

University at Albany, State University of New York

Scholars Archive

Educational & Counseling Psychology Faculty
Scholarship

Educational & Counseling Psychology

2016

Breaking the silence: Disordered eating and big five traits in college men

Jessica L. Martin

University at Albany, State University of New York, jlmartin@albany.edu

Yue Li

University at Albany, State University of New York, yli49@albany.edu

Albigail S. Dubovi

University at Albany, State University of New York, adubovi@albany.edu

The University at Albany community has made this article openly available.

Please share how this access benefits you.

Follow this and additional works at: https://scholarsarchive.library.albany.edu/edpsych_fac_scholar



Part of the [Education Commons](#)

Recommended Citation

Martin, Jessica L.; Li, Yue; and Dubovi, Albigail S., "Breaking the silence: Disordered eating and big five traits in college men" (2016). *Educational & Counseling Psychology Faculty Scholarship*. 20.
https://scholarsarchive.library.albany.edu/edpsych_fac_scholar/20



This work is licensed under a [Creative Commons Attribution 4.0 International License](#).

Rights Statement



This Article is brought to you for free and open access by the Educational & Counseling Psychology at Scholars Archive. It has been accepted for inclusion in Educational & Counseling Psychology Faculty Scholarship by an authorized administrator of Scholars Archive.

Please see [Terms of Use](#). For more information, please contact scholarsarchive@albany.edu.

Breaking the Silence: Disordered Eating and Big Five Traits in College Men

American Journal of Men's Health
2016, Vol. 10(6) N118–N126
© The Author(s) 2015
Reprints and permissions:
sagepub.com/journalsPermissions.nav
DOI: 10.1177/1557988315590654
ajmh.sagepub.com



Abigail S. Dubovi, BA¹, Yue Li, MS¹, and Jessica L. Martin, PhD¹

Abstract

Men remain largely underrepresented in the eating disorder literature and few studies have investigated risk factors for disordered eating among men. The current study examined associations between Big Five personality traits and eating disorder symptoms in a sample of college men (N = 144). Participants completed the Eating Disorder Diagnostic Scale and Ten Item Personality Inventory online. Results suggested that openness was positively associated with purging-type behaviors and that emotional stability was positively related to symptoms of anorexia nervosa and global eating pathology. Findings highlight the prevalence of eating disorder symptoms among college men and suggest that these symptoms are associated with a different constellation of personality traits than is typically reported among women. Implications for targeted prevention and intervention programs and future research are discussed.

Keywords

eating disorders, personality, Big Five traits, undergraduate men, college students

A robust body of literature has examined personality traits as potential risk factors for eating disorders (EDs) among women, while few studies have been conducted in the area of EDs and personality among men (Woodside et al., 2004). Despite this gap in the literature, epidemiological research on the prevalence and clinical presentation of EDs has reported that roughly 10% of patients seeking treatment for anorexia nervosa (AN) and bulimia nervosa (BN) are men, and that men account for up to 25% of cases of AN and BN in the general population (Hudson, Hiripi, Pope, & Kessler, 2007). While some studies have demonstrated that men and women with EDs report similar eating-related attitudes and behaviors (Connor, Simmons, & Cooper, 2003; Woodside, et al., 2001), others have identified significant gender differences, with men displaying greater concerns with muscularity and tone (Strother, Lemberg, Stanford, & Turberville, 2012), higher susceptibility to exercise addiction (Strother et al., 2012; Weltzin et al., 2012), and lower drive for thinness (Strother et al., 2012). Additionally, compared with women with EDs, men with EDs are more likely to have a history of being overweight (Strother et al., 2012; Weltzin et al., 2012), present to treatment at a later age, and report issues related to sexual identity and orientation (Weltzin et al., 2012). Male college students may be at particular risk for EDs (Cain, Epler, Steinley, & Sher, 2012; McCabe & Ricciardelli, 2004), as these emerging adults reach postpubertal maturity (Cain et al., 2012) and navigate developmental changes associated with the transition from home, such as

independent food selection and preparation (Marquis & Manceau, 2007). Despite the risk of EDs in college men, the vast majority of studies on eating pathology in university samples have excluded college men in favor of focusing on college women (e.g., Cooley & Toray, 2001; Koszewski, Newell, & Higgins, 1990; O'Dea & Abraham, 2002; Schwitzer, Rodriguez, Thomas, & Salimi, 2001).

Whereas the incidence of formal diagnoses of AN and BN among college students is relatively low (American College Health Association, 2007; Hoek & Hoeken, 2003; Kirk, Singh, & Getz, 2001; Prouty, Protinsky, & Canady, 2002), prior research has demonstrated that up to 40% to 60% of undergraduate women display subclinical ED symptoms such as fasting, self-induced vomiting, laxative/diuretic use and binge eating (Juarascio, Forman, & Herbert, 2010; Ousley, Cordero, & White, 2008; Tylka & Subich, 2002). One study reported that 25% of undergraduate men reported binge eating, 24% engaged in dieting, and 3% exhibited purging-type behaviors (Lavender, De Young, & Anderson, 2010). In a large cohort study of college men, 4% to 6% of the sample displayed bulimic-type symptoms and just more than 30% displayed a moderate or high likelihood of dietary restriction or overeating

¹University at Albany, State University of New York, Albany, NY, USA

Corresponding Author:

Abigail S. Dubovi, Department of Educational and Counseling Psychology, Division of Counseling Psychology, University at Albany, ED 220, Albany, NY 12222, USA.
Email: adubovi@albany.edu

(Cain et al., 2012). These findings suggest that a considerable number of college men struggle with ED symptoms and that engagement in ED behaviors, or subclinical eating pathology, rather than formal ED diagnoses, most accurately characterizes eating pathology among college men and women (O'Dea & Abraham, 2002; Ousley et al., 2008). Therefore, ED symptoms may represent a more relevant focus for research on college students compared with formal EDs (i.e., individuals who meet full diagnostic criteria for AN or BN).

