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Past-Year Abuse and Eating Disorder Symptoms Among U.S. College Students

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Abstract

Evidence consistently indicates associations between eating disorders (EDs) and childhood emotional, physical, and sexual abuse, but the relationship between EDs and abuse occurring later in development has largely been unexplored. Therefore, the objective of this study was to examine associations between past-year abuse and ED symptoms among college students. Participants represented 12 U.S. colleges and universities participating in the Healthy Bodies Study between 2013-2015 ($N = 10,204$; $M_{\text{age}} = 23.38$ years). Students self-reported experiences of emotional, physical, and sexual abuse over the past year. Cognitive ED symptoms (i.e., dietary restraint, shape/weight overvaluation, body dissatisfaction) were measured via the Short-Eating Disorder Examination-Questionnaire (S-EDE-Q), and behavioral ED symptoms (i.e., binge eating, purging) were measured via items from the full EDE-Q. Regression models that adjusted for demographics and weight status were conducted to examine associations between past-year abuse and ED symptoms. Past-year emotional, physical, and sexual abuse each exhibited independent associations with ED symptoms. When mutually adjusting for emotional, physical, and sexual abuse, past-year emotional abuse was associated with higher levels of dietary restraint ($b=0.20$, $p=.02$), shape/weight overvaluation ($b=0.85$, $p<.001$), body dissatisfaction ($b=0.63$, $p<.001$), binge eating (prevalence ratio [PR]=1.23, $p=.002$), and purging (PR=1.68, $p<.001$), and past-year sexual abuse was associated with shape/weight overvaluation ($b=0.35$, $p=.03$) and purging (PR=1.71, $p=.009$) but no other ED symptoms. No associations were observed for past-year physical abuse in mutually adjusted models. In summary, past-year emotional abuse emerged as a key correlate of all ED symptoms examined in this sample of U.S. college students, while past-year sexual abuse

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also emerged as a key correlate of shape/weight overvaluation and purging. Findings emphasize the need to screen for abuse and implement abuse prevention efforts on college campuses.

Keywords

Violence; Abuse; Feeding and Eating Disorders; Emerging Adult; Young Adult; College Students; Universities

Over 5 million people in the United States are estimated to experience an eating disorder (ED) in a given year (Deloitte Access Economics, 2020). Disordered eating behaviors, including binge eating, purging, and diet pill and supplement use, are especially common among adolescents and young adults (Calzo et al., 2016; Neumark-Sztainer et al., 2011; Ziobrowski et al., 2020). Individuals with EDs, and even subclinical EDs, are at elevated risk for developing depression, substance use disorders, overweight/obesity, and self-harm behaviors (Field et al., 2012; Micali et al., 2015). In addition to the distress and long-term health consequences associated with disordered eating, recent estimates of the economic burden due to EDs are staggering. In 2018-2019, EDs were estimated to cost the U.S. economy nearly \$65 billion, due mainly to losses in productivity (Deloitte Access Economics, 2020). Understanding risk factors for the development and maintenance of EDs is paramount for effective prevention and treatment of these pernicious disorders.

Studies have consistently documented relationships between EDs and childhood emotional, physical, and sexual abuse (Afifi et al., 2017; Brewerton, 2007; Caslini et al., 2016; Hazzard et al., 2019; Mercurio et al., 2020; Ziobrowski et al., 2020). Although the mechanisms are not entirely clear, it is postulated that victims of abuse may develop disordered eating as a way of coping with posttraumatic stress symptoms (e.g., intrusive and distressing memories, thoughts, and feelings; Brewerton, 2007; Trottier et al., 2016). Abuse, particularly early in the life course, may also affect the development of emotion regulation and stress response (Akkermann et al., 2012; Burns et al., 2012; Lo Sauro et al., 2008), which may result in an increased risk of psychopathology later in life (Halfon & Hochstein, 2002). Most research on abuse and EDs has focused on abuse occurring during childhood, but there is some evidence that abuse occurring later in development may also be associated with EDs. This research has focused mainly on sexual abuse, finding associations between recent sexual assault in adulthood and ED symptoms. Further, some evidence suggests that sexual assault during adulthood accounts for unique variance in ED symptoms above and beyond the contribution of abuse during childhood (Collins et al., 2014; Dubosc et al., 2012; Fischer et al., 2010; Stephens & Wilke, 2016; Wonderlich et al., 2001). However, aside from sexual abuse, it is not clear whether other forms of abuse occurring later in development are also associated with EDs.

