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# The Relationship Between Drinking and Assertiveness in College Students

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THE RELATIONSHIP BETWEEN DRINKING  
AND ASSERTIVENESS IN COLLEGE STUDENTS

A Thesis  
Presented to  
the Faculty of the Department of Psychology  
Western Kentucky University  
Bowling Green, Kentucky

In Partial Fulfillment  
of the Requirements for the Degree  
Master of Arts

by  
Ernest P. Small  
August, 1983

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THE RELATIONSHIP BETWEEN DRINKING  
AND ASSERTIVENESS IN COLLEGE STUDENTS

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## Table of Contents

|                                | <u>Page</u> |
|--------------------------------|-------------|
| ACKNOWLEDGEMENTS . . . . .     | iii         |
| LIST OF TABLES . . . . .       | v           |
| ABSTRACT . . . . .             | vi          |
| INTRODUCTION . . . . .         | 1           |
| REVIEW OF LITERATURE . . . . . | 3           |
| METHOD . . . . .               | 10          |
| RESULTS. . . . .               | 13          |
| DISCUSSION . . . . .           | 24          |
| APPENDIX A . . . . .           | 28          |
| APPENDIX B . . . . .           | 29          |
| APPENDIX C . . . . .           | 30          |
| APPENDIX D . . . . .           | 32          |
| REFERENCES . . . . .           | 35          |

List of Tables

| <u>Table</u> |   | <u>Page</u> |
|--------------|---|-------------|
| I            | Pearson Product-moment Correlations Matrices for females, males, and all subjects . . . . .   | 14          |
| II           | Pearson Product-moment Correlation Matrices for female prealcoholic subjects, female non-alcoholic subjects and for all female subjects . . . . . | 17          |
| III          | Pearson Product-moment Correlation Matrices for male prealcoholic subjects, male non-prealcoholic subjects and for all male subjects . . . . .    | 18          |
| IV           | Pearson Product-moment Correlation Matrices for all prealcoholic subjects, all non-prealcoholic subjects and all subjects . . . . .               | 20          |

THE RELATIONSHIP BETWEEN DRINKING  
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August, 1983

38 Pages

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The relationship between the drinking patterns of college students and their measured level of assertiveness was examined in this study. The subjects were categorized into six groups based on their self-reported frequency and amount of drinking. They were also asked to record the number of drinks they had drunk in the prior week. The MacAndrews Alcoholism Scale and the Rathus Assertion Schedule were administered to all the subjects. Pearson Product-moment correlations were calculated to assess the relationship between levels of drinking, the number of drinks in the prior week and scores from the Rathus Assertion Schedule and the MacAndrews Alcoholism Scale. The subjects were divided into two groups based on their scores obtained on the MacAndrews Scale: those whose score was 26 or above (prealcoholics) and those whose score was below 26 (non-prealcoholic). Pearson Product-moment correlations were calculated to assess the relationship between the variables for these two groups. The results of the analysis of the relationship between drinking and assertiveness did not support previous research that heavy drinking is associated with lower levels of assertiveness in alcoholics. In contrast to previous findings with alcoholics, the results indicated a very limited positive relationship between



these variables for the non-prealcoholics, particularly the males, and no relationship at all for the prealcoholic subjects. It is suggested that the lack of assertiveness observed in alcoholics may develop after the onset of their alcoholism.

While it was expected that the drinking level of the subjects would be related to their scores on the MacAndrews Scale this was not the case. This finding suggests that drinking may not be a reliable predictor of alcoholism. Further research is suggested using a larger sample of only prealcoholics to determine what relationships exist between assertiveness, drinking and the prediction of alcoholism.

## INTRODUCTION

Alcoholism is widespread in the United States. Over the past several years researchers and treatment specialists have recognized the need for preventive efforts and for early identification of problem drinkers. Research in this area has been difficult, since there is no generally accepted pattern of early alcohol use which predicts eventual alcohol abuse. Likewise, research on factors which may predispose individuals to alcoholism has produced only limited useful data with regard to prevention (McCord & McCord, 1960; Jones, 1968; Loper, Kammeier & Hoffman, 1973; Sanford, 1968; Gomberg-Lisansky, 1968). By comparing alcoholics and non-alcoholics, researchers have attempted to identify significant differences that may have led to alcohol abuse. The results have been of only limited utility since the differences may be the result of alcoholism rather than the cause. Some recent research has attempted to determine whether some of the differences observed between alcoholics and nonalcoholics also exist between heavy drinkers and light drinkers among college students (Mays, 1976; Mills, 1979). Discovery of differences in these latter groups that are similar to those differences found between alcoholics and non-alcoholics could be useful in identifying those factors that may be relevant to the etiology of alcoholism.

One area in which there appears to be difference between alcoholics and nonalcoholics is in assertiveness. Miller and Eisler (1977) presented data suggesting that the amount of drinking in alcoholics may be related to certain types of assertive behavior, and further that amount of drinking in college students may also be related to assertiveness.

This study was designed to determine whether in college students there is a relationship between an objective measure of assertiveness and their self-reported frequency and amount of drinking. Further, an attempt was made to determine whether these differences were related to other variables with regard to prediction of alcoholism.

## REVIEW OF LITERATURE

In attempting to understand the development of alcoholism, numerous theories and hypotheses have been suggested. One idea which appears to be particularly relevant to the subject of this study is the tension reduction hypothesis. The tension reduction hypothesis holds that drinking is learned because it is rewarded in two ways: (a) it temporarily reduces tension and (b) the effects are pleasurable (Kepner, 1964). While the long term effects may be just the opposite, the immediate results of drinking produce the positive effects of relaxation or tension reduction which Williams (1966) feels accounts for the widespread occurrence of moderate social drinking.

