

Published in final edited form as:

*Int J Eat Disord.* 2009 April ; 42(3): 228–234. doi:10.1002/eat.20599.

## DSM-IV Psychiatric Disorder Comorbidity and Its Correlates in Binge Eating Disorder

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### Abstract

**Objective**—To assess DSM-IV lifetime and current psychiatric disorder comorbidity in patients with binge eating disorder (BED) and to examine associations of comorbidity with gender, selected historical obesity-related variables, and current eating disorder psychopathology.

**Method**—A consecutive series of 404 patients with BED (310 women, 94 men) were reliably administered semistructured diagnostic and clinical interviews to assess DSM-IV psychiatric disorders and features of eating disorders.

**Results**—Overall, 73.8% of patients with BED had at least one additional lifetime psychiatric disorder and 43.1% had at least one current psychiatric disorder. Lifetime-wise, mood (54.2%), anxiety (37.1%), and substance use (24.8%) disorders were most common. In terms of current comorbidity, mood (26.0%) and anxiety (24.5%) were most common. Few gender differences were observed; men had higher lifetime rates of substance use disorders and current rates of obsessive compulsive disorder. Patients with BED with current psychiatric comorbidity reported earlier age at first diet and higher “lifetime-high” BMI. Patients with current comorbidity also had significantly higher levels of current eating disorder psychopathology and negative affect and lower self-esteem relative to patients with BED with either lifetime (noncurrent) or no psychiatric histories.

**Discussion**—Among treatment-seeking patients with BED, the presence of current psychiatric comorbidity is associated with greater eating disorder psychopathology and associated distress.

### Keywords

eating disorders; obesity; psychopathology; gender differences; substance use; psychiatric disorder

### Introduction

Binge eating disorder (BED), a research category in the DSM-IV, is characterized by recurrent binge eating without extreme compensatory weight-control behaviors. BED is more common than the two formal eating disorder diagnoses, bulimia nervosa (BN) and anorexia nervosa (AN).<sup>1</sup> Recent studies have provided important findings in support of BED as a diagnostic construct. BED is a stable condition (i.e., as chronic as BN and AN)<sup>2</sup> and is associated with elevated psychiatric comorbidity, psychosocial impairment, and medical problems.<sup>1</sup> BED has different risk factor profiles<sup>3</sup> and distinctive psychopathology from

other disordered eating groups<sup>4</sup> that is significantly elevated relative to obese controls.<sup>5</sup> Further, BED is a distinct familial phenotype in obese persons.<sup>6</sup>

The study of diagnostic co-occurrence can contribute to our developing models of etiology of BED and has relevance for treatment formulation.<sup>7</sup> A number of studies have examined psychiatric comorbidity in patients with varying definitions of BED using diverse recruitment (e.g., community, convenience, treatment-seeking sampling biases), assessment (e.g., various self-report and interview methods), and comparison group (e.g., none, obese, other ED) methods. We note here major findings from selected rigorous studies using diagnostic interviews. In the first controlled study of psychiatric comorbidity using diagnostic interviews in patients with BED, Yanovski et al.<sup>8</sup> reported that 43 obese participants with BED were significantly more likely to have co-occurring DSM-III-R-defined psychiatric disorders than 85 obese participants without BED (60 vs. 34%, respectively). Specifically, participants with BED had significantly higher lifetime rates of major depression, panic disorder, and bulimia nervosa than participants without BED. Wilfley et al.<sup>9</sup> in a study of 162 patients with BED participating in a clinical trial, found that 77% of the patients met criteria for at least one additional DSM-III-R lifetime psychiatric disorder; mood, substance-use, and anxiety disorders were most common (61, 33, and 29%, respectively). Hudson et al.,<sup>1</sup> in the National Co-morbidity Survey Replication study, found that 79% of persons with BED met criteria for at least one additional DSM-IV lifetime psychiatric disorder; anxiety, mood, and substance use were common (65, 46, and 23%, respectively). Most recently, Javaras et al.,<sup>10</sup> in a large community-based study utilizing rigorous assessment methods including diagnostic interviews, reported elevated rates of most psychiatric disorders in persons with BED relative to those without BED.

