content saturation, a balanced format of true-false responses for control of acquiescence, appropriate control for social desirability, and even a special multimethod factor analysis designed to eliminate the effects of unwanted method variance (Jackson, 1969) as well as to meet the usual requirements for classical reliability and validity. (p. 732)

The review literature has consistently contained similarly laudatory evaluations of the PRF (e.g., 2, 32, 83, 106, 190, 195, 196), attesting to an unusual consensus of approval which the inventory has enjoyed among psychometrically oriented psychologists. However, there have been criticisms (e.g., 193), and Hogan (83) has suggested that the PRF, though "in some ways a paragon of technical sophistication" (p. 1007) and "one of the more promising developments in personality assessment in recent years" (p. 1008), sorely lacks, thus far, external/nontest validational evidence in real-world practical or applied situations. One aim of the present study was to provide additional PRF validity data in the applied setting of personality assessment of alcoholics.

A more recent psychometric product authored by Jackson (obviously not content to rest upon his PRF laurels) has been the Jackson Personality Inventory (JPI; 91), composed of 15 bipolar personality scales (and one validity scale, infrequency): anxiety, breadth of interest, complexity, conformity, energy level, innovation, interpersonal affect, organization, responsibility, risk taking, self-esteem, social adroitness, social participation, tolerance, and value orthodoxy. The selected personality variables/dimensions reflect, according to Jackson, a variety of important interpersonal, cognitive, and value orientations, primarily derived from recent personality and social psychology research literature germane to normal/nonpsychiatric populations. Jackson deems the JPI

> . . . particularly appropriate for use in schools, colleges, and universities as an aid to counseling, for personality research in a variety of settings, and in business and industry . . . [and distinguishable] from the PRF not only in terms of the nature of the variables of personality measured, but in terms of its representing a further refinement and development of substantive, psychometric and computer-based strategies for scale development initially employed in the development of the PRF. (p. 9)

As with the PRF, the JPI was constructed according to explicit construct validational guidelines involving suppression of response-style bias, fidelity of items to scale definitions, convergent and discriminant item content saturation, scale homogeneity as well as generalizability, and reasonably normal scale distributions.

The literature reflects very limited use of the JPI thus far, and reviews have been few and mixed, varying from a somewhat tentative "highly recommended" for personality research (50) on the one hand to a rather unfavorable appraisal (119) on the other. Application of the JPI with an alcoholic population sample has not been reported.

The PRF and JPI appear to represent well-constructed means of assessing important personal and interpersonal variables of potential significance in furthering our understanding of alcohol abuse. Also, J. Harris' (69) proposed assessment methodology seems to provide a more fruitful and powerful means of measuring the PRF and JPI dimensions, i.e., via multimethod gathering of idiographic as well as nomothetic data relating to apparently robust composite-score approximations of the traits in question. Perhaps such an approach as outlined here at least begins to sort out the generally confused, inconclusive state of empirical affairs of the alcoholism-personality literature. By generating applicable validational data, this investigation also represents additional and meaningful field-testing extensions of the instruments and procedures used.

Although comprehensive, the PRF and JPI personality dimensions do not exhaust all potential alcoholism-related traits. This study includes two additional variables selected for apparent relevance to the alcoholism-personality literature: androgyny; and an MMPI/Pd-derived subscale that I developed.

The concept of psychological androgyny, as recently formulated (e.g., 8, 9, 12, 100), involves the flexible/adaptable integration of both masculine and feminine (culturally defined) sex-role attributes (e.g., instrumental, assertive versus expressive, yielding) into an individual's self-concept and behavioral repertoire, with appropriate sex-role manifestations defined in terms of situational factors, as well as one's aptitudes and interests, rather than traditional gender-specific stereotypes. The reconceptualization of sex roles construes masculinity and femininity not as endpoints of a single bipolar dimension but rather as separate and independent dimensions of human functioning. An individual can be characterized in a quadripartite fashion as masculine typed (high masculine/low feminine), feminine typed (low masculine/high feminine), androgynous (high masculine/high feminine), or undifferentiated-indeterminate (low masculine/low feminine). Several recent self-report means of sex-role assessment have been developed within the androgyny paradigm (8, 12, 74, 181). One masculinity-femininity measure appeared particularly appropriate for inclusion in this study in that it can be obtained directly from an individual's PRF (Form AA) responses, viz., the Berzins et al. PRF ANDRO scale (12).

The alcoholism-personality literature suggested the relevance and importance of gathering sex-role data pertaining to various inferred alcohol-abuse-related traits, e.g., hypermasculinity of male alcoholics (98, 128, 145), sex-role confusion (22), opposite-sex identification by males (123, 150, cf. 12), and male masculine facade (88, 151, cf. 204). In light of apparently inconsistent sex-role hypotheses and findings in the alcoholism literature, additional attempts at empirical clarification seemed in order.

Given the comparatively consistent MMPI research findings of elevated scale 4 with alcoholic samples, the psychopathy/sociopathy personality domain, as tapped by the MMPI/Pd items, warranted some attention within my personality-assessment investigation with alcoholics. Scale 4, as is the rule with the MMPI clinical scales, is factorially complex (3, 29, 81); thus, an elevated scale score may reflect any one of several putative facets of personality as delineated by factor analysis. Astin (3), on a sample of male narcotic addicts, identified five Pd scale factors and labeled them self-esteem, hypersensitivity, social maladaptation, impulse control, and emotional deprivation. Also, R. Harris and Lingoes' (71) rationally derived subscales of scale-4 items were judged as forming clusters relating to familial discord, authority conflict, social imperturbability, social alienation, and self-alienation. To attempt some clarification of the empirical relationship between alcohol abuse and elevation of the multifaceted scale 4, I developed a 20-item Pd subscale, i.e., Pd-AA (for alcohol abuse; see Appendix H), to measure personality aspects of scale 4 judged to be inadequately assessable by the PRF and JPI dimensions.

Although this study was essentially exploratory, I tested some tentative hypotheses primarily suggested by the MMPI/scale-4 literature. The MMPI/Pd literature was selected as primary source for hypothesis formulation due to empirical basis, relative consistency of findings, and apparent compatibility with several of the present study's dependent constructs. I thus predicted that relative to nonalcoholic controls, the alcoholic sample, with individual trait scores based on multisource composite data, would score significantly higher on the PRF-JPI variables of aggression, autonomy, impulsivity, and anxiety; and lower on conformity and responsibility. I also hypothesized that the alcoholic sample would score relatively higher on my Pd subscale, and as feminine-sex-typed on the PRF ANDRO scale.

Without specific hypotheses, I gathered exploratory data regarding short-term retesting and congruency/discrepancy among the various methods of trait assessment, i.e., self-report inventory, self-ratings, and peer ratings.

METHOD

Subjects

The experimental sample for this study consisted of 36 volunteer adult males. They were consecutively admitted inpatients to the Alcohol Treatment Unit of the Veterans Administration (VA) Hospital, Lexington, Kentucky.

The approximately 4.5-week treatment program is described as multifaceted--involving education, group psychotherapy, work or recreational activities, light physical conditioning, and Alcoholics Anonymous meetings. Group therapy is emphasized and, depending on the group leader's orientation, may involve relationship therapy, transactional analysis, or group-centered approaches, along with some didactic material. The unit is staffed by psychiatrists, psychologists, social workers, and medical support personnel. General phases and goals of the program involve presentation of didactic material; enhanced self-awareness, self-esteem, and social-interpersonal effectiveness; and preparation for postdischarge adjustment to community, family, and job situations without alcohol dependence. Additional pertinent aspects of the treatment program include detoxification prior to entry and routine psychological testing/screening. Typically, six to ten patients are admitted weekly, and they remain together as a subgroup (e.g., for purposes of group therapy) throughout the program.

Nonalcoholic controls were 42 adult male volunteers from the Lexington Fire Department. To obtain adequate participation, a nominal fee was paid to each control group volunteer who completed all of the testing.

Subjects with less than 12 years of education were dropped from the study. Also excluded were subjects providing inventory protocols of doubtful validity (based on PRF and JPI infrequency scale scores) or less than complete data on all measures other than demographic information. Such restrictions, along with self-elimination from the study or the VA treatment program, resulted in approximately 40% attrition of the initial alcoholic sample and 5% of the controls.

Measures

In addition to major demographic information, data were obtained using the following instruments: Jackson's (89, 91) PRF (Form AA) and JPI self-report inventories; the Berzins et al. (12) PRF-derived PRF ANDRO scale (composed of masculinity and femininity subscales); self and peer ratings (on a 5-point scale) of the PRF, JPI, and ANDRO personality variables; and my Pd-AA scale (see Appendixes A, G, and H).

Procedure

With standard psychological testing instructions, the PRF and JPI inventories, the rating tasks, and the MMPI/Pd subscale (i.e., Pd-AA) were administered to the entering groups of alcoholic patients in their first week of the VA rehabilitation program during the routine testing/screening phase. The JPI inventory, ratings by self and others on the JPI variables, and the Pd-AA were administered again during the final week of treatment. Control data were gathered on all measures on a one-time basis. The VA and control subjects were tested in small group settings.

RESULTS

Findings of this research are summarized here primarily in terms of extensive ANOVA (univariate and multivariate) and correlational analyses, including Q correlation procedures (23-25). Regarding the latter, group mean results are based on correlations between the profile data sources (e.g., inventory scores versus self-ratings), across the PRF-JPI variables, for each individual subject. Again involving the averaging of within-subject correlations, test-retest profile Q correlational findings are provided relating to the temporal stability of each of the data sources/personality-assessment methods: (1) self-report inventory scores, (2) self-ratings on the inventory variables, (3) mean ratings by peers on the same variables, and (4) mean-composite of (1), (2), and (3).

Chi-square and t-test results also are reported where applicable. Pertinent reliability, normative, and social desirability data regarding the Pd-AA scale are presented, as well as demographic findings for the VA and control subjects.

Prior to data analysis, inventory test protocols on all dependent variables for which composite (i.e., mean of inventory, self-rating, and peer-rating) scores were to be formulated (viz., the PRF and PRF-derived variables--other than desirability--and the JPI variables) were first scored and standardized using test-manual scoring keys and normative tables. Then, to facilitate averaging with the rating data, the standard (T) scores (M = 50) were converted to a scale comparable with the 5-point rating scale by subtracting 20 and dividing by 10 to provide an assumed mean of 3.

Pd-AA test-retest reliability data (approximately 3-week interval) with the VA sample (N = 33) produced a stability correlation coefficient of .65 ($p < .001$). The Kuder-Richardson (formula 20) reliability indices of interitem consistency were .64 for the VA-test group, .55 for the VA-retest group, and .32 for the controls. Additional internal consistency reliability data, viz., correlations between items and total score, are shown in Appendix I. See Appendixes E and F for Pd-AA and PRF/desirability (Dy) correlational information for the VA and control samples respectively. VA Pd-AA mean scores were 11.73 (based on raw scores; SD = 3.22) and 10.73 (SD = 2.85) for the initial and retest presentations respectively. The control group mean was 7.38 (SD = 2.16) for a single administration of Pd-AA. These descriptive statistics are based on non-age-group-adjusted data due to lack of significant ANOVA age-group findings (see Appendixes B-D) with the Pd-AA variable.

Demographic Data

Table 1 presents the descriptive data for the alcoholic and control samples. The education, age, marital status, race, and alcohol use (controls only) data were obtained via self-report or VA unit records. Intelligence data are WAIS full-scale IQs estimated via Shipley-Hartford (177) total raw scores, adjusted for age (152).

TABLE 1. DEMOGRAPHIC DATA

	VA (N = 36)		Control (N = 42)		|t|[a]
	M	SD	M	SD	
Education (yrs)	13.36	1.71	13.48	1.53	.31 (ns)
IQ	103.77[b]	8.43	107.76	8.48	1.96 (ns,p<.06)
Age (yrs)	39.53	10.89	33.67	7.80	2.69 (p<.01)
	VA		Control		
	N	%	N	%	
Age groups					
≤ 28	4	11.11	12	28.57	
29-32	9	25.00	10	23.81	
33-39	8	22.22	12	28.57	
≥ 40	15	41.67	8	19.05	
Marital status[c]					
Single	6	21.43	10	23.81	
Married	11	39.29	30	71.43	
Other	11	39.29	2	4.76	
Race[d]					
Black	5	13.89	4	9.52	
White	31	86.11	38	90.48	
Alcohol use[e]					
None	———	———	8	19.05	
Light	———	———	19	45.24	
Moderate	———	———	14	33.33	
Heavy	———	———	1	2.38	

[a] df = 76 (education; age); df = 69 (IQ).
[b] VA sample size equals 29 due to missing IQ data.
[c] "Single" refers to never married; "other" refers to separated, divorced, or widowed. VA sample size equals 28 due to missing marital-status data. VA percentages do not sum to 100% due to rounding. X^2 (2) = 13.79, p<.001.
[d] X^2 (1) = .36, ns.
[e] Estimated data regarding present alcohol use were obtained by self-report from controls only. No attempt was made to define exact limits for the selected category labels.

The samples appear adequately matched on the variables of education level, also confirmed by chi-square analysis--X^2 (3) = .82, ns; IQ, with both sample means within the "average" IQ range; and race. Additional Shipley-Hartford analyses indicate essential equivalence between the samples on vocabulary raw scores--t (69) = .15, ns; but significantly lower scores by the alcoholics on abstraction--t (69) = 3.96, $p < .001$--and the vocabulary-abstraction-derived conceptual quotient (VA, M = 78.48; control, M = 95.46)--t (64) = 5.12, $p < .001$. Statistically significant group differences are also indicated on age and marital status, with the alcoholics somewhat older and overrepresented in the separated, divorced, or widowed category.

Due to the significant age discrepancy between samples, I decided to form age groups for subsequent ANOVA purposes (other than the subgroup analysis). Table 1 depicts these age groups, devised to obtain cell distribution as balanced as possible for both samples. This attention to the age factor is consistent with previous findings of significant age-related personality differences among alcoholics (78).

All controls denied a history of alcohol abuse or treatment for alcohol-related problems. Also, nearly all the controls reported moderate, or less, current use of alcohol.

For test administration, particularly peer ratings, nine VA and five control "subgroups" were formed by order of entry into the study: VA--N = 3-6, M = 4.00; controls--N = 7-12, M = 8.40.

ANOVA: VA-Test and Control Subgroups on PRF and JPI Variables

To determine the effect of the testing subgroupings, preliminary one-way ANOVAs of the nine VA-test and five control subgroups on the 37 PRF, PRF-derived, and JPI variables (composite data only) were performed. Findings indicate significant ($p < .05$) subgroup effect on six variables for the alcoholics (df = 8, 27) and five for the controls (df = 4, 37), as follow: VA--autonomy, complexity, innovation, organization, risk taking, and value orthodoxy; controls--affiliation, defendence, nurturance, social recognition, and responsibility. Due to the inconsistency of significant subgroup effects, the subgroupings were ignored in the remaining analyses.