The tension reduction hypothesis has long been recognized experientially, but experimentally it was not validated until the 1950's. Conger (1951) found that rats injected with alcohol were more likely to approach situations involving painful consequences than those rats that were not given the alcohol. His conclusions were that alcohol reduced experimentally induced drive states such as fear, but did not equally affect biological drives like hunger. Conger (1956) used his observations with animals to construct a reinforcement theory of learning to explain the use of alcohol in humans. He postulated that, as in animals, alcohol reduced

uncomfortable feelings and lowered inhibitions in humans allowing them to reach their goals more readily. He also believed that the experienced tension reduction served to reinforce their drinking habit.

To verify the tension reducing effects of alcohol, physiological studies were conducted. Greenburg and Carpenter (1957) tested the effects of several alcoholic beverages on skin conduction and emotional tension. They based their research on Lindley's (1951) hypothesis that emotion is related to the activity of the central nervous system which can be measured using galvanic skin response. Greenburg and Carpenter found that alcohol did in fact reduce skin conduction, which they assumed was related to emotional tension or anxiety. McDonnell and Carpenter (1959) verified the relationship between skin conduction and reported anxiety level. They found that self reported anxiety experienced by their subjects was correlated significantly with measured skin conduction.

Further research has explored alcohol use from the tension reduction hypothesis and produced results that appear to support the functional value of alcohol's tension reducing effects. Coopersmith (1964), using physiological measures, found alcoholics to be more reaction or sensitive to environmental stimulation, e.g., lights and sounds, than non-alcoholics. Pursuing these findings further, Coopersmith and Woodrow (1967) suggested that the alcoholics' heightened sensitivity to various kinds of stimulation significantly affects their

ability to cope effectively in stressful situations. Miller, Hersen, Eisler and Hilsman (1974) found stress in interpersonal situations did increase operant drinking in alcoholics but not in social drinkers. The stress conditions involved were interpersonal situations that required the subjects to respond in an assertive manner. The authors believed that their findings were an indication that drinking in alcoholics is significantly affected by interpersonal variables. They suggested further that the lack of assertiveness may be one source of stress or anxiety that leads to the tension an alcoholic wants to relieve by drinking.

Using behavioral measures, Miller and Eisler (1977) found alcoholics to be less assertive than non-alcoholics and that the less assertive an alcoholic was the more likely he was to drink. They had alcoholics and non-alcoholics role play responses to situations which called for assertive behavior. Responses were videotaped and rated for assertiveness on a scale of 1 to 5 by two judges. Following the role playing sessions the subjects were given free access to alcohol on an operant drinking apparatus that permitted recording of the amount of their drinking. There was a significant negative correlation (-.63) between expression of negative feelings, a major component of assertiveness, and the amount of drinking. The authors suggested that drinking in alcoholics is a function of their ability to be assertive in social situations.

Many individuals involved in the treatment of alcoholics are convinced that alcoholics are lacking in coping skills, i.e., the ability to be assertive in appropriate social situations, and as a result experience high levels of tension which they seek to reduce by drinking. Miller & Mastria (1978) suggested that by supplying alcoholics with alternate ways of coping with tension evoking situations, there will be a reduction in their reliance on alcohol for this purpose. Wolpe and Lazarus (1966) and Wolpe (1973) introduced assertiveness training as a behavioral method for reducing "unadaptive anxiety-response habits in interpersonal relationships" (p. 38). They found that by increasing assertiveness an individual was more likely to express personal rights and feelings and be less inhibited by anxiety in interpersonal situations. If the individual made a new response to a previously threatening situation and experienced a favorable outcome for his behavior, he would tend to repeat the new response. The effects of being assertive then could be tension reducing and adaptive for the individual.

In several studies, the effects of including assertion training as part of treatment for alcoholism have been assessed. Martorano (1974) found that those alcoholics who received assertiveness training as part of their treatment benefitted by an increase in friendliness, social warmth and social attractiveness, and a reduction in their expression of anger. Martorano found, however, that the observed benefits of including assertion training in the alcoholics treatment

yielded these positive results only if the subject remained abstinent. Using similar outcome measures and longer follow-up procedures, Freedberg and Johnston (1981) assessed the effects of including assertion training within the context of comprehensive alcoholism treatment program. The authors divided a group of 101 alcoholic subjects into two groups, those who received assertion training and those who did not. The two groups otherwise received the same treatment throughout their stay in the program. The study included a one year follow-up in which the alcoholics were interviewed at 3, 6 and 12 months after their treatment. The subjects who received the assertion training achieved better results on the outcome measures of drinking behavior, work performance, job retention and psychological functioning. The authors' conclusion was that including assertion training within a comprehensive alcohol treatment program significantly improves the probability that the alcoholic will recover. Adinolfi, McCourt and Geoghegan (1976) obtained similar results in their study with six alcoholic subjects. The authors deliberately selected subjects they felt were passive and generally unassertive for their study. They provided the subjects with 15 weekly training sessions in assertiveness along with the other treatment they were receiving for their alcoholism. At 3 month and 5 month follow-up meetings, the authors found an increase in the subjects' overall level of assertiveness and an improvement in their social and occupational status as compared to their functioning in these areas prior to the treatment.