The present study helped address this gap in the literature using data from a college population. The traditional college years (i.e., ages 18-25 years) represent a key period for psychosocial development (Murray, 2018) and also directly coincide with the typical age of onset for EDs (Hudson et al., 2007). College populations are therefore an important group to study with regard to EDs and their risk factors, and abuse during the college years is one common (Stephens & Wilke, 2016; Vidourek, 2017) yet largely ignored potential risk factor.

The objective of the present study was to examine associations of past-year emotional, physical, and sexual abuse with ED symptoms among college students. We hypothesized that past-year emotional, physical, and sexual abuse would be associated with higher levels of ED symptoms among college students.

Methods

Participants

Data for the present study came from the Healthy Bodies Study (HBS), a population-level, web-based study. Data collected in 2013-2015 were aggregated from 12 colleges and universities across the United States. Participants included randomly sampled undergraduate and graduate students from participating institutions, wherein up to 4,000 enrolled students at least 18 years of age were sampled from each school and recruited by email. HBS response rates were 19% during the 2013-2014 academic year and 27% in 2014-2015. Response rates likely did not occur at random; thus, consistent with past research (Lipson & Sonnevile, 2017; Sonnevile & Lipson, 2018), sample probability weights were used to adjust for differences in response rates by gender, academic level, race/ethnicity, and grade point average. All research activities were approved by the Institutional Review Boards at participating institutions. Additionally, HBS was covered by a Certificate of Confidentiality from the National Institutes of Health. The analytic sample for the present study is comprised of 10,204 college students, of whom 76.4% were between the ages of 18-25 years.

Measures

Past-Year Abuse—Using items adapted from the American College Health Association–National College Health Assessment II (American College Health Association, 2011), participants were asked, “Over the last 12 months, have you experienced emotional, physical, or sexual abuse (either from someone you know or don’t know)?”. Participants who responded *yes* were then asked whether, in the past 12 months, they had been “emotionally abused,” “physically abused,” “in a sexually abusive relationship” or “forced to have unwanted sexual intercourse through the use of physical force or threat by someone who was not an intimate partner.” Examples were provided for emotional abuse (“being called names, being yelled at, humiliated, judged, threatened, coerced, or controlled”) and physical abuse (“being kicked, slapped, punched or otherwise physically mistreated”). Clarifications were provided for the terms sexually abusive relationship (“one in which an intimate partner forced or coerced you to perform or receive sexual acts, or forced you to have intercourse when you didn’t want to”) and sexual intercourse (“completed or attempted penetration”). Response options were *yes* and *no* for each of the four follow-up items. For the present study, sexual abuse by an intimate partner and sexual abuse by someone other than an intimate partner were combined into one variable representing any past-year sexual abuse.

Eating Disorder Symptoms

Cognitive Eating Disorder Symptoms. The seven-item, three-factor Short-Eating Disorder Examination-Questionnaire (S-EDE-Q; Grilo et al., 2015; Machado et al., 2018) was used

to assess cognitive ED symptoms over the past 28 days. Items are scored on a seven-point scale, ranging from 0 to 6, and constitute three subscales: Dietary Restraint, Shape/Weight Overvaluation, and Body Dissatisfaction. Responses were averaged to calculate scores for each subscale, where possible scores range from 0 to 6 and higher scores indicate higher levels of ED symptoms. The S-EDE-Q demonstrates strong psychometric properties in clinical and non-clinical samples (Grilo et al., 2015; Machado et al., 2018), and internal consistency was good for all subscales in the present sample (Dietary Restraint: $\alpha = .82$; Shape/Weight Overvaluation: $\alpha = .93$; Body Dissatisfaction: $\alpha = .90$).