ANOVA: VA-Test Group versus Controls by Age Groups

As shown by Appendix B, statistically significant differences (univariate and/or multivariate, main effects and/or interaction) were found for 31 of the 39 variables considered, viz., 20 of the 23 PRF (or PRF-derived) scales; 10 of the 15 JPI scales; and the 1 non-PRF-JPI variable (i.e., Pd-AA). More specifically, the inventory data source accounts for 18 significant findings (main effects and/or interaction) out of 39 variables/possibilities; self-rating, 11 of 37; mean rating by others, 15 of 37; composite or mean (of inventory, self-rating, and mean rating by others) scores, 14 of 37; and multivariate, 12 of 37.

Perhaps a more useful and meaningful scale-by-scale comparison, however, would focus on the mean-composite scores and the multivariate findings. The latter involve the most discriminating linear combinations of the inventory, self-rating, and mean-rating-by-others scores to detect group differences, i.e., to maximize the test statistic. The simple average or composite of the three data sources appears to provide findings consistent with the relatively sophisticated multivariate combinations. Specifically, out of a total of 111 main effects and interaction comparisons, statistical significance is in agreement in all but nine, a 92% congruency. The corresponding overlap between the multivariate findings and the univariate inventory, self-rating, and mean-rating-by-others scores is 89 out of 111, or 80%.

Multivariate analysis of all 39 dependent-variable constructs (based on composite data for 37 variables and inventory scores for the remaining 2), as shown in Appendix B, indicates that the control and VA-test groups differ significantly overall, with some linear combination of the dependent variables. However, no overall significant difference was found among the age groups, and no significant overall interaction effect was found. Therefore, only the alcoholic versus control group factor will be emphasized here regarding the individual scale findings.

As Appendix B reflects, based on composite data (and inventory scores for Pd-AA and desirability), the VA-test group means were significantly higher than those of the controls on achievement (3.69 vs 3.39), aggression (2.88 vs 2.59), autonomy (3.52 vs 2.88), understanding (3.73 vs 3.26), anxiety (3.43 vs 2.74), breadth of interest (3.40 vs 3.04), complexity (2.81 vs 2.49), and Pd-AA (11.99 vs 7.38, based on raw scores). VA-test subjects scored lower than controls on responsibility (3.36 vs 3.61) and desirability (46.06 vs 56.25, based on T scores). All findings were consistent across the three data sources and their composite regarding direction of group differences. No statistically significant group differences were found for the remainder of the personality traits measured.

ANOVA: VA-Retest Group versus Controls by Age Groups

Statistically significant results (univariate and/or multivariate, main effects and/or interaction) were found for 13 of the 16 variables assessed--15 JPI variables plus Pd-AA (see Appendix C). Inventory data account for 8 significant findings (main effects and/or interaction) out of 16 possibilities; self-rating, 5 of 15; mean rating by others, 8 of 15; composite, 9 of 15; and multivariate, 9 of 15.

Comparison of the multivariate versus the inventory, self-rating, and mean-rating-by-others composite shows strong comparability: out of 45 main effects and interaction statistical tests, congruency regarding significance is seen on all but eight--an 82% consistency between the mean-composite and multivariate combination indices. An 82% overlap also occurs between the multivariate and the univariate single-method results.

Multivariate analysis of the composite data for the 15 JPI constructs and the Pd-AA inventory scores suggests statistically significant overall VA-retest group versus control group effect and overall age-group effect, without interaction. Specifically, the VA-retest group means were significantly higher than those of the controls on anxiety (3.30 vs 2.74), complexity (2.89 vs 2.49), interpersonal affect (3.34 vs 3.06), organization (3.52 vs 3.19), and Pd-AA (11.33 vs 7.38, based on raw scores). The retest alcoholics scored significantly lower than the controls on conformity (2.82 vs 3.06) and responsibility (3.26 vs 3.61). No significant differences were found for the remaining scales. All findings regarding direction of VA-retest versus control group differences were consistent across the three separate data sources and their composite. Significant age-group differences, based on composite scores, were found for the personality traits of complexity, energy level, responsibility, risk taking, and value orthodoxy. The age-group means are as follow:

	Age Groups			
	$\leq$ 28	29-32	33-39	$\geq$ 40
Complexity	2.79	2.93	2.83	2.22
Energy level	3.51	3.38	3.28	2.84
Responsibility	2.96	3.43	3.60	3.74
Risk taking	3.49	2.85	2.77	2.62
Value orthodoxy	3.36	3.15	3.48	3.79

These means suggest an essentially positive age-versus-personality trait relationship in the case of responsibility and value orthodoxy, and an inverse association with regard to energy level and risk taking. Regarding complexity, the age relationship appears characterized by a marked decrease in trait scores by the oldest age group (i.e., $\geq$ 40).

ANOVA: VA-Test Group versus VA-Retest Group by Age Groups

Significant findings (univariate and/or multivariate, main effects and/or interaction) are shown in Appendix D for 10 of the 16 JPI and Pd-AA dependent variables measured. The inventory scores provide 5 significant results (main effects and/or interaction) out of 16 possibilities; self-rating data source, 2 of 15; mean rating by others, 5 of 15; composite, 7 of 15; and multivariate, 6 of 15.

The composite versus multivariate comparison shows considerable overlap, with agreement on 40 out of 45 main effects and interaction tests of significance, i.e., 89% correspondence (see Appendix D). The congruency between the multivariate results and the individual inventory, self-rating, and mean-rating-by-others findings is 39 out of 45 (87%).

Appendix D multivariate findings regarding all 16 dependent variables indicate a significant overall nonadditive, or interactive, effect of the test versus retest and age independent variables. The only significant test-retest group difference (based on univariate analyses of the composite data) involves

organization (test M = 3.31; retest M = 3.52), with an apparent gain in this area over the course of the VA treatment program. Significant factor interaction was found on the personality traits of complexity, interpersonal affect, and social adroitness, with the applicable group means as follow:

	Age Groups			
	≤ 28	29-32	33-39	≥ 40
Complexity				
VA-test	2.49	2.97	3.46	2.34
VA-retest	2.89	3.17	3.23	2.29
Interpersonal affect				
VA-test	3.04	3.26	3.09	3.27
VA-retest	3.76	3.08	3.27	3.26
Social adroitness				
VA-test	3.08	3.24	3.19	2.79
VA-retest	2.80	2.98	3.21	2.89

In the case of complexity, the means suggest a tendency for the retest subjects to score higher than test subjects in the ≤ 28 and 29-32 year age groups, with a reversal of this trend in the 33-39 group and essentially no test-retest difference in the ≥ 40 group. For interpersonal affect, the retest group scored higner among the ≤ 28 and 33-39 year olds but lower in the 29-32 category; again, with a test-retest convergence in the ≥ 40 group. The test group scored higher on social adroitness among the ≤ 28 and 29-32 ages, with convergence at the 33-39 range and apparent trend reversal among the ≥ 40-year-old subjects.

Correlational Analyses

Appendixes E and F present the intercorrelation matrices of the 39 dependent variables for the VA-test and control groups respectively. Critical values of correlation coefficient (r) and test results for statistically significant difference between VA and control r's are indicated.

Of 741 correlations for the VA subjects, 218, 136, and 58 are significant at the .05, .01, and .001 levels (two-tailed test) respectively. See Appendix E (Note) for a listing of the scale correlations reaching the .001 level.

Of 741 correlations for the control group matrix, 192, 110, and 53 are significant at the .05, .01, and .001 levels (two-tailed test) respectively. See Appendix F (Note) for the trait intercorrelations achieving the .001 level.

VA and control group correlations show significant differences: 47 at the .05 significance level, 13 at .01, and 4 at .001 (two-tailed test). The combinations obtaining the .001 level (and the level of significance of individual correlations) are as follow:

	VA r	Control r
Endurance and order	.73***	.01
Harm avoidance and organization	-.47**	.28
Impulsivity and self-esteem	.63***	-.04
Social recognition and succorance	-.02	.63***

**p < .01, ***p < .001, two-tailed test

Tables 2 through 4 are based on Q, or profile, correlations. Table 2 shows the VA-test and control groups' mean Q intercorrelation matrices for the three single-method data sources (i.e., inventory, self-rating, and mean rating by others) and their composite. ANOVA comparisons of the VA and control mean Q correlations are also presented in Table 2; the only significant difference between the groups was in Q correlations of self-rating and mean rating by others, with the control mean Q higher.

TABLE 2. ONE-WAY ANOVA: VA GROUP VERSUS CONTROL GROUP ON MEAN Q CORRELATIONS OF DATA SOURCES

	VA (N = 36)	Control (N = 42)		
	Q	Q	F[a]	
I, S-R	.37	.32	1.51	
I, MRO	.16	.22	1.03	
S-R, MRO	.26	.36	6.14	(p < .05)
I, COMP[b]	.83	.83	.00	
S-R, COMP[b]	.79	.77	.74	
MRO, COMP[b]	.48	.54	2.48	

Note. I = inventory, S-R = self-rating, MRO = mean rating by others, COMP = composite of I, S-R, and MRO. Chi-square analysis indicates significant (p < .05) heterogeneity among the individual correlations for each of the data-source combinations. ANOVA was performed on the Z-transformed values of the correlation data based on scores on 37 PRF and JPI variables. Nonparametric testing (viz., Wilcoxon signed-ranks test) results are consistent with ANOVA findings.

[a]df = 1, 76.

[b]An augmenting effect occurs when a single-method profile (I, S-R, or MRO) is correlated with a composite profile which includes that single method.

Table 3 presents the results of further analyses of the VA and control mean Q correlation matrices. The single-method (inventory, self-rating, and mean rating by others) profile intercorrelations show significant interaction (nonadditive effect) between VA-versus-control-group membership and specific Q correlation. The applicable Z-transformed means (not to be confused with correlations) are as follow:

VA group:	Inventory, self-rating (.39)
	Inventory, mean rating by others (.16)
	Self-rating, mean rating by others (.26)
Control group:	Inventory, self-rating (.33)
	Inventory, mean rating by others (.22)
	Self-rating, mean rating by others (.38)

Comparison of these means suggests a tendency for the VA (alcoholic) subjects to produce higher correlations of inventory and self-rating than the control group; with a reversal as regards the correlations of inventory and mean rating by others and of self-rating and mean rating by others. The single-method, composite Q intercorrelations (i.e., inventory, composite; self-rating, composite; and mean rating by others, composite) appear to differ significantly, with no indication of significant interaction with the nonsignificant VA-versus-control-group factor. The appropriate Z-transformed means are as follow: inventory, composite (1.18); self-rating, composite (1.05); and mean rating by others, composite (.56), with the most noticeable difference being a decrease from the first two relationships to the latter.

TABLE 3. TWO-WAY ANOVA: VA GROUP VERSUS CONTROL GROUP BY TYPE OF Q CORRELATION

	F^a	F^b
VA vs Control[c]	.90	.07
Type of Q[d]	20.15 ($p < .001$)	148.33 ($p < .001$)
Interaction[d]	5.40 ($p < .01$)	1.71

Note. I = inventory, S-R = self-rating, MRO = mean rating by others, COMP = composite of I, S-R, and MRO. ANOVA was performed on the Z transformations of the correlation data based on scores on 37 PRF and JPI variables. Testing of covariance matrices for symmetry supports the appropriateness of univariate ANOVA. Also, multivariate findings are essentially consistent with the univariate results.

[a]Type of Q = I, S-R; I, MRO; S-R, MRO.
[b]Type of Q = I, COMP; S-R, COMP; MRO, COMP.
[c]df = 1, 76. N = 36 VA, 42 control.
[d]df = 2, 152.

Finally, Table 4 depicts the VA test-retest indices of temporal stability (over approximately 3 weeks) for each of the four profiles studied. Inventory obtained the highest test-retest mean correlation, followed by the composite, self-rating, and mean-rating-by-others profiles, in that order, with statistical evidence of significant heterogeneity among the mean Q correlations and among the individual subjects as well.

TABLE 4. TEST-RETEST MEAN Q CORRELATIONS FOR VA GROUP

Type of Profile	Q Correlation
Inventory (I)	.85
Self-rating (S-R)	.50
Mean rating by others (MRO)	.39
Composite of I, S-R, and MRO	.78

Note. N = 33. The mean correlations (via Z transformation) of the 33 individual Q correlations of the VA subjects are based on test-retest scores on 15 JPI variables over an approximately 3-week interval. Two-way ANOVA (of Z-transformed correlation data) indicates a significant individual subject effect--$F(32, 96) = 3.82$, $p < .001$--and type of Q effect--$F(3, 96) = 61.23$, $p < .001$.

DISCUSSION

THE ANOVA results generally support this study's hypotheses. As predicted, the alcoholic sample (VA-test group) scored significantly higher than the nonalcoholics (controls) on aggression, autonomy, anxiety, and Pd-AA (my MMPI/Pd-derived scale). Also as hypothesized, the VA subjects scored significantly lower than the controls on the responsibility trait. However, the data failed to reflect predicted differences on impulsivity, conformity, and the PRF ANDRO subscales of caring (femininity) and instrumentality (masculinity); and unexpected group differences were found on the achievement, understanding, breadth of interest, complexity, and desirability scales, with the alcoholics scoring higher than controls on the first four and lower on the last one. (With multiple statistical tests of significance, some significant differences are to be expected due to chance alone.)

Although the psychopathic/sociopathic model appears relatively predictive of the alcoholic versus control group differences found in this study, I do not offer the confirmatory findings, compelling as they are, as evidence that the Pd model represents the only, or even best, conceptualization of the male inpatient alcoholic. The equivocal, contradictory findings characterizing much of the apposite literature, as well as recent studies (e.g., 81) assuming or emphasizing heterogeneity of the alcoholic population, strongly suggest that various conceptualizations might fit other samples equally well. Unfortunately, meaningful typological (33, 124, 146) and factor analyses of the

present data were precluded by restricted sample sizes relative to the number of dependent variables investigated.

The elevation of VA-group achievement scores relative to controls, though not predicted, is generally consistent with the EPPS literature. Relatively high achievement, understanding, breadth of interest, and complexity scores by the alcoholics, along with elevated aggression and anxiety, possibly indicate compensatory coping efforts regarding CNS impairment (133). Additional evidence of a deficiency-compensating tendency is the relatively deficient VA-group performance on the Shipley-Hartford Abstraction subtest, yielding a "quite suspicious" conceptual-quotient index of intellectual impairment versus "normal" range functioning by the control group (cf. 187).

