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Eating Disorder Psychopathology as a Marker of Psychosocial Distress and Suicide Risk in Female and Male Adolescent Psychiatric Inpatients

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Abstract

Objective—To examine psychosocial correlates of specific aspects of eating disorder (ED) psychopathology (i.e., dietary restriction, body dissatisfaction, binge eating, and self-induced vomiting) in psychiatrically-hospitalized adolescent girls and boys.

Method—Four hundred and ninety-two psychiatric inpatients (286 girls and 206 boys), aged 12 to 19 years, completed self-report measures of psychosocial and behavioral functioning including measures of suicide risk and ED psychopathology. Associations between ED psychopathology and psychosocial functioning were examined separately by sex and after controlling for depressive/negative affect using Beck Depression Inventory scores.

Results—Among boys and girls, after controlling for depressive/negative affect, ED psychopathology was significantly associated with anxiety, low self-esteem, and current distress regarding childhood abuse. Among girls, after controlling for depressive/negative affect, ED psychopathology was significantly related to hopelessness and suicidality. Among boys, after controlling for depressive/negative affect, ED psychopathology was positively related to self-reported history of sexual abuse and various externalizing problems (drug abuse, violence, and impulsivity).

Conclusion—In psychiatrically hospitalized adolescents, ED psychopathology may be an important marker of broad psychosocial distress and behavioral problems among girls and boys although the nature of the specific associations differs by sex.

Adolescence represents a period of risk for the development of eating disorders (ED) and studies with community-based and clinically-referred adolescents suggest that ED psychopathology is associated with significant psychosocial distress and problems including internalizing and externalizing symptoms, abuse, and suicidality (e.g., 1,2,3,4). Despite the severity of these associated psychosocial problems, ED psychopathology has received less attention in psychiatrically hospitalized adolescents (5). Perhaps of particular importance for clinicians working with adolescent psychiatric inpatient populations is the growing body of research documenting an association between ED psychopathology and suicidality across diverse clinical and community samples. Specifically, EDs (particularly anorexia nervosa) are

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associated with the high rates of completed suicide and two risk factors for suicide, suicidal ideation and a history of attempts (e.g., 6), are also common across the spectrum of disordered eating (e.g., 1). Research with community-based adolescent populations also reports a relationship between ED psychopathology and suicidal ideation, self-injurious behavior, and suicide attempts (e.g., 7,8,4,9,10). Although suicide is the third leading cause of death among adolescents (11) and a voluminous literature exists on the correlates of suicide risk in adolescents (12,13,14,15,6,16) there is little research examining ED psychopathology and suicidality in psychiatrically hospitalized adolescents. This is an important gap as suicidality is amongst the most common problems warranting psychiatric hospitalization (17).

To be of greatest benefit research on ED psychopathology in adolescent psychiatric inpatients will need to address limitations identified in previous studies of correlates of ED psychopathology. First, research to date has focused almost exclusively on females. The occurrence of ED psychopathology amongst males is becoming increasingly recognized (18, 19) and research is needed to understand the clinical presentation of males with these symptoms. Second, mood disorders, ED psychopathology, and psychosocial problems often co-occur (e.g., 2,3) therefore controlling for the impact of depressive symptoms will be necessary to allow for some specificity of the findings. Third, adolescents often experience the onset of one or two ED symptoms rather than multiple symptoms or full-blown diagnoses (20,21) and it is well established that the majority of patients who present for treatment, particularly adolescents, are best categorized as eating disorder NOS (22,23). Also, specific aspects of ED psychopathology including severe dietary restriction, self-induced vomiting, binge eating, and body dissatisfaction differ in their relationships with various aspects of psychosocial functioning (e.g., 22,24). As such, it is important to examine aspects of ED psychopathology independently. Thus, the current study aimed to examine psychosocial correlates of specific aspects of ED psychopathology (i.e., dietary restriction, body dissatisfaction, binge eating, and self-induced vomiting) in psychiatrically-hospitalized adolescent girls and boys.

