Family history density of substance use problems among undergraduate college students: Associations with heavy alcohol use and alcohol use disorder

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HIGHLIGHTS

- Family history density of substance use problems was examined for associations with college drinking and outcomes.
- No association was found between family history density of substance use problems and total number of heavy drinking days.
- Only those reporting first and second degree relative(s) were more likely to be assessed as having an alcohol use disorder.

ARTICLE INFO

ABSTRACT

Purpose: A family history of alcoholism has been found associated with problematic alcohol use among college students, but less research has examined the effects of family history density of substance use problems in this population. This study examined the prevalence of family history density of substance use problems and its associations with heavy alcohol use, negative alcohol consequences, and alcohol use disorder in a college sample.
Methods: Based on a secondary analysis of a probability sample, data were analyzed from 606 undergraduate students. Family history density of substance use problems included both first and second degree biological relatives. Heavy alcohol use was the total number of days in which participants drank five/four or more drinks for men/women, negative alcohol consequences were derived from items commonly asked in college student surveys, and an alcohol use disorder was defined as meeting diagnostic criteria for alcohol abuse or dependence. Point prevalence estimated rates of family history density of substance use problems, and negative binomial, ANCOVA, and logistic regression models examined associations between family history density and the alcohol variables while adjusting for sociodemographic variables.
Results: Family history density of substance use problems was not significantly associated with total days of heavy alcohol use. Having a second degree, a first degree, or both a first and second degree relative(s) with a substance use problem, however, was significantly associated with experiencing negative alcohol consequences. In addition, having both a first and second degree relative(s) with a substance use problem significantly increased the odds of having an alcohol use disorder.
Conclusions: Family history density of substance use problems may play a role in experiencing negative alcohol consequences and in having an alcohol use disorder among undergraduate college students and may be an important risk factor to assess by college health professionals.

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1. Introduction

Substance use in general and alcohol use in particular by young adults pursuing a postsecondary education is often excessive and problematic. Based on national data collected in 2012, approximately 40% of full-time college students aged 18 to 22 reported engaging in at least one episode of binge drinking—consuming five or more drinks on one

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occasion—in the past month (Substance Abuse and Mental Health Services Administration, 2014). In addition, in another investigation, 18% of all college attending persons (versus 15% of non-college attending) met diagnostic criteria for either alcohol abuse or dependence (Slutske, 2005). The consequences are considerable: 599,000 college students each year are injured in alcohol-implicated incidents, 1825 fatally, and alcohol use is associated with perpetrating or being the victim of campus physical and sexual violence, and reduced academic performance (Hingson, Zha, & Weitzman, 2009; National Institute on Alcohol Abuse and Alcoholism, NIAAA, 2013).

Previous family history studies of substance use problems have found an increased risk of substance use disorders among the relatives of individuals in treatment settings (Merikangas, Dierker, & Fenton, 1998). A family history of alcohol problems has been linked with increased alcohol consumption and negative alcohol consequences among university students (LaBrie, Migliuri, Kenney, & Lac, 2010; LaBrie, Kenney, Lac, & Migliuri, 2009). A recent meta-analysis found that familial alcohol problems were associated with a greater risk for the development of alcohol use disorder symptoms, but not with quantity of alcohol consumption in college and university student samples (Elliott, Carey, & Bonafide, 2012). These results, in part, reflect inconsistency in findings regarding the associations between family history and alcohol use and alcohol problems in college-aged populations, pointing to the need for further investigations (LaBrie et al., 2010). Further, few studies have assessed family history beyond the parental level, and many that have are limited by the use of convenience samples (Capone & Wood, 2008; Carey & DeMartini, 2010). Family history density of substance use problems, and studies based on representative samples, may therefore provide a more nuanced and stronger understanding of the potential associated risk of such history with the experience of alcohol use and alcohol problems among college students.

The purpose of this secondary data analysis study was to estimate the prevalence of family history density of substance use problems and to examine the associations between such a history with heavy alcohol use, negative alcohol consequences, and the presence of an alcohol use disorder using a probability sample of undergraduate college students. The research question driving this investigation was: does having a higher family history density of substance use problems in comparison to lower density among college students differentially predict heavy alcohol use, negative alcohol consequences, and having an alcohol use disorder?

