

Emotional differences between women with different types of eating disorders

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ABSTRACT

This study analyzed the emotional differences between women with different types of eating disorders (EDs). We analyzed the following variables: trait-anxiety, difficulty identifying and expressing emotions (alexithymia), negative perception of emotions, negative attitude towards emotional expression, influence of diet, weight and body shape on mood, need for control and coping strategies. The sample comprised 98 women with EDs: 17 with purgative bulimia nervosa (BN), 17 with non purgative BN, 22 with “nonspecific anorexia nervosa (AN)” and 42 with “nonspecific BN”. The results revealed statistically significant differences between the different ED groups. Specifically, women suffering from “nonspecific AN” were found to have a more negative emotional profile than those with other types of ED. These results may help improve the way in which different EDs are dealt with and treated. *Key words:* eating disorders, emotional variables, emotional differences, treatment.

RESUMEN

El presente estudio analizó las diferencias emocionales entre mujeres con distintos tipos de trastornos de la conducta alimentaria (TCA). Se analizaron las siguientes variables: la ansiedad-rasgo, la dificultad para identificar y expresar las emociones (alexitimia), la percepción negativa de las emociones, la actitud negativa hacia la expresión emocional, la influencia de la alimentación, el peso y la figura corporal en el estado de ánimo, la necesidad de control y las estrategias de afrontamiento. La muestra estuvo compuesta por 98 mujeres con TCA: 17 con bulimia nerviosa (BN) purgativa, 17 con BN no purgativa, 22 con “anorexia nerviosa (AN) inespecífica” y 42 con “BN inespecífica”. Los resultados revelaron diferencias estadísticamente significativas entre diferentes grupos de TCA. Concretamente, las mujeres con “AN inespecífica” presentaban un perfil emocional más negativo que aquéllas con otros tipos de TCA. Estos resultados pueden ayudar a mejorar la forma en que se abordan y tratan los diferentes TCA.

Palabras clave: trastornos de la conducta alimentaria, variables emocionales, diferencias emocionales, tratamiento.

Many authors have claimed that people suffering from eating disorders (EDs) have clear emotional difficulties (Chatoor, 1999; Puertas, 2000). For example, according to Puertas (2000), both those suffering from anorexia nervosa (AN) and those with bulimia nervosa (BN) have serious difficulties opening up emotionally and expressing what they feel. Furthermore, a number of empirical studies have compared differences in certain emotional variables between people with eating disorders and members of the normal

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population (Blaase & Elklit, 2001; Quinton & Wagner, 2005). However, relatively little is known about these differences between people suffering from different kinds of EDs. The study of this question may be of great interest to professionals working in this field, since it may enable them to gain a better understanding of these people's emotional world and, as a result, help them to improve the treatment programs established for different eating disorders.

The few studies which have addressed this question have considered only a very small number of variables, mainly anxiety and alexithymia. As we shall see below, the results of these studies were fairly inconsistent.

In relation to anxiety, some authors found that women with BN felt more anxiety than women with AN (Norman & Herzog, 1983). Other authors, however, failed to find any differences in anxiety between these two groups, although in both cases the women in the ED groups were found to have higher anxiety levels than their counterparts in the control groups (Breaux & Moreno, 1994; Williamson, Kelley, Davis, Ruggiero, & Blouin, 1985). In relation to alexithymia, according to the results of some studies (Schmidt, Jiwany, & Treasure, 1993; Sexton, Sunday, Hurt, & Halmi, 1998), women with AN have significantly higher levels of alexithymia than women with BN. Nevertheless, other studies found that these differences were not statistically significant (Cochrane, Brewerton, Wilson, & Hodges, 1993), or that, when other variables in the study were controlled, the differences between the two groups disappeared (Corcos *et al.*, 2000).

In light of the current situation regarding the study of emotional differences between different types of ED, in this study our aim was to analyze this question in more detail. The objective was to analyze possible differences between women with different types of ED in relation to a whole range of different emotional variables. In addition to trait anxiety and alexithymia (i.e. difficulty identifying and describing feelings), we also decided to analyze other emotional variables which, based on clinical observation, we consider most relevant in these disorders: negative perception of emotions, negative attitude towards emotional expression, influence of diet, weight and body shape on mood and coping strategies. Alongside the aforementioned variables, we also assessed another variable: the need for control, which despite not being strictly an emotional variable, nevertheless has a clear emotional component, since when individuals characterized by a strong need for control perceive a lack of control, they experience feelings of anxiety and unease.

In the case of alexithymia, we wished to test the hypothesis that, as Schmidt *et al.*'s (1993) and Sexton *et al.*'s (1998) findings, women with AN would have greater difficulty identifying and describing their feelings than their counterparts suffering from other types of EDs. In relation to anxiety, we hypothesized that, unlike that found by Norman and Herzog (1983), women with AN would show higher anxiety levels than their counterparts suffering from other EDs.

In regard to the rest of the variables considered, we based our hypotheses on the general symptoms identified for the different eating disorders (APA, 2000), as well as on clinical observation. In specific terms, we hypothesized that differences would be observed in the emotional profiles of women with different types of EDs, with those suffering from AN presenting the most negative profile.

