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Is "drunkorexia" an eating disorder, substance use disorder, or both?

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ABSTRACT

Researchers have identified a specific behavior pattern labeled "drunkorexia" to describe recurrent *i*nappropriate *c*ompensatory *b*ehaviors (e.g., fasting and self-induced vomiting) to avoid *w*eight *g*ain from consuming *a*lcohol (referred to as ICB-WGA). Several studies have investigated the prevalence of these behaviors among college students, but few have tested whether this behavior pattern is more strongly related to substance use or disordered eating, which may have future implications for eating disorder and substance abuse research fields. The aim of this project was to test: (1) whether disordered eating or alcohol use adds incremental validity to the prediction of ICB-WGA when controlling for the other variable and (2) the effect of sex on ICB-WGA. College participants ($N = 579$; 53% female) completed the Eating Pathology Symptoms Inventory (EPSI), the Alcohol Use Disorders Identification Test (AUDIT), and several questions designed to measure ICB-WGA. Results indicated that EPSI Restricting and Body Dissatisfaction scales were not significant predictors of ICB-WGA, whereas the AUDIT and EPSI Cognitive Restraint, Excessive Exercise, Purging, and Binge Eating scales significantly predicted ICB-WGAs. Results indicated that disordered eating and alcohol use both added incremental validity to the prediction of ICB-WGA; however, ICB-WGA was more strongly related to disordered eating, and this was particularly true for women. Our findings suggest that individuals engaging in ICB-WGA may be at-risk for future development of both eating and substance disorders. Notably, our findings highlight the need for future research to focus on trans-diagnostic prevention programs that target mechanisms that underlie both disordered eating and substance misuse.

1. Introduction

Binge drinking (defined as drinking four or more drinks for women and five or more drinks for men in one occasion) and disordered eating are major mental health concerns among college students. Approximately 40% of American college students engage in binge drinking at least once in the past two weeks (O'Malley & Johnston, 2002), which places these students at increased risk for unplanned/unprotected sexual behavior, violence, assault, depression, alcohol poisoning, and suicide (Ham & Hope, 2003; Hingson, Heeren, Winter, & Wechsler, 2005; Lewis & Marchell, 2006; Nelson, Xuan, Lee, Weitzman, & Wechsler, 2009; Perkins, 2002; Wechsler, Davenport, Dowdall, Moeykens, & Castillo, 1994). Several studies have found that adolescents tend to consume greater quantities of alcohol and drink more frequently during the first year of college (Baer, Kivlahan, & Marlatt, 1995; Bishop, Weisgram, Holleque, Lund, & Wheeler-Anderson, 2005; Grekin & Sher, 2006; Weitzman, Nelson, & Wechsler, 2003). However, heavy and/or prolonged use of alcohol can lead to additional medical morbidity, such as cardiovascular issues (strokes or high blood pressure), liver damage, pancreatitis, and cancer (Brick, 2003).

In addition to alcohol misuse, several studies have shown that disordered-eating behaviors are common among college students (Eisenberg, Nicklett, Roeder, & Kirz, 2011; Heatherton, Mahamedi, Striepe, Field, & Keel, 1997; Mintz & Betz, 1988; Striegel-Moore, Silberstein, Frensch, & Rodin, 1989; White, Reynolds-Malear, & Cordero, 2011). Approximately 60% of college women report engaging in chronic dieting and binge eating (Mintz & Betz, 1988; Scarano, 1993; Tylka & Subich, 2002), and a majority of college women have used extreme measures, at some point in their lives, to control their weight or shape (Hesse-Biber, 1989; Mintz & Betz, 1988; Tamim et al., 2006). For example, Tylka and Subich (2002) found the following lifetime frequencies of disordered eating behaviors in a combined sample of high school and college women: fasting for a period of 24 hours or more (25.9%), excessive exercise to control weight (27.7%), self-induced vomiting (4.8%), and misuse of laxatives (7.2%), diuretics (6.6%), and enemas (1.4%).