More difficult to interpret is the unpredicted and rather surprising apparent lack of replication of previous findings (12) of male inpatient alcoholics tending to score as feminine sex-typed on the PRF ANDRO scale. The previous sex-role results, however, were based on a much larger sample (N = 760) of alcoholics than that of the current investigation (N = 36), as well as somewhat older (Ms = 43.9 years versus 39.5). In this study, both alcoholics and nonalcoholics had above-average group mean scores on both sex-role variables (caring and instrumentality), and nonsignificant group differences on both variables. Additional research is indicated on the important androgyny issue. Also, on this and other alcohol-related issues, more studies involving female subjects are needed (7, 55).

The ANOVA findings regarding the VA-retest subjects and controls appear essentially consistent with the VA-test results. Evidence again suggests an alcoholic clinical picture characterized by sociopathic and impairment-compensatory tendencies. Also, in the case of the retest and control group analyses, the age-group factor, independent of the alcoholic-nonalcoholic dichotomy, appears to be significantly associated with personality dimensions involving preference for complex analysis (complexity), energy resources (energy level), degree of socialization (responsibility), adventurousness (risk taking), and attitude regarding cultural change (value orthodoxy), with indications of an overall tendency towards a positive age-conservatism/conventionality relationship.

Although evaluation of the VA treatment program was not a specific focus of the present study, the test-versus-retest ANOVA results provide pertinent pre- versus post-treatment comparative data. Of the 16 dependent personality traits assessed, organization is the only one that indicates significant test-versus-retest group main effect, independent of the age group factor, with the retest subjects scoring higher. Jackson (92) has reported that the organization scale correlates negatively with nonmedical drug use, tobacco smoking, and impulse expression. The only additional evidence of personality change during the treatment program involves consideration of the age variable in conjunction with the test-retest factor. In general, change is indicated more among the younger VA subjects than the middle-aged, especially the 40-year-old-and-older group. For the most part, the direction of change among the younger patients appears appropriate, with apparent gains, over treatment, in reflectiveness (complexity) and interpersonal warmth (interpersonal affect). The tendency for social adroitness scores of the younger subjects to decrease over the course of the rehabilitative program may reflect an actual

deterioration of social/interpersonal adeptness or skills. On the other hand, given the rather Machiavellian nature of this particular scale (92), the lower scores may be associated with desirable shifts toward more interpersonal frankness and openness with less manipulative tendency. These age-related findings could have important treatment implications. In addition to more research involving the age variable, there is a need to consider the issue of age-intervention matching and to develop more effective meliorative techniques and approaches for the older male chronic alcohol abuser.

Overall, the ANOVA data of this study appear to provide strong support for the multisource composite (average) score as an efficient, parsimonious assessment and research tool. Whether compared with single sources of personality data or with multivariate combinations of the various sources, the simple mean-composite of the individual data sources appears impressively robust and appropriate for trait-estimation purposes.

The data associated with the Pd-AA scale (highly significant F-ratios notwithstanding) represent preliminary, pilot-type findings. Cross-validation is indicated. The test-retest and interitem reliability indices are respectable for the VA sample. However, the relatively low internal consistency index of .32 for the control group appears to argue for further scale refinement.

The intercorrelation matrices (Appendixes E and F) of the current study's dependent variables provide pertinent convergent and discriminant validational data regarding the PRF, JPI, PRF ANDRO, and Pd-AA scales via analyses of the VA (alcoholic) and control samples. Also, comparison of the matrices provides additional group-difference information, e.g., the highly significant association between impulsivity and self-esteem scores for the alcoholics versus no such relationship detected for the controls.

The PRF manual (89) groups the scales into superordinate categories based on factor analytic studies and conceptual considerations. The resulting taxonomy, of consonant and opposing PRF trait measures, includes rubrics for impulsiveness; work, play, intellectual, and aesthetic attitudes; and various interpersonal orientations. The present study's intercorrelation data, regarding the PRF variables, appear generally consistent with the manual's suggested scale groupings (this conclusion applies particularly to the control group findings). The most notable exception is the highly significant positive correlation, for both the VA and control samples, between the "opposing" (according to Jackson, 89) scales of aggression and exhibition. These two variables are also reported by Jackson (89) as positively associated in the PRF normative samples.

As with the PRF results, this study's intercorrelational data appear essentially consistent with the JPI manual's (91) suggested scale paradigm based on factor analytic findings. The empirically posited factors include various primarily interpersonal dimensions as well as degree of traditional socialization. Similarly, the intercorrelations of this study's variables appear reasonably consistent with the JPI manual's JPI-PRF (Form E) correlation matrix.

The Q, or profile, correlational findings, based on intercorrelations among the three single-method data sources (viz., inventory, self-rating, and mean rating by others) and their composite, suggest overall lack of significant differences across the VA and control groups, with indications of significant within-group heterogeneity. However, a significant tendency is seen towards less congruency between self-perceptions and peer ratings among the VA subjects relative to the controls, along with significant interaction between the single-source profile intercorrelations and VA-versus-control-group membership.

Also, the Q data show the impressive (albeit somewhat "inflated": see Note, Table 2) correlational relationships between each of the single-method profiles and the composite profile. Regarding the relative contributions of the individual methods to the composite, however, the mean-rating-by-others method appears least noteworthy, correlating considerably lower with the composite profile than do either the inventory or self-rating data sources. The inventory and self-rating sources both provide subject-only data which may at least in part account for their relatively higher correlations with the composite scores, contrasted with the peer ratings.

The test-retest temporal stability findings, based on VA-JPI data, reveal generally respectable mean Q correlations. The inventory and composite profiles provide the highest Qs, followed by self-rating and, the least stable profile, mean rating by others.

In addition to relevant alcohol-abuse-personality findings, the correlational analyses, along with the ANOVA results, provide further support for using the composite-score methodology in personality assessment--including parallel profiles derived from inventory, self-rating, and peer-rating sources of data, all based on a common set of construct definitions.

REFERENCES

1. American Psychiatric Association. Diagnostic and statistical manual of mental disorders (3rd ed.) (DSM-III). Washington, D.C.: American Psychiatric Association, 1980.

2. Anastasi, A. (Review article on the Personality Research Form) In O. K. Buros (Ed.). The seventh mental measurements yearbook (Vol. I, p. 297). Highland Park, N.J.: Gryphon Press, 1972.

3. Astin, A. W. A factor study of the MMPI Psychopathic Deviate scale. J Consult Psychol 23:550-554 (1959).

4. Bailey, W., F. Hustmyer, and A. Kristofferson. Alcoholism, brain damage and perceptual dependence. Q J Stud Alcohol 22:387-393 (1961).

5. Ballard, R. G. The interrelatedness of alcoholism and marital conflict. III: The interaction between marital conflict and alcoholism as seen through MMPIs of marriage partners. Am J Orthopsychiatry 29:528-546 (1959).

6. Barnes, G. E. The alcoholic personality: A reanalysis of the literature. J Stud Alcohol 40:571-634 (1979).

7. Beckman, L. J. Women alcoholics: A review of social and psychological studies. J Stud Alcohol 36:797-824 (1975).

8. Bem, S. L. The measurement of psychological androgyny. J Consult Clin Psychol 42:155-162 (1974).

9. Bem, S. L. Probing the promise of androgyny. In A. G. Kaplan and J. P. Bean (Eds.). Beyond sex-role stereotypes. Boston: Little, Brown, 1976.

10. Bertrand, S., and J. Masling. Oral imagery and alcoholism. J Abnorm Psychol 74:50-53 (1969).

11. Berzins, J. I., and W. F. Ross. Locus of control among opiate addicts. J Consult Clin Psychol 40:84-91 (1973).

12. Berzins, J. I., M. A. Welling, and R. E. Wetter. A new measure of psychological androgyny based on the Personality Research Form. J Consult Clin Psychol 46:126-138 (1978).

13. Billig, O., and D. J. Sullivan. Prognostic data in chronic alcoholism. Rorschach Res Exch 6:117-127 (1942).

14. Billig, O., and D. J. Sullivan. Personality structure and prognosis of alcohol addiction: A Rorschach study. Q J Stud Alcohol 3:554-573 (1943).

15. Black, F. W., and A. Heald. MMPI characteristics of alcohol and illicit drug-abusers enrolled in a rehabilitation program. J Clin Psychol 31:572-575 (1975).

16. Brown, M. A. Alcoholic profiles on the Minnesota Multiphasic. J Clin Psychol 6:266-269 (1950).

17. Brown, R., and O. L. Lacey. The diagnostic value of the Rosenzweig Picture Frustration Test. J Clin Psychol 10:72-75 (1954).

18. Buhler, C., and D. W. Lefever. A Rorschach study on the psychological characteristics of alcoholics. Q J Stud Alcohol 8:197-260 (1947).

19. Button, A. D. A Rorschach study of 67 alcoholics. Q J Stud Alcohol 17:35-52 (1956).

20. Button, A. D. A study of alcoholics with the Minnesota Multiphasic Personality Inventory. Q J Stud Alcohol 17:263-281 (1956).

21. Butts, S. V., and J. Chotlos. A comparison of alcoholics and nonalcoholics on perceived locus of control. Q J Stud Alcohol 34:1327-1332 (1973).

22. Catanzaro, R. J. Psychiatric aspects of al ıolism. In D. J. Pittman (Ed.). Alcoholism. New York: Harper & Row, 1967.

23. Cattell, R. B. Personality: A systematic theoretical and factual study. New York: McGraw-Hill, 1950.

24. Cattell, R. B. Personality and motivation structure and measurement. Yonkers-on-Hudson, N.Y.: World Book, 1957.

25. Cattell, R. B. (Ed.). Handbook of multivariate experimental psychology. Chicago: Rand McNally, 1966.

26. Cattell, R. B., H. W. Ebner, and M. M. Tatsuoka. Handbook for the Sixteen Personality Factor Questionnaire (16 PF). Champaign, Ill.: Institute for Personality and Ability Testing, 1970.

27. Chess, S. B., C. Neuringer, and G. Goldstein. Arousal and field dependency in alcoholics. J Gen Psychol 85:93-102 (1971).

28. Ciotola, P. V., and J. F. Peterson. Personality characteristics of alcoholics and drug addicts in a merged treatment program. J Stud Alcohol 37:1229-1235 (1976).

29. Comrey, A. L. A factor analysis of items on the MMPI Psychopathic Deviate scale. Educ Psychol Meas 18:91-98 (1958).

30. Costello, R. M., and K. R. Manders. Locus of control and alcoholism. Br J Addict 69:11-17 (1974).

31. Craddick, R. A., and W. D. Leipold. Note on the height of Draw-a-Person figures by male alcoholics. J Proj Tech 32:486 (1968).

32. Crites, J. O. Test reviews. J Counsel Psychol 16:181-184 (1969).

33. Cronbach, L. J., and G. C. Gleser. Assessing similarity between profiles. Psychol Bull 50:456-473 (1953).

34. Curlee, J. E. A comparison of male and female patients at an alcoholism treatment center. J Psychol 74:239-247 (1970).

35. Davies, D. L. Definitional issues in alcoholism. In R. E. Tarter and A. A. Sugerman (Eds.). Alcoholism: Interdisciplinary approaches to an enduring problem. Reading, Mass.: Addison-Wesley, 1976.

36. Depalma, N., and H. D. Clayton. Scores of alcoholics on the Sixteen Personality Factor Questionnaire. J Clin Psychol 14:390-392 (1958).

37. Distefano, M. K., Jr., M. W. Pryer, and J. L. Garrison. Internal-external control among alcoholics. J Clin Psychol 28:36-37 (1972).

38. Donovan, D. M., and M. R. O'Leary. Comparison of perceived and experienced control among alcoholics and nonalcoholics. J Abnorm Psychol 84:726-728 (1975).

39. Edwards, A. L. Edwards Personal Preference Schedule manual. New York: Psychological Corporation, 1959.

40. Edwards, G., C. Hensman, A. Hawker, and V. Williamson. Who goes to Alcoholics Anonymous? Lancet 2:382-384 (1966).

41. Ends, E. J., and C. W. Page. Group psychotherapy and concomitant psychological change. Psychol Monogr 73:1-31 (1959).

42. Eysenck, H. J., and S. B. G. Eysenck. Manual for the Eysenck Personality Inventory. San Diego: Educational and Industrial Testing Service, 1964.

43. Fisher, S., and R. L. Fisher. Application of rigidity principles to the measurement of personality disturbance. J Pers 24:86-93 (1955).

44. Fitzgerald, B. J., R. A. Pasewark, and C. E. Tanner. Use of the Edwards Personal Preference Schedule with hospitalized alcoholics. J Clin Psychol 23:194-195 (1967).

45. Fowler, R. D., Jr., S. K. Teel, and F. A. Coyle, Jr. The measurement of alcoholic response to treatment by Barron's Ego-strength Scale. J Psychol 67:65-68 (1967).

46. Frankel, A., and J. Murphy. Physical fitness and personality in alcoholism: Canonical analysis of measures before and after treatment. Q J Stud Alcohol 35:1272-1278 (1974).

47. Franks, C. M. Alcoholism. In C. G. Costello (Ed.). Symptoms of psychopathology. New York: Wiley, 1970.

48. Fuller, G. B. Research in alcoholism with the 16 PF Test (IPAT Info. Bull. No. 12). Champaign, Ill.: Institute for Personality and Ability Testing, 1966.

49. Gibbon, R. J. Chronic alcoholism. Toronto: Toronto University Press, 1953.

50. Goldberg, L. R. (Review article on the Jackson Personality Inventory) In O. K. Buros (Ed.). The eighth mental measurements yearbook (Vol. I). Highland Park, N.J.: Gryphon Press, 1978.

51. Goldstein, G., and J. W. Chotlos. Stability of field dependence in chronic alcoholic patients. J Abnorm Psychol 71:420 (1966).

52. Goldstein, G., C. Neuringer, C. Reiff, and C. H. Shelly. Generalizability of field dependency in alcoholics. J Consult Clin Psychol 32:560-564 (1968).

53. Goldstein, S. G., and J. D. Linden. Multivariate classification of alcoholics by means of the MMPI. J Abnorm Psychol 74:661-669 (1969).

54. Golightly, C., and R. C. Reinehr. 16 PF profiles of hospitalized alcoholic patients: Replication and extension. Psychol Rep 24:543-545 (1969).

55. Gomberg, E. S. The female alcoholic. In R. E. Tarter and A. A. Sugerman (Eds.). Alcoholism: Interdisciplinary approaches to an enduring problem. Reading, Mass.: Addison-Wesley, 1976.

56. Goss, A., and T. E. Morosko. Alcoholism and clinical symptoms. J Abnorm Psychol 74:682-684 (1969).

57. Goss, A., and T. E. Morosko. Relation between a dimension of internal-external control and the MMPI with an alcoholic population. J Consult Clin Psychol 34:189-192 (1970).

58. Goss, A., T. E. Morosko, and R. Sheldon. Use of the Edwards Personal Preference Schedule with alcoholics in a vocational rehabilitation program. J Psychol 68:287-289 (1968).

59. Gough, H. G., and A. B. Heilbrun. The Adjective Check List manual. Palo Alto, Calif.: Consulting Psychologists Press, 1965.