Although previous research has consistently reported significantly higher rates of psychiatric comorbidity in obese BED groups relative to non-BED obese groups (e.g., 8, 10), less is known about the correlates or significance of psychiatric comorbidity in patients with BED (within group correlates). Wilfley et al.<sup>9</sup> reported that, overall, lifetime psychiatric comorbidity was significantly more likely in men than women (93 vs. 73%); substance use disorder was the only specific category with a statistically significant distribution by gender (57% of men vs. 28% of women). This study<sup>9</sup> found that psychiatric comorbidity was unrelated to body mass index, binge eating frequency, or to eating disorder psychopathology. A recent smaller study of 84 women with BED,<sup>11</sup> however, found that comorbid DSM-IV mood or substance use disorders were associated with significantly elevated levels of distress and eating-disorder psychopathology assessed with self-report measures.

Thus, relatively little is known regarding the nature and significance of DSM-IV psychiatric comorbidity within patients with BED. The available literature is consistent in highlighting the high rates of co-occurring psychiatric disorders in BED but has produced mixed findings regarding the relationship of comorbid conditions to eating-disorder psychopathology. The mixed findings are perhaps due in part to limited power and varied assessment methods, including reliance on self-report measures<sup>11</sup> to capture complex eating disorder psychopathology. The present study examined DSM-IV psychiatric disorder co-occurrence in a large consecutive series of patients with BED assessed using semistructured diagnostic and clinical interviews. This study explored associations of lifetime and current psychiatric comorbidity with gender, eating/weight history, and eating disorder psychopathology obtained by interview.

## Method

### Participants

Participants were a consecutive series of 404 adult patients (310 women and 94 men) who met strict DSM-IV research criteria for BED. Mean age was 44.9 (SD = 9.0) years, 82% ( $N = 328$ ) were Caucasian, and 84% ( $N = 338$ ) either attended or graduated from college.

### Procedures

Participants were respondents to media advertisements (1998–2004) soliciting persons with concerns about binge eating and weight for treatment studies at a medical school in an urban setting. Exclusionary criteria included ongoing professional treatment focused on eating/weight problems, and certain medical conditions (e.g., diabetes, thyroid problems) or selected severe psychiatric conditions (i.e., psychosis, bipolar disorder). Assessment procedures were administered by trained doctoral-level research-clinicians who were monitored to maintain reliability over time. Full IRB review and approval were obtained and written informed consent was obtained from all participants.

### Measures

To assess DSM-IV psychiatric disorders, including BED, participants were administered the Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I/P).<sup>12</sup> Inter-rater reliability as reflected by kappa coefficient for Axis I psychiatric disorders ranged from 0.57 to 1.0; kappa for lifetime eating disorder diagnoses and for current BED diagnosis was 1.0.

To assess the features of eating disorders and to confirm the BED diagnosis, participants were administered the Eating Disorder Examination (EDE).<sup>13</sup> The EDE is a semistructured, investigator-based interview that assesses the core and associated psychopathology of eating disorders. The EDE focuses on the previous 28 days, except for diagnostic items that are rated for duration stipulations of the DSM-IV; a BED module that assesses the DSM-IV research criteria for BED was included. The EDE assesses the frequency of different forms of overeating, including objective bulimic episodes (i.e., OBE; binge eating defined as unusually large quantities of food with a subjective sense of loss of control). The EDE's definition of OBE corresponds to the DSM-IV criteria for binge eating in the BED research criteria. The EDE also comprises four subscales: Restraint, Eating Concern, Shape Concern, and Weight Concern. The Restraint subscale reflects attempts to restrict food intake to influence weight or shape; the Eating Concern subscale reflects the degree of concern about eating; and the Weight Concern and Shape Concern subscales measure the degree of concern about weight and shape, respectively. The items assessing eating disorder features for the four scales are rated on a seven-point forced-choice format (0–6), with higher scores reflecting greater severity or frequency.

The EDE is an established method for assessing eating disorder psychopathology and has received support for its utility in assessing BED.<sup>14,15</sup> Psychometric studies of the EDE have demonstrated its validity<sup>16</sup> and good inter-rater and test–retest reliability in diverse groups including BED.<sup>17,18</sup> For the present study, inter-rater reliability was determined using  $n = 42$  cases. Reliability (Spearman rho) coefficients were 0.99 for the frequency of OBEs and ranged from 0.87 to 0.97 for scores on the four dimensional EDE scales.

