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The affect-regulation function of nonsuicidal self-injury in eating-disordered patients: which affect states are regulated?

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Abstract

This study examines the affect regulation function of different types of nonsuicidal self-injury (NSSI) in 177 female eating-disordered inpatients. Almost 45% of the eating-disordered patients displayed at least 1 type of NSSI. Cutting and scratching were the most common forms of NSSI followed by bruising and burning oneself. For all types of NSSI except bruising, the affect regulation function was most strongly endorsed. Affect states reported to precede and follow NSSI were also examined to determine the particular affect states regulated by NSSI. In general, positively valenced low-arousal affect states increased and negatively valenced high-arousal affect states decreased from before to after NSSI. Finally, affective changes associated with NSSI were related to different NSSI characteristics, indicating that the increase in positive affect after NSSI is significantly related to the frequency of NSSI and the numbers of functions reported for NSSI. Theoretical and treatment implications are discussed.
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1. Introduction

Nonsuicidal self-injury (NSSI) refers to any socially unaccepted behavior involving direct and deliberate destruction of one's own body tissue without suicidal intent [1,2] such as scratching, cutting, hitting, and burning oneself. High rates of NSSI have been reported among eating-disordered (ED) patients, especially in bulimia nervosa and the bingeing-purging subtype of anorexia nervosa [3-7]. According to a review by Svirko and Hawton [8], the occurrence of NSSI varied between 13.6% and 42.1% for restricting anorexia nervosa, between 27.8% and 68.1% for bingeing-purging anorexia nervosa, and between 26% and 55.2% for bulimia nervosa.

Although the frequency of NSSI in ED patients is considerably high, only a few studies have thoroughly investigated the functions of NSSI in ED. Paul et al [9] found evidence for an affect regulation function in 376 ED inpatients. Specifically, 69.2% of the patients reported that they felt better immediately after injuring themselves; however, a couple of hours later, only one third felt better and one third felt worse. Other NSSI functions that were frequently reported by the ED patients were reducing anger, punishing oneself, reducing tension, and feeling physical instead of emotional pain [9]. Consistent with results from Paul et al, injurers in Claes and Vandereycken [10] ED patients with NSSI reported a significant increase in positive affect and a significant decrease in negative affect from before to after NSSI. Finally, Muehlenkamp [6] reported similar findings using ecological momentary assessment in 19 bulimia nervosa patients. Positive affect significantly increased after NSSI, although negative affect remained unchanged.

Although these initial studies have begun to identify common functions of NSSI in ED patients, several questions remain to be answered. It is still unknown whether the affect regulation function of NSSI is the most important function of NSSI in ED and whether affect regulation is the primary function for all types of NSSI (eg, cutting, bruising, and burning). No studies have systematically investigated

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similarities or differences in functions between different types of NSSI. Therefore, the first aim of the present study is to address this question.

Second, to the extent that the affect regulation function of NSSI is common in ED patients, it is important to determine which emotions are changed by NSSI. For example, although self-injuring to feel excited or to feel less angry would be broadly consistent with an affect regulation function, each would have very different implications for theory and clinical practice. Current studies [6,10] have shown significant increases in positive affect post-NSSI and either decreases [10] or stability [6] in negative affect post-NSSI. More recently, findings of Klonsky [11] suggest that studies on affect regulation of NSSI should examine changes not only in affective *valence* (positive/negative) but also in the level of arousal (high/low). Affective valence refers to the pleasantness of the emotion (eg, positive: happy; negative: sad) and arousal refers to the intensity of emotion (eg, high: angry, happy; low: sad, relieved) [12]. In a study of 39 young adults with a history of NSSI, Klonsky [11] found that high-arousal negative affect (eg, frustration and anxiety) decreased after NSSI and low-arousal positive affect (eg, calm and relieved) increased. In contrast, low-arousal negative affect states (eg, sad and lonely) and high-arousal positive affect states (eg, excited) showed less change. This specific pattern of findings suggests that the affect regulation function of NSSI may not only apply to the regulation of valence (reduction of displeasure and increase of pleasure) but that NSSI may also specifically reduce arousal levels (arousal regulation). To our knowledge, no study of NSSI in ED patients has examined changes in both valence and arousal of affect states before/after different types of NSSI, which is the second aim of our study.