60. Gozali, J., and J. Sloan. Control orientation as a personality dimension among alcoholics. Q J Stud Alcohol 32:159-161 (1971).

61. Griffith, R. M., and G. B. Dimmick. Differentiating Rorschach responses of alcoholics. Q J Stud Alcohol 10:430-433 (1949).

62. Gross, W. F., and L. L. Carpenter. Alcoholic personality: Reality or fiction? Psychol Rep 28:375-378 (1971).

63. Gross, W. F., and V. J. Nerviano. The prediction of dropouts from an inpatient alcoholism program by objective personality inventories. Q J Stud Alcohol 34:514-515 (1973).

64. Gross, W. F., and V. J. Nerviano. The use of the Personality Research Form with alcoholics: Effects of age and IQ. J Clin Psychol 29:378-379 (1973).

65. Gynther, M. D., C. H. Presher, and R. L. McDonald. Personal and interpersonal factors associated with alcoholism. Q J Stud Alcohol 20:321-333 (1959).

66. Halpern, F. Studies of compulsive drinkers: Psychological test results. Q J Stud Alcohol 6:468-479 (1946).

67. Hampton, P. J. The MMPI as a psychometric tool for diagnosing personality disorders among college students. J Soc Psychol 26:99-108 (1947).

68. Hampton, P. J. The development of a personality questionnaire for drinkers. Genet Psychol Monogr 48:55-115 (1953).

69. Harris, J. G., Jr. Nomovalidation and idiovalidation: A quest for the true personality profile. Am Psychol 35:729-744 (1980).

70. Harris, R. E., and V. M. Ives. A study of the personality of alcoholics. Am Psychol 2:405 (1947).

71. Harris, R. E., and J. C. Lingoes. Subscales for the Minnesota Multiphasic Personality Inventory: An aid to profile interpretation. Unpublished manuscript, Department of Psychiatry, University of California, Berkeley, 1955.

72. Hassal, C., and G. A. Foulds. Hostility among young alcoholics. Br J Addic 63:203-208 (1968).

73. Hathaway, S. R., and J. C. McKinley. The Minnesota Multiphasic Personality Inventory manual. New York: Psychological Corporation, 1951, 1967.

74. Heilbrun, A. B. Measurement of masculine and feminine sex role identities as independent dimensions. J Consult Clin Psychol 44:183-190 (1976).

75. Hewitt, C. C. A personality study of alcohol addiction. Q J Stud Alcohol 4:368-386 (1943).

76. Hill, H. E., C. A. Haertzen, and H. Davis. An MMPI factor analytic study of alcoholics, narcotic addicts, and criminals. Q J Stud Alcohol 23:411-431 (1962).

77. Hinrichsen, J. J. Locus of control among alcoholics: Some empirical and conceptual issues. J Stud Alcohol 37:908-916 (1976).

78. Hoffmann, H. Personality characteristics of alcoholics in relation to age. Psychol Rep 27:167-171 (1970).

79. Hoffmann, H. Personality changes of hospitalized alcoholics after treatment. Psychol Rep 29:948-950 (1971).

80. Hoffmann, H. Personality measurement for the evaluation and prediction of alcoholism. In R. E. Tarter and A. A. Sugerman (Eds.). Alcoholism: Interdisciplinary approaches to an enduring problem. Reading, Mass.: Addison-Wesley, 1976.

81. Hoffmann, H., D. N. Jackson, and H. A. Skinner. Dimensions of psychopathology among alcoholic patients. J Stud Alcohol 36:825-837 (1975).

82. Hoffmann, H., R. G. Loper, and M. L. Kammeier. Identifying future alcoholics with MMPI alcoholism scales. Q J Stud Alcohol 35:490-498 (1974).

83. Hogan, R. (Review article on the Personality Research Form) In O. K. Buros (Ed.). The eighth mental measurements yearbook (Vol. I). Highland Park, N.J.: Gryphon Press, 1978.

84. Holmes, W. O. The development of an empirical MMPI scale for alcoholism. Master's thesis, San Jose State College, San Jose, Calif., 1953.

85. Hoy, R. M. The personality of inpatient alcoholics in relation to group psychotherapy, as measured by the 16 PF. Q J Stud Alcohol 30:401-407 (1969).

86. Hoyt, D. P., and G. M. Sedlacek. Differentiating alcoholics from normals and abnormals with the MMPI. J Clin Psychol 14:69-74 (1958).

87. Hurwitz, J. I., and D. Lelos. A multilevel interpersonal profile of employed alcoholics. Q J Stud Alcohol 29:64-76 (1968).

88. Irgens-Jensen, O. Problem drinking and personality: A study based on the Draw-a-Person Test. Oslo: Universitetsforlaget, 1971.

89. Jackson, D. N. Personality Research Form manual. Goshen, N.Y.: Research Psychologists Press, 1967, 1974.

90. Jackson, D. N. Multimethod factor analysis in the evaluation of convergent and discriminant validity. Psychol Bull 72:30-49 (1969).

91. Jackson, D. N. Jackson Personality Inventory manual. Goshen, N.Y.: Research Psychologists Press, 1976.

92. Jackson, D. N. Interpreter's guide to the Jackson Personality Inventory. In P. McReynolds (Ed.). Advances in psychological assessment (Vol. 4). San Francisco: Jossey-Bass, 1978.

93. Jackson, D. N., and S. Messick. Differential Personality Inventory. Unpublished manuscript, 1971.

94. Jacobson, G. R. Reduction of field dependence in chronic alcoholic patients. J Abnorm Psychol 73:547-549 (1968).

95. Jastak, J. Rorschach performance of alcoholic inpatients. Del Med J 12:120-123 (1940).

96. Jellinek, E. M. The disease concept of alcoholism. Highland Park, N.J.: Hillhouse Press, 1960.

97. Jones, B. M., and O. A. Parsons. Specific versus generalized deficits of abstracting ability in chronic alcoholics. Arch Gen Psychiatry 26:380-384 (1972).

98. Jones, M. C. Personality correlates and antecedents of drinking patterns in adult males. J Consult Clin Psychol 32:2-12 (1968).

99. Kammeier, M. L., H. Hoffmann, and R. G. Loper. Personality characteristics of alcoholics as college freshmen and at time of treatment. Q J Stud Alcohol 34:390-399 (1973).

100. Kaplan, A. G., and J. P. Bean (Eds.). Beyond sex-role stereotypes. Boston: Little, Brown, 1976.

101. Karlan, S. C., and E. Heller. Chronic alcoholism: Psychiatric and Rorschach evaluation. J Clin Psychopathol 8:291-300 (1946).

102. Karp, S. A., and N. L. Konstadt. Alcoholism and psychological differentiation: Long-range effect of heavy drinking on field dependence. J Nerv Ment Dis 140:412-416 (1965).

103. Keehn, J. D. Neuroticism and extraversion: Chronic alcoholics' reports on effects of drinking. Psychol Rep 27:767-770 (1970).

104. Keller, M. Definition of alcoholism. Q J Stud Alcohol 21:104-111 (1960).

105. Kelley, D. M., and S. E. Barrera. Rorschach studies in acute experimental alcoholic intoxication. Am J Psychiatry 97:1341-1364 (1941).

106. Kelly, E. L. (Review article on the Personality Research Form) In O. K. Buros (Ed.). The seventh mental measurements yearbook (Vol. I, p. 298). Highland Park, N.J.: Gryphon Press, 1972.

107. Kirchner, J. H., and S. S. Marzolf. Personality of alcoholics as measured by Sixteen Personality Factor Questionnaire and House-Tree-Person color-choice characteristics. Psychol Rep 35:627-642 (1974).

108. Klebanoff, S. G. Personality factors in symptomatic chronic alcoholism as indicated by the Thematic Apperception Test. J Consult Psychol 11:111-119 (1947).

109. Klopfer, B., and M. Spiegelman. Differential diagnosis. In B. Klopfer (Ed.). Developments in the Rorschach technique (Vol. II). Yonkers, N.Y.: World Book, 1956.

110. Knehr, C. A., A. Vickery, and M. Guy. Problem-action responses and emotions in Thematic Apperception Test stories recounted by alcoholic patients. J Psychol 35:201-226 (1953).

111. Kraft, T., and B. Wijesinghe. Systematic desensitization of social anxiety in the treatment of alcoholism: A psychometric evaluation of change. Br J Psychiatry 117:443-444 (1970).

112. Kristianson, P. A comparison study of two alcoholic groups and a control group. Br J Med Psychol 43:161-175 (1970).

113. Kristianson, P. The personality in psychomotor epilepsy compared with the explosive and aggressive personality. Br J Psychiatry 125:221-229 (1974).

114. Laird, J. T. A comparison of male normals, psychiatric patients and alcoholics for sex drawn first. J Clin Psychol 18:302 (1962).

115. Landis, C. Theories of the alcoholic personality. In Alcohol, science and society. Center of Alcohol Studies, Yale Summer School of Alcohol Studies. New Haven, Conn.: Yale University Press, 1945.

116. Lawlis, G. F., and S. E. Rubin. 16 PF study of personality patterns in alcoholics. Q J Stud Alcohol 32:318-327 (1971).

117. Light, D. Costs and benefits of alcohol consumption. Society, Sep/Oct: 13, 18-22, 24 (1975).

118. Loper, R. G., M. L. Kammeier, and H. Hoffmann. MMPI characteristics of college freshman males who later became alcoholics. J Abnorm Psychol 82:159-162 (1973).

119. Lykken, D. T. (Review article on the Jackson Personality Inventory) In O. K. Buros (Ed.). The eighth mental measurements yearbook (Vol. I). Highland Park, N.J.: Gryphon Press, 1978.

120. MacAndrew, C. The differentiation of male alcoholic outpatients from nonalcoholic psychiatric outpatients by means of the MMPI. Q J Stud Alcohol 26:238-246 (1965).

121. MacAndrew, C., and R. H. Geertsma. An analysis of responses of alcoholics to scale 4 of the MMPI. Q J Stud Alcohol 24:23-38 (1963).

122. Machover, S., and F. S. Puzzo. Clinical and objective studies of personality variables in alcoholism. II: Clinical study of personality correlates of remission from active alcoholism. Q J Stud Alcohol 20:520-527 (1959).

123. Machover, S., F. S. Puzzo, K. Machover, and F. Plumeau. Clinical and objective studies of personality variables in alcoholism. III: An objective study of homosexuality in alcoholism. Q J Stud Alcohol 20:528-542 (1959).

124. Mahalanobis, P. A. On the generalized distance in statistics. Proc Natl Inst Sci Indus 12:49-55 (1936).

125. Manaugh, T. S., and E. M. Scott. EPPS scores of male alcoholics: A review and cross-validation. J Clin Psychol 32:197-200 (1976).

126. Marshall, H. A study of personality of alcoholic males. Am Psychol 2:289 (1947).

127. McClelland, D. C., W. N. Davis, R. Kalin, and E. Wanner. The drinking man. New York: Free Press, 1972.

128. McCord, W., and J. McCord. Origins of alcoholism. Stanford, Calif.: Stanford University Press, 1960.

129. McCord, W., and J. McCord. A longitudinal study of the personality of alcoholics. In D. J. Pittman and C. R. Snyder (Eds.). Society, culture, and drinking patterns. New York: Wiley, 1962.

130. McLachlan, J. F. C. Classification of alcoholics by an MMPI actuarial system. J Clin Psychol 31:145-147 (1975).

131. Menninger, K. Man against himself. New York: Harcourt Brace Jovanovich, 1938.

132. Miller, W. R. Alcoholism scales and objective assessment methods: A review. Psychol Bull 83:649-674 (1976).

133. Millon, T. Modern psychopathology: A biosocial approach to maladaptive learning and functioning. Philadelphia: W. B. Saunders, 1969.

134. Morrow, M. A. Alcoholic profiles on the Minnesota Multiphasic. J Clin Psychol 6:266-269 (1950).

135. Murray, H. A. Explorations in personality. New York: Oxford University Press, 1938.

136. Murray, H. A. Thematic Apperception Test manual. Cambridge, Mass.: Harvard University Press, 1943.

137. Nathan, P. E., and S. L. Harris. Psychopathology and society. New York: McGraw-Hill, 1975.

138. National Commission on Marihuana and Drug Abuse. Drug use in America: Problem in perspective (2nd rep.). Washington, D.C.: U.S. Government Printing Office, 1973.

139. National Institute on Alcohol Abuse and Alcoholism. Alcohol and health: New knowledge (2nd special rep. to U.S. Congress). Washington, D.C.: U.S. Government Printing Office, 1974.

140. Neale, C. R., Jr. An investigation of perception of visual space among alcoholics (Doctoral dissertation, University of Utah, 1963). Dissertation Abstr 24:1702 (1963).

141. Nerviano, V. J. Common personality patterns among alcoholic males: A multivariate study. J Consult Clin Psychol 44:104-110 (1976).

142. Nerviano, V. J., and W. F. Gross. A multivariate delineation of two alcoholic profile types on the 16 PF. J Clin Psychol 29:371-374 (1973).

143. Neuringer, C., and J. R. Clopton. The use of psychological tests for the study of the identification, prediction, and treatment of alcoholism. In G. Goldstein and C. Neuringer (Eds.). Empirical studies of alcoholism. Cambridge, Mass.: Ballinger, 1976.

144. Neuringer, C., and G. Goldstein. Introduction. In G. Goldstein and C. Neuringer (Eds.). Empirical studies of alcoholism. Cambridge, Mass.: Ballinger, 1976.

145. O'Leary, D. E., M. R. O'Leary, and D. M. Donovan. Social skill acquisition and psychosocial development of alcoholics: A review. Addict Behav 1:111-120 (1976).

146. Osgood, C. E., and G. J. Suci. A measure of relation determined by both mean difference and profile information. Psychol Bull 49:251-262 (1952).

147. Overall, J. E. MMPI personality patterns of alcoholics and narcotic addicts. Q J Stud Alcohol 34:104-111 (1973).

148. Paige, P. E., W. LaPointe, and A. Krueger. The marital dyad as a diagnostic and treatment variable in alcohol addiction. Psychology 8:64-73 (1971).

149. Paige, P. E., and D. G. Zappella. The incidence of MMPI high code combinations and extreme scores of a select group of male alcoholic patients. Psychology 6:13-21 (1969).

150. Parker, F. B. A comparison of the sex temperament of alcoholics and moderate drinkers. Am Sociol Rev 24:366-374 (1959).

151. Parker, F. B. Self-role strain and drinking disposition at a prealcoholic age level. J Soc Psychol 78:55-61 (1969).

152. Paulson, M. J., and T. Lin. Predicting WAIS IQ from Shipley-Hartford scores. J Clin Psychol 26:453-461 (1970).

153. Pryer, M. W., and M. K. Distefano, Jr. Further evaluation of the EPPS with hospitalized alcoholics. J Clin Psychol 26:205 (1970).