Behavioral Eating Disorder Symptoms.: Behavioral ED symptoms over the past 28 days were assessed with four items from the Eating Disorder Examination-Questionnaire (Fairburn & Beglin, 1994). Binge eating was assessed with the following two items in reference to the past 28 days: “How many times have you eaten what other people would regard as an unusually large amount of food (given the circumstances)?” and, if yes, “On how many of these times did you have a sense of having lost control over your eating (at the time that you were eating)?”. Binge eating was defined as endorsing any number of times greater than zero for both of these items. Purging was assessed with the following two items in reference to the past 28 days: “How many times have you made yourself sick (vomit) as a means of controlling your shape or weight?” and “How many times have you taken laxatives as a means of controlling your shape or weight?”. Purging was defined as endorsing any number of times greater than zero for at least one of these items.

Covariates—Participants self-reported their age, gender identity, race/ethnicity, socioeconomic background, height, and weight. Self-reported height and weight were used to calculate body mass index (BMI); participants with a BMI of 25 kg/m² or greater were categorized as having a higher weight status, and participants with a BMI of less than 25 kg/m² were categorized as not having a higher weight status.

Statistical Analysis

Analyses were conducted with Stata 16.0 and incorporated sample probability weights to account for non-response. Descriptive statistics, bivariate correlations, and overlap between forms of past-year abuse were calculated using observed data, and missing rates were less than 1% for all variables except binge eating (3.6% missing rate), purging (6.9% missing rate), and weight status (32.3% missing rate). For regression analyses, missing data were multiply imputed with 20 replications using the fully conditional specification method. Associations between past-year abuse and cognitive ED symptoms (i.e., dietary restraint, shape/weight overvaluation, and body dissatisfaction) were examined with linear regression models, and associations between past-year abuse and behavioral ED symptoms (i.e., binge eating and purging) were examined with modified Poisson regression models (i.e., using robust standard errors; Zou, 2004). All regression models were adjusted for age, gender identity, structurally racialized categories labelled as race/ethnicity, socioeconomic background, and weight status, as experiences of victimization and ED risk have each previously been found to differ according to these characteristics (Kim & Drake, 2018; Lipson & Sonnevile, 2017; Scher et al., 2004; Sorenson et al., 1987; Van Geel et al., 2014). Separate regression models were initially conducted for each form of abuse and

each outcome (i.e., examining independent associations); forms of abuse were subsequently examined simultaneously in mutually adjusted models. Results were pooled across multiply imputed datasets, and significance thresholds were corrected for multiple comparisons across regression results using False Discovery Rate (FDR) procedures (Benjamini & Hochberg, 1995) with an FDR of $Q = .10$. In sensitivity analyses to explore possible dose-response relationships, we conducted regression models examining associations between the number of forms of past-year abuse and eating disorder symptoms, where the number of forms of past-year abuse was calculated as the sum of past-year emotional, physical, and sexual abuse exposures (possible range: 0-3) and entered into the models as a categorical variable.

Results

Characteristics of the sample are presented in Table 1. In this sample of college students, 6.9% reported any past-year abuse (93.1% did not report past-year abuse), with 6.7% reporting past-year emotional abuse, 1.2% reporting past-year physical abuse, and 1.5% reporting past-year sexual abuse. Overlap between forms of past-year abuse is reported in Table 2, indicating that at least one other form of abuse over the past year was reported by 27.2% of participants who reported past-year emotional abuse, 89.9% of participants who reported past-year physical abuse, and 73.9% of participants who reported past-year sexual abuse. Past-month binge eating was reported by 30.2% of the sample, and past-month purging was reported by 5.6% of the sample. Means (standard deviations) of cognitive ED symptoms were 2.05 (4.14) for dietary restraint, 1.89 (4.12) for shape/weight overvaluation, and 2.34 (4.08) for body dissatisfaction (possible range for each subscale: 0-6). With the exception of the relationship between past-year physical abuse and binge eating, significant bivariate correlations were observed for each relationship between forms of past-year abuse and types of ED symptoms (Table 3).

