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Effects of a Diagnosis or Family History of Alcoholism on the Taste Intensity and Hedonic Value of Sucrose

Kristen A. Tremblay, MPH, **Jessica M. Bona, BA**, and **Henry R. Kranzler, MD**
Alcohol Research Center, Department of Psychiatry, University of Connecticut School of Medicine, Farmington, Connecticut

Abstract

Given inconsistent findings in published studies, we examined whether a personal lifetime history of alcohol dependence (AD) or a parental history of alcoholism affected preference for sweet solutions. Ninety-three alcohol-dependent subjects rated the intensity and hedonic value of five different sucrose solutions, which was compared with similar data from 122 subjects screened to exclude alcohol dependence. The effect of a family history of alcoholism (FH) was examined in the AD group. Neither the diagnosis of AD nor a family history of alcoholism was associated with ratings of sweetness intensity or sweet preference. These findings do not support the hypothesis that sucrose preference is positively associated with either a personal lifetime history of AD or a family history of alcoholism.

INTRODUCTION

Alcohol dependence has a substantial genetic component.[1] With exposure to alcohol, genetically determined sensitivity to tastes and their hedonic values may influence the frequency and intensity of drinking behavior. There is evidence that a family history of alcoholism is associated with the development of alcohol dependence on one hand, and a preference for sweet solutions on the other, consistent with findings in the animal literature of a relationship between preference for alcohol and sweets.[2] Therefore, preference for sweets may be a phenotypic marker of genetic risk of alcohol dependence.

Kampov-Polevoy et al. first reported that alcoholic subjects are more likely than non-alcoholic subjects to be “sweet likers,” exhibiting a preference for extremely sweet solutions.[3,4] Subsequently, these investigators found that a family history of alcoholism was associated with a greater preference for sweet solutions, irrespective of alcoholism status.[5,6] Wronski et al. showed that alcoholic subjects with a family history of alcoholism are more likely to be characterized as sweet likers.[7] Pepino and Mennella reported that women with a family history of alcoholism had higher sweet preferences regardless of whether they were smokers.[8]

Other researchers, however, have failed to observe an association of sweet preference with either alcoholism or a family history of the disorder. Bogucka-Bonikowska et al. found no evidence of increased preference for sweet solutions among alcoholic subjects, compared with a non-alcoholic control group.[9] Two studies of non-alcoholic individuals with a family history of alcoholism did not support sweet preference as a marker for alcoholism risk.[10,11]

Address correspondence to Dr. Kranzler, Department of Psychiatry, University of Connecticut Health Center, 263 Farmington Avenue, Farmington, CT 06030-2103. kranzler@psychiatry.uchc.edu..

Taste perception research has shown that alcohol is perceived as both bitter and sweet, and that some individuals with bitter insensitivity experience alcohol as being sweeter than those who are sensitive to its bitter taste.[12-14] Lemon et al. found that alcohol activated sucrose-responsive neurons in an animal model, suggesting that sucrose taste receptors may be related to alcohol taste perception.[15] Consequently, the extent to which alcohol is perceived as sweet, which could have a genetic component, may influence the hedonic value of sweet tastants.

The goal of the present study was to examine the perceived intensity and hedonic responses to sweet solutions in a group of individuals with alcohol dependence and to compare these effects with those obtained previously in a sample of non-alcoholic subjects.[10] In the alcoholic group, we also examined the impact of a family history of alcoholism on these sweet taste parameters. We included measures of recent alcohol consumption as control variables in the analyses comparing alcoholics and non-alcoholics because, as would be expected, drinking history differed significantly between groups.

MATERIALS AND METHODS

Subjects

Alcohol-dependent subjects—Ninety-three subjects meeting Diagnostic and Statistical Manual of Mental Disorders 4th edition (DSM-IV) criteria for a lifetime diagnosis of alcohol dependence[16] were enrolled in the study (mean age 47.7 years, SD=9.1; range: 21-64 years). Of this number, 78 (83.9%) met criteria for current alcohol dependence at the time of testing. Subjects were recruited from pharmacotherapy trials for alcohol dependence and were administered the sweet taste test either during their baseline visit (i.e., prior to the initiation of study medication; N=68), or at their 6-month follow-up visit (i.e., 6 months after discontinuing the study medication; N=25).