Several authors have argued that the dearth of knowledge regarding eating pathology in men has contributed to underdiagnosis, undertreatment, and ongoing stigma and gender stereotypes that exclusively associate EDs with women (Ousley et al., 2008; Strother et al., 2012; Weltzin et al., 2012). Notably, eating pathology is associated with comparable levels of clinical distress and impairment in men and women (Striegel-Moore et al., 2009) with some studies indicating that the medical and psychiatric correlates of ED symptoms can be more severe for men (Grilo, White, & Masheb, 2009; Mehler, Sabel, Watson, & Andersen, 2008). Eisenberg, Nicklett, Roeder, and Kirz (2011) reported that among both college men and women, ED symptoms were associated with depression, generalized anxiety, suicidal ideation, self-injury, and cigarette smoking. Interestingly, ED symptoms predicted panic disorder exclusively among college men (Eisenberg et al., 2011). Despite the link between male eating pathology and clinical distress, men are less likely to seek treatment for ED symptoms than women. For example, in a sample of college men, O'Dea and Abraham (2002) reported that none of the men who endorsed engaging in ED behaviors had sought treatment. Resistance to treatment for EDs among men may be because of feelings of depression and shame associated with perceived stigma and masculinity concerns (Strother et al., 2012). These findings demonstrate that the relative exclusion of men from the ED literature cannot be attributed to lower distress or clinical impairment (Striegel-Moore et al., 2009; Strother et al., 2012) and that ED symptoms in men should be regarded as a serious health concern, as is the case among women (Tylka & Subich, 2002).

The prevalence of male eating pathology and associated psychological distress indicates a need for research aimed at identifying risk factors and correlates of ED symptoms in men. Previous research on eating pathology in college men has considered factors such as body image (O'Dea & Abraham, 2002), health behaviors (Eisenberg et al., 2011), mental health symptoms (Eisenberg et al., 2011), and treatment seeking (O'Dea & Abraham, 2002). Additional studies exploring associations between personality traits and ED symptoms could inform the development of effective screening, prevention, and intervention

efforts for men who may be more susceptible to eating pathology. Previous research findings have demonstrated that brief personality-targeted interventions may reduce maladaptive coping, through modifying the relationship between personality risk and engagement in risky health behaviors (Conrod, Castellanos-Ryan, & Mackie, 2011; Conrod et al., 2013). Preliminary studies identifying personality risk factors for eating pathology could ultimately facilitate the development of personality-targeted interventions to reduce engagement in ED symptoms among college men. The inclusion of men and use of exclusively male samples in the ED literature may reduce stigma by normalizing and increasing awareness of the prevalence of male eating-related issues (Tylka & Subich, 2002). The present study sought to achieve both of these aims by examining the extent to which personality traits were associated with ED symptoms among a sample comprised exclusively of college men.

Several studies conducted in the area of personality and EDs in men have focused primarily on more "pathological" personality characteristics such as interpersonal distrust, perfectionism, impulsivity, and psychoticism (Fernandez-Aranda et al., 2004; Finlayson, Kelly, & Saklofske, 2002; Joiner, Katz, & Heatherton, 2000; Woodside et al., 2004). While these studies represent important contributions to the literature, additional research examining the associations between more "normative" personality dimensions and ED symptoms may serve to reduce stigma and stereotypes of eating pathology in men as rare or abnormal. Thus, this study applied a normative theoretical model of personality, Big Five traits (McCrae & Costa, 1987), to examine specific patterns of personality traits and ED symptoms among college men.

A considerable body of literature has investigated Big Five personality traits as risk factors for eating pathology among women. Overall, these studies have identified higher levels of openness (Cassin & von Ranson, 2005) and neuroticism (Brookings & Wilson, 1994; Geissler & Kelly, 1994; Janzen, Saklofske, & Kelly, 1993; Roberts & Good, 2010), and lower levels of conscientiousness (Ellickson-Larew, Naragon-Gainey, & Watson, 2013; Ghaderi & Scott, 2000) and agreeableness (Ghaderi & Scott, 2000) as significant predictors of EDs in women. Weak to nonexistent relationships have been identified between extraversion and ED symptoms among both clinical (Diaz-Marsa, Carrasco, & Saiz, 2000) and non-clinical samples of women (Cassin & von Ranson, 2005; Finlayson et al., 2002; Geissler & Kelly, 1994; Gual et al., 2002). To the authors' knowledge, only one other study (Cain et al., 2012) has examined relations among Big Five personality traits and disordered eating exclusively among men. This study suggested that compared with college men with no obvious eating-related pathology,

college men with pervasive bulimic-type symptoms reported higher levels of neuroticism and lower levels of conscientiousness, agreeableness, and extraversion (Cain et al., 2012). College men with no obvious eating-related pathology and college men with ED symptoms did not significantly differ on openness (Cain et al., 2012).

The Present Study

The purpose of the current study was to examine the extent to which the Big Five personality traits (openness, emotional stability, agreeableness, conscientiousness, and extraversion) would be associated with ED symptoms among college men. Based on prior evidence that most college students with eating pathology reported ED symptoms instead of formal EDs (Juarascio et al., 2010; Ousley et al., 2008), the present study used specific symptoms of EDs (i.e., fasting, excessive exercise, self-induced vomiting, laxative, and diuretic use) and patterns of ED symptoms (i.e., AN-type and BN-type) as outcomes rather than diagnostic cutoffs for AN and BN. Previous research findings have consistently identified a positive association between neuroticism and eating pathology (Brookings & Wilson, 1994; Cain et al., 2012; Cassin & von Ranson, 2005; Geissler & Kelly, 1994; Janzen et al., 1993). These findings informed our hypothesis that ED symptoms would be associated with lower levels of emotional stability. Given the limited literature on Big Five traits and ED symptoms in men, and inconsistent findings on associations between Big Five traits and eating pathology between men and women, no a priori predictions were made for ED symptoms and conscientiousness, agreeableness, openness, or extraversion. It is important to note that in the Big Five framework, neuroticism and emotional stability are measured along a single continuum, whereby higher emotional stability indicates lower neuroticism, and vice versa (Gosling, Rentfrow, & Swan, 2003). For the purposes of this study and in line with the emphasis on normative traits, this personality dimension is discussed in terms of emotional stability.