Method

Participants

Participants were a nearly consecutive series of 492 patients admitted to the adolescent treatment unit of a private, not-for-profit, psychiatric teaching hospital between 1997–2000 They ranged in age from 12 to 19 years (M = 15.86; SD = 1.46); 286 (58.13%) were female and 206 (41.87%) were male. The majority (79.3%) were Caucasian (10.0% were Hispanic American, 10.0% were African American, and 0.8% were of other backgrounds). Participants were admitted due to their need for inpatient-level psychiatric intervention, and no other selection processes were used. Participants were hospitalized for a variety of serious psychiatric problems (i.e., this was not a specialty ED unit). All participants were assessed clinically with respect to their appropriateness for participating in the assessment protocols, and very few were excluded. Exclusions were due to difficulty with reading or language comprehension, active psychosis, or agitation or confusion. IRB Human subjects approval was obtained for chart review of the psychological assessments At the time of admission, and after complete explanation of the assessment procedures, written informed consent was obtained from all participants. For minors, assent was obtained from participants and consent was obtained from their parents or guardians

Measures

Assessments were conducted as part of an overall evaluation procedure, completed within one to four days after admission. For this study, we chose specific measures from the assessment battery that would evaluate ED psychopathology, suicide risk, violence risk, and representative

psychological correlates drawn from the literature. The following is a brief description of these measures:

ED Psychopathology, Anxiety, Abuse, and Suicidality

Millon Adolescent Clinical Inventory: (MACI; 25). The MACI consists of 160 true-false items, was developed and normed with clinical samples (26,25). The MACI comprises 27 clinical scales that tap clinical syndromes, expressed concerns, and personality styles and contains basic validity checks. All participants included in the current style passed the validity checks. The MACI, a widely used assessment instrument (27), has demonstrated good internal consistency, test-retest reliability, and has been validated against various measures by several research groups (26,28,29,30). In the present study, relevant items from the MACI were used to create variables reflecting four specific ED psychopathology domains and anxiety, history of sexual abuse and current psychological sequelae to the abuse, and history of attempted suicide.

Although two MACI scales (Eating Dysfunction and Body Disapproval) assess global constructs related to ED psychopathology, we generated four specific variables given our interest in specific features of eating and body image disturbance. The MACI lends itself well to this approach because it provides "prototypic" items for each scale (these are weighted most heavily in the usual scoring)(18,25,30). The MACI items identified as prototypic for the Eating Dysfunction and the Body Disapproval scales supported the creation of three specific scales (restriction, body dissatisfaction, and binge eating) and a categorical self-induced vomiting variable. The Restriction scale consists of three items assessing extreme attempts to restrict dietary intake (e.g., "I'm willing to starve myself to be even thinner than I am") with total scale scores ranging from 0 to 3 (positive endorsement on each item on the scale). The Body Dissatisfaction scale consists of 5 items assessing adolescent's thoughts and feelings about their body shape and weight and appearance (e.g., "I think I have a good body") with scale scores ranging from 0 to 5. The Binge Eating scale consists of three items (e.g., "I go on eating binges a couple times a week") with scale scores ranging from 0 to 3. Self-induced vomiting was assessed categorically with a single item ("I sometimes force myself to vomit after eating a lot").

The MACI items identified as prototypic from the Anxious Feelings scale were used to create the Anxiety scale. This scale consists of five items (e.g., "I spend a lot of time worrying about my future) with scale scores ranging from 0 to 5. Similarly, prototypic items from the Childhood Abuse scale were used to create the Abuse Sequelae and Sexual Abuse scales. The Abuse Sequelae scale consists of three items assessing *current* psychological sequelae to childhood abuse (e.g., "I'm ashamed of some terrible things adults did to me when I was young") with scores ranging from 0 to 3. The History of Sexual Abuse scale consists of two items assessing past sexual abuse (e.g., "People did things to me sexually when I was too young to understand"). The correlation between Abuse Sequelae and History of Sexual Abuse scales was $r = .59$, $p < .001$ suggesting that the scales did assess different aspects of abuse. Finally consistent with previous methods of assessing suicidality (13), history of attempted suicide was assessed with a single item ("I have tried to commit suicide in the past").

