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Suicidality in eating disorders: clinical and psychological correlates

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A. Favaro, P. Santonastaso
Department of Neurological and Psychiatric Sciences, University of Padova, Padova, Italy

Although many authors have described eating disorders as often being associated with suicidal feelings and behaviour, few studies to date have evaluated the prevalence and characteristics of suicidal behaviour in eating disordered patients. In the present study, in which a consecutive series of 495 out-patients was studied, 13% of the patients reported at least one suicide attempt and 29% reported current suicidal ideation; 26% of attempters reported multiple attempts. A history of suicide attempt was more prevalent among binge-eating/purging anorexics and among purging bulimics than in the other subgroups. In cases with anorexia nervosa, suicide attempters were older, had a longer illness duration, weighed less, had more often used drugs and/or alcohol and tended to be more obsessive than non-attempters. In cases with bulimia nervosa, attempters presented with more psychiatric symptoms and had more frequently been sexually abused.

Key words: anorexia nervosa; bulimia nervosa; suicidality; sexual abuse; eating disorders

Paolo Santonastaso, Istituto di Clinica Psichiatrica, via Giustiniani 3, 35128 Padova, Italy

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Introduction

The prevalence of adolescent suicide and parasuicide appears to be increasing in developed countries (1). Although many authors have described eating disorders (ED) as often being associated with suicidal feelings and behaviour (2–4), studies in the literature on suicidality in adolescents and young adults have rarely examined the prevalence of ED diagnoses among suicide attempters (5–7). This is perhaps because research on suicidality has focused on affective and anxiety or personality disorders. However, some authors have suggested the relevance of considering the presence of eating disorders in the epidemiology of suicide and attempted suicide (8, 9).

Suicide is considered to be one of the principal causes of death in anorexia nervosa (AN) (10, 11). With regard to bulimia nervosa (BN), there are still too few long-term follow-up studies to provide adequate data on mortality. However, in some of the published studies on the evolution of BN, suicide appears to be the most frequent cause of death (12, 13). Suicide attempts and impulsive behaviour, such as stealing, drug and/or alcohol abuse and self-injury, appear to be more frequent in some diagnostic subgroups, and are more prevalent in bulimic and purging anorexics than in restricters (3, 14). In BN, purging subjects appear to report greater preoccupation with suicide, and more suicide attempts and other self-injurious behaviour than non-purging bulimics (2, 15, 16). Lacey used the term 'multi-impulsive bulimia' to refer to those bulimic subjects who display more than one type of impulsive behaviour, such as alcohol abuse, drug abuse, overdosing, recurrent self-harm, sexual disinhibition and shoplifting (17).

Some authors have reported an association between suicidal behaviour and Axis I and II psychiatric comorbidity. Viesselman & Roig found that 20% of subjects who attempted suicide had an additional diagnosis of major depression, and 11% reported alcohol and/or drug abuse (2). Shearer et al. reported suicide attempts that were more serious in intent and lethality among subjects who presented with a borderline personality disorder together with an ED (8). Wonderlich and Swift also observed an association between personality disorders and suicide attempts in a sample of ED in-patients (18).

The problem of suicide attempts in adolescence and young adulthood cannot be addressed without also considering the problems of repetition (19, 20) and of self-destructive behaviour which is not life-threatening, i.e. 'self-injury' or 'self-wounding' (21–24). Among adolescent suicide attempters,

10–14% of subjects will repeat the attempt (25), and repeaters appear to be at greater risk of death than non-repeaters (19). No study to date has reported on the incidence of repeaters among ED patients.

In contrast, self-wounding has often been observed among patients with ED (3, 14, 15). Herpertz reported that 54% of self-injuring psychiatric in-patients had eating disorders (23). Self-destructive behaviour, including suicide attempts, has often been associated with traumatic childhood and adolescent experiences, such as sexual and physical abuse, in subjects with and without eating disorders (5, 21, 26–28).

