

Factors Associated with Suicidal Behaviors in a Large French Sample of Inpatients with Eating Disorders

Valérie J. Fedorowicz, MDCM^{1*}
 Bruno Falissard, MD, PhD^{2,3}
 Christine Foulon, MD^{1,2}
 Roland Dardennes, MD, MSc^{1,4,5}
 Snezana M. Divac, PhD¹
 Julien D. Guelfi, MD^{1,2,4}
 Frédéric Rouillon, MD^{1,2,4}

ABSTRACT

Objective: The objective of the present study was to identify factors associated with suicidal behaviors among patients with eating disorders.

Method: A large database including sociodemographic and clinical characteristics of 1,009 consecutive patients hospitalized for an eating disorder in Paris, France, was examined. Data gathered upon admission to hospital were analyzed to identify factors associated with a history of suicide attempt or current suicidal ideation, among the whole sample as well as among each subtype of eating disorder.

Results: Among the whole sample, the factor most strongly associated with sui-

cide attempt or suicidal ideation was the diagnostic category, with the highest odds ratio for bulimia nervosa followed by anorexia nervosa of the binge/purging subtype. Among diagnostic subgroups, the strongest factors were drug use, alcohol use, and tobacco use.

Conclusion: Suicide risk should be monitored carefully among patients with eating disorders, paying particular attention to combinations of risk factors.
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Keywords: suicide; suicide attempt; eating disorders; anorexia nervosa; bulimia nervosa; risk factors; subtype

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Introduction

Although anorexia nervosa (AN) is not one of the most common psychiatric conditions, its mortality rates among the highest in all mental disorders.¹ Crude mortality rates for AN reach 18% over 33 years of follow-up,^{2–5} and standardized mortality ratios (SMRs) for AN are up to 13 times the expected rates.^{6,7} About 5.6% of patients diagnosed with AN die per decade of illness.⁸ The two leading causes of death are medical complications of the eating disorder (ED) and suicide, which is now thought to surpass the effects of starvation.^{9,10} A meta-analysis by Harris and Barraclough¹¹ reported an SMR for suicide of 23 in AN, which is higher than that in any other psychiatric disorder, including major depression which has an SMR for suicide of 20. Other studies found a suicide rate in AN up

to 58 times that of women of a similar age in the general population.^{7,12} For bulimia nervosa (BN), crude mortality rates range from 1 to 3%.¹³ Though the risk of completed suicide is less well known than for AN, it is also believed to be considerable.¹³ Identifying risk factors for suicide in EDs is therefore of utmost importance for clinical practice.

The lifetime prevalence rate of suicidal ideation (SI) in the general population was estimated at 13.5%.¹⁴ The cumulative probability of going from SI to suicidal plans was 34% and that of transitioning from a plan to an attempt was 72%. It is a well-known fact that suicide attempts (SAs) consistently increase the risk of subsequent suicide, more than any psychiatric disorder in fact, with an SMR for suicide of 38.¹¹ Ultimately, from 6 to 10% of those who attempt suicide will die by suicide.¹⁵ This underscores the importance of SI and past SAs as potential predictors of suicide.

A number of studies have focused on identifying which factors are associated with SA in ED populations. Those include: having a binge/purging symptomatology, using more than one type of purging methods, and having a history of drug use disorder, impulse control disorder, as well as a more extensive treatment history.¹⁶ A history of SA was found to be more prevalent among AN of the binge/purging subtype (AN-B/P) and purging BN than among other groups.¹⁷ Anorexic patients who attempted suicide were older, had a longer duration

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*Correspondence to: Dr. Valerie Fedorowicz, Montreal Children's Hospital, 4018 Ste-Catherine West, Montreal, QC H3Z 1P2, Canada.
 E-mail: vfedorowicz@gmail.com

¹ Clinique de Maladies Mentales et de l'Encéphale, Hôpital Sainte-Anne, Paris, France