154. Reiter, H. H. Note on some personality differences between heavy and light drinkers. Percept Mot Skills 30:762 (1970).

155. Rhodes, R. J., and G. N. Yorioka. Dependency among alcoholic and nonalcoholic institutionalized patients. Psychol Rep 22:1343-1344 (1968).

156. Rich, C. C., and H. G. Davis. Concurrent validity of MMPI alcoholism scales. J Clin Psychol 25:425-426 (1969).

157. Roe, A. Alcohol and creative work. Part I: Painters. Q J Stud Alcohol 6:415-467 (1946).

158. Rohan, W. P. MMPI changes in hospitalized alcoholics: A second study. Q J Stud Alcohol 33:65-76 (1972).

159. Rohan, W. P., R. L. Tatro, and S. R. Rotman. MMPI changes in alcoholics during hospitalization. Q J Stud Alcohol 30:389-400 (1969).

160. Rorschach, H. Psychodiagnostics: A diagnostic test based on perception (P. Lemkau and B. Kronenberg, trans.). New York: Grune & Stratton, 1942. (Originally published, 1921.)

161. Rosen, A. C. A comparative study of alcoholic and psychiatric patients with the MMPI. Q J Stud Alcohol 21:253-266 (1960).

162. Rosenberg, C. M. Young alcoholics. Br J Psychiatry 115:181-188 (1969).

163. Rosenberg, N. MMPI alcoholism scales. J Clin Psychol 28:515-522 (1972).

164. Rosenwald, A. K. A comparison of Rorschach and Behn Rorschach tests based on a study of chronic alcoholic subjects. Am Psychol 2:270 (1947).

165. Ross, C. F. J. Comparison of hospital and prison alcoholics. Br J Psychiatry 118:75-78 (1971).

166. Rotter, J. B. Generalized expectancies for internal versus external control of reinforcement. Psychol Monogr 80:1-28 (1966).

167. Rubin, H. The MMPI as a diagnostic aid in a veterans hospital. J Consult Psychol 12:251-254 (1948).

168. Sanford, N. Personality and patterns of alcohol consumption. J Consult Clin Psychol 32:13-17 (1968).

169. Schafer, R. The clinical application of psychological tests. New York: International Universities Press, 1948.

170. Schnadt, F. W. A study of alcoholic personality. Q J Stud Alcohol 12:552-553 (1951).

171. Seliger, R. V., and V. Cranford. The Rorschach analysis in the treatment of alcoholism. Med Rec NY 158:32-38 (1945).

172. Selzer, M. L. Alcoholism and alcoholic psychosis. In H. I. Kaplan, M. D. Freedman, and B. J. Sadock (Eds.). Comprehensive textbook of psychiatry/III (Vol. 2). Baltimore: Williams & Wilkins, 1980.

173. Shaffer, J. W., T. E. Hanlon, S. Wolf, N. H. Foxwell, and A. A. Kurland. Nialamide in the treatment of alcoholism. J Nerv Ment Dis 135:222-232 (1962).

174. Shaw, D. M., D. A. MacSweeney, A. L. Johnson, and J. Merry. Personality characteristics of alcoholic and depressed patients. Br J Psychiatry 126:56-59 (1975).

175. Shereshevski-Shere, E., and L. M. Lasser. An evaluation of water responses in the Rorschachs of alcoholics. J Proj Tech 16:489-495 (1952).

176. Shereshevski-Shere, E., L. M. Lasser, and B. H. Gottesfeld. An evaluation of anatomy content and F+ percentage in the Rorschachs of alcoholics, schizophrenics and normals. J Proj Tech 17:229-233 (1953).

177. Shipley, W. C. Shipley-Institute of Living Scale for measuring intellectual impairment: Manual of directions and scoring key. Hartford, Conn.: The Institute of Living, 1940.

178. Singer, E. Personality structure of chronic alcoholics. Am Psychol 5:323 (1950).

179. Snibbe, J. R. The effects of various therapeutic episodes on dependency feelings in alcoholics as measured by four tests (Doctoral dissertation, University of Utah, 1970). Dissertation Abstr Intl 31:4345B (1970).

180. Soskin, R. A. Personality and attitude change after two alcoholism treatment programs. Q J Stud Alcohol 31:920-931 (1970).

181. Spence, J. T., R. Helmreich, and J. Stapp. Ratings of self and peers on sex role attributes and their relation to self-esteem and conceptions of masculinity and femininity. J Pers Soc Psychol 32:29-39 (1975).

182. Spiegel, D., P. A. Hadley, and R. G. Hadley. Personality test patterns of rehabilitation center alcoholics, psychiatric inpatients and normals. J Clin Psychol 26:366-371 (1970).

183. Straus, R. Alcoholism and problem drinking. In R. K. Merton & R. Nisbet (Eds.). Contemporary social problems (4th ed.). New York: Harcourt Brace Jovanovich, 1976.

184. Sutherland, E. H., H. C. Schroeder, and C. L. Tordella. Personality traits and the alcoholic. Q J Stud Alcohol 11:547-561 (1950).

185. Syme, L. Personality characteristics and the alcoholic: A critique of current studies. Q J Stud Alcohol 18:288-302 (1957).

186. Tarter, R. E. Acquiescence in chronic alcoholics. J Clin Psychol 26:301-302 (1970).

187. Tarter, R. E., N. Buonpane, and C. Wynant. Intellectual competence of alcoholics. J Stud Alcohol 36:381-386 (1975).

188. Tarter, R. E., and D. U. Schneider. Models and theories of alcoholism. In R. E. Tarter and A. A. Sugerman (Eds.). Alcoholism: Interdisciplinary approaches to an enduring problem. Reading, Mass.: Addison-Wesley, 1976.

189. Tremper, M. Dependency in alcoholics: A sociological view. Q J Stud Alcohol 33:186-190 (1972).

190. Valentine, L. D., Jr. (Review article on the Personality Research Form) Prof Psychol 1:82-83 (1969).

191. Vogel, M. D. GSR conditioning and personality factors in alcoholics and normals. J Abnorm Psychol 63:417-421 (1961).

192. Walton, H. J. Personality as a determinant of the form of alcoholism. Br J Psychiatry 114:761-766 (1968).

193. Wessler, R., and J. Loevinger. (Review article on the Personality Research Form) Am Educ Res J 6:302-306 (1969).

194. Whitelock, P. R., J. E. Overall, and J. H. Patrick. Personality patterns and alcohol abuse in a state hospital population. J Abnorm Psychol 78:9-16 (1971).

195. Wiggins, J. S. (Review article on the Personality Research Form) In O. K. Buros (Ed.). The seventh mental measurements yearbook (Vol I, p. 301). Highland Park, N.J.: Gryphon Press, 1972.

196. Wiggins, J. S. Personality and prediction: Principles of personality assessment. Reading, Mass.: Addison-Wesley, 1973.

197. Wilkinson, A. E., W. M. Prado, W. O. Williams, and F. W. Schnadt. Psychological test characteristics and length of stay in alcoholism treatment. Q J Stud Alcohol 32:60-65 (1971).

198. Wisotsky, M. A note on the order of figure drawing among incarcerated alcoholics. J Clin Psychol 15:65 (1958).

199. Wisotsky, M., and L. Birner. Preference for human or animal drawings among normal and addicted males. Percept Mot Skills 10:43-45 (1960).

200. Witkin, H. A., R. B. Dyk, H. F. Faterson, D. R. Goodenough, and S. A. Karp. Psychological differentiation. New York: Wiley, 1962.

201. Witkin, H. A., S. A. Karp, and D. R. Goodenough. Dependence in alcoholics. Q J Stud Alcohol 20:493-504 (1959).

202. World Health Organization (WHO). Problems related to alcohol consumption (WHO Tech. Rep. Series, No. 650). Geneva: WHO, 1980.

203. Zelen, S. L., J. Fox, E. Gould, and R. W. Olson. Sex-contingent differences between male and female alcoholics. J Clin Psychol 22:160-165 (1966).

204. Zucker, R. A. Sex-role identity patterns and drinking behavior of adolescents. Q J Stud Alcohol 29:868-884 (1968).

205. Zucker, R. A., and H. VanHorn. Sibling social structure and oral behavior: Drinking and smoking in adolescence. Q J Stud Alcohol 33:193-197 (1972).

APPENDIX A

DEPENDENT-VARIABLE (PERSONALITY TRAIT) NAMES, ABBREVIATIONS, AND HIGH-SCORER DESCRIPTIONS

Trait	Description of High Scorer
Abasement (Ab)*	Shows a high degree of humility; accepts blame and criticism even when not deserved; exposes himself to situations where he is in an inferior position; tends to be self-effacing.
Achievement (Ac)*	Aspires to accomplish difficult tasks; maintains high standards and is willing to work toward distant goals; responds positively to competition; is willing to put forth effort to attain excellence.
Affiliation (Af)*	Enjoys being with friends and people in general; accepts people readily; makes efforts to win friendships and maintain associations with people.
Aggression (Ag)*	Enjoys combat and argument; is easily annoyed and sometimes willing to hurt people to get his way; may seek to "get even" with people whom he perceives as having harmed him.
Anxiety (Anx)**	Tends to worry over inconsequential matters; is more easily upset than the average person; is apprehensive about the future.
Autonomy (Au)*	Tries to break away from restraints, confinement, or restrictions of any kind; enjoys being unattached, free, not tied to people, places, or obligations; may be rebellious when faced with restraints.
Breadth of Interest (Bdi)**	Is attentive and involved, motivated to participate in a wide variety of activities, and interested in learning about a diversity of things.

*Personality Research Form (PRF) scales. Caring and instrumentality are PRF ANDRO femininity and masculinity variables respectively.

**Jackson Personality Inventory (JPI) constructs.

Note. See page 15 and Appendix H regarding the Pd-AA trait. The JPI manual also provides low-scorer descriptions (and trait adjectives) representing the opposite pole of the bipolar dimensions, but the PRF manual omits definitions of low scorers. For the sake of consistency and due to the many traits in the rating task, the subjects were supplied only with the manuals' high-scorer descriptions for all constructs included in the rating task (ratings were not obtained on desirability and Pd-AA).

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Caring (Ca)*	Shows a high degree of caring for the needs and feelings of other people even when his own needs might go unmet; enjoys being warm, expressive, and sharing feelings with other people.
Change (Ch)*	Likes new and different experiences; dislikes routine and avoids it; may readily change opinions or values in different circumstances; adapts readily to changes in environment.
Cognitive structure (Cs)*	Does not like ambiguity or uncertainty in information; wants all questions answered completely; desires to make decisions based upon definite knowledge rather than upon guesses or probabilities.
Complexity (Cpx)**	Seeks intricate solutions to problems; is impatient with oversimplification; is interested in pursuing topics in depth regardless of their difficulty; enjoys abstract thought; enjoys intricacy.
Conformity (Cny)**	Is susceptible to social influence and group pressures; tends to modify behavior to be consistent with standards set by others; follows suit; fits in.
Defendence (De)*	Readily suspects that people mean him harm or are against him; is ready to defend himself at all times; takes offense easily; does not accept criticism readily.
Desirability (Dy)*	Describes self in terms judged as desirable; consciously or unconsciously, accurately or inaccurately, presents favorable picture of self in responses to personality statements.
Dominance (Do)*	Attempts to control his environment and to influence or direct other people; expresses opinions forcefully; enjoys the role of leader and may assume it spontaneously.
Endurance (En)*	Is willing to work long hours; doesn't give up quickly on a problem; perseveres even in the face of great difficulty; is patient and unrelenting in his work habits.
Energy level (Enl)**	Is active and spirited; possesses reserves of strength; does not tire easily; is capable of intense work or recreational activity for long periods of time.

Exhibition (Ex)*	Wants to be the center of attention; enjoys having an audience; engages in behavior which wins the notice of others; may enjoy being dramatic or witty.
Harm avoidance (Ha)*	Does not enjoy exciting activities, especially if danger is involved; avoids risk of bodily harm; seeks to maximize personal safety.
Impulsivity (Im)*	Tends to act on the "spur of the moment" and without deliberation; gives vent readily to feelings and wishes; speaks freely; may be volatile in emotional expression.
Innovation (Inv)**	Is creative and inventive individual, capable of originality of thought and motivated to develop novel solutions to problems; values new ideas; likes to improvise.
Instrumentality (Is)*	Approaches situations with a strong concern for achieving own goals and purposes; exerts leadership over others in social settings while maintaining own standards; is willing to face risks so as to accomplish goals.
Interpersonal affect (Iaf)**	Tends to identify closely with other people and their problems; values close emotional ties with others; is concerned about others.
Nurturance (Nu)*	Gives sympathy and comfort; assists others whenever possible; is interested in caring for children, the disabled, or the infirm; offers a "helping hand" to those in need; readily performs favors for others.
Order (Or)*	Is concerned with keeping personal effects and surroundings neat and organized; dislikes clutter, confusion, lack of organization; is interested in developing methods for keeping materials methodically organized.
Organization (Org)**	Makes effective use of time; completes work on schedule; is not easily distracted.
Play (Pl)*	Does many things "just for fun"; spends a good deal of time participating in games, sports, social activities, and other amusements; enjoys jokes and funny stories; maintains a lighthearted, easy-going attitude toward life.
Responsibility (Rsy)**	Feels a strong obligation to be honest and upright; experiences a sense of duty to other people; has a strong and inflexible conscience.

Risk taking (Rkt)**	Enjoys gambling and taking a chance; willingly exposes self to situations with uncertain outcomes; enjoys adventures having an element of peril; takes chances; is unconcerned with danger.
Self-esteem (Ses)**	Is confident in dealing with others; not easily embarrassed or influenced by others; shows presence in interpersonal situations; possesses aplomb.
Sentience (Se)*	Notices smells, sounds, sights, tastes, and the way things feel; remembers these sensations and believes that they are an important part of life; is sensitive to many forms of experience; may maintain an essentially hedonistic or aesthetic view of life.
Social adroitness (Sca)**	Is skillful at persuading others to achieve a particular goal, sometimes by indirect means; occasionally may be seen as manipulative of others, but is ordinarily diplomatic; is socially intelligent.
Social participation (Spt)**	Will eagerly join a variety of social groups; seeks both formal and informal association with others; values positive interpersonal relationships; is actively social.
Social recognition (Sr)*	Desires to be held in high esteem by acquaintances; is concerned about reputation and what other people think of him; works for the approval and recognition of others.
Succorance (Su)*	Frequently seeks the sympathy, protection, love, advice, and reassurance of other people; may feel insecure or helpless without such support; confides difficulties readily to a receptive person.
Tolerance (Tol)**	Accepts people even though their beliefs and customs may differ from his own; is open to new ideas and free from prejudice; welcomes dissent.
Understanding (Un)*	Wants to understand many areas of knowledge; values synthesis of ideas, verifiable generalization, logical thought, particularly when directed at satisfying intellectual curiosity.
Value orthodoxy (Vlo)**	Values traditional customs and beliefs; his values may be seen by others as "old fashioned"; takes a rather conservative view regarding contemporary standards of behavior; is opposed to change in social customs.