Associations Between Past-Year Abuse and Cognitive Eating Disorder Symptoms

After adjusting for demographics and weight status, past-year emotional and sexual abuse were each independently associated with higher levels of dietary restraint, shape/weight overvaluation, and body dissatisfaction, and past-year physical abuse was independently associated with higher levels of shape/weight overvaluation and body dissatisfaction but not dietary restraint (Table 4). In mutually adjusted models, past-year emotional abuse remained associated with higher levels of dietary restraint ($b = 0.20$, 95% confidence interval [CI]: 0.04, 0.37), shape/weight overvaluation ($b = 0.85$, 95% CI: 0.69, 1.01), and body dissatisfaction ($b = 0.63$, 95% CI: 0.48, 0.78) and past-year sexual abuse remained associated with higher levels of shape/weight overvaluation ($b = 0.35$, 95% CI: 0.03, 0.67), while no significant associations were observed for past-year physical abuse. Sensitivity analyses did not indicate dose-response relationships between the number of forms of past-year abuse with cognitive ED symptoms.

Associations Between Past-Year Abuse and Behavioral Eating Disorder Symptoms

After adjusting for demographics and weight status, past-year emotional and sexual abuse were each independently associated with greater prevalence of binge eating and purging, and

past-year physical abuse was independently associated with greater prevalence of purging but not binge eating (Table 5). In mutually adjusted models, past-year emotional abuse remained associated with greater prevalence of binge eating (prevalence ratio [PR] = 1.23, 95% CI: 1.08, 1.41) and purging (PR = 1.68, 95% CI: 1.30, 2.16), and past-year sexual abuse remained associated with greater prevalence of purging (PR = 1.71, 95% CI: 1.14, 2.56). From mutually adjusted models, the adjusted prevalence of binge eating was 35.4% among participants reporting past-year emotional abuse versus 28.7% among participants not reporting past-year emotional abuse, and the adjusted prevalence of purging was 7.6% versus 4.5% among participants reporting and not reporting past-year emotional abuse, respectively, and 7.9% versus 4.6% among participants reporting and not reporting past-year sexual abuse, respectively. No other significant associations were observed in mutually adjusted models. Sensitivity analyses did not indicate a dose-response relationship between the number of forms of past-year abuse with binge eating but did suggest a dose-response relationship with purging. Compared to participants reporting no forms of past-year abuse, the prevalence of purging was 1.60 (95% CI: 1.22, 2.10) times greater among those reporting one form of past-year abuse, 2.51 (95% CI: 1.71, 3.67) times greater among those reporting two forms of past-year abuse, and 3.73 (95% CI: 2.02, 6.89) times greater among those reporting three forms of past-year abuse.

Discussion

The current study examined relationships between different forms of past-year abuse and current ED symptoms among college students. When distinct forms of abuse were examined separately, emotional, physical, and sexual abuse each exhibited associations with ED symptoms. However, when all three forms of past-year abuse were examined simultaneously, emotional abuse emerged as a key correlate of all ED symptoms examined, while sexual abuse also emerged as a key correlate of shape/weight overvaluation and purging. Additionally, evidence suggestive of a dose-response relationship was observed for purging, such that the greater the number of forms of past-year abuse experienced, the more commonly purging was reported.

These findings extend prior research in this area, which has most commonly focused on abuse experienced during childhood or sexual abuse experienced beyond childhood, by examining multiple forms of abuse experienced recently among college students. Consistent with previous research (Collins et al., 2014; Dubosc et al., 2012; Fischer et al., 2010; Stephens & Wilke, 2016), the current study supports an association between sexual abuse beyond childhood and ED symptoms and adds to this literature base by also demonstrating links with other forms of abuse beyond childhood. It is notable that within our sample of college students, past-year emotional abuse was identified as a particularly salient correlate of ED symptoms, which is consistent with earlier research identifying childhood emotional abuse as a key contributor to later ED symptoms (Afifi et al., 2017; Fischer et al., 2010; Kent et al., 1999; Ziobrowski et al., 2020). Together, these findings suggest that individuals experiencing emotional abuse may be at particularly heightened risk for ED symptoms, regardless of their age at the time of the abuse.

