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AUTHOR Scullin, Marc B.; Jacobs, John R.
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ABSTRACT

The present study was conducted to assess the personality predictors of alcohol and nicotine use styles among a group of college undergraduates. Data for this study came from a pre-existing database gathered by Dr. John R. Jacobs in 1996 from Northeastern State University. The sample consisted of 123 participants of whom 76% were female and with a mean age of 23. Participants answered questions concerning personality; attachment; relationship satisfaction; substance use; and demographic factors. Participants were broken into two alcohol use styles (light, heavy) and two nicotine use styles (smoker, non-smoker). Two stepwise discriminate analyses were used to examine factors that predicted membership into alcohol and nicotine use styles. Light drinkers were more agreeable and conscientiously less extraverted and fearfully attached than heavy drinkers. Three predictor variables successfully classified 65% of the grouped cases into a nicotine-use style. Non-smokers were more conscientious and preoccupied than smokers. Smokers were more dismissing than non-smokers. (Contains 49 references.) (Author/JDM)

RUNNING HEAD : Personality Traits

# Personality traits, attachment styles, and their association with alcohol and nicotine use in college undergraduates



Marc B. Scullin

John R. Jacobs

Southern Connecticut State University

**Abstract**

The present study was conducted to assess the personality predictors of alcohol and nicotine use styles among a group of college undergraduates. Data for this study came from a pre-existing database gathered by Dr. John R. Jacobs in 1996 from a Northeastern State University. The sample consisted of 123 participants of whom 76% were female and in which the mean age was 23. Participants answered questions concerning personality, attachment, relationship satisfaction, substance use, and demographic factors. Participants were broken into 2 alcohol use styles (light, heavy) and 2 nicotine use styles (smoker, non-smoker). Two stepwise discriminant analyses were conducted to examine factors that predicted membership into alcohol and nicotine use styles. Four predictor variables successfully classified 73% of the grouped cases into an alcohol use style. Light drinkers were more agreeable and conscientious less extraverted and fearfully attached than heavy drinkers. Three predictor variables successfully classified 65% of the grouped cases into a nicotine use style. Non-smokers were more conscientious and preoccupied than smokers. Smokers were more dismissing than non-smokers.

**Personality traits, attachment styles, and their association with alcohol and nicotine use in college undergraduates**

Research that has examined the relationship between extraversion and alcohol consumption have generally found a relationship between high levels of extraversion and increased alcohol consumption in both males and females (Allsopp, 1986; Schall et al., 1992; Prescott et al., 1997; Dollinger, 1996). In his psychobiological theory of personality, Eysenck (1967) hypothesizes that extraverts need greater levels of external stimulation in order to reach desired levels of arousal in the brain cortex. Similarly, Jackson and Matthews (1988) also state that extraverts seek changes in subjective awareness and that increased levels of alcohol consumption may be a way for extraverts to achieve this needed change in their subjective awareness.

Several studies have found a relationship between high neuroticism and increased alcohol consumption (Rankin et al., 1982; Prescott, Neale, Corey, & Kendler, 1997; Chinnian, Taylor, Al Subaie, & Sugumar, 1994). There is an unresolved dichotomy in the literature, with research stating that neuroticism scores are a predictor of alcohol consumption (Wilson & Lawson, 1981; Oxford & Edwards, 1977), while others argue that alcohol consumption is a predictor for high neurtocisim scores (Rosenberg, 1969; Stein, Newcomb, & Bentler, 1987; Tarter, 1988).

Conscientiousness has been commonly examined in relation to alcohol consumption. Almost all of the research examining conscientiousness and alcohol consumption suggests that these two variables are negatively related (Martin & Sher, 1994; Tucker, Friedman, Tomlinson-Keasey, Swartz, Wingard, Criqui, & Martin, 1995; Cook, Young, Taylor, & Anthony, 1998; Dollinger & Clancy, 1993). McCrae and Costa (1997) suggest that openness to experience is the least researched and least well-understood dimension in the five-factor model of personality. Findings by Martin and Sher (1994) suggest a positive relationship between openness to experience and alcohol consumption. However, it is difficult to discern the exact nature of this relationship, as evidenced by the finding of no relationship between these two variables in studies by Dollinger (1996) and Musgrave-Marquart et al. (1997). Of the limited studies that have looked at agreeableness and alcohol consumption, there appears to be a negative correlation between these variables (Musgrave-Marquart et al., 1997; Martin & Sher, 1994). This relationship also appears to be stable over time, as evidenced by the findings of longitudinal research (Martin & Sher, 1994; Graziano & Eisenberg, 1997).