While previous research supports the benefits of including assertion training in the treatment of alcoholics it provides little indication as to whether the lack of assertiveness precedes or is a product of the long term abuse of alcohol. Williams (1966) conducted some "in vivo" research with college students and found that their self-reported anxiety decreased after using moderate amounts of alcohol. However, that alcohol is used for its anxiety reducing effect by these students cannot be assumed merely on the basis of Williams' findings. Focusing more directly on the relationship between assertiveness and drinking behavior in college students Marlatt, Kosturn and Lang (1975) observed that heavy drinking students would drink less in response to deliberate provocation if allowed to retaliate against the source of their provocation. The authors suggested that heavy drinking accompanies a lack of assertiveness, while lower levels of drinking are likely to be present if assertive behaviors are permitted.

The above studies indicate that alcoholics tend to be non-assertive, and they experience tension in some interpersonal situations in which assertive behavior is required. Both alcohol and assertive behavior have been shown to be effective in reducing tension in alcoholics. Further, by increasing the alcoholics' level of assertiveness there tends to be a reduction in their drinking and a positive effect on their overall social and interpersonal functioning. If increasing assertiveness reduces the incidence of symptoms in alcoholism in some individuals, it is possible that lack

of assertiveness may play a role in the initial onset of problem drinking. Some people may begin drinking heavily as a response to the frustration of situations which call for assertive responses, if assertiveness is not within their repertoire of behaviors.

While the relationship between assertiveness and drinking behavior has been explored among alcoholic populations, little has been done to determine whether lack of assertiveness is present prior to the alcohol abuse or is a function of long term alcohol abuse.

The focus of this study is to assess individuals' typical levels of alcohol consumption and compare the results with their level of self-reported assertiveness. In addition, an attempt is made to determine whether alcohol consumption and assertiveness are related to other variables with regard to the prediction of alcoholism.

### Hypothesis

This study represents an attempt to examine the relationship between the frequency and amount of drinking in college students and their level of self reported assertiveness. Further, the writer examined the relationship of drinking and assertiveness to other variables with regard to the prediction of alcoholism.

It was predicted for college students that lower levels of assertiveness would be associated with a higher frequency and amount of drinking. Further, it was expected that heavy drinking and lower levels of assertiveness will be significantly

related to the prediction of alcoholism. No differences in assertiveness or drinking level were expected based on the age or sex of the subject.

### Method

#### Subjects

The subjects of this study were 208 undergraduate college student volunteers selected from psychology classes at Western Kentucky University.

#### Procedure

Subjects (sophomores, juniors and seniors) were asked to complete three questionnaires during a regular psychology class period. A standard set of instructions (see Appendix A) was read to each group of subjects prior to distribution of the questionnaires. The order in which each questionnaire was presented varied from subject to subject in an attempt to avoid collaboration on responses between subjects. The first questionnaire (see Appendix B) was a self-report measure of frequency and amount of drinking and was based on a measure of alcoholic beverage consumption developed by Calahan, Cisin, and Crossley (1969). It allowed for classification of subjects' drinking on a six-point scale from heavy drinking to abstinence. Also, on this questionnaire subjects were asked to reveal how many drinks they had drunk in the prior week.

The second instrument (see Appendix C) administered was the Rathus Assertion Schedule (1973) (RAS), used to measure an individual's self reported assertiveness. The RAS was

developed out of previous measures (Allport, 1928; Guilford & Zimmerman, 1956; Wolpe and Lazarus, 1966; and Wolpe, 1969) and from student reports of situations that aroused fear of aversive social consequences.

Rathus (1973) demonstrated that the RAS had moderate to high test-retest reliability ( $r=.78$ ,  $p<.01$ ) and split half reliability ( $r=.77$ ,  $p<.01$ ). Concurrent validity was established by Rathus (1973), by comparing self-reported RAS scores to two external measures of assertiveness. First, respondents were rated on a 17 item schedule of personality traits, by other students who knew them well. A factor analysis of the 17 item rating schedule identified 5 items that comprised an assertiveness factor: boldness, outspokenness, assertiveness, aggressiveness, and confidence. The respondents' RAS scores correlated significantly ( $.33 \leq r's \leq .62$ ;  $p \leq .01$ ) with each of the 5 items making up the assertiveness factor. The second validity check was done comparing 47 coeds' RAS scores to ratings of their responses to five questions asking them how they would respond to situations that required assertive behavior. The coeds' responses were audiotaped and rated by individuals who neither knew the respondents or their RAS score. A Pearson Product-moment correlation coefficient revealed a significant relationship ( $r=.70$ ;  $p \leq .01$ ) between RAS scores and the scores obtained from raters of the audiotaped sessions.

Mann and Flowers (1978) established the concurrent validity of the Rathus scale by comparing RAS scores of 39 subjects to scores obtained from external raters who had

sufficient knowledge of the subjects' assertiveness to rate them on the RAS. A Pearson Product-moment correlation coefficient of  $r=.64, (p \leq .001)$ , was obtained between the self- and external rating on these 39 subjects' scores.

The third questionnaire (see Appendix D) used was the MacAndrews Alcoholism Scale (1965) (MAS). The MAS has been found accurate in differentiating male alcoholic outpatients from nonalcoholic outpatients and effective in identifying prealcoholics (Hoffman, Loper, and Kammeier, 1974), using a raw score of 26 as a cutoff.

### Scoring

The 30 item RAS yields a total score obtained by adding the numerical responses to each item. Numerical values range from +3 (very characteristic of me, extremely descriptive) to a -3 (very uncharacteristic of me, extremely non-descriptive). Scores potentially range from +90 to -90, with positive scores indicating higher levels of assertiveness.