Internalizing Symptoms

Beck Depression Inventory: The 21-item version of the BDI (31,32) is a well-established inventory of the symptoms of depression. It has been utilized extensively within adolescent populations, and has been shown to have excellent psychometric properties in adolescent patients, including good internal consistency and test-retest reliability (33,34).

Hopelessness Scale for Children: The HSC (35) is a 17-item scale for children and adolescents that measures negative expectations about the future. It has been used with adolescents, and has demonstrated good psychometric properties (35,36).

Rosenberg Self-Esteem Scale: The RSES (37) is a 10-item measure of global self-esteem. A higher total score reflects greater self-esteem. Studies in adolescents have demonstrated good reliability and validity (37,38).

Externalizing Symptoms

Adolescent Alcohol Involvement Scale: The AAIS (39) is a 14-item screening measure of alcohol abuse for use in adolescent populations. It has demonstrated good psychometric properties, including excellent internal consistency and test-retest reliability, in clinical and community samples of adolescents (39,40).

Drug Abuse Screening Test for Adolescents: The DAST-A (41) is a 27-item screening measure for drug abuse, adapted from the adult version (42) for use in adolescent populations. It has demonstrated good psychometric properties—including good internal consistency, high test-retest reliability, and good concurrent validity—in adolescent inpatient samples (41).

Past Feelings and Acts of Violence Scale: The PFAV (43) is a 12-item scale that inquires about acts of violence against others, use of weapons, arrests, and loss of temper. It has been shown to have good psychometric properties in adults and adolescents, and to discriminate between violent and non-violent adolescent inpatients (44,43).

Impulsivity Control Scale: The ICS (45) is a 15-item measure designed to assess impulsivity that is independent of aggressive behavior. It has been shown to have good internal consistency and concurrent validity in adolescents (44,45).

Suicidality

Suicide Risk Scale: The SRS (46) is a 15-item measure of present suicidal impulses, past suicidal behavior, and other items that have been shown to be associated with suicide risk. It has been demonstrated to have good psychometric properties in adults and adolescents—including discrimination, in both age groups, between patients who have and who have not made suicide attempts (44,45,19,46).

Data Analysis—A series of Pearson's correlations were conducted to examine the association between specific features of ED psychopathology (dietary restriction, body image dissatisfaction, binge eating, and self-induced vomiting) and internalizing (depression, hopelessness, anxiety, and self-esteem) and externalizing (alcohol and drug use, experiences with violence, and impulsivity) symptoms, abuse, and risk of suicide. To assess the association between these variables after controlling for depressive symptoms, partial correlations controlling for Beck Depression Inventory (BDI) scores were also conducted. A series of Multivariate Analysis of Variance (MANOVA) and Multivariate Analysis of Covariance (MANCOVA) were conducted to compare adolescents who did and did not report a past suicide attempt on ED psychopathology, internalizing and externalizing symptoms, and abuse, with and without controlling for depressive symptoms. For each MANOVA and MANCOVA ED psychopathology, internalizing symptoms, externalizing symptoms or abuse variables served as the dependent variables, suicide attempt status (present or absent) served as the fixed factor independent variable. BDI scores served as the covariate for MANCOVAs. Chi square analyses were used to compare groups on the categorical variable self-induced vomiting. To explore whether the pattern of results were comparable for females and males, all analyses were conducted for the entire sample and for females and males separately.

Results

Description of ED Psychopathology

Mean Restriction scores for the entire sample, females, and males were .74 (*SD* = 1.09), 1.05 (*SD* = 1.18), and .32 (*SD* = .77), respectively. Mean Body Dissatisfaction scores for the entire sample, females, and males were 2.48 (*SD* = 2.02), 3.06 (*SD* = 1.99), and 1.67 (*SD* = 1.77), respectively. Mean Binge Eating scores for the entire sample, females, and males were .54 (*SD* = .84), .62 (*SD* = .94), and .43 (*SD* = .69), respectively. Sixty-one (12.4%) adolescents (50 females and 11 males) reported that they had induced vomiting after eating a large amount of food.