The associations observed between past-year emotional abuse and ED symptoms in the present study might be explained, in part, by emotion dysregulation. Emotion dysregulation is strongly implicated in EDs (Lavender et al., 2015), and emotional abuse can involve emotional invalidation (i.e., rejection or dismissal of one's emotional experiences), a contributor to emotion dysregulation that Waller and colleagues posited may play a key role in the pathway between emotional abuse and EDs (Waller et al., 2007). While emotion dysregulation can also occur with other forms of abuse (Burns et al., 2012; Moulton et al., 2015), Waller and colleagues theorized that emotional abuse may be particularly impactful in that having one's feelings invalidated by others may lead to difficulties in identifying, expressing, and managing emotional states (Waller et al., 2007). Empirical evidence supports this idea in the context of childhood emotional abuse, such that emotion dysregulation has been found to partially mediate associations between childhood emotional abuse and ED symptoms (Burns et al., 2012; Moulton et al., 2015). While the present study examined past-year abuse among college students rather than childhood abuse, our sample was comprised primarily of emerging adults, and evidence suggests that emotion regulation skills are still developing in emerging adulthood (Zimmermann & Iwanski, 2014).

While emotion dysregulation may also help explain the association observed between past-year sexual abuse and purging in this sample, evidence suggests the possibility of other important mechanisms as well (Madowitz et al., 2015). Other such mechanisms thought to be implicated in the pathway between sexual abuse and EDs – defined broadly – include body dissatisfaction, impulsivity, and comorbid psychiatric disorders such as posttraumatic stress disorder, anxiety, and depression (Madowitz et al., 2015). With regard specifically to purging and related ED diagnoses (e.g., bulimia nervosa), however, evidence indicates that impulsivity may play a particularly important role (Madowitz et al., 2015; Wonderlich et al., 2001). Impulsivity has previously been found to help explain the relationship between childhood sexual abuse and purging (Wonderlich et al., 2001), and similar to emotion regulation, evidence suggests impulse control continues to develop during emerging adulthood (Harden & Tucker-Drob, 2011). To better understand the roles of these hypothesized mechanisms, however, future work should investigate the extent to which abuse during emerging adulthood may impact emotion dysregulation and impulsivity.

Strengths of the present study include the large sample size and the assessment of ED symptoms via a measure with strong psychometric properties (Grilo et al., 2015; Machado et al., 2018). Relatedly, the prevalence estimates of behavioral ED symptoms observed in the present study are similar to those previously published as norms in college student samples (Lavender et al., 2010; Luce et al., 2008; Quick & Byrd-Bredbenner, 2013). Additionally, in contrast with prior research on abuse occurring after childhood, which has focused largely on sexual abuse among women (Collins et al., 2014; Dubosc et al., 2012; Fischer et al., 2010; Stephens & Wilke, 2016), the present study included men as well as gender minorities and examined multiple forms of abuse beyond sexual abuse. This study also has important limitations to note. Due to the cross-sectional nature of the data, we are unable to infer temporality or causality. Relatedly, data on childhood abuse were not available in this sample. We were therefore unable to explore the extent to which students reporting past-year abuse had also been abused during childhood, and we were unable to adjust for this potentially confounding variable. Additionally, past-year abuse was assessed

via a small set of self-report items that have not been validated, though any potential misclassification is expected to be non-differential with respect to ED symptoms. Low response rate is another key limitation of our study. While we utilized sample probability weights to account for nonresponse based on administrative data from the full population, these weights do not account for differences that may exist between responders and non-responders on characteristics that were not measured among non-responders, such as abuse and ED symptoms.