Alcohol-dependent subjects were eligible for study inclusion if they were 21 years or older; were free of active medical problems that could influence sweet taste perception; and consumed no food, drink, or tobacco within one hour of testing. Subjects were excluded if they reported current use of benzodiazepines, antidepressants, anxiolytics, antipsychotics, medications for alcohol treatment, medications for pain management or a seizure disorder, or an experimental medication in a clinical trial; demonstrated current impairment due to a significant medical or psychiatric disorder; met current criteria for DSM-IV drug dependence; or had a neurological disorder, including a disorder of taste or smell.

Comparison group—Data obtained from 122 non-alcoholic subjects with no history of substance use or psychiatric disorders served as a comparison group. As described previously, [10] these subjects were recruited for a study of the effect of paternal alcoholism on taste sensitivity and preference. Comparison subjects were recruited through advertisements and were balanced with respect to paternal history of alcoholism.

Materials

Assessment of subjects with alcohol dependence—Prior to study participation, subjects were given an explanation of the study procedures and gave informed consent to participate (using materials and a process approved by the Institutional Review Board of the University of Connecticut Health Center). Subjects were interviewed with an assessment battery that included information on demographics, psychiatric and substance use history [using the Structured Clinical Interview for DSM-IV (SCID-I)[17]], and recent drinking history [using the 90-day Timeline Follow-Back (TLFB)[18]]. Information on family history of alcoholism among first-degree relatives was obtained from the participant [using a section of the Family History Assessment Module (FHAM) interview[19]]. Subjects were considered FHP

if one or both biological parents met criteria for a diagnosis of alcohol dependence based on the FHAM. Subjects were also asked to report their current smoking status. No objective measures of recent smoking (e.g., exhaled carbon monoxide) were used.

Sucrose solutions—Intensity and preference for the following five sucrose concentrations were assessed using sip-and-spit methods employed in earlier studies:[3,10] 0.05 M, 0.10 M, 0.21 M, 0.42 M, and 0.83 M. The solutions were tested in random order (as determined prior to initiation of the study, rather than for each subject) and each solution was tasted and rated a total of five times (i.e., each subject completed a total of 25 tests). The same tasting protocol was used for the comparison and alcoholic groups. Subjects recorded the perceived intensity and pleasantness of each solution on a 200-mm visual analog scale (VAS). The intensity and preference scales were prefaced with the following questions: "How sweet was the taste?" and "How much did you like the taste?" Subjects rinsed their mouths with de-ionized water between solutions. Subjects were not permitted to taste any sample more than once and were told not to swallow any of the solutions. Raw scores for intensity and pleasantness ratings were determined by measurement of the distance from the extreme left end of the 200-mm VAS to the subject's mark on the scale.

Statistical Analysis

Groups were compared on demographic and clinical variables using analysis of variance (ANOVA) for continuous variables and χ^2 analysis for categorical variables.

Diagnosis (alcohol-dependent vs. comparison groups)—We used multivariate analysis of variance (MANOVA) to examine the effects of diagnosis (alcohol-dependent vs. comparison), sex, and their interaction on mean sweetness intensity ratings for the five solutions. Age, years of education, current smoking status, and drinking measures (i.e., the number of drinking days and the total number of standard drinks during the 30 days preceding the taste testing session) were included in the model as covariates (given group differences on these measures; see Table 1). We report Pillai's statistic for MANOVA results. For statistically significant effects ($p < 0.05$), univariate analysis was used to examine the effects on ratings for each of the five sucrose solutions.

Because we found that alcohol-dependent individuals had a greater preference for the lowest sucrose concentration, we examined the effect of demographic and substance use measures on this finding, since the alcohol-dependent and comparison groups differed on these variables. This was accomplished using logistic regression analysis to compare individuals who preferred the lowest concentration solution with those preferring any other concentration, with sex, age, education, and smoking status as covariates. The logistic regression analysis was repeated using drinking measures (i.e., number of drinking days and the total number of standard drinks during the 30 days preceding the taste testing session) as covariates, to evaluate in greater detail the effect of recent drinking history on sweet preference.

Family History (FHN vs. FHP groups among alcohol-dependent subjects)—We previously reported that, for this group of comparison subjects, there was no effect of a paternal history of alcoholism on sucrose taste intensity or preference.[10] Consequently, analysis based on family history was limited to alcohol-dependent subjects (n=93). The MANOVA model for analysis of Family History effects on sweetness intensity and preference among alcohol-dependent subjects included no covariates, since the two groups did not differ significantly on any demographic or clinical measure.