ED Psychopathology, Internalizing and Externalizing Symptoms, Abuse, and Suicide Risk

Table 1, Table 2, and Table 3 show the correlations between ED psychopathology and internalizing and externalizing symptoms, abuse, and suicide risk, as well as the partial correlations between these variables controlling for BDI scores for the entire sample, females, and males, respectively. Many correlations remained significant even after controlling for depressive symptoms assessed using the BDI. The significant partial correlations controlling for BDI scores are described below. For internalizing symptoms, amongst females and males body dissatisfaction was positively associated with anxiety and negatively associated with self-esteem, and binge eating was positively associated with anxiety. Within females (but not males) dietary restriction and binge eating were negatively associated self-esteem, and body dissatisfaction was positively associated with feelings of hopelessness. For externalizing symptoms, problems with impulse control were positively associated with binge eating for the entire sample, females, and males. Violent behavior was positively associated with binge eating and self-induced vomiting for males but not females. For abuse, current psychological distress related to childhood abuse was positively related to dietary restriction and self-induced vomiting among females, and to dietary restriction, binge eating, and self-induced vomiting among males. History of sexual abuse was not significantly related to ED psychopathology for females but was positively associated with dietary restriction and self-induced vomiting among males. Finally, greater risk for suicide (i.e., higher scores on the Suicide Risk Scale) was positively associated with dietary restriction and body dissatisfaction for females but not males.

Attempted Suicide and ED Psychopathology, Internalizing and Externalizing Symptoms, and Abuse

On the MACI, 188 females and 79 males reported having made a suicide attempt. Supporting the validity of the categorical attempted suicide variable, relative to adolescents who denied having attempted suicide, adolescents who endorsed a past suicide attempt had significantly higher Suicide Risk Scores ($t(475) = -13.63$, $t(273) = -11.49$, and $t(200) = -6.14$, all p's < .01, for the entire sample, females, and males, respectively). The three chi-square analyses comparing endorsement of self-induced vomiting (present or absent) and attempted suicide (present or absent) for the entire sample and for females and males separately were each significant (χ^2 (1) = 19.05, $p < .001$, χ^2 (1) = 7.12, $p < .01$, and χ^2 (1) = 5.81, $p < .05$, respectively). For both females and males self-induced vomiting was associated with reported attempted suicide. Within females, 41 (82.0%) of the 50 adolescents who endorsed self-induced vomiting also reported that they had attempted suicide. Similarly, 8 (72.7%) of the 11 male adolescents who endorsed self-induced vomiting also reported that they had attempted suicide. Thus, the majority of both male and female adolescents who reported self-induced vomiting also reported having made a suicide attempt.

Four MANOVAs and four MANCOVAs, the first with ED psychopathology, the second with internalizing symptoms, the third with externalizing symptoms, and the fourth with abuse as the dependent variables, suicide status (i.e., attempt vs. no attempt) as the fixed factor, and BDI