Finally, it is important to investigate whether the magnitude of the affective changes after NSSI reinforces the behavior, increasing the probability that NSSI will be repeated in the future. Klonsky [11] showed that the reduction in negative valence and arousal post-NSSI predicted the lifetime frequency of cutting in 39 NSSI participants. Besides studying the association between affective changes and the lifetime frequency of NSSI, it is useful to investigate whether high emotional changes post-NSSI are related to other indices of NSSI chronicity, such as the frequency of NSSI per month, the number of functions served by NSSI, and the planning of the NSSI.

In summary, the aims of the present study are 3-fold: (1) investigate the prevalence of different functions in different types of NSSI in ED patients, (2) clarify the changes in affective valence and arousal following different types of NSSI, and (3) examine whether the magnitude of emotional changes associated with NSSI predicts the frequency and chronicity of NSSI. Results will serve both to replicate findings on NSSI in ED patients and to advance knowledge by yielding a better understanding of the nature and clinical implications of NSSI functions in ED patients. Based on the emerging literature, we hypothesize that (*a*) the affect regulation function will be apparent for different types of NSSI, (*b*) an increase in positive–low-arousal affect and a decrease or stabilization in negative-high arousal will be associated with any act of NSSI, and (*c*) the magnitude of affective change will positively predict the frequency of NSSI per month, the number of functions for NSSI endorsed, and the planning of NSSI.

2. Method

2.1. Participants and procedure

We obtained data from 177 female ED inpatients admitted to a specialized treatment unit for eating disorders in Belgium. By means of a diagnostic interview conducted by an experienced psychiatrist and the score on the Eating Disorder Evaluation Scale [13], patients were diagnosed according to *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* criteria [14]: 48 (27.1 %) as anorexia nervosa, restrictive type; 34 (19.2%) as anorexia nervosa, bingeing-purging type; 17 (9.6%) as bulimia nervosa, nonpurging type; 55 (31.1%) as bulimia nervosa, purging type; and 19 (10.7%) as eating disorder, not otherwise specified; 4 patients' ED diagnoses (2.3%) were not available. The mean (SD) age of the patient group was 24.93 (7.62) years. Almost 43% (42.9%; n = 76) of the patients completed secondary education; 31.6 % (n = 56), higher education outside university; and 22% (n = 39), university education. Approximately 80% (n = 139; 78.5%) of the patients were single, 6.8% (n = 12) were engaged; 11.3% (n = 20) were married, and 3.4% (n = 6) were divorced.

Questionnaires (Eating Disorder Evaluation Scale, Self-Injury Questionnaire–Treatment Related) were completed at admission as a part of the routine assessment. Patients willing to participate provided written informed consent and completed the questionnaires individually on a personal computer within a private room on the treatment unit. Participants were not provided any direct compensation but received feedback from their main therapist based on a short report of the results written by the researcher. The study procedures were approved by the ethical committee of the university of the first author and the psychiatric hospital where the study was conducted.

2.2. Instruments

The characteristics of different types of NSSI were assessed by means of the Self-Injury Questionnaire–Treatment Related [10], which was designed to assess NSSI in ED patients. Patients were asked whether they deliberately injured themselves in the past year by means of scratching, bruising, cutting, burning, and biting (nail biting was not included in the study given its less severe nature). For each behavior separately, patients indicate how long ago they performed the behavior: never, a week

ago, a month ago, several months ago, or a year ago. If they endorsed the behavior during the last week or the last month, more detailed questions were asked regarding the body parts that were injured, the frequency of the NSSI/month (1-5, 6-10, 11-15, more than 15 days), the frequency/intensity of pain experienced during NSSI, and the level of planning of the NSSI (never, sometimes, often, always).

Furthermore, patients were asked to indicate how often —on a scale ranging from 1 (not at all) to 5 (very often)— they experienced the emotions "happy," "relieved," "nervous," "bored," "angry at self," "angry at others," "anxious," "sad," and "guilty" shortly before and after the different NSSIs. Finally, they were asked to indicate to which degree—on a scale ranging from 1 (not at all) to 5 (very often)—each of 11 motives (for a description, see Table 1) applied to their NSSIs.