Most intense and most preferred solutions—We analyzed the effect of smoking status (using Fisher's Exact Test) and diagnosis (using χ^2 analysis) to determine which solution was

rated as most intensely sweet (i.e., given the highest sweetness rating) and most preferred (i.e., given the highest preference rating). Finally, consistent with the approach used previously by Kampov-Polevoy et al.,[3,5,6,20,21] we analyzed sweet liking by comparing groups on the proportion of "sweet likers" (i.e., subjects that preferred the highest concentration solution, which was 0.83 M). We also examined the proportion of "sweet dislikers," which we defined as subjects that preferred the lowest concentration solution (0.05 M).

We used alpha = 0.05 to define statistical significance and did not correct for multiple comparisons. Based on the initial study by Kampov-Polevoy et al.,[3] analysis of findings from 53 subjects yielded a medium-to-large effect size (ω=0.41) for the analysis of diagnosis by "sweet liker" status. We estimate that the statistical power in our study, in which we evaluated a total sample of 215 alcohol-dependent and comparison subjects, exceeds 0.95. For the comparison of family history, data from 165 subjects studied by Kampov-Polevoy et al.[6] yielded a large effect size (ω=0.65). On that basis, we estimate that our sample of 93 subjects in the analysis of family history effects also exceeded 0.95.

RESULTS

Diagnosis (Alcohol-dependent vs. Comparison Groups)

Demographic and clinical characteristics—As shown in Table 1, the alcohol-dependent and comparison groups were comparable with respect to race/ethnicity and the proportion of individuals with a family history of alcoholism. The groups differed on sex, with a greater proportion of males in the alcohol dependence group. Alcohol-dependent subjects were also significantly older, less educated, and more likely to be a current smoker than comparison subjects. As expected, during the 30 days prior to testing, alcoholic subjects drank on more days and consumed more alcoholic drinks than did comparison subjects.

Sweetness intensity ratings—Controlling for age, education, and current smoking status, there was a main effect of sex [$F(5,201)=2.67$, $p=0.023$] on ratings of sweetness intensity but no effect of diagnosis [$F(5,201)=0.02$, $p=0.51$]. Controlling for drinking measures (i.e., number of drinking days and the total number of standard drinks during the 30 days preceding the taste testing session), on the hypothesis that the observed sex differences were due to drinking history, did not alter the main effect of sex [$F(5,199)=2.77$, $p=0.019$]. Women perceived the lowest sucrose concentration (i.e., 0.05 M) as less sweet and the highest sucrose concentration (i.e., 0.83 M) as sweeter than did men.

Sweet preference ratings—After controlling for age and education, there was no main effect of diagnosis [$F(5,201)=0.90$, $p=0.48$], sex [$F(5,201)=1.03$, $p=0.40$], or smoking status [$F(5,201)=1.27$, $p=0.28$] on preference ratings.

Most intense and most preferred solutions—There was no effect of smoking status on the solution that was identified as most intensely sweet (Fishers Exact Test, $p=0.59$) or on the most preferred solution ($\chi^2=1.95$, $df=5$, $p=0.86$). There was also no effect of diagnosis on the solution that was identified as most intensely sweet (Fishers Exact Test, $p=0.39$). However, comparison subjects were significantly more likely to prefer sweeter solutions and alcohol-dependent subjects less sweet solutions ($\chi^2=16.78$, $df=5$, $p=0.005$; see Table 2). Interestingly, there was no effect of diagnosis on preference for the highest (i.e., 0.83 M) sucrose concentration ($\chi^2=0.55$, $df=1$, $p=0.46$), but alcoholics preferred the lowest (i.e., 0.05 M) concentration solution more than did comparison subjects ($\chi^2=12.85$, $df=1$, $p<0.001$).

In view of group differences on demographic and substance use measures, we used logistic regression to compare individuals who preferred the lowest concentration solution with those preferring any other concentration, using sex, age, education, and smoking status as covariates.

In this analysis, age (Wald=10.73, p=0.001) and diagnosis (Wald=4.10, p=0.043) were the only significant predictors of preference for the lowest sucrose concentration, with older subjects and alcoholics being more likely to prefer this concentration. The addition to this analysis of the two drinking measures (i.e., number of drinking days and the total number of standard drinks during the 30 days preceding the taste testing session) as covariates rendered the effect of diagnosis non-significant (Wald=2.29, p=0.13), despite the fact that the drinking measures were not themselves significant covariates.

Family History of Alcoholism

Demographic and clinical characteristics—As shown in Table 3, among the alcohol-dependent subjects there were no differences on race/ethnicity, sex, smoking status, age, education, or alcohol drinking variables as a function of Family History.