Method

Participants

Participants were 144 undergraduate men from a public university in the northeastern United States. Participants ranged in age from 18 to 26 years with a mean age of 20.55 years ($SD = 1.63$) and identified as Caucasian American ($n = 109, 75.7\%$), African American ($n = 11, 7.6\%$), Asian American ($n = 11, 7.6\%$), Hispanic ($n = 7, 4.9\%$), and "other" ($n = 6, 4.2\%$). Based on self-reported height and weight, the average body mass index of the sample was 25.2 ($SD = 4.35$).

Measures

Demographics. Participants completed a brief demographic questionnaire that assessed gender, race/ethnicity, age, year in school, height, and weight. Height and weight were used to calculate participants' body mass index.

Disordered Eating. The 22-item Eating Disorder Diagnostic Scale (EDDS; Stice, Telch, & Rizvi, 2000) was used to assess ED symptomatology. The EDDS is a self-report measure that uses a combination of Likert-type, yes-no, frequency, and write-in response formats to assess the diagnostic symptoms of AN, BN, and binge-eating disorder as listed in *Diagnostic and Statistical Manual of Mental Disorders*, 4th edition (American Psychiatric Association, 1994). For the purposes of the present study, men were instructed to skip Items 21 and 22 ("Over the past 3 months, how many menstrual periods have you missed?" and "Have you been taking birth control pills during the past 3 months?"), which pertain only to women. The authors used frequencies of self-induced vomiting, fasting, laxative and diuretic use, and excessive exercise as outcome variables. Additionally, the authors followed scoring guidelines to obtain estimates of AN symptoms, BN symptoms and global eating pathology (for scoring syntax, see Stice, Fischer, & Martinez, 2004), though instead of using cutoff criteria, these variables were viewed as continuous estimates of AN, BN, and eating pathology symptoms. The EDDS has demonstrated adequate internal consistency ($\alpha = .89$; Stice et al., 2004) among female samples, and has been successfully used with college samples including both men and women (Dunn, Neighbors, & Larimer, 2003; Whiteside et al., 2007). In the current sample, internal consistency for AN and BN symptoms and global eating pathology were $\alpha = .73$, $\alpha = .79$, and $\alpha = .89$, respectively.

Big Five Personality Traits. The Ten Item Personality Inventory (TIPI; Gosling et al., 2003) was used to assess Big Five personality traits (i.e., extraversion, emotional stability, openness, agreeableness, conscientiousness). Each of the five traits was assessed via two items. Items present the stem "I see myself as:" followed by two descriptors. Participants are asked to indicate how much they perceive themselves as similar to the descriptors on a 7-point Likert-type scale ranging from 1 (*disagree strongly*) to 7 (*agree strongly*). The TIPI has demonstrated adequate convergent validity with the Big-Five Inventory ($r = .77$; John & Srivastava, 1999), and test-retest reliability ($r = .72$; Gosling et al., 2003). Internal consistency estimates for the subscales measuring individual traits has typically been low, as they were in the present study. Gosling et al. (2003) explained that low interitem correlations are to be expected since the measure was designed with brevity in

Table 1. Correlations Between Personality Traits and Disordered Eating Symptoms.

Variable	1	2	3	4	5	6	7	8	9	10	11	12
Personality traits												
1. Extraversion	—											
2. Agreeableness	.19*	—										
3. Conscientiousness	.06	.21*	—									
4. Emotional Stability	.19*	.21*	.20*	—								
5. Openness	-.01	.06	.08	.14	—							
Eating disorder symptomatology												
6. Vomiting	-.10	-.12	.01	.06	.23**	—						
7. Laxatives/Diuretics use	-.08	-.09	.01	.07	.23**	.99**	—					
8. Fasting	-.07	-.08	-.09	.14	.12	.86**	.89**	—				
9. Excessive exercise	-.04	.01	-.10	.09	-.03	.53**	.54**	.48**	—			
10. AN	-.10	.01	.14	.29*	.05	.21	.24*	.29*	.23**	—		
11. BN	-.11	-.02	.04	.16	.07	.68**	.69**	.69**	.67**	.62**	—	
12. EDDS total	-.14	.03	.14	.23*	-.03	.56**	.58**	.61**	.62**	.75**	.93**	—

Note. EDDS = Eating Disorder Diagnostic Scale; AN = anorexia nervosa; BN = bulimia nervosa.

* $p < .05$. ** $p < .01$.

mind (hence, the two-item subscales), not internal consistency reliability. Internal consistencies for the present study were as follows: conscientiousness ($\alpha = .59$), extraversion ($\alpha = .66$), agreeableness ($\alpha = .77$), emotional stability ($\alpha = .53$), and openness ($\alpha = .60$).

Procedure

Participants were recruited from undergraduate classrooms, intramural/club sports teams, and two university fitness centers. Participants were emailed informed consent information as well as a link to the online survey which contained an electronic consent form detailing the purpose of the study and participants' rights, as well as the aforementioned questionnaires. Participants were required to click "Continue" at the bottom of the webpage containing the consent form to indicate that they had read the information and agreed to participate in the study before proceeding on to the questionnaires. As compensation for their time, participants were offered the opportunity to enter a raffle to win one of two \$50 gift cards. The study was approved by the Institutional Review Board.

Results

A small proportion of our sample ($n = 3$; 2.1%) reported self-induced vomiting or using laxatives or diuretics to prevent weight in the past 3 months. A larger proportion ($n = 13$, 9%) reported fasting to prevent weight gain and 14.9% ($n = 21$) reported engaging in excessive exercise to counteract the effects of overeating in the previous 3 months. As can be seen in Table 1, correlation analysis indicated that emotional stability was significantly

correlated with symptoms of AN and global disordered eating symptoms ($r = .29$ and $r = .23$, $p < .01$, respectively). Openness was significantly correlated with use of laxatives/diuretics to prevent weight gain and vomiting to prevent weight gain ($r = .23$ and $r = .23$, $p < .01$, respectively). Extraversion, agreeableness, and conscientiousness were not associated with any of the ED symptoms.