2. Material and methods

2.1. Sample and procedure

Conducted at a large, urban, Midwestern public university, this cross-sectional study derived data from a larger examination of alcohol biomarkers (i.e., the parent study; Berger et al., 2014) that took place between the summer and fall semesters of 2010 and was approved by the Social and Behavioral Sciences Institutional Review Board at the University of Wisconsin and the Western Institutional Review Board. Twelve hundred undergraduate students aged 18 to 25 were selected at random to participate in the parent study. Study procedures included an in-person interview, a Web-based Computerized Self-Administered Interview (CASI), and the collection of hair and fingernail samples for biomarker analysis. In sum, 606 students took part in the parent study, which resulted in a 54% response rate (American Association for Public Opinion Research, AAPOR, 2011). The average age of student participants was 21.5 ($SD = 1.7$) with 61.6% identifying as female, 81.8% as white, and 62.4% as either juniors or seniors.

2.2. Measures/variables

2.2.1. Family history density of substance use problems

Family history density of substance use problems was assessed using the Family Tree Questionnaire (FTQ) for Assessing Family History of Alcohol Problems (Mann, Sobell, Sobell, & Sobell, 1985). The FTQ asks respondents to indicate which of four categories describes the alcohol and drug use behavior of both first- and second-degree biological relatives. Respondents can also indicate "Don't Know/Don't Remember," for example in the case of adoption. The absence of a family history of substance use problems was considered to be relatives who never used alcohol or illicit substances, or if they used, they used without (or with only possible) problems. The presence of a family history of substance use problems was considered to be relatives who used alcohol or illicit substances and used with definite problems, that is, known to have experienced several negative consequences resulting from substance use and/or known to have received substance use treatment. The family history density variable was represented as the absence of a first- or second-degree relative with a substance use problem, the presence of at least one second-degree relative with a history of problems, the presence of at least one first-degree relative with a history of problems, and the presence of at least one first- and second-degree relative with a history of problems. Participants in the parent study completed the FTQ via the Web-based CASI.

2.2.2. Alcohol use

National attention has been given to heavy episodic drinking among college students as a public health concern (Dawson, Grant, & Li, 2005; National Institute on Alcohol Abuse and Alcoholism, NIAAA, 2005a). The Underage and College Drinking Research Program is a major initiative of the National Institute on Alcohol Abuse and Alcoholism (NIAAA), further manifesting in the NIAAA College Presidents Working Group and the development of the College Alcohol Intervention Matrix, evidenced-based guidance materials for the assessment and implementation of college substance use interventions (National Institute on Alcohol Abuse and Alcoholism, NIAAA, 2002; National Institute on Alcohol Abuse and Alcoholism, NIAAA, 2011; National Institute on Alcohol Abuse and Alcoholism, NIAAA, 2015a). These efforts highlight heavy episodic drinking as their targeted risk behavior (National Institute on Alcohol Abuse and Alcoholism, NIAAA, 2002; National Institute on Alcohol Abuse and Alcoholism, NIAAA, 2015b). Thus, this study examined student alcohol consumption quantified as the total number of heavy drinking days that occurred in the past 90 days. A heavy drinking day was defined as 5 or more drinks/day for men and 4 or more drinks/day for women (National Institute on Alcohol Abuse and Alcoholism, NIAAA, 2005b). The TimeLine FollowBack (TLFB) procedure (Sobell, Maisto, Sobell, & Cooper, 1979; Sobell & Sobell, 1992), which is a retrospective, calendar-based measure, was used to collect daily drinking information in US standard drink units (14 g of pure alcohol; National Institute on Alcohol Abuse and Alcoholism, NIAAA, 2005b) and was administered to participants in the parent study as part of the study interview.

2.2.3. Negative alcohol consequences

Negative alcohol consequences were measured using 21 items derived from the Core Alcohol and Drug Survey (Presley, Meilman, & Lyerla, 1994). The items asked about negative alcohol consequences experienced and ranged from hangovers and missing class to risky sex and other risky behaviors such as driving drunk and suicide attempts. The number of items experienced at least once in the past 12 months were summed for a total scoring range of 0–21. Participants in the parent study were asked the negative alcohol consequence items via the Web-based CASI.

2.2.4. Alcohol use disorder

An alcohol use disorder was determined according to the Diagnostic and Statistical Manual of Mental Disorders-IV-Text Revision criteria (American Psychiatric Association, APA, 2000). Specifically, the Mini-International Neuropsychiatric Interview (M.I.N.I.; Sheehan et al., 1998) was used to assess the presence (or absence) in the past 12 months of either an alcohol abuse or alcohol dependence disorder and was