Sweetness intensity ratings—There was no main effect of family history [F(5,81)=1.44, p=0.22], sex [F(5,81)=1.17, p=0.33], or smoking status [F(5,81)=1.12, p=0.33] on sweetness intensity ratings.

Sweet preference ratings—There was no main effect of family history on average preference ratings for the five sucrose solutions [F(5,85)=.68, p=0.64].

Most intense and most preferred solutions—There was no family history effect on either the solution that was identified as most intensely sweet (Fishers Exact Test, p=0.39) or on the solution that was most preferred (χ^2 =2.35, df=5, p=0.80).

Analysis also showed no effect of family history on the solution that was identified as the most preferred when using either the highest sucrose concentration (i.e., 0.83M; χ^2=0.04, df=1, p=0.84) or the lowest sucrose concentration (i.e., 0.05 M; χ^2=0.58, df=1, p=0.45).

DISCUSSION

We found no significant effects of a diagnosis of alcohol dependence or a family history of alcoholism on ratings of sweetness intensity. We also found no effect of a family history of alcoholism on sweet preference ratings. Although we found an effect of diagnosis on the most preferred solution, with alcoholics preferring the lowest sucrose concentration, the effect was rendered non-significant by the inclusion of measures of recent drinking (i.e., the number of drinking days and the total number of standard drinks during the 30 days preceding the taste testing session).

These results differ from some prior reports in the literature, which have shown that family-history-positive alcoholic and control subjects prefer sweeter sucrose solutions than those without such a family history.[5,7,20,21] In our study, a relatively high percentage of alcohol-dependent subjects preferred the 0.05 M solution (23.7%; N=22) and only 37.6% (N=35) preferred the 0.83M solution. Data from the present study showing that recent drinking appeared to influence the effect of diagnosis on sucrose taste preference suggest that chemosensory changes resulting from heavy drinking can confound taste testing in alcoholic subjects.

Other differences in subject features or study design may also explain the lack of consistent findings in the literature. Some prior studies[5,6,7,21] recruited alcoholic subjects from residential treatment programs and controls from inpatient settings (e.g., general hospital patients, psychiatric patients, and drug-dependent patients), which contrast with our samples, which were recruited from outpatient alcohol treatment clinical trials or from the community. Additionally, some studies[5,7] included only men, had a high proportion of smokers in the

alcoholic groups,[7,21] or did not consider smoking status in their analyses.[5] In contrast, the current study included both sexes and controlled the analyses for subjects' current smoking status. Differences in the method of sampling, the method of ascertainment of family history status, or the fact that the sweet liking phenotype is related to other factors not measured in the current study could also explain the difference between our findings and those of some prior studies. For example, Pepino and Mennella[8] required that family-history negative individuals have no history of alcoholism in either first- or second-degree relatives, while in our study family-history-negative subjects were individuals with neither biological parent who was alcoholic. In considering the validity of the association of sucrose taste preference and alcoholism or family history of alcoholism, it should be noted that a number of other studies have failed to find such an association.[9-11] Further, although the sweet liking phenotype was recently reported to be related to treatment outcome,[22] this finding requires replication.

Discrepancies in the literature on sweet preference and alcoholism may also exist in part because of fundamental issues in the taste assessment methodology used in many of these studies. Individuals with alcohol dependence could have taste perceptions that differ systematically from individuals without this disorder. One explanation for the lack of statistically significant findings in the current study is that the assessment of taste perception and hedonics using a visual analog scale (VAS) may have failed to detect clinically different taste perceptions.[23] Although all subjects were instructed to apply the scale in the same way, individual differences could lead subjects to apply the scale differently. A limitation of this and most of the published studies in this area is that subjects' perceptions in other sensory modalities were not measured to ensure that group differences in perception are specific to taste sensations and not differences in how the VAS scale was used. Therefore, use of a VAS could result in either a type I or a type II error.[24] Published research in this area should be read with caution, and future research should address this important limitation.

Another limitation of this study is that the alcohol-dependent and comparison groups differed on a number of demographic features, which could have confounded ratings of intensity and preference. We sought to correct for these potential confounds statistically. Although heavy drinking is a quintessential element of alcohol dependence, covariance adjustment for the effects of such behavior may be problematic. Failing to do so, however, results in the finding that alcoholics prefer the lowest sucrose concentration. This suggests that an important factor to consider in studies of taste in alcoholics is that chronic heavy drinking may have long lasting effects on taste intensity or preference. The failure to include such measures (or other group differences) as covariates in these studies could help to explain the variable findings obtained to date.