3. Results

3.1. Prevalence of different types of NSSI

During the last year, 43.5% (n = 77) of the 177 ED inpatients had performed at least 1 type of NSSI. The prevalence of different NSSI acts during the last year was as follows: 31.1% (n = 55) reported cutting; 27.7% (n = 49), severe scratching; 19.8% (n = 35), bruising; and 9.6% (n = 17), burning. During the last week or month before participation in the study, 27.7% (n = 49) of the 177 ED inpatients performed at least 1 type of NSSI: 18.1% (n = 32) reported severe scratching; 14.7% (n = 26), cutting; 9% (n = 16), bruising; and 2.8% (n = 5), burning. Because only patients who injured themselves during the last week or month were asked to answer detailed questions concerning emotions before/after NSSI, reasons for NSSI, and other NSSI characteristics, we will focus on these patients in the remainder of the article (n = 49).

3.2. Prevalence of different reasons for different types of NSSI

For each of the different NSSI acts displayed during the last week or month, the ED patients rated the extent to which each of 11 reasons was involved in their NSSI. Table 1 shows the means and SDs of ratings as applied to the different types of NSSI, as well as the percentage of participants who rated the reasons as occurring *usually* or *always*. "To avoid or suppress negative feelings" was the most strongly endorsed reason for burning (100%), cutting (76.9%), and severe scratching (68.8%), followed by the reason "To punish oneself." For bruising, the opposite pattern appeared: "punishing oneself" (93.8%) was the primary reason, followed by "affect regulation" (75%). Compared with the mean proportion of bruising patients, scratching patients were less likely to endorse "To punish oneself" ($\chi^2_{(1)} = 5.33$, $P < .05$), whereas burning patients mentioned more often that they injured themselves "To avoid or suppress suicidal thoughts" ($\chi^2_{(1)} = 3.96$, $P < .05$). The social functions "to get attention from others" and "to show others how strong I am" were never or rarely mentioned.

3.3. Changes in affect from before to after different types of NSSI

Patients also rated the extent to which they experienced 8 different affect states before and after NSSI. For purposes of analysis, we grouped the 8 affect states into 4 categories according to their affective valence and arousal following the coding system of Klonsky [11]: (1) "Happy" was classified as *positive–high-arousal* affect state; (2) "Relieved" as *positive–low-arousal* affect state; (3) "Nervous," "Anxious," "Angry at self," and "Angry at others" as *negative–high-arousal* affect states; and finally (4) "Bored" and "Sad" as *negative–low-arousal* affect states. Guilt was not included in the emotion categorization because several studies [11,15] had difficulties in determining the arousal level of guilt.

Table 1
Means (*M*), SD, and percentages (%) of reasons for NSSI endorsed by ED inpatients

Reasons for NSSI	Scratching (n = 32)			Bruising (n = 16)			Cutting (n = 26)			Burning (n = 5)		
	M	SD	%[a, b]	*M*	SD	%[a]	*M*	SD	%[a, b]	*M*	SD	%[a, b]
To feel some pleasure	1.45	0.76	3.2	1.69	1.25	12.5	1.65	1.23	11.5	1.80	1.78	20.0
To avoid or suppress negative feelings	3.72	1.27	68.8	3.81	1.27	75.0	4.00	1.35	76.9	4.80	0.44	100.0
To avoid or suppress painful images	2.87	1.60	46.9	2.44	1.63	25.0	3.00	1.76	50.0	4.40	0.89	80.0
To get into a twilight or numb state	2.53	1.48	31.2	2.31	1.49	31.2	2.69	1.59	38.5	3.40	1.51	40.0
To get attention from others	1.34	0.70	3.1	1.75	1.39	12.5	1.54	0.90	7.7	1.60	0.89	0.0
To escape from a numb state	1.91	1.25	15.6	2.00	1.21	12.5	2.00	1.47	19.2	3.00	2.00	40.0
To punish myself	3.59	1.47	56.2[c]	4.44	0.81	93.8[c]	3.85	1.40	69.2	3.80	1.78	60.0
To make myself unattractive	2.23	1.62	29.0	2.12	1.45	18.8	2.04	1.56	23.1	3.00	2.00	40.0
To avoid or suppress suicidal thoughts	2.38	1.64	31.2	2.00	1.26	18.8[d]	2.77	1.65	46.2	4.00	1.73	80.0[d]
To show myself how strong I am	1.62	1.12	12.5	2.31	1.44	25.0	1.73	1.21	11.5	2.40	1.94	40.0
To show others how strong I am	1.06	0.24	0	1.74	1.29	12.5	1.19	0.56	0.0	1.75	1.50	25.0

[a] Indicates the percentage of ED patients who rated the reason as occurring *usually* or *always* on a scale ranging from 1 (never), 2 (rarely), 3 (sometimes), 4 (usually), to 5 (always).