In order to improve accuracy and interpretability of results by protecting against inflation of Type I and Type II error and accounting for significant correlations (i.e., multicollinearity) among dependent variables (i.e., ED symptoms; Haase & Ellis, 1987), multivariate regression analysis was used to determine the extent to which personality traits predicted ED symptoms. Two multivariate regression analyses were conducted. The first analysis revealed that emotional stability was a significant predictor of AN and EDDS total scores, $V = .08$, $F(2, 69) = 3.07$, $p = .05$. Emotional stability accounted for about 8% of the nonredundant variance shared between symptoms of AN and global eating pathology. Univariate follow-up tests identified emotional stability as a significant predictor of both AN symptoms, $F(1, 70) = 6.12$, $p = .02$, $\eta^2 = .08$, 95% confidence interval (CI) [0.16, 1.51] and EDDS total scores, $F(1, 70) = 4.07$, $p = .05$, $\eta^2 = .06$, 95% CI [0.03, 5.18], accounting for about 8% and 6% of the variability in AN and global disordered eating symptoms, respectively. The second analysis revealed that openness was a significant predictor of laxative/diuretic use and self-induced vomiting to control weight, $V = .05$, $F(2, 139) = 3.89$, $p = .02$. Openness accounted for approximately 5% of the nonredundant variance in the ED symptoms of laxative/diuretic use and self-induced vomiting. Univariate follow-up tests indicated that openness was a significant predictor of both laxative/diuretic use, $F(1,$

140) = 7.81, $p = .01$, $\eta^2 = .05$, 95% CI [0.07, 0.39], and self-induced vomiting, $F(1, 140) = 7.72$, $p = .05$, $\eta^2 = .05$, 95% CI [0.04, 0.26], accounting for about 5% of the variance in each of the two symptoms.

Discussion

This study examined relations among Big Five personality traits and specific patterns of ED symptoms using a sample comprised exclusively of college men. Subclinical eating pathology has been overlooked on college campuses, especially among college men (Cain et al., 2012; O'Dea & Abraham, 2002; Ousley et al., 2008; Strother et al., 2012). Hence, this study draws attention to the prevalence of ED symptoms specific to men. The prevalence of purging-type behaviors in our sample (2.1%) was comparable with rates of 3% to 6% of college men who have reported self-induced vomiting and/or laxative/diuretic use in previous samples (American College Health Association, 2007, Cain et al., 2012; Eisenberg, et al., 2011; Lavender et al., 2010). Additionally, our finding that 14.9% of our sample reported excessive exercise was generally consistent with existing studies that reported that 14.7% of college men engaged in frequent, heavy exercise and that 8% (O'Dea & Abraham, 2002) met criteria for an exercise disorder. Finally, the frequency of compensatory fasting in our sample (9%) was lower than 20% to 24% of men who reported dieting/restrictive eating to manage weight in prior studies (Lavender et al., 2010; O'Dea & Abraham, 2002). Definitions of excessive exercise and restrictive eating vary considerably among studies (e.g., dieting versus fasting), making direct comparisons of the prevalence of ED symptoms in college men difficult.

Our results lend additional support to studies demonstrating the frequency of ED symptoms among college men and the need for further empirical and clinical attention to these issues. Considering that individuals with subclinical eating pathology report similar levels of distress and diminished quality of life as those meeting criteria for AN and BN (Fairburn & Bohn, 2005; Juarascio et al., 2010), and co-occurring disorders such as depression and anxiety (Eisenberg et al., 2011), research identifying potential risk factors for ED symptoms in college men represents an important area of study. This study sought to contribute to the literature by examining associations between Big Five traits and specific patterns of ED symptoms among college men.

Similar to previous studies that have identified a positive correlation between openness and EDs in women (Cassin & von Ranson, 2005; Ghaderi & Scott, 2000), results of the present study identified that openness was associated with two forms of purging-type behaviors (i.e., self-induced vomiting and laxative/diuretic use) in college men. Since openness is characterized as being

imaginative, curious, intellectual, and original (Goldberg, 1992), it is possible that men who are higher in openness might be more likely to report purging-type behaviors despite perceived gender norms and stigma. Interestingly, openness predicted bulimic-type symptoms but was not significantly related to total scores for the scale representing BN. This finding lends support to previous studies that have demonstrated that ED symptoms are significantly more prevalent among college populations than formal ED diagnoses (Juarascio et al., 2010, Ousley et al., 2008; Tylka & Subich, 2002). Consistent with previous literature using college student samples, extraversion was not significantly associated with ED symptoms (Ellickson-Larew et al., 2013; Geissler & Kelly, 1994; Ghaderi & Scott, 2000).

In contrast to studies that have identified a positive association between eating pathology and neuroticism (Cain et al., 2012; Ellickson-Larew et al., 2013; Izydorczyk, 2012; Roberts & Good, 2010), the present study reported that emotional stability was associated with AN symptoms and global eating pathology. That is, the more emotionally stable the men were, the greater their endorsement of AN symptoms. Since emotional stability is characterized as being relaxed, imperturbable, and unemotional (Goldberg, 1992), it is possible that higher levels of this trait among men may be associated with persistent commitment and pursuance of weight loss through restrictive eating, fasting, and/or excessive exercise. Alternatively, it is possible that men with eating pathology may be more avoidant, or less aware of physiological and emotional cues and thus, less likely to report emotional distress. Previous studies have reported that experiential avoidance is particularly high among populations with EDs (Cockell, Geller, & Linden, 2002; Orsillo & Batten, 2002; Rawal, Park, & Williams, 2010) and that the tendency to suppress unpleasant or intrusive thoughts positively predicts ED symptoms (Lavender, Jardin, & Anderson, 2009).