² INSERM u669, Paris, France

³ Université Paris XI, Paris, France

⁴ Université Paris V, Paris, France

⁵ INSERM u549, Paris, France

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of illness, a lower weight, and were more likely to use substances than nonattempters. Among the BN group, attempters had more comorbid psychiatric symptoms and were more likely to report sexual abuse. Other differences identified between attempters and nonattempters include earlier onset of psychopathology, higher severity of depressive and general symptoms, and more impulse control behaviors but not core symptoms or severity of the ED.¹⁸ In a 9-year prospective longitudinal study, predictors of SA for AN included the severity of depressive symptoms and drug use over the course of the study and for BN a history of drug use disorder and the use of laxatives.¹⁹ A one-year prospective study identified laxative use and a history of sexual abuse as the most significant risk factors for SA in the BN group.²⁰

However, the above mentioned studies have some limitations. In the first prospective study,¹⁹ patients with AN of the restricting subtype (AN-R) and those with AN-B/P were grouped under the diagnosis of AN. This limits the conclusions that can be drawn from that study since the two subtypes of AN differ substantially in terms of suicidality. The second one²⁰ recruited patients through advertisement, had a short follow-up length, and had a broad definition of SA. The other studies had a low to moderate number of participants ($n = 150\text{--}495$), a limited number of variables examined, or no distinction between types of ED. The relatively low prevalence of EDs makes it more difficult to study suicidality in this specific population. Many patients are lost to follow-up and, moreover, the morbidity and mortality associated with EDs often go unrecognized by clinicians. Therefore, many gaps still exist in our current knowledge on this topic and risk factors associated with each type of ED are not well documented.

To address this issue, we decided to examine a large French database of patients hospitalized for an ED between 1988 and 2004, the sample size ($n = 1,009$) allowing us to detect more subtle risk factors as well as to distinguish between subtypes of EDs. In a previous descriptive study of this inpatient sample, we found that 33.6% had attempted suicide and that 28.3% had significant SI upon admission to hospital (Fedorowicz et al., submitted for publication). The objective of the present study was to identify factors associated with a history of SA and those associated with current SI, among the whole sample as well as among each of the following diagnostic categories: AN-R, AN-B/P, and BN.

Method

Participants and Procedures

The original sample was drawn from 1,009 consecutive patients hospitalized for the first time in the Eating Disorder Unit of the Clinique des Maladies Mentales et de l'Encéphale at Sainte-Anne Hospital, Paris, France, between January 1988 and July 2004, with a diagnosis of AN-R, AN-B/P, BN or Eating Disorder – Not Otherwise Specified (ED-NOS). Diagnoses were determined according to DSM-IV criteria during a semistructured interview conducted by a fully trained psychiatrist upon admission. The following instruments were also administered: the Eating Attitudes Test (EAT), the Eating Disorder Inventory (EDI), the Hopkins Symptom Check-List 90 R (SCL-90 R), the abridged Beck Depression Inventory (BDI), the Hamilton Depression Rating Scale (HDRS), as well as questionnaires derived from the Association pour la Méthodologie et la Documentation en Psychiatrie (AMDP) (see below for details). The number of past SAs was recorded and the presence or absence of current SI was determined using specific questions from the SCL-90 R, the BDI, and the HDRS. More information on participants and procedures as well as sociodemographic and clinical characteristics of the sample can be found in an epidemiological study describing the prevalence of suicidal behaviors in this sample (Fedorowicz et al., submitted for publication).