scores as the covariate for the MANCOVAs were significant for the entire sample and for females (all *p*'s < . 05). For the entire sample and within females subsequent univariate ANOVAs and ANCOVAs revealed that relative to adolescents who denied having made a suicide attempt, adolescents who reported a suicide attempt also reported greater dietary restriction and body dissatisfaction, higher anxiety and lower self-esteem, more alcohol and drug abuse, and greater psychological sequelae associated with abuse and history of sexual abuse before and after controlling for levels of depression. Groups differed on feelings of hopelessness before but not after controlling for BDI scores. The entire sample (but not females alone) differed on binge eating and impulse control before but not after controlling for depression. Groups did not significantly differ on history of violent behavior. The pattern of results differed for males. The MANOVAs comparing males who did and did not report a previous suicide attempt on ED psychopathology and internalizing symptoms were significant ($p < .05$). Subsequent univariate ANOVAs revealed that relative to males who denied a past suicide attempt, males who reported a suicide attempt also reported greater dietary restriction and body dissatisfaction, and greater depression and anxiety, and lower self-esteem. For males, differences on ED psychopathology and internalizing symptoms were no longer significant after removing the effects of depression ($p > .15$). MANOVAs and MANCOVAs comparing males who did and did not report a suicide attempt on externalizing symptoms and abuse variables were not significant (all *p*'s >.10). Means and standard deviations for significant MANOVAs and MANCOVAs for females and males, as well as F-tests and effect sizes, are presented in Table 4.

Discussion

This study assessed the relationship between specific aspects of ED psychopathology and psychosocial functioning in 492 female and male adolescent psychiatric inpatients. Different patterns of association emerged between ED psychopathology and psychosocial functioning among females and males. In general consistent with previous research, among females ED psychopathology was related to greater internalizing symptoms. Among males, body dissatisfaction and binge eating were related to greater anxiety, and binge eating and self-induced vomiting were related to greater externalizing symptoms such as drug abuse, violent behavior, and impulsivity. History of sexual abuse was positively related to dietary restriction and self-induced vomiting for males but was largely unrelated to ED psychopathology for females. After removing the effects of depression, suicidality was related to ED psychopathology among females but not males. These different patterns of findings between sexes highlight the need for further research on ED psychopathology amongst males as they suggest that the clinical presentation of males and females with ED psychopathology may differ. In addition, because research with females highlights the association between ED psychopathology and internalizing symptoms, ED symptoms among males presenting with aggressive/impulsive behavior and drug use may be overlooked. Given the severe health concerns associated with ED psychopathology such as self-induced vomiting, this oversight could be especially detrimental amongst adolescents given the rapid physical and cognitive development that typically occurs in this age group.

Sexual abuse has been widely considered a potential risk factor in the development of disordered eating (e.g., 47,48), although considerable research suggests that sexual abuse might be better viewed as a non-specific risk factor for the development of psychiatric problems in general (e.g., 49,50). In the current study both prior to and after removing the effects of depression, across genders current psychological sequelae to childhood abuse such as feelings of anger, embarrassment, and guilt about past abuse were more consistently and strongly related to ED psychopathology than were reports of a history of sexual abuse. In fact, for females a history of sexual abuse was only related to dietary restriction prior to removing the effects of depression. In contrast, for males some specific ED features (dietary restriction and self-

induced vomiting), but not others (binge eating and body dissatisfaction) were associated with reports of a history of sexual abuse, even when controlling for depressive symptoms. Our findings with females are consistent with a growing body of research with older samples (e.g., 51,52) that has failed to find significant specific relationships between a history of sexual abuse and ED psychopathology, although some studies with women have reported specific associations (10). Our findings for males, however, were suggestive of specific associations between both a history childhood sexual abuse and abuse sequelae and specific features of ED psychopathology. These findings require further investigation. It may be that previous research that has reported an association between sexual abuse and ED psychopathology failed to differentiate between being a victim of childhood sexual abuse from individuals' psychological reaction to abuse and/or failed to consider the role of gender in this association. The association between ED psychopathology and current sexual abuse was not assessed in the present study, and this needs to be addressed in future research.