The aim of the present study was to investigate the prevalence of lifetime suicide attempts, self-wounding and current suicidal ideation in a large group of ED patients. The clinical and psychological characteristics associated with suicidal behaviour are also examined.

Material and methods

Subjects and diagnostic procedures

The study subjects were 495 patients with ED who were consecutively referred to an ED outpatient unit between 1989 and 1995. At the time of presentation, a semi-structured interview was used to obtain anamnestic data on eating symptoms and attitudes, weight, menstrual status, life events, previous treatments and family psychiatric history. One section of the interview explored the presence of lifetime self-destructive behaviour, such as suicide attempts and impulsive self-injurious behaviour (e.g. skin cutting and burning). For the last 370 patients the interview included a section on drug and/or alcohol abuse, and for the last 283 patients it included a section on experiences of child sexual abuse (age <18 years). The interviews were conducted by psychiatrists, psychologists and medical doctors with more than 3 years of experience in the field of eating disorders. The diagnoses of the patients were decided upon after a discussion with one of the two authors (A.F. or P.S.). The Symptom Checklist (SCL-90) (29) was administered as part of a routine initial assessment. Current suicidal ideation was measured by two items of the Symptom Checklist: 'In the last 2 weeks, how much have you suffered from...thoughts of ending your life' (item 15) and '...thoughts of death or dying' (item 59). A 5-point Likert scale was used for the responses (where 0 = 'not at all', 1 = 'a little bit', 2 = 'moderately', 3 = 'quite a lot' and 4 = 'extremely often'). Suicidal ideation was considered to be present if there was a score of 4 or more on the two items.

The subjects were diagnosed as having restricting anorexia nervosa (AN-R) (n=104), binge-eating/purging type AN (AN-BP) (n=62), purging bulimia nervosa (BN-P) (n=158), non-purging BN (BN-NP) (n=47) and eating disorder not otherwise specified (EDNOS) (n=124) based on DSM-IV criteria (4). The EDNOS group included 42 patients with binge-eating disorder (BED).

The age of the anorexic group ranged from 12 to 48 years, with a mean of 22.0 years. In the bulimic group the age ranged from 15 to 45 years with a mean of 23.6 years and in the EDNOS group it ranged from 15 to 58 years with a mean of 25.7 years. The mean duration of illness was 40.2 months (range 3–360 months) among anorexics, 53.3 months (range 3–312 months) among bulimics and 52.2 (range 3–230 months) among subjects with EDNOS.

SPSS software was used for statistical analyses. t-test (with the Levene test for equality of variances) and Chi-square test (with Yates' continuity correction for 2 × 2 tables) were performed. Given the presence of multiple tests, the P-values for the Symptom Checklist were adjusted for chance findings using the Bonferroni correction (only P-values lower than 0.01 were considered to be statistically significant).

Results

Table 1 shows the incidence of suicide attempts in the total sample and in the six subgroups. In the total sample, 13% of the subjects reported at least one suicide attempt and, of these, 26% reported more than one attempt.

The incidence of suicide attempts was significantly different in the various subgroups (χ^2=19.30, df=5, P=0.002). Subjects with a diagnosis of BN reported more suicide attempts than subjects with a diagnosis of AN (18% vs. 9%; χ^2=5.66, df=1, P=0.02). Among subjects who repeated the suicide attempt, 77% had a diagnosis of BN-P (Table 1).

In AN, a lifetime history of suicide attempts was significantly more prevalent among the subjects with AN-BP than among those with AN-R (5% vs. 16%; χ^2=4.85, df=1, P=0.03). In BN, suicide attempts were more frequent in the purging group than in the non-purging group (21% vs. 7%; χ^2=4.37, df=1, P=0.04).