Although binge drinking and disordered eating are severe when they occur independently from one another, recent studies indicate that alcohol misuse and disordered-eating behaviors frequently co-occur in college populations (Giles, Champion, Sutfin, McCoy, & Wagoner, 2009; Kelly-Weeder, 2011; Krahn, Kurth, Gomberg, & Drewnowski, 2005; Lundholm, 1989; Nelson et al., 2009; Piran & Robinson, 2011). For

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example, both male and female college-student drinkers reported engaging in excessive exercise and dieting to counteract the effect of consuming alcohol-related calories (Bryant, Darkes, & Rahal, 2012); between 6 and 28% of college students reported restricting their caloric intake prior to drinking to prevent weight gain (Bryant et al., 2012; Burke, Cremeens, Vail-Smith, & Woolsey, 2010; Giles et al., 2009; Osborne, Sher, & Winograd, 2011; Peralta, 2002). Excessive exercise, self-induced vomiting, and the misuse of diuretics, laxatives, and diet pills have also been reported by college students as a way to counteract the effects of alcohol consumption on weight gain (Blackmore & Gleaves, 2013; Bryant et al., 2012; Peralta, 2002). Recently, Bryant et al. (2012) found that college students engaged in inappropriate compensatory behaviors before, during, and after drinking alcohol. Researchers have (colloquially) labeled this behavior pattern – in which students engage in recurrent *i*nappropriate *c*ompensatory *b*ehaviors to avoid *w*eight gain from consuming *a*lcohol (ICB-WGA) – "drunkorexia" (Barry & Piazza-Gardner, 2012; Burke et al., 2010; Osborne et al., 2011). Throughout the current paper we use the term ICB-WGA, rather than "drunkorexia" to avoid any implication that this behavior pattern is a trivial issue. Past research has documented the clinical significance and seriousness of ICB-WGA (Burke et al., 2010; Dunn, Larimer, & Neighbors, 2002). Burke et al. (2010) found that failure to eat before consuming alcohol resulted in increased likelihood of alcohol poisoning, leading to increased risk for brain damage, organ damage, nutritional deficiencies, and cognitive impairment. In addition, a large study of college students found that students who engaged in eating-disorder behaviors reported significantly more negative academic, occupational, interpersonal, and health consequences from drinking compared to individuals who did not engage in disordered eating (Dunn et al., 2002). Therefore, students with co-occurring alcohol misuse and disordered-eating behaviors may be at increased risk for serious health issues and social impairment.

As we described above, several recent studies have investigated the prevalence of ICB-WGA among college students. However, to our knowledge, no studies have tested whether ICB-WGA is more strongly related to substance use or disordered eating, which may have future implications for eating disorder and substance abuse research fields. The purpose of this study was to test: (1) whether disordered eating or alcohol use adds incremental validity to the prediction of ICB-WGA when controlling for the other variable and (2) the effect of sex on ICB-WGA. We hypothesized that: (1) ICB-WGA would be equally related to disordered eating and substance abuse pathology, in that they would both add incremental validity to the prediction of ICB-WGA, when controlling for the other variable and (2) ICB-WGA would be more be more strongly associated with alcohol use in men, and with disordered eating in women, given the well-documented differences in prevalence for these behaviors (Agrawal, Heath, & Lynskey, 2011; Hudson, Hiripi, Pope, & Kessler, 2007).

