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Eating Disorder Symptomatology, Clinical Impairment, and Comorbid Psychopathology in Racially and Ethnically Diverse College Women with Eating Disorders

Grace E. Monterubio, MA^{1,a}, Ellen E. Fitzsimmons-Craft, PhD¹, Katherine N. Balantekin, PhD, RD^{1,2}, Shiri Sadeh-Sharvit, PhD^{3,4}, Neha J. Goel, MS^{3,4,5,6}, Olivia Laing, MSW¹, Marie-Laure Firebaugh, MSW¹, Rachael E. Flatt, MA^{3,4,7}, Patricia Cavazos-Rehg, PhD¹, C. Barr Taylor, MD^{3,4}, Denise E. Wilfley, PhD¹

¹Department of Psychiatry, Washington University School of Medicine, St. Louis, MO, USA

²University of New York at Buffalo, Buffalo, NY, USA

³Department of Psychiatry and Behavioral Sciences, Stanford University School of Medicine, Stanford, CA, USA

⁴Center for m²Health, Palo Alto University, Palo Alto, CA, USA

⁵Department of Psychology, Virginia Commonwealth University, Richmond, VA, USA

⁶Institute for Inclusion, Inquiry and Innovation (iCubed), Virginia Commonwealth University, Richmond, VA, USA

⁷Department of Psychology & Neuroscience, University of North Carolina at Chapel Hill, Chapel Hill, NC, USA

Abstract

Objective: To examine eating disorder (ED) symptomatology, related clinical impairment, and comorbid psychopathology in college women with EDs across five racial and two ethnic groups.

Methods: Participants were 690 women from 28 U.S. universities who screened positive for an ED. Thirteen variables assessing ED symptoms, related clinical impairment, and comorbid psychopathology were compared across racial and ethnic groups using analyses of variance (ANOVAs) and independent samples *t*-tests.

Results: Across racial groups, significant differences emerged in binge eating and laxative use. Asian women reported significantly more binge eating than White women ($p < .01$). Individuals self-identified as the “Other” racial group reported greater laxative use than Asian and White women ($p < .01$). No other significant differences emerged across all other variables ($p > .13$). Across ethnic groups, Hispanic women reported significantly more laxative use ($p < .01$), and

^aCorrespondence concerning this article should be sent to Grace E Monterubio, Washington University School of Medicine, Department of Psychiatry, 660 S. Euclid Ave., Mailstop: 8134-29-2100, St. Louis, MO 63110. Phone: 314-640-5597. gmonterubio@wustl.edu.

Conflict of Interest

The authors have no conflict to declare.

more comorbid insomnia symptoms ($p = .03$) than non-Hispanic women. No other significant differences were observed ($ps \geq .24$).

Discussion: Findings suggest that binge eating, laxative use, and insomnia symptoms differ across racial and ethnic groups in U.S. college women who screened positive for EDs. Findings can inform tailoring of ED screening to reduce current disparities in these underrepresented populations.

Keywords

Clinical Impairment; Comorbidities; Eating disorders; Ethnicity; Insomnia; Race

Eating disorders (EDs) can affect people of any age, gender, socioeconomic status, body size, and racial/ethnic background (Cheng et al., 2019; Schaumberg et al., 2017). However, racial and ethnic minorities are less likely to be identified, referred, and treated for an ED by their health providers relative to their White counterparts (Alegria et al., 2002; Becker et al., 2003; Marques et al., 2011; Striegel-Moore et al., 2003). Although EDs impact women of color (WOC; e.g., Black/African American, Asian, Hispanic), there are still questions about *if, how, and why* they *may do so differently* than White, non-Hispanic women (Lee-Winn et al., 2014; Rodgers et al., 2018). For instance, non-White groups may present with “atypical” ED symptoms, such as “non-fat” phobic manifestations (Becker, Thomas, & Pike, 2009). This would, at least in part, explain some findings suggesting lower rates of EDs, particularly anorexia nervosa (AN), in some minority populations (e.g., Rakhkovskaya & Warren, 2016; Warren et al., 2005). However, meta-analyses and national studies have revealed small to no differences in rates of bulimia nervosa (BN) and binge eating disorder (BED) between White women and WOC (Cachelin et al., 2000; Grabe & Hyde, 2006; O’Neill, 2003; Rodgers et al., 2018; Udo & Grilo, 2018; Wildes et al., 2001). Despite this, many WOC face significant barriers to assessment and treatment (Becker et al., 2010); thus, findings may not reflect true prevalence of EDs and disordered eating behaviors in marginalized groups. Therefore, many questions remain concerning rates of ED symptoms amongst WOC and symptom severity compared with White counterparts.