Measures

The EAT²¹ is a 40-item, 6-point format, self-report scale measuring a broad range of eating disorder symptoms which has been validated in a French population.²² The EDI²³ is a 64-item, 6-point format, self-report scale evaluating cognitive and behavioral dimensions typically found in individuals with eating disorder. It consists of eight subscales measuring: drive for thinness, bulimia, body dissatisfaction, ineffectiveness, perfectionism, interpersonal distrust, interoceptive awareness, and maturity fears. Reliability was established for all subscales and a French version was elaborated.²⁴ The SCL-90 R²⁵ is a self-report measure assessing a wide array of psychiatric symptoms over the previous 7 days through 90 items, each rated on a 5-point scale. It is designed to assess the patient's distress as represented in nine primary symptom dimensions (validated through factor analysis): somatization, obsessive-compulsive, interpersonal sensitivity, depression, anxiety, phobic anxiety, hostility, paranoid ideation, and psychoticism. For the purpose of the current study, we used the Global Severity Index and the nine subscales of the French version of the SCL-90 R.^{26,27} The abridged version of the BDI²⁸ is a widely used 13-item self-report scale which measures behavioral, cognitive, and somatic symptoms of depression. A score above 7 corresponds to moderate depression and a score above

15 corresponds to severe depression. The BDI was translated in French and validated.²⁹ The HDRS³⁰ is a widely used 21-item, 3–5 point format, clinician-rated scale which measures the severity of depressive symptoms. The sum of the first 17 items from the original version of the scale is used as global score and a score above 18 indicates fully symptomatic depression. The AMDP³¹ scale is a European instrument used to collect qualitative and quantitative data about past history. Some abridged questionnaires derived from the AMDP were elaborated for the current study.

Among variables used in the current study, the number of hospitalizations refers to prior hospitalizations for EDs in institutions other than Sainte-Anne Hospital plus the current hospitalization. In terms of education, participants were classified as per highest level of education attained (primary school, secondary school, or superior education). They either practiced their own professional activity (which included studying), worked in a field unrelated to their profession or were not involved in any professional activity. Variables concerning relational life as well as symptomatology refer to current status and not past history, except for romantic and sexual relationships.

Assessment of Suicidal Behaviors

The presence and number of past SAs was assessed by a clinician during the intake interview and recorded in the AMDP-derived questionnaire. For most analyses, SAs were classified into dichotomous data: 0 vs. 1 or more. To assess SI at intake, we combined self- and clinician-rated scales. Two questions from the SCL-90 R (items 15 and 59) and one from the BDI (item 7) address the issue of SI. The questions from the SCL-90 R were phrased as “I am thinking of ending my life” and “I have thoughts about death or dying”, with a score of 0 corresponding to a negative answer and a score of 1–4 corresponding to a positive answer of graded intensity. The item from the BDI consisted of four statements with a score of 1 corresponding to “I think that dying would set me free”. The sum of the scores for these three questions was calculated and a cut off of “3” was used so that a participant needed to have a score of at least 1 on all three questions or above 1 on at least one of the three questions, in order to be considered as having some SI based on self-evaluation. In addition, the patient also needed to have a score of at least 1/0–4 on the question pertaining to suicidality in the clinician-rated HDRS (item 3), corresponding to the statement “Feels life is not worth living”. Only then was he/she considered as having significant current SI at intake, for the purpose of this study.

Statistical Analysis

The software SPSS³² was used to analyze the data. To compare the group who had attempted suicide and the

group who had not, we used chi-square tests for categorical variables and independent *t*-tests for continuous ones. Results are presented in terms of means and frequencies. A *p*-value of .05 was considered statistically significant.

We then used a binary logistic regression model to define the factors significantly associated with SA. For the multivariate analysis, explanatory variables were selected among those significantly associated with the dependent variable in the bivariate analysis and a backward selection process was then applied to obtain the final model. Results are presented in terms of odd ratios (ORs) and 95% confidence intervals (CIs) in a bivariate and a multivariate model for comparison. The multivariate model was then reiterated twice, replacing separately global scores for the EDI and SCL-90 R with their respective subscales to refine the analysis. Only significant factors from the subscales were included in the result section. Other results are not shown.

Similar analyses were performed in order to compare the group who had significant SI at intake and the group who did not, as well as for the comparison of the group who had attempted suicide and the group who had not within each of the following diagnostic categories: AN-R, AN-B/P, and BN.