The MAS is a 51 item scale derived from the Minnesota Multiphasic Personality Inventory. Individual items were scored based on the directional scoring presented by MacAndrews (1965). Items that were answered in the keyed direction were totaled to yield an overall test score.

## RESULTS

In order to evaluate the relationships between the scores obtained on the Rathus Assertion Schedule, the MacAndrews Alcoholism Scale, the drinking level of the subjects, their reported number of drinks in one week, and their age, a Pearson Product-moment correlational procedure was used. This procedure resulted in a correlational coefficient for each of the variables as it correlated with each of the other four variables (see Table I).

The results indicated relatively high correlations between the drinking level of a subject and the reported number of drinks in one week. The correlation for females was  $r(1,127) = .68$ ,  $p \leq .05$ ; for males  $r(1,79) = .50$ ,  $p \leq .05$ ; and for all subjects  $r(1,206) = .50$ ,  $p \leq .05$ . This would suggest that the two self reports of drinking were measuring nearly the same thing. A perfect correlation would not be expected since the number of drinks would vary from week to week.

The correlation between the MacAndrews Alcoholism Scale and the drinking scale was significant for females,  $r(1,127) = .18$ ,  $p \leq .05$ , but not for males,  $r(1,79) = .10$ ,  $p \leq .33$ . A correlation of  $r(1,206) = .17$ ,  $p \leq .05$ , was found when the analysis was performed combining males and females. This correlation is in the predicted direction, but somewhat lower than that found in previous studies. When the MacAndrews Alcoholism Scale was compared with the number of drinks in

Table I

Pearson Product-moment correlation matrices for females, males, and all subjects.

| Correlation Matrix: Females |       |       |       |             |
|-----------------------------|-------|-------|-------|-------------|
|                             | RAS   | MAS   | DS    | # of Drinks |
| MAS                         | -.115 |       |       |             |
| DS                          | .088  | .176* |       |             |
| # of Drinks                 | .043  | .280* | .685* |             |
| Age                         | -.037 | -.005 | -.120 | -.145       |

| Correlation Matrix: Males |        |      |       |             |
|---------------------------|--------|------|-------|-------------|
|                           | RAS    | MAS  | DS    | # of Drinks |
| MAS                       | -.264* |      |       |             |
| DS                        | .286*  | .108 |       |             |
| # of Drinks               | .110   | .058 | .508* |             |
| Age                       | -.177  | .129 | -.010 | -.025       |

| Correlation Matrix: All Subjects |       |       |       |             |
|----------------------------------|-------|-------|-------|-------------|
|                                  | RAS   | MAS   | DS    | # of Drinks |
| MAS                              | -.129 |       |       |             |
| DS                               | .175* | .164* |       |             |
| # of Drinks                      | .099  | .137* | .506* |             |
| Age                              | -.053 | .084  | -.042 | -.022       |

\*-p ≤ .05

MAS-MacAndrews Alcoholism Scale

RAS-Rathus Assertion Schedule

DS-Drinking Scale

# of Drinks-The number of drinks in the prior week

Age-Age of the subject

one week, the results were similar, with significant correlation found when all subjects were combined,  $r(1,206)=.13$ ,  $p \leq .05$ , and for females,  $r(1,127)=.28$ ,  $p \leq .05$ , but not for males,  $r(1,79)=.06$ ,  $p \leq .60$ . The MacAndrews Alcoholism Scale failed to predict heavy drinking for males.

The analysis of the relationship between the Rathus Assertion Schedule and the drinking scale indicated a significant correlation for males,  $r(1,79)=.18$ ,  $p \leq .05$ , and for combined subjects,  $r(1,206)=.18$ ,  $p \leq .05$ , but not for females,  $r(1,127)=.09$ ,  $p \leq .32$ . All correlations were positive, indicating that higher levels of drinking were associated with greater levels of assertiveness. As indicated in Table I, for male subjects there was a significant negative correlation between the Rathus Assertion Schedule and the MacAndrews Alcoholism Scale,  $r(1,79)=-.26$ ,  $p \leq .05$ . The correlations were not significant, however, for female subjects,  $r(1,79)=-.11$ ,  $p \leq .19$ , or for the combined subjects,  $r(1,207)=-.13$ ,  $p \leq .06$ . While there was a positive correlation between drinking and assertiveness there appeared to be a negative relationship between assertiveness and scores from the MacAndrews Scale, a predictor of alcoholism.

The subjects were categorized according to their scores on the MacAndrews Alcoholism Scale, as prealcoholics (operationally defined as those whose score was 26 or above) or non-prealcoholics (those who scored below 26). A Pearson Product-moment correlation procedure was again used to evaluate the relationship between scores on the Rathus



Assertion Schedule, the MacAndrews Alcoholism Scale, the drinking level of the subjects, their reported number of drinks in one week, and their age for these two groups.

The results for females (see Table II) indicated relatively high correlations between the drinking level of a subject and the reported number of drinks in the prior week. The correlation for prealcoholic females was  $r(1,20)=.63$   $p \leq .05$ , for non-prealcoholic females  $r(1,106)=.71$   $p \leq .05$ , and for all female subjects  $r(1,127)=.68$   $p \leq .05$ , this suggesting that for females the two self-reports of drinking were measuring the same thing--especially in the non-prealcoholic females. There were no further significant correlations obtained for the prealcoholic females or the non-prealcoholic females separately. However, when all female subjects were combined, there were significant correlations obtained between the drinking scale and MacAndrews Scale,  $r(1,127)=.17$ ,  $p \leq .05$ , and the number of drinks in the prior week and the MacAndrews Scale  $r(1,127)=.28$ ,  $p \leq .05$ , an indication that for all female subjects there is a positive relationship between drinking and scores obtained on MacAndrews Alcoholism Scale.

