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Is childhood trauma associated with lifetime suicide attempts in women with bulimia nervosa?

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Abstract

Purpose—The purpose of this study was to explore the association between specific forms of childhood abuse and neglect with lifetime suicide attempts in women with bulimia nervosa (BN).

Methods—Two hundred and four women aged 18–65 (mean = 25.6 years, SD = 9.13) with full or subclinical BN were recruited in five US Midwestern communities and specialized eating disorder clinics. Participants completed questionnaires including the Childhood Trauma Questionnaire (CTQ) and self-reported whether they had ever had a lifetime suicide attempt. Logistic regression analyses were used to predict lifetime suicide attempts from each subscale of the CTQ.

Results—Childhood emotional, physical, and sexual abuse were significantly associated with the presence of a lifetime suicide attempt in women with BN. Childhood emotional and physical neglect were not associated with suicide attempts.

Conclusions—Individuals with BN who have experienced childhood emotional and sexual abuse are at increased risk of a lifetime suicide attempt. Future research is needed to understand the mechanism to address in treatment and prevention efforts. It is important for clinicians to be

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aware of the potential increased risk of suicide in individuals with BN with a history of childhood abuse.

Keywords

Childhood abuse; childhood neglect; bulimia nervosa; suicide attempts

Introduction

Bulimia nervosa (BN) is associated with increased mortality, especially due to suicide [1]. Standardized mortality ratios for death by suicide in BN have ranged from 6.51 [2] to 7.5 [3]. Individuals with BN also show an elevated risk for suicide attempts, with a lifetime prevalence ranging from 11–40% [4, 5, 6, 7, 8, 9, 10]. Because the most robust predictor of death by suicide is a previous suicide attempt [11], examining factors associated with lifetime suicide attempts allows for more precise identification of those at highest risk of subsequent suicide attempts and death by suicide.

The majority of research on factors associated with suicide in women with BN has focused on comorbid psychopathology and personality traits. Individuals with BN with a comorbid mood disorder [9], substance use disorder [8,12], or Cluster B personality disorder symptoms [9] have been found to have a higher prevalence of lifetime suicide attempts than those without these comorbid disorders. Studies of personality and temperament have identified that high levels of harm avoidance and low levels of self-directedness, reward dependence, and cooperativeness have been associated with suicide attempts in BN samples [4,7]. Although there is a robust literature examining psychopathology and personality traits associated with suicide attempts in BN, relatively little research has aimed to identify other factors that may be associated with increased risk of suicide attempts.

Childhood emotional, physical, and sexual abuse have been associated with an increased risk of a lifetime suicide attempt in non-clinical samples [13]. These findings suggest that the association between abuse history and suicide attempts is independent of psychiatric disorders and other childhood adversity [13]. Among the different forms of childhood abuse, the association between sexual abuse and suicide attempts has the strongest empirical support. A recent meta-analysis of nine studies showed a robust association between childhood sexual abuse and both suicide attempts and death by suicide in non-clinical samples [14]. Associations between childhood neglect and suicide attempts are unclear. Some studies report significant positive associations between neglect and suicide attempts [15] while and other studies have not replicated this relationship [16,17].

Individuals with eating disorders (EDs) have elevated rates of childhood abuse compared to those without an ED [18,19,20,21]. Individuals who have EDs with purging subtypes have been found to be more likely to have experienced childhood abuse than individuals with restricting subtypes [18,22]. In clinical samples, approximately 30% of adults with BN symptoms have been found to self-report a history of childhood sexual abuse and greater than 50% of women with BN have been found to self-report a history of physical maltreatment [18,20,21,23,24]. Additionally, in longitudinal samples, all forms of childhood abuse, especially sexual abuse, have been noted to precede the development of BN-relevant

symptoms including dietary restriction, laxative abuse, and self-induced vomiting [24,25,26,27].