APPENDIX B

UNIVARIATE AND MULTIVARIATE ANOVA:
VA-TEST GROUP VERSUS CONTROL GROUP BY AGE GROUPS
ON PRF, JPI, AND PD-AA VARIABLES

	Univariate				Multivariate
	I[a]	S-R[a]	MRO[a]	COMP[a]	(I, S-R, MRO)
Abasement[b]					
T vs C[a]	1.90[c]	.04[c]	1.82[c]	1.20[c]	1.48[e]
Age groups	.29[d]	3.35*[d]	1.60[d]	1.81[d]	1.65[f]
Interaction	.17[d]	.65[d]	.87[d]	.48[d]	.53[f]
Achievement					
T vs C	3.97	1.95	2.41	5.76*T>C	2.03
Age groups	.50	.36	2.16	.03	1.12
Interaction	.49	.24	3.11*	.77	1.19
Affiliation					
T vs C	1.24	.06	.70	.27	.97
Age groups	.17	.12	5.30**	.41	1.89
Interaction	.56	1.24	1.01	.99	.92
Aggression					
T vs C	.31	4.11*T>C	4.58*T>C	3.98*T>C	2.36
Age groups	5.01	2.52	.62	3.70*	2.42*
Interaction	1.83	.30	.12	.67	.81
Autonomy					
T vs C	4.26*T>C	15.86***T>C	21.50***T>C	21.91***T>C	11.09***
Age groups	1.07	1.32	.26	1.80	.66
Interaction	.06	1.57	1.11	1.11	.83

Note. Table values are F ratios. Desirability and abasement through understanding are Personality Research Form (PRF) variables; caring and instrumentality are PRF-derived PRF ANDRO variables. Anxiety through value orthodoxy are Jackson Personality Inventory (JPI) variables. See page 15 and Appendix H for description of Pd-AA variable.

[a] I = inventory; S-R = self-rating; MRO = mean rating by others; COMP = composite of I, S-R, and MRO; T = VA-Test Group (N=36); C = control group (N=42).

[b] See Appendix A for scale/trait/dependent-variable definitions.

[c] df = 1, 70.

[d] df = 3, 70.

[e] df = 3, 68.

[f] df = 9, 165.

*p < .05.

**p < .01.

***p < .001.

	Univariate				Multivariate
	I[a]	S-R[a]	MRO[a]	COMP[a]	(I, S-R, MRO)
Change					
T vs C	6.24*T>C	.89	.11	3.76	2.28
Age groups	1.88	2.56	.14	2.57	1.11
Interaction	1.85	.96	.29	1.78	.84
Cognitive structure					
T vs C	1.06	2.99	.27	3.38	1.25
Age groups	1.44	.78	.21	.75	.81
Interaction	2.41	.75	3.01*	.94	1.91
Defendence					
T vs C	2.47	.30	.67	1.93	.83
Age groups	.68	1.30	1.24	1.41	.86
Interaction	.07	1.25	.50	.21	.67
Dominance					
T vs C	.19	3.71	2.31	2.38	1.57
Age groups	1.86	1.56	1.37	.90	1.90
Interaction	4.30**	.38	2.08	2.55	2.26*
Endurance					
T vs C	1.11	.24	.85	.42	.78
Age groups	.60	1.28	1.67	.44	1.28
Interaction	.65	.44	.42	.27	.60
Exhibition					
T vs C	.18	.64	.03	.45	.21
Age groups	3.53*	1.19	.78	2.00	1.53
Interaction	1.42	1.05	1.33	1.62	1.18
Harm avoidance					
T vs C	.14	.33	1.07	.68	.51
Age groups	3.00*	.31	.44	.77	1.34
Interaction	1.33	1.15	1.86	1.63	1.33
Impulsivity					
T vs C	1.85	.55	.00	1.36	.62
Age groups	2.36	1.11	.50	2.30	.97
Interaction	2.80*	2.18	1.81	3.93*	1.83
Nurturance					
T vs C	2.07	2.89	.01	2.83	1.15
Age groups	.63	1.36	2.24	.91	1.40
Interaction	.19	.77	.10	.10	.48
Order					
T vs C	.53	3.98*T>C	5.23*T>C	3.70	2.14
Age groups	1.32	.22	.45	.52	.73
Interaction	2.12	.14	1.32	.32	1.36

	Univariate				Multivariate
	I[a]	S-R[a]	MRO[a]	COMP[a]	(I, S-R, MRO)
Play					
T vs C	.42	.63	1.89	.18	1.18
Age groups	2.30	.79	.32	1.61	1.02
Interaction	1.30	1.63	2.98*	2.62	1.60
Sentience					
T vs C	.06	.92	.75	.37	.74
Age groups	4.82**	1.09	2.18	4.19**	2.41*
Interaction	1.01	3.32*	2.19	3.74*	2.11*
Social recognition					
T vs C	.08	.01	.97	.01	.37
Age groups	.20	.25	2.72*	.83	.96
Interaction	.35	.80	.54	.53	.57
Succorance					
T vs C	.45	4.13*T>C	2.59	3.34	2.46
Age groups	.15	.61	.78	.21	.73
Interaction	.70	.60	.34	.78	.52
Understanding					
T vs C	4.16*T>C	5.69*T>C	11.96***T>C	9.57**T>C	4.62**
Age groups	1.29	2.72	.22	1.91	1.27
Interaction	.40	.90	.23	.56	.50
Caring					
T vs C	1.78	.53	1.50	.75	1.60
Age groups	.24	.79	2.72*	.34	1.32
Interaction	.45	2.42	.20	.52	1.19
Instrumentality					
T vs C	.04	1.23	.22	.42	.49
Age groups	2.30	.53	1.74	1.00	1.32
Interaction	3.45*	.17	.85	1.72	1.49
Anxiety					
T vs C	18.03***T>C	13.44***T>C	10.26**T>C	27.23***T>C	10.51***
Age groups	1.63	.21	.27	.21	.93
Interaction	.75	1.11	.23	.24	1.02
Breadth of Interest					
T vs C	3.47	1.93	11.95***T>C	6.47*T>C	4.86**
Age groups	1.51	2.43	2.59	1.66	2.20*
Interaction	2.15	1.00	1.32	1.82	1.47
Complexity					
T vs C	7.44**T>C	.79	3.01	5.59*T>C	3.18*
Age groups	5.80**	3.82*	.26	5.27**	2.44*
Interaction	2.20	3.04*	.38	2.67	1.47

	Univariate				Multivariate
	I[a]	S-R[a]	MRO[a]	COMP[a]	(I, S-R, MRO)
Conformity					
T vs C	1.18	2.53	.01	2.77	1.13
Age groups	3.66*	.76	.65	3.00*	1.55
Interaction	.83	.43	.48	.25	.63
Energy level					
T vs C	.42	.00	.39	.02	.38
Age groups	1.89	3.11*	2.05	2.70	2.03*
Interaction	1.03	.89	2.14	1.27	1.25
Innovation					
T vs C	1.51	5.35*T>C	.09	3.46	1.74
Age groups	3.91*	3.83*	.10	4.03*	1.77
Interaction	1.81	.85	.39	1.45	.84
Interpersonal affect					
T vs C	.84	1.04	.07	1.05	.50
Age groups	1.27	.77	1.74	1.15	1.51
Interaction	.63	2.54	.12	.87	1.33
Organization					
T vs C	.38	.05	.29	.36	.20
Age groups	1.06	.36	.94	.67	.79
Interaction	.74	1.44	.37	1.19	.72
Responsibility					
T vs C	2.52	1.88	.28	4.25*C>T	1.38
Age groups	3.78*	1.96	1.22	4.30**	2.24*
Interaction	.08	1.36	.26	.34	.60
Risk taking					
T vs C	1.46	.03	.05	.31	.68
Age groups	3.00*	2.19	3.53*	3.58*	2.33*
Interaction	.86	1.43	.59	1.40	.74
Self-esteem					
T vs C	.53	.02	1.05	.01	.70
Age groups	2.09	1.74	.83	1.62	1.44
Interaction	.98	.42	1.90	1.00	.98
Social adroitness					
T vs C	3.41	.83	.97	3.08	1.22
Age groups	.95	.95	3.57*	1.00	1.75
Interaction	.87	.43	.71	.87	.56

	Univariate				Multivariate
	I[a]	S-R[a]	MRO[a]	COMP[a]	(I, S-R, MRO)
Social participation					
T vs C	1.89	2.00	.22	1.80	1.26
Age groups	.19	1.71	2.06	.66	1.48
Interaction	1.51	1.01	2.19	2.09	1.01
Tolerance					
T vs C	1.12	2.45	.64	2.54	.93
Age groups	.88	.45	2.07	.48	1.27
Interaction	1.79	.01	1.65	.58	1.35
Value orthodoxy					
T vs C	1.50	.38	3.12	.43	2.11
Age groups	3.31*	.96	9.09***	2.92*	3.99***
Interaction	.57	1.65	2.29	1.15	1.47
Pd-AA					
T vs C	51.84***T>C				
Age groups	1.78				
Interaction	.85				
Desirability					
T vs C	28.95***C>T				
Age groups	1.41				
Interaction	1.37				
Multivariate (COMP, Pd-AA, Dy)					
T vs C				2.50**[g]	
Age groups				1.08[h]	
Interaction				.92[h]	

[g]df = 39, 32.
[h]df = 117, 96.

APPENDIX C

UNIVARIATE AND MULTIVARIATE ANOVA: VA-RETEST GROUP VERSUS CONTROL GROUP BY AGE GROUPS ON JPI AND PD-AA VARIABLES

	Univariate				Multivariate
	I[a]	S-R[a]	MRO[a]	COMP[a]	(I, S-R, MRO)
Anxiety[b]					
R vs C[a]	9.49**R>C[c]	7.16**R>C[c]	14.70***R>C[c]	16.75***R>C[c]	7.54***[e]
Age groups	.88[d]	.96[d]	2.00[d]	.48[d]	1.48[f]
Interaction	.77[d]	.65[d]	.47[d]	.42[d]	.82[f]
Breadth of interest					
R vs C	1.29	1.72	3.33	2.85	1.40
Age groups	1.76	2.59	.94	1.24	2.03*
Interaction	2.52	.17	1.59	1.08	1.87
Complexity					
R vs C	4.57*R>C	3.13	10.05**R>C	7.37**R>C	4.24**
Age groups	4.97**	4.21**	3.45*	5.95**	2.82**
Interaction	1.42	1.12	3.34*	1.12	1.87
Conformity					
R vs C	2.98	1.52	.86	4.28*C>R	1.45
Age groups	4.83**	.07	.81	2.50	1.86
Interaction	1.28	.74	.65	1.70	.75
Energy level					
R vs C	.02	.31	.40	.03	.33
Age groups	1.64	5.50**	3.70*	3.18*	3.45***
Interaction	.56	.53	.76	.54	.66

Note. Table values are F ratios. JPI = Jackson Personality Inventory. See page 15 and Appendix H for description of Pd-AA variable.

[a] I = inventory; S-R = self-rating; MRO = mean rating by others; COMP = composite of I, S-R, and MRO; R = VA-retest group (N=33); C = control group (N=42).

[b] See Appendix A for scale/trait/dependent-variable definitions.

[c] df = 1, 67.

[d] df = 3, 67.

[e] df = 3, 65.

[f] df = 9, 158.

*p < .05.

**p < .01.

***p < .001.

	Univariate				Multivariate (1, S-R, MRO)
	I[a]	S-R[a]	MRO[a]	COMP[a]	
Innovation					
R vs C	1.62	1.13	.29	1.23	1.09
Age groups	2.76*	2.34	.15	2.66	1.40
Interaction	1.02	1.20	.51	.87	.99
Interpersonal affect					
R vs C	.81	5.51*R>C	1.84	4.21*R>C	1.97
Age groups	1.14	1.30	4.59**	1.56	2.46*
Interaction	.49	1.33	4.40**	1.31	2.07*
Organization					
R vs C	2.99	5.75*R>C	.92	6.11*R>C	2.19
Age groups	.95	.55	.23	.42	.67
Interaction	.27	.63	.37	.48	.39
Responsibility					
R vs C	4.36*C>R	1.95	2.53	6.12*C>R	2.36
Age groups	3.64*	1.02	3.87*	4.44**	2.39*
Interaction	.09	.31	.87	.34	.42
Risk taking					
R vs C	2.32	.23	.90	.62	1.24
Age groups	2.93*	2.11	7.61***	5.53**	3.18**
Interaction	.49	.69	2.51	.95	1.15
Self-esteem					
R vs C	.00	.00	.80	.04	.31
Age groups	1.75	.64	1.23	.66	1.60
Interaction	.55	.42	.97	.78	.45
Social adroitness					
R vs C	2.87	.08	.00	1.40	1.05
Age groups	1.35	.85	1.73	.74	1.59
Interaction	1.70	.19	.78	.64	1.16
Social participation					
R vs C	.42	1.62	1.50	.51	1.27
Age groups	.32	.66	6.52***	.48	2.61**
Interaction	1.14	1.01	4.98**	2.43	1.80
Tolerance					
R vs C	.95	1.27	.56	1.05	.79
Age groups	1.02	1.72	.32	1.50	.83
Interaction	.94	.64	.58	.90	.67
Value orthodoxy					
R vs C	2.13	.15	2.83	2.12	1.50
Age groups	3.25*	2.18	4.25**	4.58**	2.47*
Interaction	1.18	1.99	1.33	2.08	1.13

	Univariate				Multivariate
	I[a]	S-R[a]	MRO[a]	COMP[a]	(I, S-R, MRO)
Pd-AA					
R vs C	38.91***R>C				
Age groups	2.10				
Interaction	1.07				
Multivariate (COMP, Pd-AA)					
R vs C				4.47***[g]	
Age groups				1.91**[h]	
Interaction				1.24[h]	

[g] df = 16, 52.
[h] df = 48, 155.