While previous studies have reported correlations between eating pathology and lower levels of conscientiousness (Ellickson-Larew et al., 2013) or with both conscientiousness and agreeableness (Claes et al., 2006; Ghaderi & Scott, 2000; MacLaren & Best, 2009), this study did not identify significant relations between these two Big Five traits and ED symptoms. This may be because of genuine gender differences and/or symptom severity, since the majority of existing studies on personality and EDs among women included clinical samples (Claes et al., 2006; Ghaderi & Scott, 2000; MacLaren & Best, 2009). Although Ellickson-Larew et al. (2013) reported that lower conscientiousness predicted "cued eating" (i.e., a tendency to eat in response to emotional or environmental cues) in a nonclinical college sample, this eating-related behavior was not examined in our study.

Implications for Practice and Research

The results of the present study suggest that college men with eating pathology may present with a different constellation of personality traits compared with college women. It is suggested that providers at university counseling and health care centers cultivate awareness of the unique associations between personality traits and ED symptoms among men. Since certain personality traits, such as emotional stability, are viewed as protective factors among women, counselors should be aware of this bias when working with college men because in our sample, emotional stability was a risk factor for ED symptoms. Counselors should also be alert that clients' presentation of calmness, flatness, and lack of emotional expression may actually signify emotional avoidance among college men, which is potentially related to ED symptoms and perhaps, other risky health-related behaviors. Future research should further explore these possibilities with larger and more diverse samples of college men.

A large portion of college men with significant eating pathology are not identified or treated (O'Dea & Abraham, 2002). Furthermore, college men with ED symptoms seek treatment less frequently than college women (Eisenberg et al., 2011). To rectify this, university counseling centers and health clinics may wish to integrate intake questions assessing ED symptoms, particularly those that may be more prevalent among college men (e.g., excessive exercise) to better detect eating pathology among this overlooked population. University health care providers should be informed regarding the prevalence and psychological correlates of ED symptoms among men, since college men may be more likely to present to university health clinics for treatment of physical symptoms, rather than seeking psychological help at university counseling centers. Thus, university health centers may play a critical role in screening, identifying, and referring college men with eating pathology for mental and/or nutrition-based health care. University health care providers should monitor and be mindful of weight fluctuations or symptoms of fatigue as potential indicators of eating pathology among men, and be open and prepared to address these observations with both male and female patients.

College men engaging in ED behaviors may benefit from prevention and intervention efforts similar to those offered to women on some college campuses (Taylor et al., 2006). Specifically, university counseling centers could offer ED-related support groups to men by modifying existing ED treatment protocols originally developed for women. Furthermore, a culmination of findings on Big Five traits and ED symptoms from the present and future studies could inform the development of brief personality-targeted

interventions similar to those successfully implemented to reduce maladaptive coping behaviors among adolescents (Conrod et al., 2011; Conrod et al., 2013). Brief personality-targeted interventions have been reported to significantly reduce alcohol, substance use, and risk-taking behaviors among adolescents by increasing their ability to manage and cope with personality-related risk factors (Castellanos & Conrod, 2006; Conrod, Castellanos-Ryan, & Strang, 2010; Conrod et al., 2013). Thus, the purported mechanism by which personality-targeted interventions reduce engagement in risky health-related behaviors is not through direct changes to one's personality but rather, through altering one's response to personality-related vulnerabilities (e.g., negative internal states, impulsivity; Conrod et al., 2013). In the event that additional research identifies consistent patterns among Big Five traits and ED symptoms in college men, university counseling centers could develop personality-specific interventions and skills training to reduce ED symptoms in men who present with specific personality traits known to be associated with EDs vulnerabilities.

Additionally, pamphlets and other psychoeducational materials specifically designed to illustrate the prevalence and presentation of ED symptoms in college men could be distributed across campus areas with high visibility (e.g., in residence halls, bathroom stalls, gyms/recreational centers, dining halls, university health centers) to decrease stigma and increase awareness of disordered eating among men. Some researchers have argued that incorporating brief online screening tools and/or online prevention programs could increase detection and treatment seeking among college students with ED symptoms (Eisenberg et al., 2011). Research suggests that online screening tools prompt college students to disclose thoughts, symptoms and behaviors that they may not have disclosed to their counselor otherwise (Martin, Hess, Ain, Nelson, & Locke, 2012). Thus, online screenings for prevention and detection of ED symptoms may be particularly effective for college men given the greater perceived stigma attached to seeking mental health services among some men. Identifying subclinical symptoms of EDs among men who typically underutilize mental health services is important because early identification and treatment of EDs increases the likelihood of a full recovery (Becker, Franko, Nussbaum, & Herzog, 2004).

Future research should seek to replicate the findings of the present study among a larger and more diverse sample of college-aged or adult men. With a larger sample of men, it may be possible to examine racial or ethnic differences in ED symptoms. Furthermore, moderators of the relationship between personality and ED symptoms among men should be examined. For example, it would be informative for researchers and clinicians to know the extent to which masculinity concerns or perceptions of

body image concerns among male and female peers impacts the relationship between personality and ED symptoms. This study aimed to examine “normative” personality traits as they are conceptualized by the Big Five model of personality (Costa & McCrae, 1992) and did not examine impulsivity. However, given that impulsivity is consistently associated with risky behaviors among college students (Fischer & Smith, 2008; Stanford, Greve, Boudreaux, Mathias, & Brumbelow, 1996), including EDs among men (Dawe & Loxton, 2004; Fischer, Settles, Collins, Gunn, & Smith, 2012), it would be important to investigate the association between impulsivity and ED symptoms among men. Longitudinal studies would help to address the question of whether ED symptoms develop over the course of men's college careers or are present on entry to college, as well as the pattern and persistence of symptoms over time. This information is needed to further inform the design and delivery of prevention and intervention efforts.

