

The Relationship Between Eating Disorders and Suicide Experiences: Results from a Nationally Representative Sample

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Disclosure

- The authors do not have any industry relationships to disclose.

Learning Objectives

- Understand how eating disorders and suicide experiences are related in the general population
- Understand the impact of comorbidity on the relationship between eating disorders and suicide experiences
- Recognize the importance of suicide screening among individuals with eating disorders

What do we know?

Suicide Experiences in EDs

- 2nd leading cause of death in anorexia (Crisp, Callender, Halek, & Hsu 1992; Moller-Madsen & Nystrup 1998; Patton, 1988)
- Standardized mortality ratio due to death by suicide elevated in anorexia and bulimia (Preß et al., 2011)
- Prevalence of suicide attempts:
 - 16%-22% in anorexia (Bulk et al., 2008; Franko et al., 2004; Sansone & Levitt, 2002)
 - 11%-40% in bulimia (Bulk, Sullivan, & Joyce, 1999; Crocose et al., 2002; Favaro & Santonastaso, 1997; Franko et al., 2004)
- Suicide attempts more common in purging subtypes (Favaro & Santonastaso, 1995; Vesselman & Roig 1985; Yousef et al., 2004)

Limitations of Previous Research

- Majority of studies use clinical samples
- No studies examining these relationships in large, nationally representative samples
- Dearth of information on binge eating disorder
- Not all studies separate eating disorder diagnoses
- Little information on suicide experiences other than attempts

Goals of Current Study

To examine in the general population:

1. The relationship between anorexia nervosa and bulimia nervosa and suicide experiences
2. The relationship between the proposed DSM-IV-TR binge eating disorder and suicide experiences
3. The relationship between purging behaviors and suicide experiences among individuals with a lifetime history of eating disorders

Method

CPES Sample

- Collaborative Psychiatric Epidemiologic Surveys (CPES)
 - National Comorbidity Survey - Replication
 - National Survey of American Life
 - National Latina and Asian American Study
- N=20,013
- Representative of US non-institutionalized adult population
- Conducted 2001 – 2003
- Face-to-face and telephone computer-assisted interviews

Psychiatric Diagnoses

- World Mental Health Composite Diagnostic Interview
 - Diagnoses based on DSM-IV-TR criteria
- Assessed lifetime:
 - Mood disorders
 - Anxiety disorders
 - Substance use disorders
 - Eating disorders

Eating Disorders/Behaviors

- Used diagnostic hierarchy and exclusion rules
 - Anorexia
 - Bulimia
 - Binge eating disorder
- Created count of number of purging behaviors
 - Use of diuretics or weight control medicines
 - Self-induced vomiting
 - Use of laxatives or enemas

Suicide Experiences

- Assessed with three questions:
 - “Have you ever seriously thought about committing suicide?”
 - “Have you ever made a plan for committing suicide?”
 - “Have you ever attempted suicide?”

Analyses

- Taylor Series Linearization in SUDAAN
- Statistical weights and stratification were applied to be representative of the US population
- Cross-tabulations determined demographic distribution among eating disorder groups
- Adjusted Logistic Regression Models:
 - AOR1: adjusted for sociodemographics
 - AOR2: adjusted for sociodemographics and other Axis I disorders (including other ED)

Suicidality Analyses (Cont.)

- Independent Variables:
 1. Eating disorder diagnoses v.s. no ED
 2. Eating disorder diagnoses v.s. other ED's
 3. Number of purging behaviors
- Dependent Variables:
 1. Lifetime suicide ideation
 2. Lifetime suicide plan
 3. Lifetime suicide attempt

Results

Table 1. Sex, marital status, education, and race of eating disorder groups.

Variable	Lifetime Anorexia	Lifetime Bulimia	Lifetime Binge Eating Disorder
	n (%)	n (%)	n (%)
Sex			
Male	6 (19.4)	46 (24.4)	74 (33.0)
Female	25 (80.6)	139 (75.6)	189 (67.0)
Marital Status			
Married/Cohabiting	23 (79.0)	77 (53.9)	126 (56.4)
Divorced/Separated/Widowed	4 (15.5)	50 (24.8)	61 (16.9)
Never Married	4 (5.4)	58 (21.3)	76 (26.8)
Education			
0-11 Years	5 (5.5)	41 (26.7)	80 (25.2)
12 Years	10 (30.9)	61 (25.6)	76 (22.9)
13-15 Years	8 (34.4)	48 (25.1)	69 (32.5)
16 Years or More	8 (29.2)	35 (22.6)	38 (19.4)
Race			
White	19 (91.2)	30 (40.0)	72 (65.4)
Asian	4 (1.7)	18 (6.5)	26 (3.9)
Hispanic	3 (2.2)	53 (25.6)	76 (16.9)
Black	5 (4.9)	80 (21.3)	88 (12.1)
Other	0 (0)	4 (6.6)	1 (1.8)

Note: All n's are unweighted and percentages are weighted.