If sweet preference were a universal risk factor for alcoholism, it should be prevalent in the majority of alcoholic subjects, unless individuals with such a predisposition lose their sweet preference prior to becoming alcohol dependent. We found no evidence to support an association of sweet preference with either a personal or a family history of alcoholism. In the present study, recent drinking measures appeared to influence the association of alcohol dependence with sweet taste preference, though in a direction opposite that required to adequately account for the variable findings in the literature. Further research is needed to validate the reported associations with sweet preference.

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References

1. Gelernter, J.; Kranzler, HR. Genetics of addiction. In: Galanter, M.; Kleber, HD., editors. Textbook of Substance Abuse Treatment. American Psychiatric Press, Inc.; Washington, DC: 2008. p. 17-27.
2. Kampov-Polevoy AB, Garbutt JC, Janowsky DS. Association between preference for sweets and excessive alcohol intake: a review of animal and human studies. Alcohol Alcohol 1999;34:386–395. [PubMed: 10414615]
3. Kampov-Polevoy A, Garbutt JC, Janowsky D. Evidence of preference for a high-concentration sucrose solution in alcoholic men. Am J Psychiatry 1997;154:269–270. [PubMed: 9016281]
4. Kampov-Polevoy AB, Garbutt JC, Davis CE, Janowsky DS. Preference for higher sugar concentrations and Tridimensional Personality Questionnaire scores in alcoholic and nonalcoholic men. Alcohol Clin Exper Res 1998;22:610–614. [PubMed: 9622439]
5. Kampov-Polevoy AB, Tsoi MV, Zvartau EE, Neznanov NG, Khalitov E. Sweet liking and family history of alcoholism in hospitalized alcoholic and non-alcoholic patients. Alcohol Alcohol 2001;36:165–170. [PubMed: 11259214]
6. Kampov-Polevoy AB, Eick C, Boland G, Khalitov E, Crews FT. Sweet liking, novelty seeking, and gender predict alcoholic status. Alcohol Clin Exp Res 2004;28:1291–1298. [PubMed: 15365298]
7. Wronski M, Skrok-Wolska D, Samochowiec J, et al. Perceived intensity and pleasantness of sucrose taste in male alcoholics. Alcohol Alcohol 2007;42:75–79. [PubMed: 17267440]
8. Pepino MY, Mennella JA. Effects of cigarette smoking and family history of alcoholism on sweet taste perception and food cravings in women. Alcohol Clin Exp Res 2007;31:1891–1899. [PubMed: 17949394]
9. Bogucka-Bonikowska A, Scinska A, Koros E, et al. Taste responses in alcohol-dependent men. Alcohol Alcohol 2001;36:516–519. [PubMed: 11704615]
10. Kranzler HR, Sandstrom KA, Van Kirk J. Sweet taste preference as a risk factor for alcohol dependence. Am J Psychiatry 2001;158:813–815. [PubMed: 11329410]
11. Scinska A, Bogucka-Bonikowska A, Koros E, et al. Taste responses in sons of male alcoholics. Alcohol Alcohol 2001;36:79–84. [PubMed: 11139421]
12. Lanier SA, Hayes JE, Duffy VB. Sweet and bitter tastes of alcoholic beverages mediate alcohol intake in of-age undergraduates. Physiol Behav 2005;83:821–831. [PubMed: 15639168]
13. Scinska A, Koros E, Habrat B, Kukwa A, Kostowski W, Bienkowski P. Bitter and sweet components of ethanol taste in humans. Drug Alcohol Depend 2000;60:199–206. [PubMed: 10940547]
14. Duffy VB, Davidson AC, Kidd JR, et al. Bitter receptor gene (TAS2R38), 6-n-propylthiouracil (PROP) bitterness and alcohol intake. Alcohol Clin Exp Res 2004;28:1629–1637. [PubMed: 15547448]
15. Lemon CH, Brasser SM, Smith DV. Alcohol activates a sucrose-responsive gustatory neural pathway. J Neurophysiol 2004;92:536–544. [PubMed: 14985409]
16. American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders. 4th ed. American Psychiatric Association; Washington, DC: 1994.
17. First, MB.; Spitzer, RL.; Miriam, G.; Williams, JBW. Structured Clinical Interview for DSM-IV-TR Axis I Disorders, Research Version, Non-patient Edition. (SCID-I/NP). Biometrics Research, New York State Psychiatric Institute; New York, NY: 2002.
18. Sobell, LC.; Sobell, MB. Timeline follow-back: a technique for assessing self-reported alcohol consumption. In: Litten, R.; Allen, J., editors. Measuring Alcohol Consumption. Humana Press; Clifton, NJ: 1992. p. 41-72.
19. Rice JP, Reich T, Bucholz KK, et al. Comparison of direct interview and family history diagnoses of alcohol dependence. Alcohol Clin Exper Res 1995;19:1018–1023. [PubMed: 7485811]
20. Kampov-Polevoy AB, Garbutt JC, Khalitov E. Family history of alcoholism and response to sweets. Alcohol Clin Exp Res 2003;27:1743–1749. [PubMed: 14634489]
21. Kampov-Polevoy AB, Ziedonis D, Steinberg ML, et al. Association between sweet preference and paternal history of alcoholism in psychiatric and substance abuse patients. Alcohol Clin Exper Res 2003;27:1929–1936. [PubMed: 14691380]