Studies examining ED presentation among WOC have primarily focused on community and convenience samples (Udo & Grilo, 2018), and research on this topic across racial and ethnic minority groups in college-specific samples is limited, despite the high prevalence of EDs and comorbid psychopathologies in racially diverse college populations (Eisenberg et al., 2013; Fitzsimmons-Craft et al., 2019; Gentile et al., 2007). An investigation of the *frequency* of ED symptoms in a large, demographically diverse sample of college women found comparable frequencies of disordered eating behaviors across racial and ethnic groups, except in laxative/diuretic use, which was higher in Native American participants (Franko et al., 2008). Other studies of college samples investigating differences in disordered eating behaviors or ED risk factors between White students in comparison to one specific racial/ethnic group found small to no differences between groups (Grabe & Hyde, 2006; Wildes et al., 2001).

The purpose of the current study was to analyze and compare the severity of ED symptomology, ED-related clinical impairment, and comorbid psychopathology across

racial (i.e., White/Caucasian, Asian or South Asian, Black/African American, Native American/Alaskan Native or Native Hawaiian/Pacific Islanders, more than one race or another self-identified race) and ethnic (i.e., Hispanic, non-Hispanic) groups in a large, multi-site sample of college women who screened positive for an ED (excluding AN).

Methods

Participants and Procedures

Female students from participating U.S. colleges ($N = 28$) ages 18 years or older were eligible to complete an online screen as part of the Healthy Body Image (HBI) Program study (see Fitzsimmons-Craft et al., 2019, in press). This study received Institutional Review Board approval and acknowledgment from all cooperating universities, and all participants provided informed consent prior to assessment completion.

Recruitment occurred over three years. Students were recruited using campus-specific recruitment strategies, developed collaboratively with campus stakeholders, including use of email, social media, flyers, and peer health educators/counselors.

Participants were 690 college women who screened positive for a sub- or full-threshold ED (excluding probable AN) on the Stanford-Washington University Eating Disorder Screen (SWED; Graham et al., 2019). Those who screened positive for AN were referred to the student health services due to medical complications that can be associated with an underweight status (body mass index [BMI] < 18.5) (Mehler & Brown, 2015). Participants self-identified their race 62% White/Caucasian, 17% Asian or South Asian, 8% more than one race, 7% Other, 6% Black/African American, $<.01$ % Native American/Alaskan Native or Native Hawaiian/Pacific Islanders. Due to insufficient sample size for group comparisons, participants from Native American/Alaskan Native and Native Hawaiian/Pacific Islander groups were combined with the “Other” racial group. Regarding ethnicity, 17% were Hispanic. Of note, some individuals identified as White *and* Hispanic according to the National Institute of Health’s (NIH’s) current categories of race and ethnicity, and were included as “White” in the race analyses and as “Hispanic” in the ethnicity analyses.

The mean BMI for the sample was 25.69 kg/m^2 ($SD=6.02$). Positive screens for DSM-5 diagnoses were: BN (19.9%), subthreshold BN (24.8%), BED (10.0%), subthreshold BED (9.6%), purging disorder (4.5%), and unspecified feeding or eating disorder (UFED; 31.2%).

Measures

Participants completed the following online measures, all of which are well-established with good psychometric properties.

Eating Disorder Symptomatology.—The Eating Disorder Examination-Questionnaire (EDE-Q, version 6.0; Fairburn, 2008) is a 28-item questionnaire that assesses ED psychopathology over the past 28 days, and includes Weight Concern, Shape Concern, Eating Concern, and Restraint subscales, and a Global score. The EDE-Q also measures self-reported frequency of ED behaviors (i.e., binge eating, vomiting, laxative use,

compulsive exercise). The Cronbach's alpha coefficients for the EDEQ across groups were the same, equaling .78.

Clinical Impairment.—The Clinical Impairment Assessment (CIA; Bohn & Fairburn, 2008) is a 16-item measure that assesses impairment due to ED symptoms over the past 28 days. Items are rated on a 4-point Likert scale with responses ranging from 0 (“not at all”) to 3 (“a lot”). The cut-off that best determines ED status is a global score of 16 (Bohn & Fairburn, 2008).