Individuals with BN have elevated rates of childhood abuse and lifetime suicide attempts; however, limited research has examined whether childhood abuse is associated with lifetime suicide attempts in this population. One study found a higher prevalence of childhood sexual abuse in individuals with a lifetime history of a suicide attempt than those without a history of childhood sexual abuse at a trend level [$p = 0.08$; 6]. However, the association between emotional and physical abuse as well as emotional and physical neglect and suicide attempts in women with BN remains largely unexplored. Murray et al. found an association between all forms of abuse and suicidal ideation in females who also reported eating disorder symptoms [28]. However, this study did not examine suicide attempts or individuals with a clinical eating disorder. Gordon et al. recently demonstrated an association between all forms of childhood abuse and suicide attempts in women with BN [29]. However, no study to our knowledge has examined the association between childhood neglect and suicide attempts within women with BN. The purpose of the present study was to examine how emotional, physical, and sexual abuse, as well as emotional and physical neglect, are associated with lifetime suicide attempts in women with BN. We hypothesized that all of the forms of childhood trauma (i.e., emotional neglect, physical neglect, emotional abuse, physical abuse, and sexual abuse) would be significantly associated with a lifetime suicide attempts.

Methods

Participants and Procedures

Participants were recruited through advertisements at local eating disorder clinics and throughout the community at five Midwestern sites in the USA. Inclusion criteria were female gender, age range of 18–65 years, and the presence of binge eating and purging behavior (described below). Exclusion criteria included current psychotic disturbances, organic brain syndromes, and the inability to read English.

Potential participants contacted research personnel by telephone. After a verbal consent was obtained, a brief diagnostic phone screen was completed by trained interviewers. The screen included questions from the eating disorder module of the *Structured Clinical Interview for DSM-IV, Patient Edition* [SCID-I/P; 30]. The criteria for binge eating established in the Eating Disorder Examination [31, 32] were used to differentiate objectively large portions of food from smaller portions of food in order to establish that binge eating episodes met full DSM-IV criteria. Participants who met current DSM-IV diagnostic criteria of BN or subclinical criteria (for a description, see [23] based on the phone screen were invited to take part in the study. Of the 204 participants enrolled in the study, 144 (70.6%) met full DSM-IV criteria for BN in the past month. The remaining 60 (29.4%) participants reported clinically significant symptoms of BN but did not meet diagnostic threshold for BN (e.g., frequency of binge eating and vomiting less than twice per week). The subclinical BN group did not differ from the full threshold group as to terms of age, BMI, or prevalence of a lifetime suicide attempt (all p values > .05).

Eligible participants were scheduled to attend an in-person assessment at which they provided written informed consent and completed a set of questionnaires. Study participants were paid $50 for their time. This study was approved by the institutional review boards at each of the participating sites. All procedures were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Measures

Childhood Trauma Questionnaire (CTQ)—The CTQ contains 28 items, rated on a five-point scale from "never true" to "very often true," about various forms of childhood neglect and abuse reflected in the subscales of Emotional Neglect, Physical Neglect, Emotional Abuse, Physical Abuse, and Sexual Abuse. This measure has a well-established factor structure and coefficient alphas in the present sample, from lowest to highest, of 0.58 for physical neglect, 0.69 for physical abuse, 0.83 for emotional abuse, 0.85 for emotional neglect, and 0.94 for sexual abuse [33, 34, 35]. Additionally, presence of neglect or abuse was determined using clinical cut points for each subscale described by Walker et al. [36].

Eating Disorder Examination – Self Report Questionnaire Version (EDE-Q)—The EDE-Q is a 41 item self-report questionnaire designed to capture eating disorder symptom use within the past 28 days such as BN-relevant symptoms including the frequency of binge-eating episodes, the number of times of induced vomiting, and the number of times of laxative and diuretic misuse [37]. Previous studies have supported the validity of the EDE-Q [37].

Lifetime history of a suicide attempt—Participants completed a questionnaire which included an item "Have you made any suicide attempts?" Response options were "never," "once," "on occasion," "sometimes," and "regularly". The item was dichotomized, with any lifetime suicide attempt coded as 1 and no lifetime suicide attempt coded as 0.

Statistical Analyses

All data management and analyses were conducted using IBM SPSS Version 21. Groups (with and without history of suicide attempts) were compared on demographic variables using *t*-tests for continuous measures, Fisher's exact test for dichotomous categorical measures, and chi square analyses. Associations between suicide attempts and each of the CTQ subscales were assessed using univariate logistic regression analyses. In order to account for the issue of multiple comparisons, the significance threshold was set to 0.01 for the univariate analyses.