Results

Demographic and Clinical Characteristics

There were 41 men constituting 4.1% of the sample. Subsequent analyses pertain only to the female sample ($n = 968$), since men and women differed substantially on various characteristics (Fedorowicz et al., submitted for publication). The n used in each calculation varied between 744 and 968 depending on missing data. The mean age at intake was 26 years (range, 14–59; SD = 7.1). The diagnostic distribution was: 33.1% for AN-R, 29.0% for AN-B/P, 28.7% for BN, and 9.2% for ED-NOS. In terms of suicidal behaviors, 35.6% had attempted suicide at least once and 28.4% had significant SI upon admission. The rates of past SAs and current SIs were 17.5 and 14.0% for AN-R, 42.1 and 33.0% for AN-B/P, 47.0 and 37.4% for BN, and 46.4 and 38.2% for ED-NOS, respectively. Sociodemographic and clinical characteristics of the sample have been further described in a previous study (Fedorowicz et al., submitted for publication).

Factors Associated with Suicide Attempts

Differences between attempters and nonattempters were examined in terms of sociodemographic and clinical characteristics. Significant differences

TABLE 1. Sociodemographic and clinical characteristics of attempters vs. nonattempters

	Attempters (n = 335)	Nonattempters (n = 605)	p
Age at intake (years)	26.10	26.03	0.873
BMI (m ² /kg)	18.11	16.26	<0.0001
Minimum weight (kg)	39.60	38.28	0.022
Maximum weight (kg)	62.62	59.88	0.001
Ideal weight (kg)	47.20	48.67	<0.0001
No. of hospitalizations	2.46	2.18	0.025
Age of onset (years)	16.96	18.14	<0.0001
Duration of illness (years)	9.52	8.42	0.029
Married (%)	20.1	20.0	0.975
Having children (%)	16.9	11.9	0.034
Living alone (%)	30.5	28.6	0.541
Friendship (%)	80.6	86.4	0.021
Romantic relationship (%)	47.7	42.2	0.110
Sexual relationship (%)	84.8	68.4	<0.0001
OCP use (%)	33.2	38.4	0.120
Education			
Primary (%)	5.5	4.7	
Secondary (%)	39.3	29.3	0.005
Superior (%)	55.2	66.0	
Profession			
Professional activity (%)	46.0	53.0	
Other activity (%)	17.8	17.9	0.78
No activity (%)	36.2	29.2	
Binging (%)	82.9	57.8	<0.0001
Self-induced vomiting (%)	70.8	47.7	<0.0001
Spontaneous vomiting (%)	46.0	31.1	<0.0001
Regurgitation (%)	37.4	29.2	0.011
Rumination (%)	17.8	14.0	0.134
Polydipsia (%)	61.9	46.8	<0.0001
Laxative use (%)	48.2	32.9	<0.0001
Diuretic use (%)	13.2	7.4	0.004
Diet pill use (%)	12.0	5.9	0.001
Tobacco use (%)	64.3	41.0	<0.0001
Alcohol abuse (%)	25.9	13.8	<0.0001
Drug use (%)	19.4	7.9	<0.0001
Substance abuse (%) ^a	36.9	18.1	<0.0001
Diagnosis			
AN-R (%)	16.4	43.0	
AN-B/P (%)	34.3	26.1	<0.0001
BN (%)	37.6	23.5	
ED-NOS (%)	11.6	7.4	
EAT score	61.00	53.90	<0.0001
EDI score	95.59	78.25	<0.0001
SCL-90 R score	1.832	1.468	<0.0001
BDI score	21.51	16.77	<0.0001
HDRS score	18.59	16.35	<0.0001

^aSubjects who abuse alcohol or drugs.

BMI, body mass index; OCP, oral contraceptive pill.

were observed for most variables (**Table 1**). Among attempters, the most common diagnosis was BN, while nonattempters most frequently fell within the AN-R category.