The results for males (see Table III) indicated relatively high correlations between the drinking level of a subject and the reported number of drinks in the prior week. The correlation for prealcoholic males was  $r(1,17)=.63$   $p \leq .05$ , for non-prealcoholic males  $r(1,61)=.51$ ,  $p \leq .05$ , and for all male subjects  $r(1,79)=.50$ ,  $p \leq .05$ , again suggesting that the two self-reports of drinking were measuring nearly the

Table II

Pearson Product-moment correlation matrices for female pre-alcoholic subjects, female non-prealcoholic subjects and for all female subjects.

| Correlation Matrix: Female Prealcoholics |       |       |       |             |
|--|-------|-------|-------|-------------|
|  | RAS   | MAS   | DS    | # of Drinks |
| MAS                                      | -.131 |       |       |             |
| DS                                       | .133  | -.016 |       |             |
| # of Drinks                              | -.091 | -.175 | .633* |             |
| Age                                      | .131  | -.090 | -.394 | -.507*      |

| Correlation Matrix: Female Non-Prealcoholics |       |      |       |             |
|--|-------|------|-------|-------------|
|  | RAS   | MAS  | DS    | # of Drinks |
| MAS  | -.035 |      |       |             |
| DS   | .108  | .085 |       |             |
| # of Drinks                                  | .807  | .164 | .714* |             |
| Age  | -.069 | .059 | -.068 | -.042       |

| Correlation Matrix: All Female Subjects |       |       |       |             |
|---|-------|-------|-------|-------------|
|   | RAS   | MAS   | DS    | # of Drinks |
| MAS                                     | -.115 |       |       |             |
| DS                                      | .088  | .176* |       |             |
| # of Drinks                             | .043  | .280* | .685* |             |
| Age                                     | -.037 | -.005 | -.120 | -.145       |

\*-p  $\leq$  .05

MAS-MacAndrews Alcoholism Scale

RAS-Rathus Assertion Schedule

DS-Drinking Scale

# of Drinks-The number of drinks in the prior week

Age-Age of the subject

Table III

Pearson Product-moment correlation matrices for male pre-alcoholic subjects, male non-prealcoholic subjects, and for all male subjects.

| Correlation Matrix: Male Prealcoholics |       |      |       |             |
|--|-------|------|-------|-------------|
|  | RAS   | MAS  | DS    | # of Drinks |
| MAS                                    | -.432 |      |       |             |
| DS                                     | .181  | .115 |       |             |
| # of Drinks                            | -.093 | .444 | .633* |             |
| Age                                    | .377  | .087 | .078  | -.061       |

| Correlation Matrix: Male Non-Prealcoholics |        |      |       |             |
|--|--------|------|-------|-------------|
|  | RAS    | MAS  | DS    | # of Drinks |
| MAS  | -.056  |      |       |             |
| DS   | .334*  | .214 |       |             |
| # of Drinks                                | .140   | .112 | .519* |             |
| Age  | -.377* | .234 | -.035 | -.022       |

| Correlation Matrix: All Male Subjects |        |      |       |             |
|---------------------------------------|--------|------|-------|-------------|
|                                       | RAS    | MAS  | DS    | # of Drinks |
| MAS                                   | -.264* |      |       |             |
| DS                                    | .286*  | .108 |       |             |
| # of Drinks                           | .110   | .058 | .508* |             |
| Age                                   | -.177  | .129 | -.010 | -.025       |

\*- $p \leq .05$

MAS-MacAndrews Alcoholism Scale

RAS-Rathus Assertion Schedule

DS-Drinking Scale

# of Drinks-The number of drinks in the prior week

Age-Age of the subject

same thing, especially for the prealcoholic males. The magnitude of the relationship between drinking level and number of drinks in the prior week appeared to be less for male subjects than it did for female subjects. There were no further significant correlations obtained for the male prealcoholic subjects between any of the variables, but for the non-prealcoholic males there was a significant correlation obtained between their scores on the drinking scale and scores on the Rathus Assertion Schedule,  $r(1,61) = .33$ ,  $p \leq .05$ . When the groups were combined, a significant negative correlation was obtained between scores on the Rathus Assertion Schedule and scores on the MacAndrews Alcoholism Scale,  $r(1,79) = -.26$ ,  $p \leq .05$ . The significant correlation obtained for non-prealcoholic males between the drinking scale and the Rathus Assertion Schedule was also found when all male subjects were combined,  $r(1,79) = .28$ ,  $p \leq .05$ . The significant findings obtained when male subjects were combined indicated that there was a negative relationship between assertiveness and the prediction of alcoholism, but also a positive relationship between the level of drinking and assertiveness.

When groups were combined for all prealcoholic subjects, all non-prealcoholic subjects and all subjects (see Table IV), significant correlations were again obtained between the level of drinking and the number of drinks in the prior week. For all prealcoholic subjects the obtained correlation was  $r(1,38) = .63$ ,  $p \leq .05$ , for non-prealcoholic subjects  $r(1,168) = .48$ ,  $p \leq .05$ , and for all subjects  $r(1,207) = .50$ ,  $p \leq .05$ . This

Table IV

Pearson Product-moment correlation matrices for all pre-alcoholic subjects, all non-prealcoholic subjects and for all subjects.