Limitations

Limitations of the present study include the use of a relatively small and nondiverse sample of college men from one university in the northeastern region of the United States, which restricts the generalizability of findings. Causal relationships between ED symptoms and personality traits cannot be determined because of the cross-sectional nature of the data. Cross-sectional data also precludes examination of the trajectory of the development of eating pathology across the college experience. Additionally, the reliance on self-report data and use of a very brief measure of Big Five personality traits (i.e., TIPI) may have weakened the internal validity of the study. Future studies could use a longer, more detailed measure of Big Five traits (e.g., NEO-PI-R; Costa & McCrae, 1992) in order to examine the unique contributions of the facets that comprise each of the five major personality domains. There were few endorsements of more severe ED symptoms or levels of ED symptoms in our present, nonclinical sample, which may have impacted our results. Future research may wish to utilize a clinical and nonclinical sample to prevent potential problems associated with a restriction of range in the variance of the variables included in the study.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

References

- American College Health Association. (2007). American College Health Association—National College Health Assessment spring 2007 reference group data report. *Journal of American College Health, 56*, 469-479. doi:10.3200/JACH.56.5.469-480
- American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author.
- Becker, A. E., Franko, D. L., Nussbaum, K., & Herzog, D. B. (2004). Secondary prevention for eating disorders: The impact of education, screening, and referral in a college-based screening program. *International Journal of Eating Disorders, 36*, 157-162. doi:10.1002/eat.2003
- Brookings, J. B., & Wilson, J. F. (1994). Personality and family-environment predictors of self-reported eating attitudes and behaviors. *Journal of Personality Assessment, 63*, 313-326. doi:10.1207/s15327752jpa6302_10
- Cain, A. S., Epler, A. J., Steinley, D., & Sher, K. J. (2012). Concerns related to eating, weight, and shape: Typologies and transitions in men during the college years. *International Journal of Eating Disorders, 45*, 768-775. doi:10.1002/eat.20945
- Cassin, S. E., & von Ranson, K. M. (2005). Personality and eating disorders: A decade in review. *Clinical Psychology Review, 25*, 895-916. doi:10.1016/j.cpr.2005.04.012
- Castellanos, N., & Conrod, P. (2006). Brief interventions targeting personality risk factors for adolescent substance misuse reduce depression, panic, and risk-taking behaviours. *Journal of Mental Health, 15*, 645-658. doi:10.1080/09638230600998912
- Claes, L., Vandereycken, W., Luyten, P., Soenens, B., Pieters, G., & Vertommen, H. (2006). Personality prototypes in eating disorders based on the Big Five model. *Journal of Personality Disorders, 20*, 401-416. doi:10.1521/pedi.2006.20.4.401
- Cockell, S. J., Geller, J., & Linden, W. (2002). The development of a decisional balance scale for anorexia nervosa. *European Eating Disorders Review, 10*, 359-375. doi:10.1002/erv.463
- Connor, M. O., Simmons, T., & Cooper, M. (2003). Assumptions and beliefs, dieting, and predictors of eating disorder-related symptoms in young women and young men. *Eating Behaviors, 4*, 1-6. doi:10.1016/S1471-0153(02)00090-9
- Conrod, P. J., Castellanos-Ryan, N., & Mackie, C. J. (2011). Long-term effects of a personality-targeted intervention to reduce alcohol use in adolescents. *Journal of Consulting and Clinical Psychology, 79*, 296-306.
- Conrod, P. J., Castellanos-Ryan, N., & Strang, J. (2010). Brief, personality-targeted coping skills interventions and survival as a non-drug user over a 2-year period during adolescence. *Archives of General Psychiatry, 67*, 85-93.
- Conrod, P. J., Leary-Barrett, M. O., Newton, N., Topper, L., Castellanos-Ryan, N., Mackie, C., & Girard, A. (2013). Effectiveness of a selective, personality-targeted prevention program for adolescent alcohol use and misuse. *Journal of the American Medical Association Psychiatry, 70*, 334-342. doi:10.1001/jamapsychiatry.2013.651