In the total sample, subjects who attempted suicide more frequently reported a history of other self-injurious behaviour (52% vs. 14%; χ^2=50.48, df=1, P<0.001). The trend was present in all of the subgroups, i.e. in anorexics (60% vs. 13%, χ^2=17.74, df=1, P<0.001), in bulimics (50% vs. 17%; χ^2=17.55, df=1, P<0.001) and in subjects with EDNOS (50% vs. 13%, χ^2=9.66, df=1,

Table 1. Lifetime suicide attempts, self-injurious behaviour and current suicidal ideation in the total sample and the ED subgroups[a]

	Suicide attempts	Repeaters	Self-injurious behaviour	Suicidal ideation[b]
AN-R ($n=105$)	5 (5)	0 (0)	14 (13)	18 (20)
AN-BP ($n=62$)	10 (16)	1 (10)	15 (24)	19 (34)
BN-P ($n=164$)	35 (21)	13 (37)	43 (26)	56 (38)
BN-NP ($n=46$)	3 (7)	0 (0)	5 (11)	11 (26)
BED ($n=41$)	4 (10)	1 (25)	8 (20)	8 (21)
EDNOS ($n=77$)	8 (10)	2 (25)	10 (13)	15 (23)
Total sample ($n=495$)	65 (13)	17 (26)	95 (19)	127 (29)

[a] Percentage values are shown in parentheses.

[b] Current suicidal ideation was studied in subjects who completed SCL-90 ($n=442$; 89% of the total subjects).

There were 91 cases of AN-R (restricting anorexia nervosa), 56 cases of AN-BP (binge-eating/purging-type anorexia nervosa), 148 cases of BN-P (purging bulimia nervosa), 43 cases of BN-NP (non-purging bulimia nervosa), 38 cases of BED (binge-eating disorder), and 66 cases of EDNOS (eating disorder not otherwise specified).

Table 2. Characteristics of anorexic subjects who did and did not report suicide attempts

	Reported suicide attempt ($n=15$)	Did not report suicide attempt ($n=152$)	
	Mean value ± SD	Mean value ± SD	*t*-test (*t*-value)
Age (years)	24.9±5.1	21.8±5.4	2.11*
Age at onset (years)	18.3±4.0	18.1±4.0	0.18
Duration of illness (months)	76.0±49.4	36.8±47.9	3.02**
Body mass index (kg m^{-2})	14.4±2.5	15.4±1.8	1.99*
Symptom Check-List	($n=13$)	($n=132$)	
Global index	1.7±0.8	1.4±0.8	1.21
Somatization	1.6±1.2	1.2±0.9	1.78
Obsession-compulsion	2.1±1.1	1.5±1.0	2.25
Interpersonal sensitivity	1.7±0.9	1.6±1.0	0.22
Depression	2.1±0.9	1.8±1.0	1.02
Anxiety	1.8±0.9	1.5±0.9	1.16
Hostility	1.3±0.9	1.3±0.9	0.02
Phobic anxiety	0.9±0.8	0.7±0.8	1.01
Psychoticism	1.2±0.6	1.1±0.8	0.52
Paranoid ideation	1.7±0.8	1.4±0.9	1.16
	($n=14$)	($n=142$)	
Number of treatments	2.1±1.9	0.8±1.1	2.63*
Antidepressant use	5 (36%) ($n=11$)	12 (8%) ($n=111$)	$\chi^2=7.07$**
Drug and/or alcohol abuse	3 (27%)	6 (5%)	$\chi^2=4.17$*

* $P<0.05$,** $P<0.01$.

$P=0.002$). Current suicidal ideation was significantly associated with a lifetime history of suicide attempts in the total sample (48% vs. 26%, $\chi^2=11.94$, df=1, $P=0.001$) and in the bulimic group (59% vs. 29%; $\chi^2=10.69$, df=1, $P=0.001$), but not in anorexics (42% vs. 24%) and EDNOS subjects (18% vs. 23%).