Weight and height were measured during the evaluation and body mass index (BMI) was calculated from these measurements. Structured clinical interviews obtained information about obesity-related historical variables including highest adult weight, age at obesity onset, age at binge eating onset, and age at first dieting onset. Age at onset of BED was determined using the SCID-I/P.

Participants were also given self-report inventories to assess depression and self-esteem. The Beck Depression Inventory (BDI;<sup>19</sup>) 21-item version is a widely used well-established inventory<sup>20</sup> for the symptoms of depression and negative affect. The Rosenberg Self-Esteem Scale (RSES;<sup>21</sup>) is a widely-used, well-established 10-item measure of global self-esteem.<sup>21</sup>

## Results

### Lifetime Psychiatric Comorbidity

Table 1 summarizes the frequency of lifetime psychiatric disorders overall and separately by gender. Chi-square analyses (Yates continuity corrected) were used to test for gender differences in the distribution of comorbid disorders. Overall, 73.8% of patients with BED had at least one additional lifetime psychiatric disorder. Mood disorders (54.2%) were most common; major depressive disorder was the most common specific disorder (46.8%). Anxiety disorders (37.1%) were common; panic disorder was the most common specific anxiety disorder (15.3%). Lifetime substance use disorders were also common overall (24.8%); rates for alcohol and drug use disorders were 20.3 and 14.6%, respectively. A lifetime history of other eating disorders was infrequent (6.4%), with 5.9% meeting criteria for past bulimia nervosa and 1.5% meeting criteria for past anorexia nervosa. Analyses revealed few gender differences; males were significantly more likely to have lifetime histories of substance use disorders.

### Current Psychiatric Comorbidity

Table 2 summarizes the frequency of current psychiatric disorders overall and separately by gender. Chi-square analyses (Yates continuity-corrected) were used to test for gender differences in the distribution of current comorbid disorders. Overall, 42.8% of patients with BED had at least one additional current psychiatric disorder. Mood disorders (26%) were most common; major depressive disorder was the most common specific mood disorder (18%). Anxiety disorders (24.5%) were common; generalized anxiety disorder was the most common specific anxiety disorder (8.7%). Analyses revealed only one significant gender difference: males were statistically significantly more likely to have met criteria for current obsessive compulsive disorder than females (5.3 vs. 1.3%) although this disorder was rarely present.

### Factors Associated with Psychiatric Comorbidity

Table 3 summarizes the relationships between historical illness variables and psychiatric comorbidity (i.e., three comparison groups comprising no comorbidity, lifetime comorbidity, and current comorbidity). Chi-square analyses revealed that the three groups did not differ significantly in distribution of gender ( $p = 0.55$ ), ethnicity ( $p = 0.55$ ), or education ( $p = 0.10$ ). Table 3 summarizes ANOVA findings comparing the three groups on continuous variables. Age and current BMI did not differ significantly between participants with and without psychiatric comorbidity. Participants with current comorbidity had a significantly higher “highest” lifetime BMI than participants without comorbidity. Participants with current or with lifetime comorbidity did not differ significantly but had significantly earlier onsets of first diets than those without comorbid disorders. No significant relations were observed between comorbidity and age of onset of obesity, binge eating, or full BED criteria.

Table 4 summarizes current clinical variables by psychiatric comorbidity. Except for the EDE dietary restraint scale, significant differences were observed across the three psychiatric comorbidity groups. Overall, patients with BED with current psychiatric comorbidity had significantly higher scores on three of the four EDE scales and global score, higher depression level, and significantly lower self-esteem than the two other BED

groups (patients with lifetime comorbidity or patients without any comorbidity), which did not differ significantly from each other. Patients with BED with current comorbidity had significantly higher frequency of binge eating than patients with BED without history of comorbidity.

## Discussion

The present study examined DSM-IV psychiatric disorder comorbidity and its relationship to demographic, historical obesity-related variables, and current clinical variables within a consecutive series of 404 patients with BED assessed using semistructured diagnostic and clinical interviews. Patients with BED who present for treatment frequently have additional lifetime and current psychiatric disorders. Mood, anxiety, and substance use disorders were the most common lifetime and current disorders. Mood and anxiety disorder comorbidity differed little by gender (except for higher current rates of OCD in men), while men had significantly higher lifetime rates of substance use disorders. Patients with BED with additional current psychiatric disorders reported earlier onsets of first diets and higher “lifetime high” BMI. Patients with current comorbidity also had greater current eating disorder psychopathology, higher depression scores, and lower self-esteem relative to patients with lifetime histories, who differed little from those without any history of psychiatric disorders.