- Cooley, E., & Toray, T. (2001). Body image and personality predictors of eating disorder symptoms during the college years. *International Journal of Eating Disorders, 30*, 28-36. doi:10.1002/eat.1050
- Costa, P. T., Jr., & McCrae, R. R. (1992). *Revised NEO Personality Inventory (NEO-PI-R) and NEO Five-Factor Inventory (NEO-FFI) professional manual*. Odessa, FL: Psychological Assessment Resources.
- Dawe, S., & Loxton, N. J. (2004). The role of impulsivity in the development of substance use and eating disorders. *Neuroscience and Biobehavioral Reviews, 28*, 343-351. doi:10.1016/j.neubiorev.2004.03.007
- Diaz-Marsa, M., Carrasco, J. L., & Saiz, J. (2000). A study of temperament and personality in anorexia nervosa and bulimia nervosa. *Journal of Personality Disorders, 14*, 352-359. doi:10.1521/pedi.2000.14.4.352
- Dunn, E. C., Neighbors, C., & Larimer, M. E. (2003). Assessing readiness to change binge eating and compensatory behaviors. *Eating Behaviors, 4*, 305-314. doi:10.1002/eat.10075
- Eisenberg, E., Nicklett, E. J., Roeder, K., & Kirz, N. E. (2011). Eating disorder symptoms among college students: Prevalence, correlates, and treatment-seeking. *Journal of American College Health, 59*, 700-779. doi:10.1080/07448481.2010.546461
- Ellickson-Larew, S., Naragon-Gainey, K., & Watson, D. (2013). Pathological eating behaviors, BMI, and facet-level traits: The roles of conscientiousness, neuroticism, and impulsivity. *Eating Behaviors, 14*, 428-431. doi:10.1016/j.eatbeh.2013.06.015
- Fairburn, C. G., & Bohn, K. (2005). Eating disorder NOS (EDNOS): An example of the troublesome "not otherwise specified" (NOS) category in DSM-IV. *Behavior Research and Therapy, 43*, 691-701. doi:10.1016/j.brat.2004.06.011
- Fernandez-Aranda, F., Aitken, A., Badia, A., Gimenez, L., Solano, R., Collier, D., . . . Vallejo, J. (2004). Personality and psychopathological traits of males with an eating disorder. *European Eating Disorders Review, 12*, 367-374. doi:10.1002/erv.603
- Finlayson, R. A., Kelly, I. W., & Saklofske, D. H. (2002). Bulimic symptomatology, body image, and personality characteristics of university men. *Psychological Reports, 91*, 496-502. doi:10.2466/pr0.2002.91.2.496
- Fischer, S., & Smith, G. T. (2008). Binge eating, problem drinking, and pathological gambling: Linking behavior to shared traits and social learning. *Personality and Individual Differences, 44*, 789-800. doi:10.1016/j.paid.2007.10.008
- Fischer, S., Settles, R., Collins, B., Gunn, R., & Smith, G. (2012). The role of negative urgency and expectancies in problem drinking and disordered eating: Testing a model of comorbidity in pathological and at-risk samples. *Psychology of Addictive Behaviors, 26*, 112-123. doi:10.1037/a0023460
- Hoek, H. J., & Hoeken, D. (2003). Review of prevalence and incidence of eating disorders. *International Journal of Eating Disorders, 34*, 383-396. doi:10.1002/eat.10222
- Geissler, T., & Kelly, I. W. (1994). Bulimic symptomatology and personality factors in a non-clinical sample: A replication. *Psychological Reports, 75*, 224-226. doi:10.2466/pr0.1994.75.1.224
- Ghaderi, A., & Scott, B. (2000). The Big Five and eating disorders: A prospective study in the general population. *European Journal of Personality, 14*, 311-323. doi:10.1002/1099-0984(200007/08)14:4<311::AID-PER378>3.0.CO;2-8
- Goldberg, L. R. (1992). The development of markers for the Big-Five factor structure. *Psychological Assessment, 4*, 26-42. doi:10.1037/1040-3590.4.1.26
- Gosling, S. D., Rentfrow, P. J., & Swann, W. B., Jr. (2003). A very brief measure of the Big-Five personality domains. *Journal of Research in Personality, 37*, 504-528. doi:10.1016/S0092-6566(03)00046-1
- Grilo, C. M., White, M. A., & Masheb, R. M. (2009). DSM-IV psychiatric disorder comorbidity and its correlates in binge eating disorder. *International Journal of Eating Disorders, 42*, 228-234. doi:10.1002/eat.20599
- Gual, P., Perez-Gaspar, M., Martinez-Gonzalez, M. A., Lahortiga, F., de Irala-Estevez, J., & Cervera-Enguiz, S. (2002). Self-esteem, personality, and eating disorders: Baseline assessment of a prospective population-based cohort. *International Journal of Eating Disorders, 31*, 261-273. doi:10.1002/eat.10040
- Haase, R. F., & Ellis, M. V. (1987). Multivariate analysis of variance. *Journal of Counseling Psychology, 34*, 404-413. doi:10.1037/0022-0167.34.4.404
- Hudson, J. I., Hiripi, E., Pope, H. G., & Kessler, R. C. (2007). The prevalence and correlates of eating disorders in the National Comorbidity Survey replication. *Biological Psychiatry, 61*, 348-358. doi:10.1176/appi.ajp.158.4.570
- Izydorczyk, B. (2012). Neuroticism and compulsive overeating. *Archives of Psychiatry and Psychotherapy, 3*, 5-13.
- Janzen, B. L., Saklofske, D. H., & Kelly, I. W. (1993). Personality and bulimic symptomatology. *Journal of Clinical Psychology, 49*, 649-653. doi:10.1002/10974679(199309)49:5<649::AID-JCLP2270490506>3.0.CO;2-0
- John, O. P., & Srivastava, S. (1999). The Big Five trait taxonomy. History, measurement, and theoretical perspectives. In L. A. Pervin & O. P. John (Eds.), *Handbook of personality: Theory and research* (pp. 102-138). New York, NY: Guilford Press.
- Joiner, T. E., Katz, J., & Heatherton, T. F. (2000). Personality features differentiate late adolescent females and males with chronic bulimic symptoms. *International Journal of Eating Disorders, 27*, 191-197. doi:10.1002/(SICI)1098-108X(200003)27:2<191::AID-EAT7>3.0.CO;2-S
- Juarascio, A. S., Forman, E. M., & Herbert, J. D. (2010). Acceptance and commitment therapy versus cognitive therapy for the treatment of comorbid eating pathology. *Behavior Modification, 34*, 175-90. doi:10.1177/0145445510363472
- Kirk, G., Singh, K., & Getz, J. (2001). Risk of eating disorders among female college athletes and nonathletes. *Journal of College Counseling, 4*, 122-132. doi:10.1002/j.2161-1882.2001.tb00192.x
- Koszewski, W. M., Newell, K. G., & Higgins, J. J. (1990). Effects of a nutrition education program on the eating attitudes and behaviors of college women. *Journal of College Student Development, 31*, 203-210.