[b,c,d] Proportions with the same superscript are significantly different from each other.

Table 2 displays the changes in each of the 4 emotion categories from before to after different types of NSSI. By means of dependent sample *t* tests, we investigated whether the changes in the 4 emotion categories from before to after NSSI were statistically significant. As indicated in Table 2, the *positive valence–low-arousal affect state* (relieved) demonstrated the largest change, increasing substantially from before to after the different types of NSSI. There were also substantial decreases in *negative valence–high-arousal* affect states (nervous, anxious, angry self, angry others).

Finally, guilt, which was not classified within the 4 emotion categories, only showed significant changes from before to after for cutting ($t(25) = -2.05$, $P < .05$), but not for scratching ($t(31) = -1.09$, ns), bruising ($t(15) = -1.84$, ns), or burning ($t(4) = 0.00$, ns).

3.4. Correlations between the magnitude of affective changes and different NSSI characteristics

Finally, we correlated the changes in affective states from before to after NSSI, with the frequency of NSSI per month, how often NSSI was planned before being performed, and the number of different reasons endorsed for NSSI (see Table 3). The correlations between affective changes and the characteristics of burning are not displayed given the small numbers of patients (n = 5) who endorsed burning during the last week or month. Taking into account all NSSI methods and after Bonferroni correction on the correlations (*r* is significant if $P < .004$ [0.05/12]), the results show positive (although not significant) relationships between the increase of positive affect and the frequency of NSSI per month, the planning of NSSI, and the number of functions endorsed. For each of the NSSI methods separately, the results show a positive (although not statistically significant) relationship between the increase in positive affect after severe scratching and cutting, and the frequency of scratching and cutting per month.

4. Discussion

We investigated the affect regulation function of different types of NSSI in ED patients. Overall, 43.5% of the ED patients showed at least 1 type of NSSI during the last year and 27.7% during the last week/month before participation in the study. Cutting and severe scratching were the most common types of NSSI, followed by bruising and burning. Comparable findings were reported by Svirko and Hawton [8], who found that 25.4% to 55.2% of ED patients displayed at least 1 type of NSSI. Other studies also [3-5,9,18] reported comparable prevalence data, with cutting and scratching as the most common forms of NSSI in ED samples.

Given the high frequency of NSSI in ED, we investigated the reasons given for engaging in NSSI. A clear pattern

Table 2
Affect states before and after NSSI and changes in affect from before to after NSSI grouped by affective valence and arousal

	Before		After		After-before		*t*	Cohen *d*[a]
	M[b]	SD	*M*	SD	*M*	SD		
Severe scratching (n = 32)								
Positive–High[c]	1.06	0.24	1.47	1.04	0.40	1.01	2.27*	0.54
Positive-Low	1.06	0.24	2.78	1.47	1.71	1.52	6.35***	1.63
Negative-High	3.50	0.85	2.59	0.91	−0.90	0.96	−5.31***	1.03
Negative-Low	3.35	0.73	2.45	0.80	−0.90	0.91	−5.57***	1.17
Bruising (n = 16)								
Positive–High[c]	1.07	0.26	1.29	0.61	0.21	0.42	1.88	0.46
Positive-Low	1.07	0.25	3.13	1.45	2.06	1.43	5.56***	1.97
Negative-High	3.55	0.89	2.55	0.93	−1.00	1.00	−3.85**	1.09
Negative-Low	2.96	0.66	2.60	0.80	−0.36	0.83	−1.70	0.49
Cutting (n = 26)								
Positive-High[c]	1.15	0.54	1.73	1.25	0.57	1.13	2.58**	0.60
Positive-Low	1.08	0.39	3.58	1.52	2.50	1.55	8.19***	2.25
Negative-High	3.71	0.64	2.66	1.06	−1.05	0.97	−5.36***	1.19
Negative-Low	2.94	1.08	2.38	0.87	−0.55	0.94	−3.02**	0.57
Burning (n = 5)								
Positive-High[c]	1.00	0.00	1.20	0.44	0.20	0.44	1.00	0.64
Positive-Low	1.00	0.00	3.00	1.41	2.00	1.41	3.16*	2.00
Negative-High	3.75	0.50	2.90	0.80	−0.85	0.62	−3.02*	1.27
Negative-Low	3.00	0.35	2.20	0.67	−0.80	0.67	−2.66	1.49