Research examining the attachment styles and alcohol consumption has generally found that people with insecure attachment styles such as anxious-ambivalent and avoidant consume more alcohol than people with a secure attachment style (Cherry, 1987; Brennan & Shaver, 1995; Levitt, Silver, & Franco, 1996). One factor that may influence the higher amounts of alcohol consumption in the insecure attachment groups is relationship satisfaction. Previous research has already established that lower levels of relationship satisfaction are related to higher levels of alcohol consumption (Embree & De Wit, 1997; Shaver & Brennan, 1992; Kirkpatrick & Davis, 1994). As demonstrated by the literature, relationship satisfaction is related to both attachment and alcohol consumption. Brennan and Shaver (1995) suggest that people who have an avoidant attachment style may be more prone to drink in order to cope with negative emotions and deny feelings of stress. These negative emotions and feelings of stress may be the result of the low levels of relationship satisfaction found in people with an avoidant attachment style and lead to increased alcohol consumption as a way to cope. Brennan and Shaver (1995) also state that anxious-ambivalent people may use alcohol to alleviate feelings of anxiety that are due to their lack of emotional and impulse control. These feelings of anxiety also may be due to the anxious-ambivalent person's low levels of relationship satisfaction, which may lead to higher levels of alcohol consumption among this attachment style.

Alcohol abuse literature commonly examines the consumption of other legal substances such as nicotine and caffeine in conjunction with alcohol use. Kozlowski, Henningfeild, Keenan, Lei, Leigh, Jelinek, Pope, & Hartzen (1993) found that alcohol, nicotine, and caffeine use were all related to one another. This finding may suggest that frequency of use and levels of dependence on any one of the aforementioned drugs may predict the use or levels of dependence on the others. For example, several studies have found a positive relationship between smoking and alcohol consumption (Musgrave-Marquart et al., 1997; Marks, Hill, Pomerleau, Mudd, & Blow, 1997; Breslau, Kilbey, & Andreski, 1994; Kozlowski et al., 1993).

The literature has also examined the relationship between smoking and personality variables. Much of the research that has been done on personality and smoking has found no relationship between neuroticism and smoking (Bartol, 1975; Adan, 1994; Eysenck, 1965). There has been some research that has found a positive relationship between neuroticism and smoking (Breslau et al., 1994). However, these positive findings seem to be related to other factors such as levels of nicotine dependence, smoking expectancies, and desire to smoke.

Research has produced varying results as to the relationship between smoking and extraversion. Some studies have found no relationship between number of cigarettes smoked per day and increased extraversion (Bartol, 1975; Adan, 1994), while others have found a positive relationship (Eynsenck, 1965). However, it must be noted that the finding of a positive relationship between these two variables appears to be related to levels of nicotine dependence; making this finding unclear. Although not as extensive as the research on neuroticism, extraversion, and smoking, the personality variable of conscientiousness has also been studied in relation to smoking. The research on conscientiousness and smoking has found a negative relationship between these two variables (Tucker et al., 1995; Friedman, Tucker, Schwartz, Martin, Tomlinson, Keasy, Wingard, & Criqui, 1995).

The present research examines personality variables that predict membership into specific drinking and smoking styles. Based on the findings of previous literature, it is hypothesized that neuroticism will be the strongest predictor of drinking and smoking style in this study, followed by extraversion and attachment style.

## Methods

### Participants

The sample consisted of 123 (93 female, 30 male) volunteer undergraduate students from a large northeastern university. Participants were recruited from several liberal arts classes throughout the university. Participants' ages ranged from 18-52, with a mean age of 23.

### Materials

The instrument consisted five scales that examined the personality variables of neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness, as well as measures of relationship satisfaction, attachment, substance use, and demographic variables.