Depression.—The Patient Health Questionnaire (PHQ-9; Kroenke & Spitzer, 2002) assesses depressive symptoms over the past two weeks on a 4-point scale (“not at all” to “nearly every day”). Higher scores correspond to greater severity of depressive symptoms, with a cut-off score of 10 indicating moderate depression (Kroenke, Spitzer, & Williams 2001).

Anxiety.—The Patient-Reported Outcomes Measurement Information System Short Form v1.0 – Anxiety4a (PROMIS; Pilkonis et al., 2011) is a 4-item measure that assesses anxiety over the last seven days on a 5-point scale (“not at all” to “very much”). Higher scores correspond to greater severity of symptoms.

Insomnia.—The Insomnia Severity Index (ISI; Bastien et al., 2001), is a 7-item questionnaire that assesses sleep disturbance and insomnia over the past two weeks using a 4-point Likert scale from “none” to “very severe.” Higher scores indicate greater severity of insomnia, with a cut-off of 11 indicative of clinical insomnia (Shahid et al., 2011).

Analytic Strategy

Variables were compared across racial groups using analyses of variance (ANOVAs). Tukey's post-hoc tests elucidated significant results ($p < .05$). Study constructs were compared between ethnic groups using independent-samples *t*-tests.

Results

Comparison of Racial Groups

Eating Disorder Severity.—As shown in Table 1, there were no significant differences across racial groups across ED psychopathology indices (i.e., EDE-Q Global and subscales) ($ps > .13$). Racial groups significantly differed on frequencies of binge eating ($p < .01$; $\eta^2 = .03$) and laxative use ($ps < .01$; $\eta^2 = .02$). Post-hoc Tukey tests revealed that Asian/South Asian women reported significantly more binge eating episodes than White women ($p < .01$; Cohen's $d = .36$), and women who identified their race as “Other” reported significantly more laxative use than Asian ($p < .01$; Cohen's $d = .33$) and White ($p < .01$; Cohen's $d = .28$) women.

Clinical Impairment and Comorbidity Severity.—As shown in Table 1, there were no significant differences across racial groups on ED-related clinical impairment, depression, anxiety, or insomnia ($ps > .29$).

Comparison of Ethnic Groups

Eating Disorder Severity.—As shown in Table 2, there were no significant differences between ethnic groups on ED psychopathology indices ($ps \geq .38$). However, Hispanic women reported significantly more laxative use than non-Hispanic women ($p < .01$; Cohen's $d = -.23$).

Clinical Impairment and Comorbidity Severity.—As shown in Table 2, Hispanic women endorsed significantly higher levels of insomnia symptoms relative to non-Hispanic women ($p = .03$; Cohen's $d = -.22$).

Discussion

This study compared ED symptom severity, related clinical impairment, and comorbid psychopathology across a large sample of racially/ethnically diverse college women who screened positive for an ED (except for AN). Results of this study suggest that, overall, White women and WOC with EDs displayed *comparable* levels of ED symptomatology and comorbid psychopathology, consistent with some studies (Udo & Grilo, 2018; Franko et al., 2008). When differences emerged, WOC reported significantly *greater* symptom severity than White women, though with small effect sizes. Specifically, Asian women endorsed higher frequencies of binge eating than White women, consistent with past research (Lee-Winn et al., 2014). Additionally, similar to past research, rates of laxative use were higher in WOC (Franko et al., 2008), with Hispanic women endorsing increased laxative use compared to non-Hispanic women. Collectively, findings suggest a need for further research on these group differences, which are possibly due to culturally-influenced variables (e.g., acculturation, differing definitions of disordered eating; Goel et al., 2020a,b; Rogers et al., 2018). Average ED-related clinical impairment was high across all racial/ethnic groups, consistent with past findings (Aspen et al., 2014). Mean PHQ-9 scores were above 10 across all racial/ethnic groups, indicating moderate depression. This study adds to the limited literature on ED symptomatology and comorbidities across racial/ethnic groups in college samples and provides support for the notion that EDs can present in various racial/ethnic backgrounds (Cheng et al., 2019; Schaumberg et al., 2017). Further, when symptoms are present in WOC, they are as severe, if not more acute, as EDs in White, non-Hispanic college women. Future research should investigate the observed differences (i.e., elevated binge eating in Asian women, elevated laxative use and insomnia symptoms in Hispanic women), to understand *why* these differences exist. For example, Asian women may not report symptoms considered to be typical of an ED, potentially affecting group comparisons (Goel et al., 2020b; Lee-Winn et al., 2014).