Overall, ~74% of patients with BED had at least one additional lifetime psychiatric disorder and 43% had at least one current psychiatric disorder. Lifetime wise, mood (54.2%), anxiety (37.1%), and substance use (24.8%) disorders were most common. In terms of current comorbidity, mood (26.0%) and anxiety (24.5%) were most common, whereas substance use disorders were infrequent (2.7%). Our observed rates of DSM-IV psychiatric disorders are strikingly similar to those reported previously for DSM-III-R-defined disorders in treatment-seeking groups<sup>9</sup> and are similar to those recently reported for DSM-IV disorders in the National Co-morbidity Survey replication<sup>1</sup> and a large community-based study.<sup>10</sup>

Interestingly, our observed discrepancy between the rates of lifetime and current substance use disorders in overweight/obese patients with BED has been previously observed in recent studies of psychiatric comorbidity in extremely obese bariatric surgery candidates.<sup>22,23</sup> Importantly, epidemiological studies have documented that obesity is associated with roughly a 25% decrease in odds of having a SUD,<sup>24</sup> and clinical studies with diverse medical<sup>25</sup> and psychiatric<sup>26</sup> patients have reported a significant inverse relation between obesity and alcohol or substance use. Researchers<sup>22,23,26</sup> have speculated that substance abuse and eating/weight problems might share some diathesis and that, when overeating or binge eating dominate, the substance use problems become less salient, which is consistent, for example, with some posited neurobiological models of reward.<sup>25,27,28</sup> Of course, it is critical to note possible alternative explanations for these findings, which would require prospective longitudinal studies to resolve. For instance, the observed patterns could simply reflect age effects (i.e., SUD tend to be more prevalent in younger persons whereas mood and anxiety disorders are distributed throughout adulthood, thus leading to different discrepancies in rates) or a variety of recruitment or treatment-seeking biases (i.e., patients with BED with current SUD might be less likely to seek current treatment for BED).

We found that patients with BED with additional current psychiatric disorders have elevated levels of eating disorder psychopathology, higher depression scores, and lower self-esteem relative to patients with lifetime histories of psychiatric disorders, who differed little from those without any history of psychiatric disorders. These findings provide an important clarification to the literature. Two previous small studies produced mixed findings in this regard. One study<sup>9</sup> reported that lifetime psychiatric comorbidity was unrelated to eating

disorder psychopathology, whereas a second smaller study<sup>11</sup> found that lifetime comorbid DSM-IV disorders were associated with significantly elevated levels of distress and eating-disorder psychopathology assessed with self-report measures. Our findings, based primarily on semistructured interviews, suggest that current psychiatric comorbidity, but not past or lifetime history of psychiatric disorders, is associated with a more severe current presentation of BED. The prognostic significance of psychiatric comorbidity in patients with BED is uncertain and reviews have noted more generally that reliable predictors of treatment outcome have not yet been identified.<sup>29</sup> The limited research in this area found that psychiatric comorbidity (defined as either lifetime history or current) was generally unrelated to initial treatment response<sup>30,31</sup> or to treatment outcome.<sup>10,32</sup> Our findings suggest that current psychiatric comorbidity, which is associated with a more severe BED symptom profile, should be examined in future studies of predictors or moderators of treatment.

We note several factors to provide a context for our findings. Our results pertain to participants who met strict research criteria for BED and responded to advertisements seeking participants for research and treatment studies at a medical school. Therefore, our findings may not generalize to different groups such as persons with subthreshold BED, community samples, or persons uninterested in participating in research. Our lack of a non-BED obese comparison group is another relative limitation although our focus was on within-group, not between-group, differences. Previous research, however, has consistently reported significant elevations in rates of psychiatric comorbidity<sup>8,10</sup> and eating disorder psychopathology<sup>4</sup> in patients with BED relative to non-BED groups. Given our exclusionary criteria for psychotic and bipolar disorders, we cannot comment on the cooccurrence of those serious psychiatric illnesses in BED (although such exclusions were exceedingly rare). Several previous studies<sup>8,9,11</sup> also did not assess for these illnesses but also noted that such extreme psychiatric problems accounted for less than 1% of exclusions.<sup>9</sup> Noteworthy, however, is that two recent large-scale studies found lifetime rates of bipolar disorder of 10.9%<sup>10</sup> and 12.5%<sup>1</sup> among patients with BED. Our findings may not generalize to overweight persons with coexisting medical problems such as diabetes. These patients may have different weight and/or binge eating histories or current eating disorder psychopathology (e.g., they may have different priorities or cognitions regarding health and appearance concerns). Lastly, our findings may not generalize to younger (e.g., adolescent) or elderly groups.