Findings from this study have important public health and clinical implications. The results of this study — combined with well-documented evidence of the detrimental short- and long-term health effects that posttraumatic stress and disordered eating can each have if not intervened upon (Brewerton, 2007; Field et al., 2012; Micali et al., 2015; Pacella et al., 2013) — support the need for prevention and early intervention efforts in college student populations. From a public health perspective, these findings emphasize the need for abuse and ED prevention efforts on college campuses, ideally across multiple levels of influence (e.g., bystander intervention programs, as well as campus-wide campaigns and policies) and in conjunction with initiatives to becoming trauma-informed institutions at every level (e.g. systems, practices, policies). Clinically, the results of this study highlight the importance of screening for abuse and ED symptoms and offering appropriate evidence-based services through college health and counselling centers. To successfully screen for these concerns and support evidence-based interventions, clinicians on college campuses should receive training on evidence-based screening tools and treatment options, as well as on trauma-informed care. Additionally, the link observed between abuse and ED symptoms indicates that students seeking treatment after trauma should also be screened for ED symptoms, and, likewise, students seeking ED treatment should also be screened for trauma. More research is needed, however, to better understand the nature of abuse occurring among college students and its relationship with ED symptoms in order to most effectively intervene.

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Table 1.Sample Characteristics ($N= 10,204$)

| | % (<i>n</i>) |
|-----------------------------|----------------|
| Gender identity | |
| Cisgender male | 44.3 (3,066) |
| Cisgender female | 54.4 (7,012) |
| Gender minority | 1.3 (109) |
| Race/ethnicity | |
| Non-Hispanic white | 66.7 (7,199) |
| Non-Hispanic black | 5.7 (478) |
| Hispanic/Latinx | 9.7 (860) |
| Asian/Pacific Islander | 14.0 (1,207) |
| Other | 3.9 (439) |
| Socioeconomic background | |
| Lower socioeconomic status | 27.9 (2,864) |
| Higher socioeconomic status | 72.1 (7,340) |
| Higher weight status | |
| Any past-year abuse | 29.9 (2,009) |
| Past-year emotional abuse | 6.9 (779) |
| Past-year physical abuse | 6.7 (740) |
| Past-year sexual abuse | 1.2 (138) |
| Past-year sexual abuse | 1.5 (181) |
| Behavioral ED symptoms | |
| Binge eating | 30.2 (3,120) |
| Purging | 5.6 (595) |
| Mean (SD) | |
| <hr/> | |
| Age in years | 23.38 (12.57) |
| Cognitive ED symptoms | |
| Dietary restraint | 2.05 (4.14) |
| Shape/weight overvaluation | 1.89 (4.12) |
| Body dissatisfaction | 2.34 (4.08) |

ED = eating disorder; *SD* = standard deviation. Statistics are weighted to account for non-response, with the exception of *n*'s, which represent observed counts.

Table 2.

Overlap Between Forms of Past-Year Abuse

| | Past-Year Emotional Abuse (<i>N</i> = 740) | Past-Year Physical Abuse (<i>N</i> = 138) | Past-Year Sexual Abuse (<i>N</i> = 181) |
|---|---|--|--|
| | % (<i>n</i>) | | |
| Did not report other forms of past-year abuse | 72.8 (507) | 10.1 (13) | 26.1 (47) |
| Also reported past-year emotional abuse | -- | 86.6 (120) | 71.3 (125) |
| Also reported past-year physical abuse | 16.1 (120) | -- | 21.3 (37) |
| Also reported past-year sexual abuse | 15.6 (125) | 25.1 (37) | -- |

Percentages are weighted to account for non-response; *n*'s represent observed counts. Summed values exceed 100% and total sample size because some participants reported all three forms of past-year abuse.