Strengths and Limitations

Strengths of this study include a large, geographically diverse sample of college women with EDs with a range of racial/ethnic backgrounds. Thus, study results are relatively generalizable to the U.S. college female population. However, the sample represents students who *opted* to participate in a study to address ED concerns and, thus, may be biased toward a more clinically-impaired sample of BN and BED-type presentations, particularly given that this investigation excluded participants with probable AN. Additionally, the screen was

designed to assess for typical presentations of DSM-5 ED symptoms and could miss individuals, particularly WOC, with culturally different symptom presentations (Goel et al., 2020b). Furthermore, this study did not examine variables that could account for different ED symptom endorsements between groups, including BMI and culturally-influenced constructs (e.g., ethnic identity, acculturation) (Rodgers et al., 2018).

Although the study sample is comparatively diverse, another limitation includes the underrepresentation of individuals in certain racial groups (i.e., Native American/Alaskan Native and Native Hawaiian/Pacific Islander) that precluded separate examination of these groups. Similarly, both the “Other” and “Asian/South Asian” categories represent multiple racial/ethnic backgrounds collapsed into combined groups; thus, future research should more closely examine ED presentation in these groups. Furthermore, the proportion of Black/African American women in the sample was lower than the general population within the study’s campuses, and future studies should focus on recruiting more members of this group (Fitzsimmons-Craft et al., 2019). Moreover, only women with an ED, except for AN, were eligible for the study, thus results do not generalize to other genders or to women with AN. Lastly, online self-report measures were used to identify ED cases, rather than clinical diagnostic interviews.

Clinical Implications

Given that ED presentation was comparable or more severe in WOC than in White women in this study, future efforts must address treatment disparities between minority and non-minority women with EDs. There are likely multiple factors that contribute to screening and treatment disparities between WOC and non-Hispanic, White women with EDs, such as mental health stigma (Gary, 2005), clinician bias leading to lower rates of ED identification in WOC (Becker et al., 2003; Goel et al., 2020a), and lack of culturally-sensitive assessments (Belon et al., 2015). Findings from this study could inform future ED screening to reduce disparities in underrepresented populations, especially with regards to the high endorsements of binge eating in Asian/South Asian women and laxative use and insomnia symptoms in Hispanic women.

Data Availability Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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Table 1.

Analyses of Variance on Eating Disorder Symptomatology, ED-related Clinical Impairment, and Comorbid Psychopathology Across Racial Groups

	Asian or South Asian (<i>n</i> = 117) <i>M</i> (<i>SD</i>)	Black or African American (<i>n</i> = 37) <i>M</i> (<i>SD</i>)	White or Caucasian (<i>n</i> = 414) <i>M</i> (<i>SD</i>)	Other (<i>n</i> =49) <i>M</i> (<i>SD</i>)	More than One Race (<i>n</i> = 51) <i>M</i> (<i>SD</i>)	Results	Pairwise Comparisons
Eating Disorder Symptomatology							
EDE-Q-Global	3.67 (1.11)	3.58 (1.21)	3.61 (1.07)	3.68 (1.24)	3.28 (1.33)	F(4,663) = 1.30; <i>p</i> = .27	---
EDE-Q-Restraint	3.08 (1.44)	2.96 (1.39)	2.98 (1.34)	3.04 (1.31)	2.71 (1.39)	F(4,663) = .67; <i>p</i> = .62	---
EDE-Q-Eating Concern	3.20 (1.37)	2.83 (1.48)	2.97 (1.35)	3.09 (1.63)	2.62 (1.41)	F(4,663) = 1.78; <i>p</i> = .13	---
EDE-Q-Shape Concern	4.43 (1.21)	4.41 (1.30)	4.43 (1.17)	4.46 (1.48)	4.01 (1.35)	F(4,663) = 1.41; <i>p</i> = .23	---
EDE-Q-Weight Concern	3.96 (1.31)	4.11 (1.37)	4.07 (1.19)	4.12 (1.43)	3.77 (1.33)	F(4,663) = .85; <i>p</i> = .49	---
EDE-Q-Binge eating	13.58 (14.24)	9.78 (9.10)	9.39 (8.67)	12.71 (12.13)	10.06 (10.92)	F(4,661) = 4.48; <i>p</i> = .001	Asian > White
EDE-Q-Vomiting	3.34 (8.69)	2.46 (7.59)	2.97 (13.12)	4.18 (9.28)	1.76 (5.92)	F(4,662) = .34; <i>p</i> = .85	---
EDE-Q-Laxatives	.76 (2.44)	1.68 (5.26)	1.15 (4.10)	3.80 (12.76)	2.04 (4.75)	F(4,662) = 3.56; <i>ps</i> = .006	Other > Asian, White
EDE-Q-Compulsive exercise	5.84 (7.84)	2.51 (4.41)	5.53 (12.75)	4.00 (5.10)	3.00 (5.79)	F(4,662) = 1.43; <i>p</i> = .22	---
ED-related Clinical Impairment							
CIA	25.31 (12.25)	24.35 (11.50)	25.53 (10.69)	26.04 (12.99)	22.31 (10.73)	F(4,662) = 1.06; <i>p</i> = .37	---
Comorbid Psychopathology							
PHQ-9	11.29 (6.54)	11.65 (7.20)	10.94 (5.88)	12.24 (7.25)	10.92 (5.95)	F(4,662) = .59; <i>p</i> = .67	---
PROMIS Anxiety	11.24 (4.61)	11.14 (3.96)	11.03 (4.04)	12.22 (4.80)	11.55 (4.28)	F(4,663) = .97; <i>p</i> = .42	---
ISI	9.53 (6.35)	10.27 (7.12)	9.11 (6.25)	10.61 (6.39)	10.51 (6.63)	F(4,663) = 1.24; <i>p</i> = .29	---