The Jacobs Relationship Satisfaction scale (1992) consisted of questions, which measured areas of relationship satisfaction such as emotional affection, instrumentality of this partner, and leisure activities with this partner. The reliability alpha coefficients for the three subscales are: emotional affection .93, instrumentality .91, and leisure .90.

Attachment was measured using the Bartholomew and Horowitz relationship scales questionnaire (RSQ). This scale consists of thirty items rated on a five-point likert scale and measures a respondent's classification into one of four attachment styles. The attachment styles measured by the RSQ are Fearful, Dismissing, Secure, and

Preoccupied. Previous research has found the RSQ to have both internal validity and reliability for the four dimensions of attachment measured (Griffen & Bartholomew, 1994).

The Costa and McCrae NEO-PI-R personality inventory was used to measure the personality variables of neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness. The NEO-PI-R is a 240-item scale that measures the five aforementioned personality variables. Previous research has demonstrated the validity and reliability of the NEO-PI-R domain scales and the NEO-PI-R facet scales (McCrae & Costa, 1987; McCrae & Costa, 1992). Questions on the NEO-PI-R are rated on a five-point likert scale ranging from strongly disagree to strongly agree and included questions that examine neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness. Selected items on the NEO-PI-R are reverse coded to increase internal validity and reliability.

The substance use scale examined respondents' levels of alcohol and nicotine consumption. The alcohol questions examined the frequency and amount of alcohol consumption. Respondents were categorized into one of two drinking categories based on their frequency and amount of alcohol consumption. The "light" drinker classification included respondents who were abstainers or light drinkers and consisted of 43.1% (n=53) of the total sample. Abstainers were classified as those respondents who never consumed alcohol. Light drinkers were classified as respondents who consumed alcohol once a week, 1-2 drinks per occasion or once a month, 1-2 drinks per occasion. The "heavy" drinker classification included respondents who were social, heavy, or binge drinkers and consisted of 50.4% (n=62) of the total sample. Social drinkers were classified as those respondents who consumed alcohol once a month, 5 or more drinks per occasion; once a month, 3-4 drinks per occasion; or 2-3 times a week, 1-2 drinks per occasion. Heavy drinkers were classified as those respondents who consumed alcohol 4 times a week, 3-4 drinks per occasion; 2-3 times a week, 3-4 drinks per occasion; once a week, 3-4 drinks per occasion; or 4 times a week, 1-2 drinks per occasion. Binge drinkers were classified as those respondents who consumed alcohol 4 times a week, 5 or more drinks per occasion; 2-3 times a week, 5 or more drinks per occasion; or once a week, 5 or more drinks per occasion. Eight respondents (6.5%) failed to be classified into a drinking category due to missing data.

The smoking questions examined if respondents had smoked any nicotine products in the past month and how much they usually smoke per day. Non-smokers accounted for 45.5% of the sample (n=56) and smokers accounted for 40.7% of the sample (n=50). Thirteen point eight percent (13.8%) of the sample (n=17) failed to be

classified as a smoker or non-smoker due to missing data. The average number of cigarettes consumed daily by smokers in this sample ranged from 1-40, with a mean of 10 cigarettes per day.

The demographic questionnaire asked respondents about factors such as gender, age, race, grade-point average, socio-economic status, sexual orientation, religious affiliation, and parental status.

Procedure

Participants were recruited for this research by voluntarily filling out the questionnaires, which were distributed to their classrooms by the researcher.

## Results

A stepwise discriminant analysis employing the Wilks' Lambda method was used to determine which variables predicted group membership into either the light or heavy drinker classifications. A total of 108 participants were included in the analysis, with 51 classified as light drinkers and 57 classified as heavy drinkers. Participants' drinking classification served as the dependent variable. The 14 independent variables used in this analysis to predict drinking classification, in order of entry, were: Jacobs (1992) relationship satisfaction total score (RS), RSQ secure attachment (Sec), RSQ preoccupied attachment (Pre), RSQ fearful attachment (Fear), RSQ dismissing attachment (Dis), Grade point average (GPA), gender (Sex), smoking (Smoke), average number of cigarettes smoked per day (Amtsmoke), NEO-PI-R neuroticism (N), NEO-PI-R extraversion (E), NEO-PI-R openness to experience (O), NEO-PI-R agreeableness (A), and NEO-PI-R conscientiousness (C). Table 1 shows the within group correlation matrix (see appendix).