Table 3.**Bivariate Correlations Between Past-Year Abuse and Eating Disorder Symptoms**

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|-------------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| 1. Past-year emotional abuse | -- | | | | | | |
| 2. Past-year physical abuse | .36 ^{***} | -- | | | | | |
| 3. Past-year sexual abuse | .32 ^{***} | .22 ^{***} | -- | | | | |
| 4. Dietary restraint | .04 ^{***} | .02 [*] | .03 ^{**} | -- | | | |
| 5. Shape/weight overvaluation | .14 ^{***} | .05 ^{***} | .07 ^{***} | .46 ^{***} | -- | | |
| 6. Body dissatisfaction | .12 ^{***} | .04 ^{***} | .06 ^{***} | .47 ^{***} | .74 ^{***} | -- | |
| 7. Binge eating | .05 ^{***} | .01 | .04 ^{***} | .25 ^{***} | .33 ^{***} | .34 ^{***} | -- |
| 8. Purging | .07 ^{***} | .04 ^{***} | .07 ^{***} | .21 ^{***} | .25 ^{***} | .22 ^{***} | .22 ^{***} |

*
 $p < .05$

**
 $p < .01$

 $p < .001$.

Table 4.

Associations Between Past-Year Abuse and Cognitive Eating Disorder Symptoms

| | Dietary Restraint | Shape/Weight Overvaluation | Body Dissatisfaction |
|---------------------------------------|---------------------|----------------------------|----------------------|
| | <i>b</i> (95% CI) | | |
| <i>Independent associations</i> | | | |
| Past-year emotional abuse | 0.25 (0.10, 0.40)** | 0.90 (0.75, 1.04)*** | 0.66 (0.52, 0.80)*** |
| Past-year physical abuse | 0.28 (-0.06, 0.61) | 0.72 (0.38, 1.07)*** | 0.52 (0.19, 0.84)** |
| Past-year sexual abuse | 0.40 (0.10, 0.71)** | 0.89 (0.58, 1.19)*** | 0.65 (0.36, 0.94)*** |
| <i>Mutually adjusted associations</i> | | | |
| Past-year emotional abuse | 0.20 (0.04, 0.37)* | 0.85 (0.69, 1.01)*** | 0.63 (0.48, 0.78)*** |
| Past-year physical abuse | 0.05 (-0.32, 0.42) | -0.04 (-0.41, 0.32) | -0.05 (-0.39, 0.30) |
| Past-year sexual abuse | 0.26 (-0.07, 0.58) | 0.35 (0.03, 0.67)* | 0.26 (-0.05, 0.56) |

CI = confidence interval. All models were adjusted for age, gender identity, race/ethnicity, socioeconomic background, and weight status. Coefficients are unstandardized.

* $p < .05$

** $p < .01$

*** $p < .001$

all estimates indicated as significant remained significant after applying Benjamini-Hochberg false discovery rate procedures.

Table 5.

Associations Between Past-Year Abuse and Behavioral Eating Disorder Symptoms

| | Binge Eating | Purging |
|---------------------------------------|-----------------------|-----------------------|
| | PR (95% CI) | |
| <i>Independent associations</i> | | |
| Past-year emotional abuse | 1.25 (1.11, 1.41) *** | 1.91 (1.53, 2.39) *** |
| Past-year physical abuse | 1.13 (0.86, 1.49) | 2.01 (1.31, 3.08) ** |
| Past-year sexual abuse | 1.33 (1.09, 1.62) ** | 2.46 (1.71, 3.55) *** |
| <i>Mutually adjusted associations</i> | | |
| Past-year emotional abuse | 1.23 (1.08, 1.41) ** | 1.68 (1.30, 2.16) *** |
| Past-year physical abuse | 0.92 (0.68, 1.23) | 1.12 (0.70, 1.80) |
| Past-year sexual abuse | 1.18 (0.95, 1.47) | 1.71 (1.14, 2.56) ** |

PR = prevalence ratio; CI = confidence interval. All models were adjusted for age, gender identity, race/ethnicity, socioeconomic background, and weight status.

* $p < .05$

** $p < .01$

*** $p < .001$

all estimates indicated as significant remained significant after applying Benjamini-Hochberg false discovery rate procedures.