[a] For Cohen *d*s, an effect size of 0.2 to 0.3 might be a "small" effect; around 0.5, a "medium" effect; and 0.8 to infinity, a "large" effect [16].
[b] Rated on a scale: 1 (never), 2 (rarely), 3 (sometimes), 4 (usually), and 5 (always).
[c] Positive valence–high arousal (happy); positive valence–low-arousal (relieved); negative valence–high arousal (nervous, anxious, angry self, angry others); negative valence–low-arousal (bored, sad).
* $P < .05$.
** $P < .01$.
*** $P < .001$.

Table 3
Correlations between changes in affect states from before to after NSSI and NSSI characteristics

	No. of NSSI/mo[a]	Planning of NSSI[a]	No. of reasons for NSSI[a]
Overall NSSI[b] (n = 79)			
Positive-High[c]	.25*[,d]	.04	.30**
Positive-Low	.22*	.28*	.25*
Negative-High	−.13	−.13	−.03
Negative-Low	−.04	−.15	−.08
Scratching (n = 32)			
Positive-High[c]	0.28	0.37*	0.41*
Positive-Low	0.29	0.41*	0.47*
Negative-High	−0.17	0.17	−0.06
Negative-Low	−0.11	−0.26	−0.06
Bruising (n = 16)			
Positive-High[c]	−0.19	0.00	0.57*
Positive-Low	0.18	0.33	0.39
Negative-High	−0.12	−0.44*	−0.31
Negative-Low	0.01	−0.34	−0.07
Cutting (n = 26)			
Positive-High[c]	0.33	−0.30	0.25
Positive-Low	0.11	0.00	−0.05
Negative-High	−0.05	−0.23	0.15
Negative-Low	−0.04	−0.02	−0.22

[a] Higher scores on "No. of NSSI/mo," "Planning of NSSI," and "No. of reasons for NSSI" indicate higher frequencies of NSSI/month, more planning of NSSI, and higher numbers of reasons for NSSI.

[b] Overall NSSI = aggregation across cutting, severe scratching, bruising, and burning.

[c] Positive valence–high arousal (happy); positive valence–low-arousal (relieved); negative valence–high arousal (nervous, anxious, angry self, angry others); negative valence–low-arousal (bored, sad).

[d] Pearson correlation, often denoted r, is widely used as an effect size when paired quantitative data are available. Cohen [16,17] gives the following guidelines: small effect size, $r = 0.1$; medium, $r = 0.3$; and large, $r = 0.5$.

* $P < .05$.

** $P < .01$.

emerged: the reason "to avoid or suppress negative feelings," referring to the affect regulation function of NSSI, was the most common reason for many of types of NSSI, followed by the reason to "punish oneself." For bruising behaviors, the opposite pattern appeared: "punishing oneself" was the most important function followed by "affect-regulation." These results are consistent with the review findings of Klonsky [19] that affect regulation seems to be the most important function of many types of NSSI. Several studies have highlighted the emotion-regulation function of NSSI in ED [6,9] and in other psychiatric patient groups [20-24]. The present study was the first to differentiate between different types of NSSI and to report a different pattern of functions for bruising compared with other types of NSSI. Finally, the social reasons (such as "getting attention from others" or "to show others how strong I am") were only rarely indicated as reasons to engage in NSSI. This finding is important because it is consistent with the previous work of Klonsky [19], and clinicians tend to overemphasize the attention-seeking function of NSSI despite the evidence [25]. However, this conclusion may be premature because any type of self-report assessment is subject to social desirability. The suggestion that one engages in NSSI "to get attention from others" could be perceived as socially undesirable and not endorsed. Therefore, in future studies, phrasing the social function questions in a more positive frame (eg, "to show my pain," "to get some help") might result in a more representative response.