Our findings regarding the relationship between psychiatric comorbidity and historical obesity-related variables should be viewed cautiously. Specifically, retrospective recall of the onset of dieting, binge eating, and obesity might be biased or inaccurate. The findings, however, that current psychiatric comorbidity is significantly associated with heightened eating-related psychopathology are based on rigorous current-state interviews administered reliably by highly trained research-clinicians. This study highlights the importance for clinicians to systematically assess for additional current psychopathology in patients who present for treatment with BED. Our findings also indicate the need for research to examine the implications of current comorbidity for treatment outcome.

## Acknowledgments

Supported by R01 DK49587, R01 DK073542, K24 DK070052, K23 DK071646 from the National Institutes of Health.

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**TABLE 1**

Lifetime DSM-IV psychiatric disorders in patients with BED (*N* = 404)

Lifetime Disorders	Total ( <i>n</i> = 404)		Male ( <i>n</i> = 94)		Female ( <i>n</i> = 310)		$\chi^2$	<i>p</i>
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%		
Any axis I	298	73.8	73	77.7	225	72.6	0.72	0.40
All mood disorders	219	54.2	45	47.9	174	56.1	1.66	0.20
Major depressive disorder	189	46.8	38	40.4	151	48.7	1.67	0.20
Dysthymic disorder <sup>a</sup>	29	7.2	5	5.3	24	7.7	0.32	0.57
Depressive disorder NOS	12	3.0	3	3.2	9	2.9	0.00	1.00
All anxiety disorders	150	37.1	32	34.0	118	38.1	0.34	0.56
Panic	62	15.3	9	9.6	53	17.1	2.59	0.11
Agoraphobia	2	0.5	0	0.0	2	0.6	0.00	1.00
Social phobia	37	9.2	10	10.6	27	8.7	0.13	0.72
OCD	11	2.7	5	5.3	6	1.9	1.97	0.16
PTSD	27	6.7	6	6.4	21	6.8	0.00	1.00
GAD <sup>a</sup>	36	8.9	5	5.3	31	10.0	1.41	0.23
Specific phobia/anxiety NOS	40	9.9	11	11.7	29	9.4	0.22	0.64
Substance use disorders	100	24.8	38	40.4	62	20.0	15.08	<0.01
Alcohol abuse/dependence	82	20.3	28	29.8	54	17.4	6.08	0.01
Drug abuse/dependence	59	14.6	24	25.5	35	11.3	10.62	<0.01
Eating disorders	26	6.4	2	2.1	24	7.7	2.90	0.09
Anorexia	6	1.5	0	0.0	6	1.9	0.76	0.38
Bulimia	24	5.9	2	2.1	22	7.1	2.36	0.12

Note: Chi-squared values are Yates continuity-corrected.

<sup>a</sup>Figures limited to presence of current diagnosis only.

**TABLE 2**

Current DSM-IV psychiatric disorders in patients with BED (N = 404)

Current Disorders	Total (n = 404)		Male (n = 94)		Female (n = 310)		X <sup>2</sup>	P
	N	%	N	%	N	%		
Any axis I	173	42.8	44	46.8	129	41.6	0.60	0.44
All Mood Disorders	105	26.0	23	24.5	82	26.5	0.06	0.80
Major depressive disorder	72	18.0	16	17.2	56	18.3	0.01	0.93
Dysthymic disorder	29	7.2	5	5.3	24	7.7	0.32	0.57
Depressive disorder NOS	10	2.5	3	3.2	7	2.3	0.02	0.90
All anxiety disorders	99	24.5	26	27.7	73	23.5	0.45	0.50
Panic	15	3.7	4	4.3	11	3.5	0.00	0.99
Agoraphobia	1	0.2	0	0.0	1	0.3	0.00	1.0
Social phobia	25	6.2	7	7.4	18	5.8	0.11	0.74
OCD	9	2.2	5	5.3	4	1.3	3.68	<0.05
PTSD	16	4.0	3	3.2	13	4.2	0.02	0.89
GAD	36	8.9	5	5.3	31	10.0	1.41	0.23
Specific phobia/anxiety NOS	24	5.9	8	8.5	16	5.2	0.91	0.34
Substance use disorders	11	2.7	5	5.3	6	1.9	1.97	0.16
Alcohol abuse/dependence	6	1.5	2	2.1	4	1.3	0.01	0.92
Drug abuse/dependence	5	1.2	3	3.2	2	0.6	2.03	0.16
Eating disorders	—	—	—	—	—	—	—	—
Anorexia	—	—	—	—	—	—	—	—
Bulimia	—	—	—	—	—	—	—	—