- Lavender, J. M., De Young, K. P., & Anderson, D. A. (2010). Eating Disorder Examination Questionnaire (EDE-Q): Norms for undergraduate men. *Eating Behaviors, 11*, 119-21. doi:10.1016/j.eatbeh.2009.09.005
- Lavender, J. M., Jardin, B. F., & Anderson, D. A. (2009). Bulimic symptoms in undergraduate men and women: Contributions of mindfulness and thought suppression. *Eating Behaviors, 10*, 228-231. doi:10.1016/j.eatbeh.2009.07.002
- MacLaren, V. V., & Best, L. A. (2009). Female students' disordered eating and the Big Five personality facets. *Eating Behaviors, 10*, 192-195. doi:10.1016/j.eatbeh.2009.04.001
- Marquis, M., & Manceau, M. (2007). Individual factors determining the food behaviours of single men living in apartments in Montreal as revealed by photographs and interviews. *Journal of Youth Studies, 10*, 305-316. doi:10.1080/13676260701216158
- Martin, J. L., Hess, T. R., Ain, S. C., Nelson, D. L., & Locke, B. D. (2012). Collecting multidimensional client data using repeated measures: Experiences of clients and counselors using the CCAPS-34. *Journal of College Counseling, 15*, 247-261. doi:10.1002/j.2161-1882.2012.00019.x
- McCabe, M. P., & Ricciardelli, L. A. (2004). A longitudinal study of pubertal timing and extreme body change behaviors among adolescent boys and girls. *Adolescence, 39*, 145-166.
- McCrae, R. R., & Costa, P. T. (1987). Validation of the Five-Factor model of personality across instruments and observers. *Journal of Personality and Social Psychology, 52*, 81-90. doi:10.1111/j.1467-6494.1992.tb00970.x
- Mehler, P. S., Sabel, A. L., Watson, T., & Andersen, A. E. (2008). High risk of osteoporosis in male patients with eating disorders. *International Journal of Eating Disorders, 41*, 666-672. doi:10.1002/eat.20554
- O'Dea, J. A., & Abraham, S. (2002). Eating and exercise disorders in young college men. *Journal of American College Health, 50*, 273-278. doi:10.1080/07448480209603445
- Orsillo, S. M., & Batten, S. V. (2002). ACT as treatment of a disorder of excessive control: Anorexia. *Cognitive and Behavioral Practice, 9*, 253-259. doi:10.1016/S1077-7229(02)80057-8
- Ousley, L., Cordero, E. D., & White, S. (2008). Eating disorders and body image of undergraduate men. *Journal of American College Health, 56*, 617-621. doi:10.3200/JACH.56.6.617-622
- Prouty, A. M., Protinsky, H. O., & Canady, D. (2002). College women: Eating behaviors and help-seeking preferences. *Adolescence, 37*, 353-363.
- Rawal, A., Park, R. J., & Williams, M. G. (2010). Rumination, experiential avoidance, and dysfunctional thinking in eating disorders. *Behavior Research and Therapy, 48*, 851-859. doi:10.1016/j.brat.2010.05.009
- Roberts, A., & Good, E. (2010). Media images and female body dissatisfaction: The moderating effects of the Five-Factor traits. *Eating Behaviors, 11*, 211-216. doi:10.1016/j.eatbeh.2010.04.002
- Schwitzer, A. M., Rodriguez, L. E., Thomas, C., & Salimi, L. (2001). The eating disorders NOS diagnostic profile among college women. *Journal of American College Health, 49*, 157-166. doi:10.1080/07448480109596298
- Stanford, M. S., Greve, K. W., Boudreaux, J. K., Mathias, C. W., & Brumelow, J. L. (1996). Impulsiveness and risk-taking behavior: Comparison of high-school and college students using the Barratt Impulsiveness Scale. *Personality and Individual Differences, 21*, 1073-1075. doi:10.1016/S0191-8869(96)00151-1
- Strother, E., Lemberg, R., Stanford, S. C., & Turberville, D. (2012). Eating disorders in men: Underdiagnosed, undertreated, and misunderstood. *Eating Disorders, 20*, 346-355. doi:10.1080/10640266.2012.715512
- Stice, E., Fischer, M., & Martinez, E. (2004). Eating disorder diagnostic scale: Additional evidence of reliability and validity. *Psychological Assessment, 16*, 60-71. doi:10.1037/1040-3590.16.1.60
- Stice, E., Telch, C., & Rizvi, S. L. (2000). Development and validation of the Eating disorder diagnostic scale: A brief self-report measure of anorexia, bulimia, and binge-eating disorder. *Psychological Assessment, 12*, 123-131. doi:10.1037/1040-3590.12.2.123
- Striegel-Moore, R. H., Rosselli, F., Perrin, N., DeBar, L., Wilson, G. T., May, A., & Kraemer, H. (2009). Gender differences in the prevalence of eating disorder symptoms. *International Journal of Eating Disorders, 42*, 471-474. doi:10.1002/eat.20625
- Taylor, C. B., Bryson, S., Luce, K. H., Cunnig, D., Doyle, A. C., Abascal, L. B., . . . Wilfley, D. E. (2006). Prevention of eating disorders in at-risk college-age women. *Archives of General Psychiatry, 63*, 881-888. doi:10.1001/archpsyc.63.8.881
- Tylka, T. L., & Subich, L. M. (2002). A preliminary investigation of the eating disorder continuum with men. *Journal of Counseling Psychology, 49*, 273-279. doi:10.1037/0022-0167.49.2.273
- Weltzin, T. E., Cornella-Carlson, T., Fitzpatrick, M. E., Kennington, B., Bean, P., & Jeffries, C. (2012). Treatment issues and outcomes for males with eating disorders. *Eating Disorders, 20*, 444-459. doi:10.1080/10640266.2012.715527
- Whiteside, U., Chen, E., Neighbors, C., Hunter, D., Lo, T., & Larimer, M. (2007). Difficulties regulating emotions: Do binge eaters have fewer strategies to modulate and tolerate negative affect? *Eating Behaviors, 8*, 162-169. doi:10.1016/j.eatbeh.2006.04.001
- Woodside, D. B., Bulik, C. M., Thornton, L., Klumpe, K. L., Tozzif, F., Fichterg, M. M., . . . Kave, W. H. (2004). Personality in men with eating disorders. *Journal of Psychosomatic Research, 57*, 273-278. doi:10.1016/j.jpsychores.2004.02.011
- Woodside, D. B., Garfinkel, P. E., Lin, E., Goering, P., Kaplan, A. S., Goldbloom, D. S., & Kennedy, S. H. (2001). Comparisons of men with full or partial eating disorders, men without eating disorders, and women with eating disorders in the community. *American Journal of Psychiatry, 158*, 570-574. doi:10.1176/appi.ajp.158.4.570