| Correlation Matrix: All Prealcoholic Subjects |       |      |        |             |
|---|-------|------|--------|-------------|
|   | RAS   | MAS  | DS     | # of Drinks |
| MAS   | -.246 |      |        |             |
| DS  | .130  | .036 |        |             |
| # of Drinks                                   | -.013 | .111 | .6347* |             |
| Age   | .297  | .039 | -.127  | -.251       |

| Correlation Matrix: All Non-Prealcoholic Subjects |       |       |       |             |
|---|-------|-------|-------|-------------|
|   | RAS   | MAS   | DS    | # of Drinks |
| MAS   | -.006 |       |       |             |
| DS  | .207* | .147* |       |             |
| # of Drinks                                       | .131  | .125  | .486  |             |
| Age   | -.122 | .152* | -.022 | .010        |

| Correlation Matrix: All Subjects |       |       |       |             |
|----------------------------------|-------|-------|-------|-------------|
|                                  | RAS   | MAS   | DS    | # of Drinks |
| MAS                              | -.129 |       |       |             |
| DS                               | .175* | .164* |       |             |
| # of Drinks                      | .099  | .137* | .506* |             |
| Age                              | -.053 | .084  | -.042 | -.022       |

\*- $p \leq .05$

MAS-MacAndrews Alcoholism Scale

RAS-Rathus Assertion Schedule

DS-Drinking Scale

# of Drinks-The number of drinks in the prior week

Age-Age of the subject

finding would suggest that the two self reports of drinking are generally measuring the same thing. A perfect correlation would not be expected because the number of drinks would vary from week to week.

A significant correlation was obtained in all non-prealcoholic subjects between the level of drinking and the MacAndrews Scale,  $r(1,168)=.14$ ,  $p \leq .05$ . This same significant relationship was obtained for all subjects,  $r(1,207)=.16$ ,  $p \leq .05$ , but not for all prealcoholic subjects. There was not a significant correlation between the number of drinks in the prior week and the MacAndrews Scale in either the prealcoholic subjects or the non-prealcoholic subjects. However, when all subjects were combined a significant relationship,  $r(1,207)=.13$ ,  $p \leq .05$ , was obtained. There was, then, a slight positive relationship between drinking and the MacAndrews Scale for all subjects.

Comparing these groups further, a significant correlation was obtained between the level of drinking and the Rathus Assertion Schedule for non-prealcoholic subjects  $r(1,168)=.20$ ,  $p \leq .05$ , and all subjects,  $r(1,207)=.17$ ,  $p \leq .05$ , but not for the prealcoholic subjects. Those results suggest a positive relationship between drinking and assertiveness for all subjects, especially non-prealcoholics. This finding is at variance with results obtained in previous research with alcoholics.

Caution must be used when interpreting the results of this study for several reasons. Firstly, by making multiple comparisons between variables there is an increased likelihood of obtaining inflated correlations because of the non-independence of these comparisons. For example, in the

female subjects there was a significant positive correlation between the drinking scale, the reported number of drinks in the prior week and the MacAndrews Alcoholism Scale. Looking at Table I, one finds a relatively high correlation between the drinking scale and the reported number of drinks in the prior week. The overlap, non-independence, of these two variables tends to make the obtained correlations with the MacAndrews scale higher than they would be if the variables were independent of each other.

Secondly, the non-independence of the comparisons can produce an inflation of the probability level used in determining significance of each correlation. By increasing the number of comparisons between the variables, there is also increased probability of finding significant correlations that do not, in reality, exist. Keppel (1973) provides an equation that produces an estimate of the error rate in decision making when using multiple correlations. The thirty comparisons made in this study produce an error rate of .78 using Keppel's equation. This figure suggests a high probability of obtaining significant correlations between variables that are in fact not correlated in a significant way.

Thirdly, one must take into account the percentage of variance that a variable explains in the correlations with the other variable. While several of the correlations obtained in this study were significant, interpretation is limited because of the low predictive ability. For example, while there is a significant positive correlation between the Drinking Scale and the Rathus Assertion Schedule for all

subjects, the Drinking Scale accounts for only three percent of the possible variability in the Rathus Scale and, therefore, offers only limited predictive utility.



## DISCUSSION

The results of this study concerning the relationship between drinking and assertiveness are at variance with previous findings in alcoholics--that heavy drinking is associated with lower levels of assertiveness. In contrast, the results indicated a positive relationship between drinking and assertiveness for all subjects--especially the males in the study. However, while the correlations are significant, the relationship is not strong enough to suggest more than limited predictive ability between the two variables. As mentioned, there was a stronger relationship between drinking and assertiveness in male subjects than in females. Both drinking and assertiveness may serve to enhance a masculine self image. Considering the female subjects, there appears to be very little relationship between assertiveness and their drinking--which seems to further support the idea that these two phenomena fit more closely the masculine stereotype.

The relatively high correlations between the drinking scales and the reported number of drinks in the prior week suggests that the drinking scale has some validity as a measure of drinking. While this finding appears to be significant in all the subjects it appears to be more so in females, particularly those in the non-prealcoholic group.

The drinking scale then holds some value as reliable indication of an individual's drinking level, especially for females.

In comparing males and females further, it appears that there is some difference in drinking as it relates to the MacAndrews Alcoholism Scale. A positive correlation of .17 was found between the drinking scale and the MacAndrews Scale and a .28 for the number of drinks and the MacAndrews Scale for the female subjects. While this finding is consistent with previous research, the relationship is not strong enough to be of predictive value. The relationship between the drinking scale and MacAndrews Scale was not significant for males as a group. When the data were analyzed separately for subjects scoring above 26 on the MacAndrews Scale, for females correlations of  $-.01$  and  $-.17$  were found for the drinking scale and the number of drinks in the prior week. For males the correlations were  $.11$  and  $.44$ . Correlations for all these analyses were not significant. There was some tendency in the expected direction for male prealcoholics (a correlation of  $.44$  between the MAS and the number of drinks in the prior week).