Note: Chi-squared values are Yates continuity-corrected.

**TABLE 3**  
 Psychiatric comorbidity relationship to age and historical illness variables in patients with BED ( $N = 404$ )

	Total ( $n = 404$ ) Mean (SD)	Absent ( $n = 106$ ) Mean (SD)	Lifetime ( $n = 125$ ) Mean (SD)	Current ( $n = 173$ ) Mean (SD)	F	P
Age	44.9 (9.0)	46.2 (9.2)	44.1 (9.3)	44.7 (8.7)	1.63	.20
Current body mass index (BMI)	37.1 (7.1)	36.2 (6.3)	37.8 (7.1)	37.1 (7.5)	1.46	.23
Highest body mass index (BMI)	39.2 (8.2)	37.5 <sup>a</sup> (6.5)	39.1 (7.6)	40.2 <sup>b</sup> (9.3)	3.45	.03
Age obesity onset	16.2 (9.7)	16.5 (9.7)	14.8 (8.7)	16.9 (10.3)	1.75	.18
Age binge eating onset	23.3 (12.1)	24.1 (12.0)	23.0 (11.9)	23.1 (12.4)	0.29	.75
Age first dieting onset	18.9 (8.9)	21.5 <sup>a</sup> (10.2)	17.1 <sup>b</sup> (6.7)	18.6 <sup>b</sup> (9.2)	7.14	.00
BED age of onset	25.9 (12.7)	26.9 (12.7)	25.7 (12.2)	25.6 (13.2)	0.38	.68

Note: Total  $df$  range 370–401; different superscripts denote significant ( $p < 0.05$ ) post-hoc Scheffe contrasts.

**TABLE 4**

Psychiatric comorbidity relationship to current clinical variables in patients with BED ( $N=404$ )

	Total ( $n = 404$ ) Mean (SD)	Absent ( $n = 106$ ) Mean (SD)	Lifetime ( $n = 125$ ) Mean (SD)	Current ( $n = 173$ ) Mean (SD)	F	p
Binge eating frequency (month)	17.0 (10.5)	14.8 <sup>a</sup> (7.9)	16.2 (10.9)	19.0 <sup>b</sup> (11.4)	5.52	0.00
EDE restraint	1.9 (1.3)	1.8 (1.3)	2.0 (1.3)	1.8 (1.3)	1.11	0.33
EDE eating concern	2.2 (1.7)	1.8 <sup>a</sup> (1.3)	2.1 (1.4)	2.5 <sup>b</sup> (2.1)	5.12	0.01
EDE shape concern	3.8 (1.1)	3.6 <sup>a</sup> (1.2)	3.6 <sup>a</sup> (1.1)	4.1 <sup>b</sup> (1.1)	8.43	0.00
EDE weight concern	3.3 (1.0)	3.0 <sup>a</sup> (1.0)	3.2 <sup>a</sup> (0.9)	3.5 <sup>b</sup> (1.0)	8.46	0.00
EDE global score	2.8 (1.0)	2.6 <sup>a</sup> (0.9)	2.7 (0.9)	3.0 <sup>b</sup> (1.0)	6.48	0.00
Beck depression inventory	17.1 (9.0)	12.8 <sup>a</sup> (7.1)	15.5 <sup>a</sup> (8.1)	20.8 <sup>b</sup> (9.2)	32.10	0.00
Rosenberg self-esteem	28.3 (5.9)	30.8 <sup>a</sup> (5.5)	29.4 <sup>a</sup> (5.2)	25.9 <sup>b</sup> (5.9)	28.78	0.00

Note: Total *d*/range 380–396; different superscripts denote significant ( $p < 0.05$ ) post-hoc Scheffe contrasts.