The analysis resulted in a significant discriminant function ($X^2 = 33.273$, $p < .001$). Four factors were found to be significant predictors of being a light or heavy drinker. Predictors in this analysis for being a light or heavy drinker are NEO-PI-R Extraversion, NEO-PI-R Conscientiousness, RSQ fearful attachment, and NEO-PI-R Agreeableness. Table 2 presents the results of the discriminant analysis (see appendix).

NEO-PI-R extraversion is the strongest predictor of drinking behavior, with light drinkers scoring lower ($M = 158.53$) on NEO-PI-R extraversion than heavy drinkers ($M = 169.6$). NEO-PI-R Conscientiousness is a moderate predictor of drinking behavior, with light drinkers scoring higher ($M = 163.14$) on NEO-PI-R conscientiousness than heavy drinkers ($M = 153.6$). RSQ fearful attachment is also a moderate predictor of drinking behavior, with light drinkers scoring lower ($M = 2.72$) on RSQ fearful attachment than heavy drinkers ($M = 3.2$). NEO-PI-R

agreeableness is the weakest predictor of drinking behavior in this model, with light drinkers scoring higher (M = 159.34) on NEO-PI-R agreeableness than heavy drinkers (M = 157.34).

Employing the significant predictor variables for classification of all subjects (n = 108) into light or heavy drinking classifications classified (F (4,99) = 9.771, p<.001) 73.1% of the original grouped cases correctly.

A second stepwise discriminant analysis employing the Wilks' Lambda method was used to determine which variables predicted group membership into either the smoking or non-smoking classifications. A total of 101 participants were included in the analysis, with 53 classified as non-smokers and 48 classified as smokers. Participants' being either smokers or non-smokers was the dependent variable. The 13 independent variables used to predict membership into the smoking or non-smoking classifications, in order of entry were: NEO-PI-R Neuroticism (N), NEO-PI-R Extraversion (E), NEO-PI-R Openness to experience (O), NEO-PI-R Agreeableness (A), NEO-PI-R Conscientiousness (C), relationship satisfaction total score (RS), RSQ secure attachment (Sec), RSQ preoccupied attachment (Pre), RSQ fearful attachment (Fear), RSQ dismissing attachment (Dis), grade point average (GPA), sex (Sex), and drinking classification (Drink). Table 3 shows the within group correlation matrix (see appendix).

The analysis resulted in a significant discriminant function ($X^2 = 18.980$, $p < .001$). Three factors in this analysis were found to be significant predictors of being a smoker or non-smoker. Predictors in this analysis for being a smoker or non-smoker were RSQ dismissing attachment, RSQ preoccupied attachment, and NEO-PI-R conscientiousness. Table 4 presents the results of the discriminant analysis (see appendix).

RSQ dismissing attachment is the strongest predictor of being a smoker or non-smoker, with non-smokers scoring lower (M = 3.1) on RSQ dismissing attachment than smokers (M = 3.71). RSQ preoccupied attachment was also a strong predictor of being a smoker or non-smoker, with non-smokers scoring lower (M = 2.93) on RSQ preoccupied attachment than smokers (M = 3.14). NEO-PI-R conscientiousness was the weakest predictor of being a smoker or non-smoker, with non-smokers scoring higher (M = 164.1) on NEO-PI-R conscientiousness than smokers (M = 151.86).

Employing the significant predictor variables for classification of all participants (n = 101) into smoking or non-smoking categories (F (3,90) = 7.0, p<.001) classified 65.3% of the original grouped cases correctly.