The very low correlation between the amount of drinking and the scores on the MacAndrews Scale is somewhat surprising in view of previous research and must be explained. Since the MacAndrews Scale has been shown to be a reliable predictor of later alcoholism by Loper, et al. (1973), one might expect to find a greater relationship between drinking in college students and their scores on the MacAndrews Scale. Failure

to find this relationship may suggest that the level of drinking in college students may not serve as a reliable predictor of alcoholism. A measure of drinking, in combination with personality traits, genetic predisposition, and environmental factors, however, may increase the ability to predict alcoholism.

The findings of this study are surprising considering some current literature which views the phenomenon of alcoholism as a continuum (Pattison, Sobell and Sobell, 1977). The authors reject the traditional view of alcoholism for a model that attempts to define alcoholism as a group of variables which vary along a continuum. Following from their conception of alcoholism, it would be expected that a relationship found in alcoholic populations would similarly be found in other categories of drinkers, only to a lesser degree. However, in the present study, there was found a general, though small, positive relationship between drinking and assertiveness. Further, in the prealcoholic subjects, it would be expected that a similar negative relationship, as has been observed in alcoholics, would be obtained between assertiveness and drinking. Lack of assertiveness was not found in heavy drinkers prior to the onset of alcoholism even in those who may be considered prealcoholics, suggesting that if alcoholics are indeed low in assertiveness, their lack of assertiveness may develop after the onset of their alcoholism.

In summary, the findings of this study are at variance with the results of some previous research on alcoholism. While it was expected that there would be some degree of negative relationship between drinking and assertiveness, as has been observed in alcoholics, the results of this study did not support that relationship. Instead a significant, though small, positive relationship was found between drinking and assertiveness. Further, very low correlations between drinking and the prediction of alcoholism suggest that drinking may not be a reliable predictor of alcoholism as previous research would suggest. While some of the correlations did reach the expected level of significance, the predictive utility is limited due to statistical problems and relative low  $r^2$  values obtained between variables.

The results obtained by dividing the subjects into prealcoholic and non-prealcoholic groups did little to support previous research with alcoholics. This fact may not be unexpected for the non-prealcoholic subjects, but for the prealcoholic subjects it raises some interesting questions that could be explored in further research. It appears that future research could be conducted only with individuals who score above 26 on the MacAndrews Scale. By starting with this group it could then be presumed that a significant number of subjects were prealcoholics, and the assertiveness of this sample could then be studied to determine whether it is associated with drinking. Further, the relationship between drinking and the prediction of alcoholism could be assessed more fully using the prealcoholic sample.

## APPENDICES

## Appendix A

The following instructions were read prior to the administration of the proposed test battery.

I am going to hand out a packet of tests in a minute. These tests are basic personality measures that I am using in conducting a psychological research project. I am interested in finding out how these characteristics are related to different behaviors. Participation in this study is strictly voluntary.

I will explain the purpose of my study after you complete the test material. I will be more than happy to explain any part of the test battery and answer any of your questions at that time. However, to do so now might influence the way you respond on the tests.

All the information you give will be held in strict confidence. To insure this, please use the last four digits of your social security number as your identification number.

It is important that you work as quickly as you can but not so quickly as to distort your responses. Is there anyone who does not wish to participate or has taken these tests in other classes?

Instructions for each measure will be on the top of the page. Please read the instructions carefully so you fully understand what you are expected to do.

## Appendix B

ID No. \_\_\_\_\_ Age: \_\_\_\_\_ Sex: \_\_\_\_\_

Please check the one statement which most accurately describes your current pattern of alcoholic consumption. Your response will be kept confidential. Please be sure to read all of the statements carefully before making a decision.

\_\_\_\_\_ I drink at least once a year, but less than once a month.

\_\_\_\_\_ I drink at least once a week, with usually five or more drinks per occasion.

\_\_\_\_\_ I drink less than once a year or not at all.

\_\_\_\_\_ I drink about once a month, but typically only one or two drinks on a single occasion.

\_\_\_\_\_ I drink nearly every day with five or more per occasion at least once in a while.

\_\_\_\_\_ I drink at least once a month, typically several times, but usually with no more than three or four drinks per occasion.

Last week (Monday through Sunday) I had approximately \_\_\_\_\_ drinks.  
(enter number)

## Appendix C

ID No. \_\_\_\_\_ Age: \_\_\_\_\_ Sex: \_\_\_\_\_

Directions: Indicate how characteristic or descriptive each of the following statements is of you by using the code given below.

- +3 very characteristic of me, extremely descriptive
- +2 rather characteristic of me, quite descriptive
- +1 somewhat characteristic of me, slightly descriptive
- 1 somewhat uncharacteristic of me, slightly nondescriptive
- 2 rather uncharacteristic of me, quite nondescriptive
- 3 very uncharacteristic of me, extremely nondescriptive

- \_\_\_\_\_ 1. Most people seem to be more aggressive and assertive than I am.
- \_\_\_\_\_ 2. I have hesitated to make or accept dates because of "shyness."
- \_\_\_\_\_ 3. When the food served at a restaurant is not done to my satisfaction, I complain about it to the waiter or waitress.
- \_\_\_\_\_ 4. I am careful to avoid hurting other people's feelings, even when I feel that I have been injured.
- \_\_\_\_\_ 5. If a salesman has gone to considerable trouble to show me merchandise which is not quite suitable, I have a difficult time saying "No."
- \_\_\_\_\_ 6. When I am asked to do something, I insist upon knowing why.
- \_\_\_\_\_ 7. There are times when I look for a good, vigorous argument.
- \_\_\_\_\_ 8. I strive to get ahead as well as most people in my position.
- \_\_\_\_\_ 9. To be honest, people often take advantage of me.
- \_\_\_\_\_ 10. I enjoy starting conversations with new acquaintances and strangers.
- \_\_\_\_\_ 11. I often don't know what to say to attractive persons of the opposite sex.
- \_\_\_\_\_ 12. I will hesitate to make phone calls to business establishments and institutions.