To further investigate the affect regulation function of different types of NSSI, we studied which affect states changed from before to after performance of NSSI. Based on previous work [11,12], we divided our affect states into 4 groups according to their valence and arousal level. We found specific changes in both affective valence and arousal that were consistent across all types of NSSI: positive–low-arousal affect states (eg, relieved) significantly increased, and negative–high-arousal affect states (eg, anger and anxiety) significantly decreased. This pattern is consistent with the findings of Klonsky [11]. In contrast to the findings of Muehlenkamp [6], who only found an increase in positive affect after NSSI in bulimic patients, our results also showed significant decrease in negative affect states. It seems that scratching, bruising, cutting, and burning oneself are both positively (increase positive affect) and negatively (decrease negative affect) reinforced. However, some authors [11,26] view positive–low-arousal affect states (eg, "relieved") as reflecting low negative rather than positive affect, stressing the negative reinforcement of NSSI (ie, NSSI decreases negative affective states). Only 1 negative affect state, "guilt," did not significantly decrease from before to after different types of NSSI (except for cutting), possibly due to the fact that people often feel guilty or ashamed after NSSI [11,18]. Finally, it is notable that despite the strong increase in positive–low-arousal affect and decrease in negative–high-arousal affect states after NSSI, a considerable level of negative affect remains present after NSSI. The high level of residual negative affect still present after NSSI may increase vulnerability to repeated episodes of NSSI, particularly because the data support a strong affect regulation function of NSSI. Additional research is needed to determine how much influence residual negative affect has on increasing the likelihood for repeat episodes of NSSI.

Finally, we studied the associations between the magnitude of affective change and several NSSI characteristics. Overall (taking into account all NSSI methods), we found almost significant positive relationships between the change in positive affect from before to after NSSI and the frequency of NSSI per month, the planning of NSSI, and the number of functions endorsed by the different NSSI methods. For each of the NSSI methods separately, we found comparable, although not significant (probably due to the smaller sample size for each NSSI method separately), associations between the change in positive affect from before to after cutting/scratching and the number of cutting/scratching acts per month, suggesting that the increase in positive affect reinforces the maintenance of these NSSI behaviors. In addition, the consistency of this specific pattern of affect

change after all types of NSSI hints at the important function of arousal reduction of NSSI in ED. Next to striving to feel good or avoiding to feel bad, our pattern of findings equally provides evidence that NSSI may be aimed at the reduction of arousal, by reducing high-arousal negative states and increasing low-arousal positive states.

Finally, we found a positive association between an increase in high-arousal–positive affect and the numbers of reasons given for scratching, bruising, and cutting. The more functions that are served by a particular NSSI method, the higher the increase in positive affect, which may explain the potentially addictive nature of this behavior [27]. This pattern of reinforcement may be due in part to neurochemical abnormalities associated with NSSI. There is some evidence that injurers exhibit dysfunction in dopaminergic, serotonergic, and/or endogenous opioid mechanisms [28]. It is possible that the addictive properties of elevated endogenous opioids are responsible for maintaining NSSI. The release of endogenous opioids associated with a self-inflicted injury may account both for the diminished experience of pain, arousal reduction, and the enhancements in mood reported by injurers [29]. Also, the hypothesis that dopamine is important for a reward of NSSI has been proposed by several authors (for an overview, see Wise [30]). Our understanding of NSSI would be substantially advanced to the extent that future research can link self-reports about the experience of NSSI to underlying biologic mechanisms.

Given that our research findings clearly show that different types of NSSI in ED patients serve an affect regulation function, the treatment of NSSI in ED needs to focus on this important function. Three aspects may be helpful in this respect: (1) psychoeducation of the affect regulation function of NSSI so that patients and those around them can understand the functions of the behavior; (2) functional assessment of the affective antecedents and consequences of NSSI and the identification of alternative, less harmful, behaviors to deal with these affective states; and (3) preventive strategies for dealing with (high-arousal) negative affective states [31]. Many of these components of NSSI treatment are included in the Dialectic Behavior Therapy of Linehan [32], as well as more recent affect regulation–based treatments [33,34].

Finally, some study limitations should be noted and addressed in future research. The number of patients in the different NSSI subgroups is rather small, so future studies need to be performed in larger samples with more patients who have performed each NSSI behavior. The study is also based on retrospective self-report data on affective states before and after different types of NSSI. To deal with possible memory effects, we only included NSSI acts that were recently performed (during the last week or month), but future studies should make use of ecological momentary assessment techniques to deal with problems of retrospective assessment or with indirect measures of affect states (eg, physiologic measures) to eliminate biased answer–tendencies (eg, social desirability). Despite these limitations, our study was the first to investigate the affect regulation function of NSSI in different types of NSSI in ED patients by differentiating the valence and arousal level of affective states before and after NSSI. Further studies in larger samples, making use of self-report and other assessment tools, need to confirm these promising findings.

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