A binary logistic regression was then performed, selecting for the most significant variables. The multivariate regression model obtained identifies diagnostic category as the most significant factor with ORs of 2.5 for AN-B/P, 3.8 for BN, and 3.6 for ED-NOS, in reference to the AN-R category (**Table 2**). The model also includes drug use as an important factor associated with SA (OR = 1.8), as well as depressive symptoms (as reflected by BDI and

TABLE 2. Factors associated with a history of suicide attempt

Variables	Bivariate, OR [95% CI]	Multivariate, OR [95% CI]
Diagnosis		
AN-R	1.000	1.000
AN-B/P	2.460 [1.553–3.897]	2.471 [1.560–3.914]
BN	3.779 [2.356–6.061]	3.798 [2.368–6.089]
ED-NOS	3.634 [1.912–6.905]	3.635 [1.911–6.911]
Age of onset	0.959 [0.921–0.998]	0.960 [0.922–0.999]
Education level	0.718 [0.572–0.900]	0.720 [0.539–0.962]
Drug use	1.816 [1.105–2.984]	1.813 [1.104–2.979]
EAT score	1.012 [1.002–1.022]	1.012 [1.002–1.022]
BDI score	1.050 [1.023–1.078]	1.050 [1.023–1.078]
HDRS score	1.037 [1.011–1.065]	1.037 [1.010–1.064]

HDRS scores) and eating disorder symptoms (EAT score). Older age of onset and higher education level appear to be protective factors. The bivariate model shows ORs very similar to the ones obtained in the multivariate model.

When EDI subscale scores were substituted for the global score in the multivariate regression model (data not shown), only the Body Dissatisfaction (OR = 1.051; 95% CI = 1.001–1.103) and the Perfectionism (OR = 1.069; 95% CI = 1.020–1.121) subscale scores showed a significant association with past SA. Within the SCL-90 R subscales, the Depression (OR = 1.050; 95% CI = 1.021–1.080) and Anxiety (OR = 1.037; 95% CI = 1.001–1.074) ones were positively associated with SA, whereas Obsessiveness (OR = 0.955; 95% CI = 0.926–0.985) showed a negative association.

Factors Associated with Suicidal Ideation

Differences between individuals with and without significant SI at intake were examined across all variables listed in **Table 1** (data not shown). Significant differences were observed for most variables and a binary logistic regression was performed. Again, the multivariate regression model obtained identifies diagnostic category as the most significant factor with ORs of 1.8 for AN-B/P, 3.9 for BN, and 3.4 for ED-NOS, with reference to the AN-R group (**Table 3**). Patients who reported of having had romantic relationships in their lives appear to have a lower risk of SI.

Within the EDI subscales, only the Bulimia subscale (OR = 1.047; 95% CI = 1.004–1.092) was significantly associated with SI. Within the SCL-90 R subscales, the Depression (OR = 1.111; 95% CI = 1.071–1.152) and the Hostility subscales (OR = 1.061; 95% CI = 1.008–1.117) showed a positive association, whereas the Interoception subscale (OR = 0.945; 95% CI = 0.901–0.992) was inversely associated with SI (data not shown).

TABLE 3. Factors associated with suicidal ideation upon admission

Variables	Bivariate, OR [95% CI]	Multivariate, OR [95% CI]
Diagnosis		
AN-R	1.000	1.000
AN-B/P	3.027 [1.918–4.778]	1.812 [0.997–3.295]
BN	3.674 [2.335–5.780]	3.947 [2.070–7.526]
ED-NOS	3.800 [2.074–6.964]	3.399 [1.514–7.630]
Romantic relationship	0.586 [0.419–0.818]	0.546 [0.353–0.845]
Tobacco use	1.929 [1.389–2.681]	1.717 [1.120–2.634]
EDI score	1.035 [1.027–1.042]	1.014 [1.002–1.025]
BDI score	1.186 [1.151–1.222]	1.129 [1.084–1.176]
HDRS score	1.155 [1.122–1.190]	1.173 [1.130–1.217]

Factors Associated with Suicide Attempt in each Diagnostic Category

Since the diagnostic category is the strongest factor differentiating attempters and nonattempters, we chose to examine which variables could further explain the differences between attempters and nonattempters within each of the three diagnostic groups: AN-R, AN-B/P, and BN. Binary logistic regression was performed again to yield a multivariate regression model for each group. The ED-NOS group was not further analyzed because of the small sample size ($n = 89$).