For both males and females, self-reported history of suicide attempt was associated with greater dietary restriction, body dissatisfaction, and self-induced vomiting. For females, a history of attempted suicide and greater risk of suicide remained positively associated with dietary restriction and body dissatisfaction even after removing the effects of depression. The association between suicidality and ED psychopathology has now been documented in community, ED, and general inpatient psychiatric adolescent populations. Despite this growing body of research, psychometrically established measures of ED psychopathology are rarely included in studies of self-injurious behavior and suicidality outside of the ED literature. There may be a tendency to dismiss adolescents' weight loss behaviors and concerns regarding their body shape and weight as normative or at least of less clinical importance. This may be particularly true when the symptoms are sub-threshold and occur in the context of severe psychiatric problems and complicated developmental histories common amongst adolescent inpatients. However, body image is a key determinant of adolescents' self-esteem (53). Depression, teasing, peer victimization, and feelings of loneliness and hopelessness are also commonly associated with extreme attempts at weight loss and body dissatisfaction (54). Thus, weight loss behaviors and body dissatisfaction may represent a much broader composite of psychosocial impairment and distress that may warrant consideration or attention in treatment even if these difficulties do not meet diagnostic criteria. Addressing issues of body dissatisfaction may serve to improve adolescents' feelings about themselves in general thereby enhancing resilience. Further research is needed to understand the context with which body dissatisfaction leads to suicidal thoughts and behaviors amongst some but not all adolescents. Clinically, body dissatisfaction may serve as a gateway to engaging adolescents in treatment. Given the socially sanctioned nature of criticizing one's weight or shape, particularly for females, adolescents may feel relatively open to discussing these feelings in therapeutic contexts. Perhaps after the therapeutic relationship is established adolescents may be more comfortable discussing other associated areas of psychosocial functioning.

ED symptoms were significantly associated with a broad range of heightened psychosocial difficulties in adolescents who were psychiatrically hospitalized in a general (i.e., non ED specific) tertiary-care inpatient facility. Our findings have considerable implications for clinical practice and for future research. Clinically, our findings suggest that the presence of ED features (which are much more prevalent than full-threshold ED diagnoses) (55) may represent a strong marker for a range of heightened internalizing and externalizing problems. Our findings that the associations between ED features and psychosocial problems differ considerably by gender have implications for prevention/clinical efforts and for future research. It is important that prevention and clinical efforts not overlook males when planning interventions; although ED features are present in males less frequently than in females they are nonetheless associated with a range of serious internalizing and externalizing problems. Future research should attempt to replicate our findings in diverse subject groups using more

comprehensive assessment methods. Our findings are limited by our reliance on self-report methods. Although we used well-established self-report measures for most psychological and behavioral domains, our reliance on the MACI-based assessment of the features of eating disorders represents a potential limitation. We note, however, that this method has been used previously (18) and the domains selected have strong face validity in terms of representing core aspects of EDs. Nonetheless, to build on our findings future research should utilize more comprehensive and multi-method assessments. Lastly, the association between ED psychopathology and suicidality warrants further examination in longitudinal studies, and severe dietary restriction and body dissatisfaction deserve additional attention in the suicide literature.

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Table 1

Correlations between ED psychopathology and internalizing and externalizing symptoms, abuse, and suicidality (N=492).

	Restriction		Body Dissatisfaction		Binge Eating		Self-Induced Vomiting [A]	
		Partial BDI		Partial BDI		Partial BDI		Partial BDI
Internalizing								
BDI	.36***	–	.51***	–	.27***	–	.24***	–
Hopelessness	.26***	.02	.41***	.09*	.18***	−.01	.14**	−.04
Anxiety	.22***	.10*	.34***	.17***	.28***	.19***	.16***	.08
Self-esteem	−.37***	−.17***	−.59***	−.37***	−.26***	−.09	−.20***	−.03
Externalizing								
Alcohol Use	.08	.03	.12*	.05	.09*	.06	.11*	.08
Drug Use	−.01	−.07	.00	−.09	.07	.03	.10*	.07
Violence	.10*	−.02	.09*	−.09*	.18***	.10*	.16***	.09*
Impulsivity	.15**	.02	.21***	.03	.25****	.16***	16***	.08
Abuse								
Abuse Sequelae	.27***	.19***	.25***	.13**	.13*	.06	.25***	.20***
History of Sexual Abuse	.19***	.14**	.11*	.03	.11*	.07	.15**	.11*
Suicidality								
Suicide Risk	.34***	.12**	.48***	.16**	.25***	.07	.20***	.03

Note. BDI = Beck Depression Inventory, Hopelessness = Hopelessness Scale for Children, Self-esteem = Rosenberg Self-esteem Scale, Alcohol Use = Adolescent Alcohol Involvement Scale, Drug Use = Drug Abuse Screening Test for Adolescents, Violence = Past Feelings and Acts of Violence Scale, Impulsivity = Impulsivity Control Scale, Suicide Risk = Suicide Risk Scale.