## Discussion

The finding that increased extraversion predicts membership into the heavy drinking classification is consistent with the findings of previous research (Dollinger, 1996; Jackson & Matthews, 1988; Schall et al., 1992; Allsopp, 1986; Prescott et al., 1997). The finding that members of the heavy drinker classification demonstrate higher levels of extraversion supports the idea that extraverts may seek this external stimulation and change in subjective awareness from increased alcohol consumption (Eysenck, 1967; Jackson & Matthews, 1988)

The finding that lower levels of conscientiousness predict membership into the heavy drinker classification is also consistent with the findings of previous research (Martin & Sher, 1994; Tucker et al., 1995; Cook et al, 1998; Dollinger & Clancy, 1993). Perhaps the finding that low conscientiousness predicts membership into the heavy drinking classification is related to the fact that a person low on conscientious would be more likely to engage in an activity such as heavy drinking due to the low levels of morality, cautiousness, adherence to rules, and increased impulsivity associated with low conscientiousness (Costa, McCrae, & Dye, 1991; Hogan & Ones, 1997; Costa & McCrae, 1995).

The finding that the fearful attachment, an insecure attachment style, predicts membership into the heavier drinking classification is consistent with the findings of previous research (Cherry, 1987; Brennan & Shaver, 1995; Levitt et al., 1996). As demonstrated, fearfully attached individuals are likely to feel unworthy, unloved, and have distrust of others (Kemp & Neimeyer, 1999; Brennan & Shaver, 1995). Perhaps fearfully attached individuals consume alcohol as a way to cope with the negative feelings associated with this attachment style and explains why a fearful attachment style predicts membership into the heavy drinking classification.

The finding that agreeableness predicts membership into the light drinker classification is consistent with the findings of previous research (Musgrave-Marquart et al., 1997; Martin & Sher, 1994). Costa et al. (1991) state that agreeableness is a dimension of personality that focuses on the quality of interpersonal behavior. Because this study deals with a college population and it has been found that drinking is a popular social activity among college students (Syre et al., 1997), it is possible that the agreeable person does not find drinking as a fulfilling quality social activity and would explain why agreeableness predicts membership into the light drinking classification.

Because of the lack of research on smoking and attachment style, it is difficult to draw many conclusions regarding the findings that the dismissing attachment style predicts membership into the smoker classification and preoccupied attachment predicts membership into the non-smoker classification. Perhaps the person with a

dismissing attachment style uses smoking as a strategy to distance oneself from their relationship or to minimize the experience of stress and negative affect associated with this attachment style (Kemp & Neimeyer, 1999; Downey & Kilbey, 1995).

The finding that conscientiousness predicts membership into the non-smoker classification is consistent with the available research (Tucker et al., 1995; Friedman et al., 1995). Perhaps adherence to moral standards and rules, lack of impulsive behavior, and cautiousness would explain why the conscientious person would be least likely to engage in a habit such as smoking that is viewed by society as unhealthy (Costa et al., 1991; Hogan & Ones, 1997; Costa & McCrae, 1995).

Despite the theoretically consistent findings of this research concerning the effects of personality and attachment variables on alcohol and nicotine use styles, there are limitations. The sample for this study consisted of roughly 2/3 female to 1/3 male. The higher distribution of females in the sample may have affected the findings of this study. This suggests that the findings of this study may be more related to differences between men and women than to personality constructs. It may be valuable for future research to examine the effect of personality and attachment on alcohol and nicotine consumption styles in relation to gender differences.

The present study has examined personality predictors of drinking and smoking styles college undergraduates. Extraversion, conscientiousness, fearful attachment, and agreeableness, respectively, are the strongest predictors of alcohol consumption style in this study. Attachment and conscientiousness were the strongest predictors of being a smoker or non-smoker.

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**Table 1: Pooled within-group correlations among predictor variables for drinking classification**