The most significant factor associated with suicide in the AN-R group ($n = 320$) was drug use, with an OR of 23.3 (95% CI = 5.673–95.306) in the multivariate regression model (Table 4). In terms of subscales, higher scores on the EDI Bulimia subscale (OR = 1.437; 95% CI = 1.192–1.733) were significantly associated with a history of SA (data not shown). For the AN-B/P group ($n = 281$), alcohol use was the factor most significantly associated with SA. Higher scores on the SCL-90 R Depression subscale (OR = 1.064; 95% CI = 1.015–1.115) were positively associated with SA (data not shown). For the BN group ($n = 278$), only tobacco use and BDI scores were identified as factors positively associated with SA (Table 4). On the SCL-90 R subscales, Depression was associated with suicide, while Obsessiveness (OR = 0.947; 95% CI = 0.901–0.995) was inversely associated (data not shown).

Conclusion

Our study suggests that the most significant determinant of suicidality in patients with an ED is the type of ED. BN was the diagnostic category most strongly associated with a history of SA as well as the presence of SI at intake, with ORs close to 4 (relative to AN-R) in both cases. ORs associated with AN-B/P with reference to AN-R are also quite

TABLE 4. Factors associated with a history of suicide attempt in the AN-R, AN-B/P, and BN groups

Variables	Bivariate, OR [95% CI]	Multivariate, OR [95% CI]
AN-R group		
Duration of illness	1.084 [1.043–1.126]	1.088 [1.037–1.142]
Drug use	14.538 [4.270–49.498]	23.251 [5.673–95.306]
EDI score	1.034 [1.018–1.050]	1.038 [1.021–1.056]
AN-B/P group		
Education level	0.573 [0.379–0.867]	0.606 [0.384–0.956]
Friends	0.445 [0.249–0.793]	0.386 [0.200–0.747]
Self-induced vomiting	2.048 [1.044–4.017]	2.875 [1.323–6.246]
Laxative use	1.986 [1.214–3.249]	2.161 [1.247–3.747]
Alcohol use	2.931 [1.573–5.462]	3.233 [1.604–6.517]
Drug use	2.896 [1.358–6.178]	2.506 [1.091–5.756]
BN group		
Ideal weight	0.941 [0.900–0.983]	0.942 [0.899–0.988]
Tobacco use	1.856 [1.127–3.057]	1.916 [1.121–3.274]
BDI score	1.080 [1.041–1.121]	1.074 [1.034–1.116]

high, indicating that this group is more similar to BN than to AN-R in terms of suicidal behaviors. This suggests that symptomatology (such as bingeing and purging) is more important than the actual diagnostic category to determine the suicide risk of ED patients. This idea is supported by multiple previous studies,^{16,17,33} some of which associate purging behaviors, more specifically, with suicidality. A history of SA was identified in up to 30% of individuals with purging behaviors³³ and seems to be more prevalent in BN-purging subtype than BN-nonpurging subtype.¹⁷ However, according to the literature, AN-R seems more likely to be a potential risk factor for completed suicide while bingeing, purging, and bulimia may be more likely to be associated with SAs.³⁴

Interestingly, factors associated with SA in each diagnostic category varied widely. The fact that associated factors for AN-R included drug use (with an impressively high OR) and bulimic symptoms, suggests that anorexic patients who are most at risk for suicide are the ones with a profile more similar to bulimic patients. Factors associated with SA in AN-B/P also point out to impulsivity, as well as self-destructiveness: alcohol or drug use, self-induced vomiting, and laxative abuse. Finally, other than depressive symptoms, the only factor associated with a higher prevalence of past SA in the BN group was tobacco use. This might be a reflection of the relationship between suicidal behaviors and addictive substance use but the fact that tobacco use is more strongly associated with past SA than drug or alcohol use was unexpected.