Note. EDE-Q = Eating Disorder Examination Questionnaire; CIA = Clinical Impairment Assessment; PHQ-9 = Patient Health Questionnaire-9 for depression; PROMIS-Anxiety = Patient-Reported Outcomes Measurement Information System for Anxiety; ISI = Insomnia Severity Index. Pairwise comparisons listed were significant at least at *p* < .05. ED symptoms are measured in terms of frequency of episodes over the 28 days prior to baseline.

Independent Sample t-test Comparisons of Eating Disorder Symptomatology, ED-related Clinical Impairment, and Comorbid Psychopathology Between Ethnic Groups

Table 2.

	Hispanic (<i>n</i> = 118) <i>M</i> (<i>SD</i>)	Non-Hispanic (<i>n</i> = 567) <i>M</i> (<i>SD</i>)	Results
<i>Eating Disorder Severity</i>			
EDE-Q-Global	3.53 (1.08)	3.60 (1.11)	<i>t</i> (683) = .65; <i>p</i> = .52
EDE-Q-Restraint	2.86 (1.25)	2.99 (1.38)	<i>t</i> (683) = .98; <i>p</i> = .53
EDE-Q-Eating Concern	2.87 (1.48)	2.99 (1.37)	<i>t</i> (683) = .88; <i>p</i> = .38
EDE-Q-Shape Concern	4.37 (1.32)	4.39 (1.22)	<i>t</i> (683) = .13; <i>p</i> = .90
EDE-Q-Weight Concern	4.01 (1.30)	4.03 (1.25)	<i>t</i> (683) = .11; <i>p</i> = .92
EDE-Q-Binging	10.56 (10.15)	10.33 (10.40)	<i>t</i> (681) = -.22; <i>p</i> = .83
EDE-Q-Vomiting	3.08 (7.80)	2.97 (11.98)	<i>t</i> (682) = -.10; <i>p</i> = .92
EDE-Q-Laxatives	2.69 (9.17)	1.10 (3.77)	<i>t</i>(682) = -3.06; <i>p</i> < .01
EDE-Q-Compulsive Exercise	4.37 (6.37)	5.18 (11.5)	<i>t</i> (682) = .74; <i>p</i> = .46
<i>ED-related Clinical Impairment</i>			
CIA	25.55 (11.72)	25.02 (11.14)	<i>t</i> (682) = -.47; <i>p</i> = .64
<i>Comorbid Psychopathology</i>			
PHQ-9	11.54 (6.38)	10.99 (6.13)	<i>t</i> (681) = -.88; <i>p</i> = .38
PROMIS Anxiety	11.60 (4.69)	11.09 (4.11)	<i>t</i> (682) = -1.18; <i>p</i> = .24
ISI	10.62 (6.29)	9.23 (6.33)	<i>t</i>(682) = -2.17; <i>p</i> = .03

Note. EDE-Q = Eating Disorder Examination Questionnaire; CIA = Clinical Impairment Assessment; PHQ-9 = Patient Health Questionnaire-9 for depression; PROMIS-Anxiety = Patient-Reported Outcomes Measurement Information System for Anxiety; ISI = Insomnia Severity Index. ED symptoms are measured in terms of frequency of episodes over the 28 days prior to baseline.