| Predictor Variables | RS | Sec | Pre | Fear | Dis | GPA | Sex | Smoke | Amtsmoke | N | E | O | A | C |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| RS | 1 | .720 | .790 | .636 | .760 | .053 | -.118 | .019 | -.046 | .131 | -.115 | .168 | .094 | -.334 |
| Sec | | 1 | .809 | .459 | .492 | -.015 | .016 | .007 | -.137 | .348 | -.043 | .152 | .156 | -.195 |
| Pre | | | 1 | .602 | .688 | .062 | -.063 | -.029 | -.087 | .275 | -.022 | .206 | .192 | -.281 |
| Fear | | | | 1 | .759 | .114 | .157 | -.075 | .075 | .257 | -.250 | .103 | .116 | -.099 |
| Dis | | | | | 1 | .085 | -.130 | .010 | -.006 | .100 | -.138 | .264 | .151 | -.203 |
| GPA | | | | | | 1 | .083 | -.001 | .163 | .030 | .018 | .045 | .097 | .045 |
| Sex | | | | | | | 1 | .011 | .099 | .230 | -.027 | .076 | .311 | .100 |
| Smoke | | | | | | | | 1 | .017 | .163 | -.222 | -.037 | -.153 | -.150 |
| Amtsmoke | | | | | | | | | 1 | .065 | -.138 | -.082 | .180 | -.191 |
| N | | | | | | | | | | 1 | -.322 | .048 | -.031 | -.451 |
| E | | | | | | | | | | | 1 | .334 | .293 | .242 |
| O | | | | | | | | | | | | 1 | .208 | -.034 |
| A | | | | | | | | | | | | | 1 | .018 |
| C | | | | | | | | | | | | | | 1 |

**Table 3: Pooled within-groups correlations among predictor variables for smoking classification**

| Predictor Variables | N | E | O | A | C | RS | Sec | Pre | Fear | Dis | GPA | Sex | Drink |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| N | 1 | -.213 | .084 | -.093 | -.414 | .142 | .345 | .311 | .258 | .072 | .003 | .093 | .146 |
| E | | 1 | .350 | .178 | .068 | -.078 | .003 | .017 | -.199 | -.036 | -.003 | .021 | .098 |
| O | | | 1 | .218 | -.063 | .159 | .216 | .258 | .041 | .240 | .009 | .151 | -.087 |
| A | | | | 1 | .036 | .114 | .167 | .197 | .075 | .166 | .091 | .346 | -.295 |
| C | | | | | 1 | -.329 | -.199 | -.291 | -.059 | -.190 | .106 | .177 | -.123 |
| RS | | | | | | 1 | .743 | .804 | .646 | .809 | .013 | -.111 | .007 |
| Sec | | | | | | | 1 | .838 | .451 | .555 | -.011 | -.044 | -.097 |
| Pre | | | | | | | | 1 | .562 | .701 | .037 | -.054 | -.069 |
| Fear | | | | | | | | | 1 | .756 | .057 | .154 | .181 |
| Dis | | | | | | | | | | 1 | .011 | -.111 | .129 |
| GPA | | | | | | | | | | | 1 | .100 | -.019 |
| Sex | | | | | | | | | | | | 1 | -.118 |
| Drink | | | | | | | | | | | | | 1 |

**Table 2: Results of discriminant function analysis on drinking predictors**

| Predictor Variables | Correlation of Predictor Variables with Discriminant Function | Univariate F (102) |
|---|---|---|
| E | .569 | 13.02 |
| C | -.404 | 6.56 |
| RS | .390 | 2.08 |
| Pre | .388 | 1.44 |
| Dis | .334 | 5.31 |
| Fear | .312 | 3.92 |
| O | .310 | .058 |
| Sec | .255 | .620 |
| Sex | -.134 | .020 |
| Smoke | -.104 | .085 |
| N | .102 | .256 |
| A | -.097 | .375 |
| Amtsmoke | -.061 | 2.08 |
| GPA | .011 | .203 |
| Canonical R | .532 | |
| Eigenvalue | .395 | |

**Table 4: Results of discriminant function analysis on smoking predictors**

| Predictor Variables | Correlation of Predictor Variables with Discriminant Function | Univariate F (102) |
|---|---|---|
| Dis | -.668 | 9.57 |
| C | .662 | 9.42 |
| RS | -.487 | 6.07 |
| Fear | -.425 | 8.43 |
| Drink | -.269 | 3.96 |
| Pre | -.205 | .89 |
| Sex | .197 | .34 |
| N | -.129 | 2.096 |
| Sec | -.108 | .01 |
| O | -.107 | .36 |
| E | .097 | .19 |
| GPA | .087 | 2.13 |
| A | -.006 | 1.514 |
| Canonical R | .435 | |
| Eigenvalue | .233 | |

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