Anorexics who attempted suicide tended to be older at the time of presentation, to weigh less and to report a significantly longer duration of illness than non-attempters (Table 2). No difference was found between bulimic and EDNOS attempters and non-attempters with regard to age, age at onset and duration of illness. Among the subgroups that displayed binge eating, the number of binges per week was not higher among attempters than non-attempters (AN-BP, 5.6±5.2 vs. 3.8±4.9, non-significant; BN-P, 9.3±5.3 vs. 9.5±5.1, non-significant; BN-NP, 6.0±6.9 vs. 6.1±4.9, non-significant; BED; 3.3±2.5 vs. 7.2±5.2, non-significant). Moreover, the frequency of vomiting was not higher in attempters than in non-attempters (AN-BP,

6.6±6.7 vs. 5.2±5.9, non-significant; BN-P, 9.4±5.9 vs. 7.8±5.5, non-significant).

Among anorexic and bulimic subjects, attempters reported a greater number of previous psychiatric and/or psychological treatments, and had more often been treated with antidepressant drugs (Tables 2 and 3). The number of previous treatments was also higher in EDNOS attempters than in non-attempters (1.5±1.3 vs. 0.6±1.1; t=2.60, P=0.01). The incidence of family morbidity reported by the patients was not significantly different between attempters and non-attempters in the total sample (48% vs. 36%, χ^2=2.33, df=1, P=0.1) and in diagnostic groups, with the exception of the EDNOS subgroup (67% vs. 28%; χ^2=5.65, df=1, P=0.02). Among anorexic (Table 2) but not bulimic subjects (Table 3) and those with EDNOS (33% vs. 11% χ^2=1.96, df=1, non-significant), a significantly higher percentage of suicide attempters reported drug and/or alcohol abuse compared to non-attempters.

A history of sexual abuse during childhood or adolescence was investigated in 98 anorexics, 111 bulimics and 74 subjects with EDNOS. None of the anorexics who attempted suicide and 9% of the non-attempters reported a history of sexual abuse, while 32% of bulimic attempters compared to 14% of non-attempters (χ^2=2.99, df=1, P=0.08) reported this trauma. Among subjects with EDNOS, sexual abuse was reported by 14% of suicide attempters and 13% of non-attempters (χ^2=0.00, df=1, non-significant). Among anorexic and bulimic subjects, but not among those with EDNOS, a history of sexual abuse was significantly more frequent among subjects who reported self-injurious behaviour than in those who did not (AN, 24% vs. 5%; χ^2=3.84, df=1, P=0.05; BN, 34% vs. 10%; χ^2=8.54, df=1, P=0.003; EDNOS, 20% vs. 12%; χ^2=0.16, df=1, non-significant).

Tables 2 and 3 show the SCL-90 scores compared between attempters and non-attempters, for both anorexic and bulimic subjects. Among subjects with EDNOS, no significant difference was found between attempters and non-attempters on the SCL-90 global index (1.6±0.6 vs. 1.4±0.7, non-significant) and subscales. Table 4 shows the differences between repeaters and non-repeaters. Repeaters tended to report other self-injurious behaviour more often (71% vs. 46%; χ^2=2.17, df=1, P=0.14), but they did not display more frequent current suicidal ideation (63% vs. 43%; χ^2=1.06, df=1, non-significant) than non-repeaters.

Table 3. Characteristics of bulimic subjects who did and did not report suicide attempts