- \_\_\_ 13. I would rather apply for a job or for admission to a college by writing letters than by going through with personal interviews.
- \_\_\_ 14. I find it embarrassing to return merchandise.
- \_\_\_ 15. If a close and respected relative were annoying me, I would smother my feelings rather than express my annoyance.
- \_\_\_ 16. I have avoided asking questions for fear of sounding stupid.
- \_\_\_ 17. During an argument I am sometimes afraid that I will get so upset that I will shake all over.
- \_\_\_ 18. If a famed and respected lecturer makes a statement which I think is incorrect, I will have the audience hear my point of view as well.
- \_\_\_ 19. I avoid arguing over prices with clerks and salesmen.
- \_\_\_ 20. When I have done something important or worthwhile, I manage to let others know about it.
- \_\_\_ 21. I am open and frank about my feelings.
- \_\_\_ 22. If someone has been spreading false and bad stories about me, I see him (her) as soon as possible to "have a talk" about it.
- \_\_\_ 23. I often have a hard time saying "No."
- \_\_\_ 24. I tend to bottle up my emotions rather than make a scene.
- \_\_\_ 25. I complain about poor service in a restaurant and elsewhere.
- \_\_\_ 26. When I am given a compliment, I sometimes just don't know what to say.
- \_\_\_ 27. If a couple near me in a theatre or at a lecture were conversing rather loudly, I would ask them to be quiet or to take their conversation elsewhere.
- \_\_\_ 28. Anyone attempting to push ahead of me in a line is in for a good battle.
- \_\_\_ 29. I am quick to express an opinion.
- \_\_\_ 30. There are times when I just can't say anything.

## Appendix D

ID No. \_\_\_\_\_ Age: \_\_\_\_\_ Sex: \_\_\_\_\_

Listed below are a number of statements concerning personal attitudes and behaviors. Read each item and decide whether the statement is true or false as it pertains to you personally.

- T F 1. I like to read newspaper articles on crime.
- T F 2. Evil spirits possess me at times.
- T F 3. I have a cough most of the time.
- T F 4. My soul sometimes leaves my body.
- T F 5. As a youngster I was suspended from school one or more times for cutting up.
- T F 6. I am a good mixer.
- T F 7. Everything is turning out just like the prophets of the Bible said it would.
- T F 8. I have not lived the right kind of life.
- T F 9. I think I would like the kind of work a forest ranger does.
- T F 10. I am certainly lacking in self-confidence.
- T F 11. I do many things which I regret afterwards (I regret things more or more often than others seem to).
- T F 12. I enjoy a race or game better when I bet on it.
- T F 13. In school I was sometimes sent to the principal for cutting up.
- T F 14. My table manners are not quite as good at home as when I am out in company.
- T F 15. I know who is responsible for most of my troubles.
- T F 16. The sight of blood neither frightens me nor makes me sick.
- T F 17. I have never vomited blood or coughed up blood.
- T F 18. I like to cook.
- T F 19. I used to keep a diary.

- T F 20. I have had periods in which I carried on activities without knowing later what I had been doing.
- T F 21. I like school.
- T F 22. I worry about sex matters.
- T F 23. I frequently notice my hand shaking when I try to do something.
- T F 24. I have used alcohol excessively.
- T F 25. My parents have often objected to the kind of people I went around with.
- T F 26. I have been quite independent and free from family rule.
- T F 27. I have few or no pains.
- T F 28. I have had blank spells in which my activities were interrupted and I did not know what was going on around me.
- T F 29. I sweat very easily even on cool days.
- T F 30. I have often felt that strangers were looking at me critically.
- T F 31. If I were a reporter I would very much like to report sporting news.
- T F 32. I have never been in trouble with the law.
- T F 33. I seem to make friends about as quickly as others do.
- T F 34. Many of my dreams are about sex matters.
- T F 35. I cannot keep my mind on one thing.
- T F 36. I have more trouble concentrating than others seem to have.
- T F 37. I do not like to see women smoke.
- T F 38. I deserve severe punishment for my sins.
- T F 39. I played hooky from school quite often as a youngster.
- T F 40. I have at times had to be rough with people who were rude or annoying.
- T F 41. I was fond of excitement when I was young (or in childhood).

- T F 42. I enjoy gambling for small stakes.
- T F 43. I use alcohol moderately (or not at all).
- T F 44. If I were in trouble with several friends who equally were to blame, I would rather take the whole blame than to give them away.
- T F 45. While in trains, buses, etc., I often talk to strangers.
- T F 46. Christ performed miracles such as changing water into wine.
- T F 47. I pray several times every week.
- T F 48. I readily become one hundred percent sold on a good idea.
- T F 49. I have frequently worked under people who seem to have things arranged so that they get credit for good work but are able to pass off mistakes onto those under them.
- T F 50. I would like to wear expensive clothes.
- T F 51. The one to whom I was most attached and who I most admired as a child was a woman. (Mother, sister, aunt or other woman)

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