APPENDIX D

UNIVARIATE AND MULTIVARIATE ANOVA: VA-TEST GROUP VERSUS VA-RETEST GROUP BY AGE GROUPS ON JPI AND PD-AA VARIABLES

	Univariate				Multivariate
	I[a]	S-R[a]	MRO[a]	COMP[a]	(I, S-R, MRO)
Anxiety[b]					
T vs R[a]	2.54[c]	1.15[c]	.00[c]	2.42[c]	1.07[e]
Age groups	.97[d]	.68[d]	.65[d]	.21[d]	1.35[f]
Interaction	5.13**[d]	.59[d]	1.59[d]	1.23[d]	2.06*[f]
Breadth of interest					
T vs R	1.77	.46	2.22	3.23	1.40
Age groups	3.96*	1.46	.05	2.88	1.30
Interaction	1.42	2.80	3.78*	1.82	2.36*
Complexity					
T vs R	.18	3.35	.57	2.40	2.07
Age groups	7.05**	3.39*	2.69	6.63**	3.05**
Interaction	.88	4.51*	1.57	6.34**	2.96**
Conformity					
T vs R	.63	.01	1.06	.43	.62
Age groups	2.22	.39	.72	1.63	1.01
Interaction	1.22	1.33	.20	1.12	.88
Energy level					
T vs R	.62	.01	4.77*T>R	.21	1.78
Age groups	2.40	1.90	1.39	2.48	1.37
Interaction	.45	2.32	1.57	.75	1.02

Note. Table values are F ratios. JPI = Jackson Personality Inventory. See page 15 and Appendix H for description of Pd-AA variable.

[a] I = inventory; S-R = self-rating; MRO = mean rating by others; COMP = composite of I, S-R, and MRO; T = VA-test group (N=33); R = VA-retest group (N=33).

[b] See Appendix A for scale/trait/dependent-variable definitions.

[c] df = 1, 29.

[d] df = 3, 29.

[e] df = 3, 27.

[f] df = 9, 65.

*p < .05.

**p < .01.

***p < .001.

	Univariate				Multivariate
	I[a]	S-R[a]	MRO[a]	COMP[a]	(I, S-R, MRO)
Innovation					
T vs R	.04	2.99	1.07	2.01	1.38
Age groups	5.60**	2.90	.31	4.85**	1.71
Interaction	.25	.86	.19	.49	.44
Interpersonal affect					
T vs R	1.34	1.29	1.94	3.59	1.24
Age groups	.24	.18	2.59	.13	1.20
Interaction	.73	1.04	3.89*	3.18*	1.52
Organization					
T vs R	3.38	6.58*R>T	.02	7.30*R>T	3.82*
Age groups	.96	.15	.06	.51	.35
Interaction	1.08	1.32	.59	1.05	.80
Responsibility					
T vs R	.00	.17	2.86	.91	1.27
Age groups	1.78	1.44	1.40	2.45	1.47
Interaction	.42	.89	2.71	.39	1.68
Risk taking					
T vs R	.01	.61	.25	.36	.27
Age groups	2.75	2.35	4.77**	4.00*	2.26*
Interaction	.38	.48	1.63	.51	.83
Self-esteem					
T vs R	1.43	.00	.10	.46	.53
Age groups	1.47	.82	.23	.90	1.10
Interaction	.22	.59	.63	.76	.46
Social adroitness					
T vs R	.16	1.28	.49	2.92	1.02
Age groups	1.73	.31	.44	.59	.91
Interaction	2.60	1.78	.30	3.56*	1.84
Social participation					
T vs R	.41	.01	.60	.57	.35
Age groups	.43	1.52	2.37	1.13	1.33
Interaction	.73	.85	2.15	1.73	1.19
Tolerance					
T vs R	.10	1.21	2.92	1.43	1.20
Age groups	1.47	1.20	.51	1.05	.91
Interaction	.30	2.50	1.71	2.16	1.40

	Univariate				Multivariate
	I[a]	S-R[a]	MRO[a]	COMP[a]	(I, S-R, MRO)
Value orthodoxy					
T vs R	.49	.21	6.25* T>R	.19	2.20
Age groups	1.73	2.61	12.33***	4.40*	3.53**
Interaction	2.96*	.23	.20	.91	.99
Pd-AA					
T vs R	3.69				
Age groups	2.21				
Interaction	.37				
Multivariate (COMP, Pd-AA)					
T vs R				1.83[g]	
Age groups				1.56[h]	
Interaction				2.16**[h]	

[g]df = 16, 14.
[h]df = 48, 42.

APPENDIX E

INTERCORRELATION MATRIX OF PRF, JPI, AND PD-AA VARIABLES: VA GROUP

	Ac	Af	Ag	Au	Ch	Cs	De	Do	En	Ex	Ha	Im
Ab[a]	-.02	.26	-.36	-.35**	-.17*	.12	-.36	-.32	-.03	-.26	.17	-.13
Ac		-.22	.07	.11	.30	.50	-.09	.38	.66	.17	-.41	.09
Af			.11	-.25	-.05	-.10	-.10	.20	-.20	.38	.33*	.33
Ag				.42	.49	-.23	.52	.59	-.01	.75*	-.23	.74*
Au					.42	-.17	.29	.10	.09	.09	-.46	.36
Ch						.01	-.04	.48	.08	.41	-.46	.48
Cs							-.10	-.09	.46	-.22	-.14	-.31
De								.26	.09	.26	-.03	.32
Do									.27	.79*	-.12	.59
En										-.04	-.37	-.05
Ex											-.14	.77**
Ha												-.10

[a]See Appendix A for dependent-variable names and definitions.
*($p < .05$): ** ($p < .01$); *** ($p < .001$) -- Significant differences between VA and control group correlations.

Note. PRF = Personality Research Form; JPI = Jackson Personality Inventory. See page 15 and Appendix H for description of Pd-AA variable. Table values are Pearson product-moment correlation coefficients based on inventory, self-rating, and mean-rating-by-others composite scores, except for Pd-AA and Dy which are based on inventory scores only. N = 36. (Continued, p. 62).

	Nu	Or	Pl	Se	Sr	Su	Un	Ca	Is	Anx	Bdi	Cpx	Cny
Ab	.25	-.09	-.15	-.19	-.38	.33	-.02	.26	-.42*	-.12*	-.12	-.09	.27
Ac	-.02	.52**	-.11	.18	.22	-.41	.49	-.32	.34	.10	.38	.38	.21
Af	.51	-.10	.45	.32	.05	.33	-.01	.57	-.20	-.17	.19	.01	.07
Ag	-.20	-.32	.36	.15	.37	-.05	.28	-.23	.47	.38	.16	.40	-.08
Au	-.56	-.03	-.05	.26	-.10	-.14	.53	-.37	.26	.08	.12	.34	-.28
Ch	-.35*	-.07	.27	.44	.00	-.03	.62	-.29	.54	.04	.48	.73	-.14
Cs	.12	.50	-.28	-.10	-.20	-.32	.25	-.16	-.14	.12	.21	.08	.33
De	-.07	-.17	-.07	-.01	.16	-.11	-.01	-.05	.28	.42	-.11	-.04	.02
Do	.08	.08	.29	.32	.49	-.15	.37	-.12	.64	.22	.44	.58*	.10
En	.08	.73***	-.28	-.01*	.07	-.55	.36	-.21	.22	.06	.37	.20	.26*
Ex	.04	-.16	.50	.26	.43	.14	.23	-.10	.45	.23	.20	.44	.01
Ha	.37	-.21**	-.11	-.20	.18	.39	-.56*	.43	-.24	-.01	-.42	-.40	.14
Im	.02	-.25	.42	.31	.26	.29	.30	-.04	.41	.16	.11	.39	-.13
Nu		.13	.25	.07	.11	.32	-.21*	.64	-.20	.13	.09	-.25	.20
Or			-.27	.12	-.07	-.35	.30*	-.08	.04	-.09	.23	.03	.29
Pl				.38	-.02	.22	.01	.22	.15	-.08	.33	.14	-.49*
Se					.01	.07	.44	.20	.26	-.13	.52	.42	-.31
Sr						-.02***	-.08	.22	.40*	.30	.08	.13	.16*

	Un	Ca	Is	Anx	Bdi	Cpx	Cny
Su	-.14	.46	-.18	.09	-.27	-.16	-.04*
Un		-.23*	.33	.04	.52**	.71	.07
Ca			-.22	-.02	.00	-.30	.11
Is				.21	.40	.51	-.14
Anx					.12	.04	.37
Bdi						.57	-.25
Cpx							-.08

	Enl	Inv	Iaf	Org	Rsy	Rkt	Ses	Sca	Spt	Tol	Vlo	Pd-AA	Dy
Ab	-.28	-.28	.24	-.11	.12	-.27	-.18	-.37*	-.07	-.08	.34	-.15	-.04
Ac	.32	.34	.05	.64	.52	.12	.25	.35	-.12	.49	.08	-.07	.13
Af	.08	.06	.38	-.28	-.10	-.07	.46	.13	.67	-.03	-.03	.06	.31
Ag	.30	.39	-.23	-.15	-.41	.60	.49	.47	.43	-.05	-.26	.44	-.20
Au	.12	.06	-.38	-.05	-.11	.25	.06	.03	-.12	.31	-.28	.22	-.17
Ch	.34	.61	.02	.07	-.06	.58	.50*	.53	.37	.33	-.36	.19	.09
Cs	.13	.03	.14	.46	.27	-.23	-.03	-.05	-.23	.15	.18	.01*	.00
De	.06	-.16	-.19	-.23	-.31	.22	.11	.07	.04	-.26	.07	.34	-.32
Do	.39	.59	.18	.12	.09	.51	.73	.69	.54	.12	-.20	.11	.15
En	.48	.12	-.03	.60	.40	.00	.16	.12	-.34	.42	.36	.06	-.02

	Enl	Inv	Iaf	Org	Rsy	Rkt	Ses	Sca	Spt	Tol	Vlo	Pd-AA	Dy
Ex	.26	.51	.02	-.11	-.23	.57*	.72	.65	.72	.03	-.29	.29	-.01
Ha	-.51*	-.22	.18	-.47***	-.01	-.38	-.04	-.08	.08	-.55*	.05	-.10	.07
Im	.12	.40	-.01	-.36	-.25	.49	.63***	.56**	.61	.01	-.20	.40	-.11
Nu	.07	-.04	.66	-.10	.19	-.32	.03	.10	.25	-.11	.19	.01	.12
Or	.42	.06	.15	.66	.60*	.10	.18	-.03	-.28	.33	.28	-.11	.17
Pl	.30	.30	.16	-.13	-.21	.12	.36	.23	.66	-.03	-.24	.09	.23
Se	.21	.36	.29	.05	.16	.24	.47**	.32	.49	.34	-.45	-.03	.46*
Sr	.04	.26	.07	.09	-.02	.23	.25	.65	.15	-.02	-.12	.07	.11
Su	-.38	-.12	.28	-.62	-.16	-.14	-.05	.01	.31	-.41	-.04	.15	-.09
Un	.29	.37**	.06	.27	.18	.29	.31	.29	.08	.43	-.10	.09	.17
Ca	-.17	-.28	.53	-.22	.04	-.35	.03	.09	.24	-.18	.22	.05	.15
Is	.42	.62	-.14	.05	.06	.63	.43	.66	.16	.08	-.19	.10	.13
Anx	.06	.11	.20	.02	-.15	.16	.01	.26	-.03	-.11	.04	.50	-.42
Bdi	.52	.56	.27	.33	.26	.18	.33	.34	.18	.49	-.20	-.08	.28
Cpx	.36	.74	-.02	.13	-.01	.52	.51	.52	.25	.29*	-.44	-.03	.24
Cny	.01	-.14	.26	.24	.12	-.06	.10	.06	-.06*	-.09	.45	.27	-.16
Enl		.47	-.01	.47	.11	.39	.32	.18	.11	.25	-.04	.05	.22
Inv			.06	.09	.02	.62*	.54	.65	.34	.23	-.51	.04	.25

	Org	Rsy	Rkt	Ses	Sca	Spt	Tol	Vlo	Pd-AA	Dy
Iaf	.11	.35	-.24	.17	.25	.39	.12	.12	.01	.15
Org		.53	-.04	.04	.03	-.29	.41*	.21	-.14	.18
Rsy			-.35	.01	-.02	-.25	.44	.34	-.51	.09
Rkt				.46*	.49*	.32	.05	-.50	.24	.09
Ses					.61	.70**	.16	-.12	.18	.25
Sca						.48	.23	-.24	.27	.10
Spt							-.02	-.29	.16	.31
Tol								-.02	-.17	-.02
Vlo									.03	-.31*
Pd-AA										-.36

Note (continued). With df = 34, a coefficient of .33 is significant at $p < .05$, .42 at $p < .01$, and .53 at $p < .001$ for a two-tailed test; for a one-tailed test, .28 is significant at $p < .05$, .39 at $p < .01$, and .50 at $p < .001$. The following scale correlations (positive unless noted otherwise) reach the .001 level (two-tailed test):

Achievement and endurance, organization;
Affiliation and caring, social participation;
Aggression and dominance, exhibition, impulsivity, risk taking;
Autonomy and nurturance (negative), understanding;
Breadth of interest and complexity, innovation;
Caring and affiliation, nurturance, interpersonal affect;
Change and understanding, instrumentality, complexity, innovation, risk taking, social adroitness;
Complexity and change, dominance, understanding, breadth of interest, innovation;

Dominance and aggression, exhibition, impulsivity, instrumentality, complexity, innovation, self-esteem, social adroitness, social participation;
Endurance and achievement, order, succorance (negative), organization;
Exhibition and aggression, dominance, impulsivity, risk taking, self-esteem, social adroitness, social participation;
Harm avoidance and understanding (negative), tolerance (negative);
Impulsivity and aggression, dominance, exhibition, self-esteem, social adroitness, social participation;
Innovation and change, dominance, instrumentality, breadth of interest, complexity, risk taking, self-esteem, social adroitness;
Instrumentality and change, dominance, innovation, risk taking, social adroitness;
Interpersonal affect and nurturance, caring;
Nurturance and autonomy (negative), caring, interpersonal affect;
Order and endurance, organization, responsibility;
Organization and achievement, endurance, order, succorance (negative), responsibility;
Play and social participation;
Responsibility and order, organization;
Risk taking and aggression, change, exhibition, instrumentality, innovation;
Self-esteem and dominance, exhibition, impulsivity, innovation, social adroitness, social participation;
Social adroitness and change, dominance, exhibition, impulsivity, social recognition, instrumentality, innovation, self-esteem;
Social participation and affiliation, dominance, exhibition, impulsivity, play, self-esteem;
Social recognition and social adroitness;
Succorance and endurance (negative), organization (negative);
Tolerance and harm avoidance (negative);
Understanding and autonomy, change, harm avoidance (negative), complexity.

Abasement, cognitive structure, defendence, sentience, anxiety, conformity, energy level, value orthodoxy, Pd-AA, and desirability are not involved in any VA-group intercorrelations at the .001 level of significance.