	Reported suicide attempt (n=38)	Did not report suicide attempt (n=172)	
	Mean value±SD	Mean value±SD	t-test (t-value)
Age (years)	23.3±4.3	23.8±5.4	0.56
Age at onset (years)	17.8±3.2	18.7±4.7	1.05
Duration of illness (months)	60.5±39.4	53.7±48.8	0.80
Body mass index (kg m^{-2})	20.5±2.8	20.8±2.8	0.67
Symptom Check-List	(n=37)	(n=153)	
Global index	2.0±0.6	1.5±0.7	4.14**
Somatization	1.8±0.8	1.3±0.8	3.81**
Obsession-compulsion	2.2±0.7	1.7±0.8	3.34**
Interpersonal sensitivity	2.2±0.7	1.7±0.9	3.18**
Depression	2.6±0.7	2.0±0.9	4.56**
Anxiety	2.3±0.8	1.6±0.9	4.18**
Hostility	1.7±0.9	1.3±0.8	2.95**
Phobic anxiety	1.1±0.8	0.7±0.7	3.37**
Psychoticism	1.5±0.8	1.1±0.7	2.49**
Paranoid ideation	2.0±0.8	1.5±0.8	3.50**
	(n=38)	(n=160)	
Number of treatments	2.0±1.6	0.9±1.1	3.76**
Antidepressant use	18 (47%) (n=30)	32 (20%) (n=125)	χ^2=11.56**
Drug and/or alcohol abuse	8 (27%)	26 (21%)	NS[a]

* P<0.05,** P<0.01.
[a] NS, non-significant difference.

Table 4. Characteristics of repeaters and non-repeaters

	Repeaters ($n=16$)	Non-repeaters ($n=45$)	
	Mean value ± SD	Mean value ± SD	*t*-test (*t*-value)
Symptom Check-List			
Global index	2.1 ± 0.5	1.8 ± 0.7	2.17
Somatization	2.0 ± 0.8	1.6 ± 0.9	1.76
Obsession-compulsion	2.5 ± 0.6	1.9 ± 0.9	2.82*
Interpersonal sensitivity	2.3 ± 0.7	1.9 ± 0.9	1.50
Depression	2.7 ± 0.4	2.3 ± 0.9	2.30
Anxiety	2.4 ± 0.8	2.0 ± 0.9	1.75
Hostility	1.8 ± 0.9	1.5 ± 0.9	1.27
Phobic anxiety	1.1 ± 0.6	1.0 ± 0.8	0.27
Psychoticism	1.5 ± 0.6	1.3 ± 0.7	0.81
Paranoid ideation	1.9 ± 0.6 ($n=17$)	1.9 ± 0.9 ($n=47$)	0.17
Number of previous treatments	2.8 ± 1.9	1.6 ± 1.4	2.36
Antidepressant use	12 (71%) ($n=16$)	14 (30%) ($n=34$)	$\chi^2=7.01$**
Drugs and/or alcohol abuse	5 (31%) ($n=14$)	9 (27%) ($n=22$)	NS[a]
Sexual abuse	5 (36%)	3 (14%)	NS

** $P<0.01$.

[a] NS, non-significant difference.

Discussion

The lifetime prevalence of suicide attempts observed in our ED sample was higher than that for the general population (30), but for some subgroups it was similar to values reported in other out-patient samples (6, 31). The prevalence was significantly different in the various subgroups proposed by DSM-IV, thus confirming previous observations in the literature (2, 3, 14–16). The proportion of subjects who had made more than one suicide attempt was higher than that for adolescent attempted suicides (20, 25), but lower than that reported by Asnis et al. (6) in a sample of psychiatric out-patients.

One of the most relevant findings of the present study was the association of suicidal behaviour with factors that are generally considered to be negative prognostic indicators. In AN, suicide attempts and other self-injurious behaviour were more frequent among subjects with AN-BP, i.e. the group considered to have the worst outcome in follow-up studies (32). Anorexic subjects who attempted suicide were older at the time of presentation, and had a longer duration of illness and a greater number of previous failed treatments, all factors that appeared to increase the risk of chronicity (32). These subjects seemed to have a more serious form of anorexia, with a lower body mass index, higher levels of obsessionality and more frequent drug and/or alcohol abuse than non-attempters.