[A] point-biserial correlations were conducted for the categorical variable self-induced vomiting.

* p<.05,

** p<.01,

*** p<.001.

Table 2

Correlations between ED psychopathology and internalizing and externalizing symptoms and history of abuse for female participants (n=286).

	Restriction		Body Dissatisfaction		Binge Eating		Self-Induced Vomiting[A]	
		Partial BDI		Partial BDI		Partial BDI		Partial BDI
Internalizing								
BDI	.31***	–	.45***	–	.28***	–	.22***	–
Hopelessness	.27***	.07	.40***	.13**	.20**	.00	.14*	.02
Anxiety	.20**	.09	.30***	.17**	.27***	.19**	.18**	.11
Self-esteem	−.39***	−.25***	−.56***	−.40***	−.33***	−.20**	−.23***	−.11
Externalizing								
Alcohol Use	.06	.01	.07	−.00	.10	.06	.12	.08
Drug Use	.00	−.06	.02	−.07	.08	.04	.09	.05
Violence	.15*	.05	.11	−.06	.17**	.08	.17**	.10
Impulsivity	.16**	.05	.18**	.01	.23***	.13*	.17**	.10
Abuse								
Abuse Sequelae	.21***	.14*	.20**	.10	.06	−.01	.21***	.16**
History of Sexual Abuse	.13*	.08	.05	−.04	.11	.06	.10	.07
Suicidality								
Suicide Risk	.31***	.13*	.41***	.15*	.25***	.08	.18**	.04

Note. BDI = Beck Depression Inventory, Hopelessness = Hopelessness Scale for Children, Self-esteem = Rosenberg Self-esteem Scale, Alcohol Use = Adolescent Alcohol Involvement Scale, Drug Use = Drug Abuse Screening Test for Adolescents, Violence = Past Feelings and Acts of Violence Scale, Impulsivity = Impulsivity Control Scale, Suicide Risk = Suicide Risk Scale.

[A] point-biserial correlations were conducted for the categorical variable self-induced vomiting.

* p<.05,

** p<.01,

*** p<.001.

Table 3

Correlations between ED psychopathology and internalizing and externalizing symptoms, abuse, and suicidality for male participants (n=206).

	Restriction		Body Dissatisfaction		Binge Eating		Self-induced Vomiting [A]	
		Partial BDI		Partial BDI		Partial BDI		Partial BDI
Internalizing								
BDI	.32***	–	.54***	–	.22**	–	.22**	–
HSC	.17*	−.05	.39***	.05	.11	−.05	.09	−.09
Anxiety	.25***	.13	.37***	.18**	.29***	.22**	.09	−.00
RSE	−.26***	−.04	−.60***	−.36***	−.09	.11	−.07	.14
Externalizing								
AAIS	.03	.02	.12	.11	.06	.05	.05	.03
DAST-A	.04	−.00	.04	−.05	.07	.04	.19**	.16*
PFAV	.12	.01	.15*	−.05	.22**	.16*	.24**	.17*
ICS	.06	−.04	.20**	.05	.27***	.22**	.11	.05
Abuse								
Abuse Sequelae	.23**	.19**	.18*	.09	.22**	.19**	.27***	.24***
History of Sexual Abuse	.18*	.18*	.07	.07	.05	−.05	.18*	.18*
Suicidality								
SRS	.26***	.02	.46***	.07	.21**	.06	.14*	−.05

Note. BDI = Beck Depression Inventory, Hopelessness = Hopelessness Scale for Children, Self-esteem = Rosenberg Self-esteem Scale, Alcohol Use = Adolescent Alcohol Involvement Scale, Drug Use = Drug Abuse Screening Test for Adolescents, Violence = Past Feelings and Acts of Violence Scale, Impulsivity = Impulsivity Control Scale, Suicide Risk = Suicide Risk Scale.