APPENDIX F

INTERCORRELATION MATRIX OF PRF, JPI, AND PD-AA VARIABLES: CONTROL GROUP

	Ac	Af	Ag	Au	Ch	Cs	De	Do	En	Ex	Ha	Im
Ab[a]	.10	.15	-.27	.30**	.28*	-.04	-.30	-.30	.26	-.20	.09	-.09
Ac		.18	.02	.12	.22	.34	-.22	.43	.72	-.01	-.14	-.02
Af			-.05	.00	.22	-.07	-.19	.21	-.04	.30	-.13*	.27
Ag				.24	.29	-.09	.63	.46	-.07	.44*	-.36	.44*
Au					.61	-.20	.08	.11	.13	.01	-.24	.19
Ch						-.06	.05	.17	.16	.31	-.22	.44
Cs							-.07	.01	.39	-.13	.26	-.34
De								.04	-.17	.11	.02	.35
Do									.13	.49*	-.36	.35
En										-.26	-.08	-.22
Ex											-.09	.31**
Ha												-.34

[a]See Appendix A for dependent-variable names and definitions.
*($p < .05$); ** ($p < .01$); *** ($p < .001$) -- Significant differences between VA and control group correlations.

Note. PRF = Personality Research Form; JPI = Jackson Personality Inventory. See page 15 and Appendix H for description of Pd-AA variable. Table values are Pearson product-moment correlation coefficients based on inventory, self-rating, and mean-rating-by-others composite scores, except for Pd-AA and Dy which are based on inventory scores only. N = 42. (Continued, p. 68).

	Nu	Or	Pl	Se	Sr	Su	Un	Ca	Is	Anx	Bdi	Cpx	Cny
Ab	.17	.06	.04	.22	-.15	-.01	.10	.18	.11*	.34*	.13	.24	-.02
Ac	.06	-.03**	-.08	.41	.10	-.20	.45	-.02	.53	.05	.55	.37	-.12
Af	.25	-.07	.54	.24	.41	.38	.01	.26	.04	.00	.19	.09	.35
Ag	.02	-.09	.14	.01	.15	.02	.07	-.16	.15	.29	.16	.05	.07
Au	-.18	-.25	.06	.13	-.42	-.36	.17	-.28	.31	.11	.30	.46	-.40
Ch	.22*	-.18	.12	.54	-.06	-.09	.50	.12	.30	.21	.49	.66	-.17
Cs	.16	.34	-.14	.11	-.05	.02	.23	.06	.01	.08	.13	.19	-.07
De	-.02	.09	-.10	-.15	.09	.11	-.25	-.26	-.11	.22	-.21	-.16	.12
Do	.07	-.17	.17	.07	.28	-.09	.36	-.09	.57	.02	.50	.18*	.00
En	.16	.01***	.04	.47*	-.17	-.41	.40	.04	.52	.02	.40	.31	-.24*
Ex	.16	-.14	.17	.02	.34	.24	.19	.18	.08	.06	.19	.16	-.02
Ha	.25	.38**	-.30	-.26	-.08	.08	-.11*	.24	-.22	-.05	-.23	-.10	-.07
Im	.17	-.38	.29	.21	.26	.19	.08	.02	.03	.29	.17	.10	.15
Nu		.19	.18	.26	.24	.21	.29*	.76	-.03	.15	.23	.18	.15
Or			-.22	-.21	-.11	-.10	-.24*	.10	-.14	.16	-.19	-.05	.05
Pl				.20	.05	.04	-.03	.18	.09	-.16	.11	-.02	.04*
Se					.10	.05	.60	.29	.38	.24	.55	.56	-.08
Sr						.63***	.06	.27	-.09*	.28	.17	-.17	.63*

	Un	Ca	Is	Anx	Bdi	Cpx	Cny
Su	-.08	.43	-.45	.22	-.08	-.21	.49*
Un		.25*	.53	.17	.86**	.79	-.26
Ca			-.23	.09	.13	.14	.21
Is				.08	.62	.42	-.30
Anx					.22	.26	.21
Bdi						.70	-.17
Cpx							-.34

	Enl	Inv	Iaf	Org	Rsy	Rkt	Ses	Sca	Spt	Tol	Vlo	Pd-AA	Dy
Ab	-.04	.07	.27	.05	.12	.15	-.21	.17*	.13	.35	-.03	.14	-.37
Ac	.52	.36	.05	.35	.38	.06	.26	.30	.14	.20	.14	-.40	.21
Af	-.08	-.02	.32	-.32	.09	.11	.16	.17	.74	.27	-.13	-.08	.22
Ag	.27	.09	-.21	-.04	-.42	.45	.20	.06	.21	-.17	-.30	.19	-.04
Au	.26	.44	-.34	-.10	-.30	.47	.04	.18	-.13	.30	-.31	.28	-.29
Ch	.42	.60	-.02	-.15	-.20	.50	.03*	.35	.14	.48	-.56	.09	-.14
Cs	.23	.24	.22	.46	.44	-.22	.03	.17	-.10	-.03	.50	-.44*	.14
De	.04	-.02	-.23	-.06	-.44	.05	-.22	-.23	-.07	-.35	-.22	.33	-.07
Do	.37	.27	.00	.13	-.04	.13	.67	.46	.29	.00	-.23	-.06	.33
En	.64	.32	.00	.39	.26	.18	-.07	.15	-.13	.18	.07	-.36	.10

	Enl	Inv	Iaf	Org	Rsy	Rkt	Ses	Sca	Spt	Tol	Vlo	Pd-AA	Dy
Ex	.07	.14	.07	-.23	-.18	.08*	.53	.33	.49	.03	-.30	.03	.07
Ha	-.11*	-.13	.17	.28***	.18	-.50	-.06	-.06	-.15	-.13*	.32	-.01	.00
Im	.12	.14	-.03	-.41	-.15	.19	-.04***	-.01**	.39	.12	-.55	.31	-.02
Nu	.26	.19	.52	.12	.20	.05	.02	.14	.22	.20	-.08	-.05	.26
Or	.02	-.24	.08	.66	.19*	-.22	.02	-.11	.03	-.04	.34	.08	.14
Pl	.18	-.05	.03	-.17	-.06	.46	.07	.03	.40	.03	-.20	.15	.15
Se	.54	.55	.24	.01	.07	.24	-.10**	.12	.14	.42	-.43	-.23	-.06*
Sr	-.18	.02	.45	-.26	-.05	-.20	.12	.37	.54	-.17	-.03	-.02	.12
Su	-.46	-.08	.41	-.46	.10	-.19	-.16	-.05	.36	-.17	.06	.03	-.26
Un	.48	.77**	.28	.12	.11	.20	.34	.49	.02	.48	-.34	-.36	.09
Ca	.05	.14	.39	-.05	.18	.00	.01	.02	.24	.25	-.10	-.02	.03
Is	.59	.41	-.06	.33	-.17	.35	.42	.34	-.02	.21	-.33	-.08	.06
Anx	.05	.20	.27	.12	-.12	.12	-.11	.08	.26	.21	-.14	.35	-.37
Bdi	.56	.69	.22	.15	.08	.29	.39	.57	.18	.42	-.31	-.21	.08
Cpx	.48	.80	.06	.16	-.04	.26	.22	.38	.06	.66*	-.37	-.20	.03
Cny	-.31	-.28	.34	-.13	-.12	-.07	-.13	.03	.43*	-.16	.14	.05	.11
Enl		.42	-.24	.47	-.06	.37	.12	.22	-.12	.13	-.26	-.15	.09
Inv			.16	.05	-.06	.18*	.21	.52	-.08	.35	-.30	-.22	.01

	Org	Rsy	Rkt	Ses	Sca	Spt	Tol	Vlo	Pd-AA	Dy
Iaf	-.01	.31	-.22	.09	.25	.40	.08	.08	-.24	.20
Org		.22	-.10	.24	.11	-.19	-.09*	.33	-.10	.26
Rsy			-.38	.03	-.02	.09	.14	.57	-.39	.33
Rkt				.02*	-.03*	.02	.23	-.36	.16	-.20
Ses					.44	.24**	.13	-.01	-.09	.41
Sca						.24	.10	-.01	-.05	.16
Spt							.27	-.13	.02	.24
Tol								-.30	-.10	.10
Vlo									-.23	.17*
Pd-AA										-.37

Note (continued). With df = 40, a coefficient of .30 is significant at $p < .05$, .39 at $p < .01$, and .49 at $p < .001$ for a two-tailed test; for a one-tailed test, .26 is significant at $p < .05$, .36 at $p < .01$, and .46 at $p < .001$. The following trait intercorrelations (positive unless noted otherwise) reach the .001 level (two-tailed test):

Achievement and endurance, instrumentality, breadth of interest, energy level;
Affiliation and play, social participation;
Aggression and defendence;
Autonomy and change;
Breadth of interest and achievement, change, dominance, sentience, understanding, instrumentality, complexity, energy level, innovation, social adroitness;
Caring and nurturance;
Change and autonomy, sentience, understanding, breadth of interest, complexity, innovation, risk taking, value orthodoxy (negative);

Cognitive structure and value orthodoxy;
Complexity and change, sentience, understanding, breadth of interest, innovation, tolerance;
Conformity and social recognition, succorance;
Defendence and aggression;
Dominance and exhibition, instrumentality, breadth of interest, self-esteem;
Endurance and achievement, instrumentality, energy level;
Energy level and achievement, endurance, sentience, instrumentality, breadth of interest;
Exhibition and dominance, self-esteem, social participation;
Harm avoidance and risk taking (negative);
Impulsivity and value orthodoxy (negative);
Innovation and change, sentience, understanding, breadth of interest, complexity, social adroitness;
Instrumentality and achievement, dominance, endurance, understanding, breadth of interest, energy level;
Interpersonal affect and nurturance;
Nurturance and caring, interpersonal affect;
Order and organization;
Organization and order;
Play and affiliation;
Responsibility and value orthodoxy;
Risk taking and change, harm avoidance (negative);
Self-esteem and dominance, exhibition;
Sentience and change, understanding, breadth of interest, complexity, energy level, innovation;
Social adroitness and understanding, breadth of interest, innovation;
Social participation and affiliation, exhibition, social recognition;
Social recognition and succorance, conformity, social participation;
Succorance and social recognition, conformity;
Tolerance and complexity;
Understanding and change, sentience, instrumentality, breadth of interest, complexity, innovation, social adroitness;
Value orthodoxy and change (negative), cognitive structure, impulsivity (negative), responsibility.

Abasement, anxiety, Pd-AA, and desirability are not involved in any control-group intercorrelations at the .001 significance level.

APPENDIX G

RATING FORM

DIRECTIONS: Rate yourself and each of the other persons in your group on each of the traits listed below, using the following five-point rating scale and the trait definitions supplied separately.

1	2	3	4	5
Low	Below average	Average for this reference group	Above average	High

	self-rating	(names of others in group)										
Abasement												
Achievement												
Affiliation												
Aggression												
Autonomy												
Change												
Cognitive structure												
Defendence												
Dominance												
Endurance												
Exhibition												
Harm avoidance												
Impulsivity												
Nurturance												
Order												
Play												

Note. See Appendix A for the trait definitions supplied to each subject for use in filling out the rating form.

1 Low	2 Below average	3 Average for this reference group	4 Above average	5 High

(names of others in group)

	self-rating												
Sentience													
Social recognition													
Succorance													
Understanding													
Caring													
Instrumentality													
Anxiety													
Breadth of interest													
Complexity													
Conformity													
Energy level													
Innovation													
Interpersonal affect													
Organization													
Responsibility													
Risk taking													
Self-esteem													
Social adroitness													
Social participation													
Tolerance													
Value orthodoxy													

APPENDIX H

PD-AA SCALE

DIRECTIONS: Read each of the following statements and decide whether or not it describes you. If you agree with a statement or decide that it does describe you, circle TRUE. If you disagree with a statement or feel that it is not descriptive of you, circle FALSE. Answer every statement either true or false, even if you are not completely sure of your answer.

(8)	1.	My daily life is full of things that keep me interested.	TRUE	FALSE
(32)	2.	I find it hard to keep my mind on a task or job.	TRUE	FALSE
(33)	3.	I have had very peculiar and strange experiences.	TRUE	FALSE
(37)	4.	I have never been in trouble because of my sex behavior.	TRUE	FALSE
(38)	5.	During one period when I was a youngster I engaged in petty thievery.	TRUE	FALSE
(61)	6.	I have not lived the right kind of life.	TRUE	FALSE
(67)	7.	I wish I could be as happy as others seem to be.	TRUE	FALSE
(82)	8.	I am easily downed in an argument.	TRUE	FALSE
(84)	9.	These days I find it hard not to give up hope of amounting to something.	TRUE	FALSE
(94)	10.	I do many things which I regret afterwards (I regret things more or more often than others seem to).	TRUE	FALSE
(102)	11.	My hardest battles are with myself.	TRUE	FALSE
(106)	12.	Much of the time I feel as if I have done something wrong or evil.	TRUE	FALSE
(107)	13.	I am happy most of the time.	TRUE	FALSE
(118)	14.	In school I was sometimes sent to the principal for cutting up.	TRUE	FALSE
(127)	15.	I know who is responsible for most of my troubles.	TRUE	FALSE

(141)	16.	My conduct is largely controlled by the customs of those about me.	TRUE	SE
(173)	17.	I liked school.	TRUE	FALSE
(224)	18.	My parents have often objected to the kind of people I went around with.	TRUE	FALSE
(289)	19.	I am always disgusted with the law when a criminal is freed through the arguments of a smart lawyer.	TRUE	FALSE
(294)	20.	I have never been in trouble with the law.	TRUE	FALSE

Note. Numbers in parentheses refer to MMPI item numbers (Group Booklet Form). Items are scored according to MMPI key. Possible raw scores range from 0 to 20; higher scores indicate more of the Pd-AA personality-trait tendency. Control over acquiescent responding appears to be adequate in that 12 items (60%) are keyed true and 8 (40%) false. See page 15 for a description of the derivation of the Pd-AA scale; page 17 and Appendix I for reliability and normative data; and Appendixes E and F for data regarding socially desirable responding.

APPENDIX I

CORRELATIONS BETWEEN PD-AA ITEMS AND TOTAL SCORE FOR VA-TEST, VA-RETEST, AND CONTROL GROUPS

Pd-AA Item No.	Groups		
	VA-Test	VA-Retest	Control
1.	.32	.26	.12
2.	.32	.37*	.06
3.	.55***	-.02	.54***
4.	.20	.10	.25
5.	.46**	.45**	.31*
6.	.55***	.42*	.40**
7.	.57***	.61***	.48**
8.	.18	.10	-.04
9.	.15	.47**	.32*
10.	.35*	.42*	.38*
11.	.40*	.02	.35*
12.	.40*	.21	.38*
13.	.49**	.45**	.01
14.	.42*	.46**	.22
15.	.23	.14	.26
16.	-.06	.07	.12
17.	.25	.48**	.19
18.	.43*	.51**	.24
19.	.34*	.35*	-.30
20.	.47**	.32	.49***

*p < .05.
**p < .01.
***p < .001.

Note. To facilitate comparability of the group findings regarding internal consistency of the Pd-AA scale, the VA-test correlations are based on data from the same 33 subjects for which retest data are available. Control N = 42. See Appendix H for Pd-AA items.