In BN, the prognostic effect of impulsivity on the evolution of the disturbance has been the subject of debate (17, 33). In our study, suicide attempts in BN did not appear to be linked to the severity of bulimic symptoms in terms of frequency of binge eating and vomiting, but rather to the presence of purging behaviour (16). Suicide attempts were associated with more serious psychiatric symptoms and, as reported by Newton et al. (34), with higher levels of obsessionality. As it was found among AN and EDNOS subjects, a greater number of previous treatments were reported by bulimic attempters. In anorexia and bulimia, the significant difference between attempters and non-attempters with regard to previous use of antidepressants did not necessarily indicate a higher comorbidity with affective disorder, as antidepressants are often used for their anti-bulimic effect.

Among subjects with EDNOS, suicide attempters appeared to be less easily distinguishable than non-attempters, compared to anorexic and bulimic patients, probably due to the heterogeneity of this subgroup. However, attempted suicide in this subgroup was linked to a higher rate of family morbidity.

The fact that, among bulimics but not among anorexics and subjects with EDNOS, attempters could be readily distinguished from non-attempters

by their psychiatric symptoms led us to consider the hypothesis that, in the first group, more persistent problems had caused the suicidal behaviour. These problems could be a consequence of personality characteristics or cognitive styles that limited adaptive functioning (19, 26), a poor social environment, greater family turmoil and instability, or persistent traumatic events such as sexual abuse (5). The high incidence of repeaters among subjects with BN-P in our sample appeared to confirm this hypothesis. In contrast, in AN the suicide attempts could more often be linked to a past state diagnosis, such as an episode of major depression, which can sometimes precede the onset of AN (35). Whatever the problem with which the suicide attempt was linked, anorexia appeared to be a 'solution' or a 'denial' of the problem, while bulimia seemed to lead to the maintenance or impairment of psychological and adaptive functioning. Probably for these reasons the BN-P group appeared to be most at risk for repetition of attempts, and it was the only group in our sample in which current suicidal ideation was associated with a history of suicide attempts.

A higher level of obsessionality, as measured by the SCL-90, was found in anorexic and bulimic attempters compared to non-attempters, and in repeaters compared to non-repeaters. The link between impulsivity and obsessionality may appear to be contradictory (34, 36). Obsessional hyper- and hypo-control seemed to coexist in ED patients, resulting in a poor ability to regulate impulses and a high level of anxiety when the control was slackened. Some authors have postulated that impulsivity, and self-harm in particular, are linked to obsessionality and depression by common biological correlates and, more specifically, by serotonergic dysfunction (24, 34, 37, 38).

In both AN and BN, sexual abuse appeared to be significantly associated with self-wounding, while only in BN was there a trend towards a more frequent history of sexual abuse among subjects who reported a suicide attempt. A link between child sexual abuse and self-destructive behaviour has previously been described in adolescents (5, 26), community samples (27), personality and bipolar II disordered subjects (21) and ED samples (28). Fullerton et al. found a significant association between sexual and/or physical abuse and suicide attempts in AN, BN and EDNOS groups (28). By contrast, in our study, a history of sexual abuse in anorexic subjects increased the risk of self-wounding, but did not increase the risk of more severe acts, such as suicide attempts.

In conclusion, the diagnosis of ED should be considered together with other possible diagnoses in adolescent and young adult females who are being assessed for suicidality, as it has been observed that ED could represent a risk factor for more serious suicide attempts (8). Despite the lack of data on comorbidity in our sample, the present study confirms the importance of considering the problem of suicidality among subjects with ED. Suicide attempts appear to be more frequent among subjects with AN-BP and BN-P, subjects who display other impulsive behaviour such as self-wounding and drug and/or alcohol abuse, and subjects who show high levels of obsessionality. Self-wounding and, in BN, suicide attempts were also more frequent among subjects who had experienced sexual abuse. A longer duration of illness appears to be associated with suicidality in AN. In addition, a larger number of failed therapeutic approaches appeared to distinguish attempters from non-attempters in the total sample.

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