The increased prevalence of suicidal behaviors in the BN and AN-B/P groups compared with the AN-R group as well as some of the specific factors associated with these behaviors (substance abuse, bingeing/purging symptoms) might be a reflection

of impulsivity traits. Previous studies consistently demonstrate that impulsive behaviors are more prevalent in AN-B/P compared with AN-R³⁵ and factors such as impulsivity and hostility have been shown to increase suicide risk.^{36,37} Drug use, laxative abuse, and other impulsive behaviors have previously been associated with suicidality in BN and AN-B/P participants.^{16,18,19} One subgroup of patients with BN have been identified as “multi-impulsive”³⁸ for showing a significant degree of impulsivity as manifested by stealing, drug use, alcohol abuse, sexual promiscuity, self-harm behaviors, as well as suicidality. Bulimic individuals reporting at least three of these impulsive behaviors seem to show more general psychopathology, a distinct personality profile, and a worse prognosis.³⁹ It is possible that such a subgroup exists in AN-B/P patients.⁴⁰

Substance abuse was twice as prevalent in suicide attempters compared to nonattempters (37% vs. 18%). The strong association between substance abuse and suicidality that we found in our multivariate models has been described previously. One third to one half of substance abusers report having attempted suicide in the past,¹⁵ with SMRs for suicide varying between 14 and 20, depending on the substance.¹¹ Alcohol use disorders are associated with increased risks of suicide and SAs, with a lifetime suicide risk ranging from 3.4% to 15% for alcohol dependence.^{15,41} More specifically, women with alcohol abuse or dependence, particularly younger ones, are far more likely to have attempted suicide compared to nonalcoholic women⁴² and show a 20-fold increase in overall suicide rate.¹¹ The association between substance abuse and SA was observed in AN^{17,19} as well as in BN.^{16,18}

In conclusion, within the limits of this study, it seems that risk factors for suicidal behaviors in ED patients are not significantly different from those already established in the general population or other psychiatric patient populations but it is rather the fact that those risk factors are commonly combined in ED pathologies that puts these patients at high risk. The large sample size of this study allowed us to identify these risk factors in ED subgroups. However, several limitations should be acknowledged: the cross-sectional design of the study, the retrospective quality of the data on SAs, the lack of details about SAs, such as temporality, means, and lethality, as well as the lack of computerized data on history of major depression, history of sexual abuse, diagnosis of personality disorder, and specification for the purging vs. nonpurging subtype of BN. The method used in this study to assess SI has its own limitations. It might lead to an

underestimate or, less likely, to an overestimate of the actual prevalence of SI, although we tried to minimize this effect through the cut-off we chose and by combining data from self- and clinician-rated instruments. An analogous method, based on SCL-90 questions, has been used by Favaro and Santonastaso,¹⁷ who reported a very similar rate of current SI (29%) in their outpatient sample.

Further research is still needed on prospective, longitudinal outcome studies of suicidal behaviors in ED patients. More specific characterization of SA repeaters and multi-impulsive individuals could also shed more light on the determinants of suicidality. The high prevalence of suicidal behaviors in women with EDs as well as the significant mortality observed in suicide attempters underscore the need for vigilant follow-up of ED patients. Clinicians should monitor suicide risk carefully, paying particular attention to combinations of the various risk factors identified in this study. Past history of suicidal behaviors, psychiatric comorbidities, character traits, as well as substance abuse (and particularly drug use in AN-R patients) should be considered when assessing ED patients.

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