22. Garbutt JC, Osborne M, Gallop R, et al. Sweet liking phenotype, alcohol craving and response to naltrexone treatment in alcohol dependence. Alcohol Alcohol 2009;44:293–300. [PubMed: 19189996]

23. Bartoshuk LM, Duffy VB, Fast K, Green BG, Prutkin J, Snyder DJ. Labeled scales (e.g., category, Likert, VAS) and invalid across-group comparisons: what we have learned from genetic variation in taste. Food Qual Prefer 2002;14:125–138.

24. Duffy VB, Peterson JM, Bartoshuk LM. Associations between taste genetics, oral sensation and alcohol intake. Physiol Behav 2004;82:435–445. [PubMed: 15276808]

Table 1

Demographic and Clinical Characteristics of Alcoholics and Comparison Subjects

	Comparison Group (n=122)	Alcohol-Dependent Group (n=93)	Statistic	P-value
Family History Positive	58 (47.5%)	36 (38.7%)	χ^2 =1.67, df=1	P=.20
European American	105 (86.1%)	87 (93.5%)	χ^2 =3.09, df=1	P=.079
Male	59 (48.4%)	60 (64.5%)	χ^2 =5.57, df=1	**P=.018**
Current smoker	6 (4.9%)	30 (32.3%)	χ^2 =28.3, df=1	**P<.001**
Age [mean yr (SD)]	25.9 (6.0)	47.7 (9.1)	F(1,213)=447.56	**P<.001**
Education [mean yr (SD)]	15.7 (2.3)	14.9 (2.4)	F(1,213)=6.53	**P=.011**
Number of drinking days*	3.9 (4.8)	21.8 (8.2)	F(1,213)=399.22	**P<.001**
Number of standard drinks*	9.4 (11.6)	135.4 (83.3)	F(1,213)=272.56	**P<.001**

*During the 30 days prior to testing

Table 2

Effect of Diagnosis on Most Preferred Solution*

	Comparison Group (n=122)	Alcohol-Dependent Group (n=93)
No preference	6 (4.9%)	7 (7.5%)
.05 M	8 (6.6%)	22 (23.7%)
.10 M	13 (10.7%)	11 (11.8%)
.21 M	25 (20.5%)	11 (11.8%)
.42 M	18 (14.8%)	7 (7.5%)
.83 M	52 (42.6%)	35 (37.6%)

* χ^2 =16.78, df=5, p=.005

Table 3

Demographic and Clinical Characteristics of Alcohol Dependent Subjects by Family History of Alcoholism

	FHN* (n=57)	FHP** (n=36)	Statistic	P-value
European American	53 (93.0%)	34 (94.4%)	χ^2 =.08, df=1	P=.78
Male	35 (61.4%)	25 (69.4%)	χ^2 =.62, df=1	P=.43
Current smoker	18 (31.6%)	12 (33.3%)	χ^2 =.03, df=1	P=.86
Age [mean yr (SD)]	48.6 (8.9)	46.3 (9.3)	F(1,91)=1.46	P=.23
Education [mean yr (SD)]	15.0 (2.4)	14.8 (2.4)	F(1,91)=.21	P=.65
Number of drinking days***	21.5 (7.9)	22.2 (8.8)	F(1,91)=.15	P=.70
Standard drinks***	125.0 (78.1)	151.8 (89.4)	F(1,91)=2.34	P=.13

* Family History Negative

** Family History Positive

*** During the 30 days prior to testing