Results

Descriptive Statistics

The present sample was predominately Caucasian (90.7%), with a mean age of 25.6 years (SD = 9.13) and mean BMI of 22.50 kg/m^2 (SD = 4.48). Lifetime suicide attempts occurred in 27.4% of the sample (n = 56). There were no significant differences on any of the demographic variables between the suicide and no suicide attempt groups (all p's > 0.01, see

Table 1). There were no significant differences between the mean number of binge eating episodes ($p = 0.82$), vomiting episodes ($p = 0.69$), or episodes of laxative abuse ($p = 0.45$) in the past 28 days between the suicide attempt and no suicide attempt group. Using cut points described by Walker et al. [36], emotional abuse ($p = 0.001$) and sexual abuse ($p = 0.001$) were more prevalent in the suicide attempt groups than the no suicide attempt group). There were no differences between the suicide attempt group and no suicide attempt group in the prevalence of physical abuse ($p = 0.02$) or emotional ($p = 0.33$) or physical neglect ($p = 0.22$; see Table 1).

Childhood Abuse and Suicide Attempts

Abuse and neglect subscale means for each group (i.e. suicide attempt vs no suicide attempt history) are presented in Table 2. Univariate logistic regression analyses indicated that emotional abuse ($p = 0.001$), and sexual abuse ($p = 0.005$) were significantly positively associated with a lifetime history of a suicide attempt, but physical abuse ($p = 0.048$), emotional neglect ($p = 0.09$) and physical neglect ($p = 0.24$) were not.

Discussion

The present study examined the association between childhood trauma and lifetime suicide attempts in a sample of women with BN or subclinical BN. In partial support of the study hypotheses, several forms of childhood abuse, including emotional and sexual, were significantly associated with a lifetime suicide attempt. However, contrary to hypotheses, neither physical abuse nor emotional or physical childhood neglect was associated with lifetime suicide attempts. These finding suggest that specific forms of childhood trauma are differentially associated with lifetime suicide attempts in women with BN.

Findings from the present sample are consistent with previous research examining the associations between childhood emotional and sexual abuse and lifetime suicide attempts in a nationally representative sample [13] and a sample of women with bulimia nervosa [29]. Similar to previous findings, a significant association between childhood emotional and physical abuse and lifetime suicide attempts was found [13,29]. Present findings support and build upon previous research that found a trend towards a higher prevalence of suicide attempts in individuals with BN with a history of sexual abuse [6,29]. Previous research has hypothesized that increased risk of suicide is mediated by internalizing disorders such as depression [13]. In addition, emotion dysregulation may be a particularly important potential pathway to examine, as emotion dysregulation has been associated with childhood abuse in ED samples [38] and has been found to be higher in adults with a history of suicide attempts [39] as well as among individuals with BN [40]. Initial findings indicate that emotion dysregulation mediates the role between sexual and emotional abuse and suicide attempts in women with BN [29]. Future research is needed to clarify the temporal association between abuse, depression, emotion dysregulation, and lifetime suicide attempts in order to more thoroughly understand the mechanism of increased suicide attempts in individuals with bulimia nervosa. Understanding the mechanisms that lead to increased suicide attempts could be an important step to inform efforts to prevent suicide in this high risk population.

Childhood physical abuse was not found to be significantly associated with lifetime suicide attempts in the present sample. This finding was not in line with previous studies [13,29] and thus was a surprising finding. However, although the association between childhood physical abuse and lifetime suicide attempts did not reach the statistical significance threshold set for the present study, this association was significant at a trend level ($p = 0.048$). Additionally, this subscale had poor psychometrics in current sample. Therefore, it is important to interpret this finding with caution until it has been replicated.

Neither childhood emotional nor physical neglect were associated with a lifetime suicide attempt in the present sample. Previous reports of the associations between emotional and physical neglect and suicidality in children and adolescents are mixed, with some finding an association [15] and some not [16, 17]. Findings from the present study provide additional evidence that childhood neglect may not be associated with lifetime suicide attempts, particularly among women with BN. The Interpersonal Theory of Suicide (IPTS) is an empirically supported model of suicide risk that may be a useful lens through which to interpret the present results [41]. The IPTS posits that an individual needs both thwarted belongingness and perceived burdensomeness to experience suicidal ideation [42]. In order for an individual to move from suicidal ideation to a suicide attempt, an individual must acquire the capacity for suicide, which is marked by increased pain tolerance and decreased fear of death [42]. While childhood neglect may lead to perceived burdensomeness and thwarted belongingness, childhood neglect may not lead to increased pain tolerance and decreased fear of death [42]. Thus, individuals who experience childhood neglect may be at risk for suicidal ideation but not necessarily attempts. However, individuals who experience abuse, which is more painful and fear inducing, may be at increased risk of suicide attempts [42]. Present findings are in partially in line with this prediction and offer some initial support this hypothesis. Although the present findings can be interpreted through the IPTS, only a few initial studies have found support for the IPTS in disordered eating samples [43, 44]. Future research is needed to fully test the IPTS in clinical eating disorder samples in order to better understand mechanisms leading to suicide attempts in this population.