2. Methods

2.1. Participants

All study procedures were approved by the IRB and participants provided informed consent prior to participation. Participants were college students ($N = 579$; 46.6% men) enrolled at a large university in the Midwest. Participants were recruited through Elementary Psychology courses in return for research credit. Participants were included if they were ≥18 years of age and native English speakers. Participants completed study procedures online during mass group testing. Validity checks were imbedded within the survey to assess for inconsistent responding (e.g., responding that one had never had a binge-eating episode and later endorsing binge eating), which resulted in the removal of 221 participants from the study. The mean age (SD) of the sample was 19.38 (1.19), and participants had a mean (SD) body mass index (BMI) of 23.86 (4.46). The mean (SD) BMI was 24.30 (4.10) for men and 23.48 (4.71) for women. The majority of students were Caucasian (82.6%). Other races/ethnicities included were: African American (4.5%), Asian (3.5%), Hispanic or Latino/a (3.5%), Multi-Racial (3.8), or any other race or ethnicity (0.2%).

2.2. Materials and procedure

2.2.1. The Eating Pathology Symptoms Inventory

(EPSI; Forbush et al., 2013). The EPSI is a self-report measure of eating-disorder psychopathology that contains eight factor-analytically derived scales. Only six scales were used in the current study, including: Excessive Exercise (*I pushed myself extremely hard when I exercised*), Body Dissatisfaction (*I did not like how my body looked*), Restricting (*I skipped two meals in a row*), Binge Eating (*I ate until I was uncomfortably full*), Purging (*I made myself vomit in order to lose weight*), and Cognitive Restraint (*I tried to exclude "unhealthy" foods from my diet*). Each scale assesses different disordered eating behaviors over the past four weeks. Research conducted across a range of samples – including community-recruited participants, patients with eating disorders, and college men and women – has demonstrated that the EPSI scales have strong internal consistency, convergent and discriminant validity, and test-retest reliability (Forbush, Wildes, & Hunt, 2014; Forbush et al., 2013). The other two scales from the EPSI, Muscle Building and Negative Attitudes toward Obesity, were not included in the study because the symptoms assessed in these scales are not relevant to the construct ICB-WGA.

2.2.2. Alcohol Use Disorders Identification Test

(AUDIT; Saunders, Aasland, Babor, De La Fuente, & Grant, 1993). The AUDIT is a self-report measure that consists of 10 items that assess four domains of hazardous and harmful alcohol consumption, including drinking behavior, alcohol consumption, adverse reactions, and alcohol-related problems. Five items were included in the current study. These were items reflecting: alcohol consumption (*How often do you have six or more drinks on one occasion*?), drinking behavior (*How often during the last year have you found that you were not able to stop drinking once you started*?), adverse reactions (*How often during the last year have you been unable to remember what happened the night before because you had been drinking*?) and alcohol-related problems (*Have you or someone else been injured as a result of your drinking*?). Items were scored from zero to four and summed to create a total score, with higher total scores indicating more harmful drinking behaviors (Saunders et al., 1993). A recent literature review indicated that the AUDIT possesses strong criterion validity in both men and women, good internal consistency, and strong test-retest reliability (Reinert & Allen, 2007).

2.2.3. ICB-WGA

When this study was conducted, there was no validated measure to assess "drunkorexia." Therefore, we created five items based on past studies from our literature search, most of which indexed ICB-WGA with a single item (Bryant et al., 2012; Burke et al., 2010; Eisenberg & Fitz, 2014; Giles et al., 2009; Peralta, 2002; Rahal, Bryant, Darkes, Menzel, & Thompson, 2012). Given the nature of our hypotheses, we were interested in a more detailed assessment of ICB-WGA; therefore, we created five items to assess this construct. These items included: (1) "I skipped a meal in order to counteract the calories from alcohol," (2) "I ate less before going drinking so that I would not gain weight," (3) "I restricted my eating prior to drinking to increase the effects of alcohol," (4) "I engaged in strenuous exercise to compensate for calories consumed during drinking, and (5) "I drank excessive amounts of alcohol so that I could vomit food I had eaten." Students were asked to rate the frequency of each statement using a Likert scale that ranged from zero (never) to four (very often) over the past four weeks. All five questions were summed to create a total score for ICB-WGA. Coefficient alpha for the ICB-WGA scale was good ($\alpha = 0.82$).