Table 2. Association between lifetime eating disorders and lifetime suicide behaviors

Diagnosis	Suicide Behavior	No Eating Disorder		Eating Disorder	
		n (%)	n (%)	AOR-1 (95% CI)	AOR-2 (95% CI)
Anorexia Nervosa					
	Suicide Ideation	2329 (14.9)	11 (19.2)	0.56 (0.17 - 1.86)	0.47 (0.13 - 1.65)
	Suicide Plan	836 (5.2)	3 (1.2)	--	--
	Suicide Attempt	825 (4.7)	5 (10.1)	0.89 (0.22 - 3.56)	0.76 (0.18 - 3.29)
Bulimia Nervosa					
	Suicide Ideation	2273 (14.7)	67 (39.8)	1.77 (1.03 - 3.05)*	1.73 (1.01 - 2.98)*
	Suicide Plan	811 (5.1)	28 (20.4)	2.13 (0.92 - 4.90)	2.31 (0.98 - 5.44)
	Suicide Attempt	801 (4.6)	29 (18.1)	1.53 (0.69 - 3.35)	1.51 (0.67 - 3.39)
Binge Eating Disorder					
	Suicide Ideation	2251 (14.6)	89 (35.1)	1.70 (1.11 - 2.58)*	1.63 (1.08 - 2.45)*
	Suicide Plan	798 (5.0)	41 (16.0)	1.95 (1.24 - 3.06)**	1.84 (1.21 - 2.79)**
	Suicide Attempt	788 (4.6)	42 (13.8)	1.32 (0.83 - 2.10)	1.27 (0.80 - 2.04)
Any Eating Disorder					
	Suicide Ideation	2184 (14.4)	157 (34.3)	2.87 (2.10 - 3.91)***	1.60 (1.10 - 2.32)*
	Suicide Plan	772 (5.0)	67 (15.1)	3.07 (2.07 - 4.57)***	1.72 (1.09 - 2.73)**
	Suicide Attempt	759 (4.5)	71 (14.4)	2.88 (2.02 - 4.10)***	1.39 (0.89 - 2.17)

Note: CI = Confidence Interval; AOR = Adjusted Odds Ratio. --denotes cell sizes too small to analyze data. All n's are unweighted and percentages are weighted. AOR-1 adjusted for age, sex, race, marital status, and education; AOR-2 adjusted for age, sex, race, education, marital status, and any lifetime anxiety, mood, substance use, or other eating disorders.
*p ≤ .05. **p ≤ .01. ***p ≤ .001.

Table 3. Comparison of suicide experiences among eating disorder diagnoses

Type of Experience	Anorexia ^a vs. Bulimia	Anorexia ^a vs. Binge Eating Disorder	Bulimia ^a vs. Binge Eating Disorder
Suicide Ideation			
AOR-1 (95% CI)	2.89 (0.83 - 10.10)	1.67 (0.48 - 5.83)	1.01 (0.58 - 1.78)
AOR-2 (95% CI)	3.51 (0.72 - 17.16)	1.82 (0.45 - 7.37)	0.99 (0.51 - 1.95)
Suicide Plan			
AOR-1 (95% CI)	--	--	0.65 (0.34 - 1.26)
AOR-2 (95% CI)	--	--	0.76 (0.36 - 1.62)
Suicide Attempt			
AOR-1 (95% CI)	2.84 (0.59 - 13.64)	0.94 (0.21 - 4.13)	0.73 (0.35 - 1.53)
AOR-2 (95% CI)	2.62 (0.46 - 14.87)	1.04 (0.15 - 7.07)	0.76 (0.33 - 1.77)

Note: CI = Confidence Interval; AOR = Adjusted Odds Ratio. --denotes cell sizes too small to analyze data. --denotes reference category; AOR-1 adjusted for age, sex, race, marital status, and education; AOR-2 adjusted for age, sex, race, education, marital status, and any lifetime anxiety, mood, substance use, or other eating disorders.
*p ≤ .05. **p ≤ .01. ***p ≤ .001.

Table 4. Association between suicide experiences and number of purging behaviors

Suicide Experience	Number of Purging Behaviors	Prevalence of Suicide Experience	AOR-1 (95% CI)	AOR-2 (95% CI)
Suicide Ideation				
	0	68 (31.1)	1.00	1.00
	1	48 (42.0)	1.59 (0.72- 3.53)	1.08 (0.43 - 2.73)
	2 or more	36 (47.5)	2.42 (1.11 - 5.30)	1.97 (0.77 - 5.01)
Suicide Plan				
	0	32 (12.4)	1.00	1.00
	1	20 (18.8)	1.87 (0.69 - 5.08)	1.47 (0.52 - 4.13)
	2 or more	13 (24.3)	2.45 (1.00 - 6.03)	2.35 (0.85 - 6.52)
Suicide Attempt				
	0	31 (10.6)	1.00	1.00
	1	20 (19.9)	2.32 (0.84 - 6.39)	1.54 (0.46 - 5.13)
	2 or more	18 (25.4)	2.97 (1.48 - 5.99)**	2.56 (1.02 - 6.39)

Note. CI = Confidence Interval. AOR = Adjusted Odds Ratio. AOR-1 adjusted for age, sex, race, marital status, and education; AOR-2 adjusted for age, sex, race, education, marital status, and any lifetime anxiety, mood, or substance use disorders.
^{*}*p* ≤ .05. ^{**}*p* ≤ .01. ^{***}*p* ≤ .001

Limitations

- Data are cross-sectional
- Retrospective interviews introduce bias
- Small cell sizes
- Unable to examine eating disorder subtypes separately
- No assessment of personality disorders
- Unable to control for impulse control disorders

Conclusions

- History of bulimia and binge eating disorder are associated with suicide ideation and plans in general population
- History of comorbid mental disorders partially mediates the relationship between EDs and suicide
- Engaging in 2 or more purging behaviors is associated with increased odds of suicide attempts
- Important to screen for suicide experiences among those suspected of having an eating disorder, especially among those with comorbid disorders

Questions?