[A] point-biserial correlations were conducted for the categorical variable self-induced vomiting.

* p<.05,

** p<.01,

*** p<.001.

Table 4

Attempted suicide, ED psychopathology, internalizing and externalizing symptoms, and abuse with and without controlling for the effects of BDI scores.

	No Past Attempt M (SD)	Past Suicide Attempt M (SD)	F	df	η_p^2	MANCOVA controlling for BDI Scores F	df	η_p^2
FEMALES	*(n=98)*	*(n=188)*						
ED Psychopathology			9.42***	3, 282	.09	3.44*	3, 282	.04
Restriction	.65 (.93)	1.26 (1.24)	18.13***		.06	7.38**		.03
Body Dissatisfaction	2.31 (2.11)	3.46 (1.81)	23.15***		.08	6.66*		.02
Binge Eating	.48 (.86)	.69 (.97)	3.14		.01	.06		.00
Internalizing			15.82***	4, 273	.19	7.98***	3, 273	.09
BDI	13.23 (10.63)	22.37 (12.63)	36.58***		.12	–	–	–
Hopelessness	4.54 (3.26)	7.25 (4.51)	27.05***		.09	1.89		.01
Anxiety	1.56 (1.14)	2.25 (1.51)	15.19***		.05	3.95*		.01
Self-esteem	30.02 (6.69)	23.77 (6.31)	59.04***		.18	21.01***		.07
Externalizing			4.10**	4, 268	.06	3.02*	4, 267	.04
Alcohol Use	29.14 (17.08)	36.31 (18.54)	9.61**		.03	5.75*		.02
Drug Use	4.00 (4.65)	6.86 (6.40)	14.44***		.05	9.15**		.03
Violence	7.76 (5.48)	8.98 (5.74)	2.82		.01	.09		.00
Impulsivity	18.83 (6.52)	20.09 (5.69)	2.72		.01	.34		.00
Abuse			12.05***	2, 283	.08	6.93**	2, 282	.05
Abuse Sequelae	.45 (.87)	1.10 (1.19)	22.61***		.07	12.64***		.04
History of Sexual Abuse	.29 (.63)	.67 (.87)	15.06***		.05	9.17**		.03
MALES	*(n=127)*	*(n=79)*						
ED Psychopathology			3.73*	3, 202	.05	1.58	3, 201	.02
Restriction	.22 (.60)	.47 (.96)	5.20*		.03			
Body Dissatisfaction	1.38 (1.59)	2.15 (1.94)	9.69**		.05			
Binge Eating	.40 (.65)	.48 (.75)	.65		.00			

	No Past Attempt M (SD)	Past Suicide Attempt M (SD)	F	df	η_p^2	MANCOVA controlling for BDI Scores F	df	η_p^2
Internalizing			2.43*	4, 189	.05	.81	3, 189	.01
BDI	12.23 (10.54)	16.90 (12.75)	7.31*		.04			
Hopelessness	4.93 (3.56)	5.75 (4.33)	2.05		.01			
Anxiety	1.56 (1.35)	2.05 (1.38)	5.97*		.03			
Self-esteem	29.36 (7.14)	26.88 (7.37)	5.39*		.03			

Note. BDI = Beck Depression Inventory, Hopelessness = Hopelessness Scale for Children, Self-esteem = Rosenberg Self-esteem Scale, Alcohol Use = Adolescent Alcohol Involvement Scale, Drug Use = Drug Abuse Screening Test for Adolescents, Violence = Past Feelings and Acts of Violence Scale, Impulsivity = Impulsivity Control Scale.

* p<.05,

** p<.01,

*** p<.001.