The present study has several strengths, including the large sample size and the use of a well-validated measure of childhood trauma that allowed for the examination of specific forms of childhood trauma. However, the study had limitations which should be taken into account when interpreting our results. The measure of lifetime suicide attempt is self-report and based upon a single item. Additionally, the physical neglect scale of the CTQ had low internal consistency. Further, as the data are cross-sectional, no conclusions can be drawn about temporal precedence and direct causal factors.

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Clinical Implications

Adult women with BN who have experienced childhood emotional and sexual abuse are at increased risk of a lifetime suicide attempt. Therefore, assessing suicide risk among individuals with BN who have a history of childhood abuse is recommended. Although future research is needed to understand the mechanism to address in treatment and prevention efforts, it is important for clinicians to be aware of the potential increased risk of suicide in adult women with BN with a history of childhood abuse.

Table 1

Sample characteristics by the presence or absence of a lifetime history of a suicide attempt (SA)

	No SA (*n* = 148)	**SA (*n* = 56)**	**Comparison**
Age (mean, SD)	25.61 (9.13)	25.82 (8.14)	t(202) = −0.15, *p* = .88
BMI (mean, SD)	22.50 (4.48)	24.28 (6.87)	t(198) = −2.14, *p* = .04
Caucasian (%, *n*)	92.6 (*n* = 137)	85.7 (*n* = 48)	Fisher's exact, *p* = .18
Binge Eating Episodes (mean, SD)	16.88 (24.79)	17.71 (21.57)	t(202) = −0.22, *p* = 0.82
Self-Induced Vomiting (mean, SD)	21.83 (39.76)	24.09 (25.69)	t(201) = 0.40, *p* = 0.69
Laxative Abuse (mean, SD)	2.54 (6.36)	3.29 (6.03)	t(202) = −0.76, *p* = 0.45
Emotional Neglect (%, *n*)	26.3 (*n* = 39)	33.3 (*n* = 18)	t(202) = 0.95, *p* = 0.33
Physical Neglect (%, *n*)	26.3 (*n* = 39)	35.2 (*n* = 19)	t(202) = 1.51, *p* = 0.25
Emotional Abuse (%, *n*)	44.6 (*n* = 66)	72.2 (*n* = 39)	t(202) = 12.10, *p* = 0.001
Physical Abuse (%, *n*)	21.0 (*n* = 31)	37.0 (*n* = 20)	t(202) = 5.43, *p* = 0.02
Sexual Abuse (%, *n*)	16.9 (*n* = 25)	38.9 (*n* = 21)	t(202) = 10.90, *p* = 0.001

Note: Frequency of eating disorder behaviors in the past 28 days, derived from the Eating Disorder Examination Questionnaire. Childhood trauma derived from the Childhood Trauma Questionnaire (CTQ) using cut points established by Walker et al., 1999.

Table 2

Results from logistic regression analyses predicting lifetime suicide attempt (SA) from childhood trauma

	No SA (*n* = 148)	**SA (*n* = 54)**	**B (S.E.)**	**Wald (χ^2)**	**p**	**OR (95% CI)**
Emotional Abuse	10.88 (5.45)	12.41 (5.76)	0.10 (0.29)	11.28	**0.001**	1.10 (1.04 – 1.17)
Physical Abuse	6.64 (3.14)	7.70 (3.60)	0.10 (0.05)	3.92	0.048	1.09 (1.00 – 1.20)
Sexual Abuse	6.68 (4.12)	8.89 (5.80)	0.09 (0.03)	7.96	**0.005**	1.09 (1.03 – 1.16)
Emotional Neglect	10.88 (5.45)	12.41 (5.76)	0.05 (0.03)	2.97	0.085	1.05 (0.99 – 1.11)
Physical Neglect	7.04 (3.36)	7.69 (3.50)	0.05 (0.04)	1.40	0.237	1.05 (0.97 – 1.15)

Note: Childhood trauma derived from the Childhood Trauma Questionnaire (CTQ)