METHOD

Participants

Participants comprised 98 women suffering from EDs (M age = 22.2, SD = 5.87). Of these, 17 fulfilled all the diagnostic criteria of the DSM-IV-TR (APA, 2000) for purgative BN and 17 fulfilled all the criteria established in the same manual for non purgative BN. The remaining 64 fulfilled the criteria established for Eating Disorders Not Otherwise Specified (EDNOS) described in the Appendix. These criteria are an adaptation of those established in the DSM-IV-TR (APA, 2000). Among the 64 women with EDNOS, 22 fulfilled the majority of the diagnostic criteria for AN (this group was termed the “nonspecific AN” group) and 42 fulfilled the majority of the diagnostic criteria for BN (this group was termed the “nonspecific BN” group). We decided to create these two categories (“nonspecific AN” and “nonspecific BN”) and analyze them separately because right from the beginning we believed clear emotional differences would be found between them. There were no statistically significant differences between the groups as regards age, educational level and occupation.

In order to obtain the sample group of 98 women with EDs, tests were applied to a total of 1,299 women from different specific ED centers, secondary schools and university centers. 52 women from the final sample group belonged to the specific ED centers, while the remaining 46 were selected from the secondary schools and university centers.

Instruments

Participants were administered a questionnaire in which firstly, they were asked to provide different sociodemographic details, such as age, educational level and occupation. Next, it was administered a diagnostic form to assess if the participants met criteria for EDs according to the DSM-IV-TR (APA, 2000). They were also asked to provide a series of other data, such as weight and height. Finally, they were given the series of measures described below.

Trait Anxiety Scale of the State-Trait Anxiety Inventory (Spielberger, Gorsuch, & Lushene, 1970). This scale consists of 20 items. Participants were asked to indicate on a scale of 0 to 3 (0 = almost never, 3 = almost always) the answer which best reflected how they usually felt. The Cronbach's alpha internal consistency coefficient obtained for this scale was .91.

Toronto Alexithymia Scale (Bagby, Parker, & Taylor, 1994). An abbreviated version of this scale was used. This version consists of 12 items, belonging to two of the three subscales: Difficulty identifying feelings and Difficulty describing feelings. Participants were asked to indicate on a 5-point scale (1 = strongly disagree, 5 = strongly agree) the extent to which they agreed or disagreed with each of the items. The internal consistency coefficients (Cronbach's alpha) obtained were .88 in the first subscale and .80 in the second.

Emotional Perception Scale. This scale was created ad hoc to assess participants' perception of emotions, or, more specifically, to determine the extent to which they saw them as negative and dangerous. This scale consists of 6 items (for example: “Emotions frighten me”). Participants were asked to indicate on a 5-point scale (1 = strongly disagree, 5 =

strongly agree) the extent to which they agreed or disagreed with each of the items. The internal consistency coefficient (Cronbach's alpha) obtained for this scale was .79.

Attitudes towards Emotional Expression Scale (Joseph, Williams, Irwing, & Cammoch, 1994).

This measure is a 20-item scale. Participants were asked to indicate on a 5-point scale (1= strongly disagree, 5= strongly agree) the extent to which they agreed or disagreed with each of the items. The Cronbach's alpha internal consistency coefficient obtained for this scale was .90.

Influence of Diet, Weight and Body Shape on Mood Scale. This scale was created ad hoc to determine the degree to which diet, weight and body shape influenced participants' mood.

This scale consists of 8 items (for example: "I feel like a failure when I eat more than I should"). Participants were asked to indicate on a 5-point scale (1= strongly disagree, 5= strongly agree) the extent to which they agreed or disagreed with each of the items. The internal consistency coefficient (Cronbach's alpha) obtained for this scale was .95.

Need for Control Scale. This scale was created ad hoc to assess the extent to which participants felt the need to keep everything under control. This scale consists of 8 items (for example: "I have to have everything under control in order to feel that everything is going well"). Participants were asked to indicate on a 5-point scale (1= strongly disagree, 5= strongly agree) the extent to which they agreed or disagreed with each of the items. The internal consistency coefficient (Cronbach's alpha) obtained for this scale was .90.

Responses to Stress Questionnaire (Connor-Smith, Compas, Wadsworth, Thomsen, & Saltzman, 2000). We used an adaptation of this questionnaire. This version consisted of 47 items grouped into 5 factors: 1) Primary control engagement coping, which involved the Problem solving, Emotional regulation and Emotional expression scales; 2) Secondary control engagement coping, consisting of the Positive thinking, Cognitive restructuring, Distraction and Acceptance scales; 3) Disengagement coping, comprised by the Avoidance, Denial and Wishful thinking scales; 4) Involuntary engagement responses, involving the Rumination and Impulsive action scales; and 5) Involuntary disengagement responses, which include the Inaction and Escape scales. Participants were asked to think of a habitual situation of anxiety and then to indicate on a 4-point scale the frequency with which they acted in the way described in each item (1= never, 4= often). The Cronbach's alpha internal consistency coefficients obtained in the different factors were as follows: .72 in the first factor, .84 in the second, .8 in the third, .77 in the fourth and .7 in the fifth.

Procedure

Participants were given approximately one hour to complete the scales described above and to sign an informed consent form. In those cases in which the participant was a minor, the informed consent of their family was requested. In all cases, participants were reminded that the questionnaires were anonymous and confidential.

RESULTS

Analyses of variance were carried out to compare the different ED groups (nonspecific AN, purgative BN, non purgative BN and nonspecific BN) in relation to each of the emotional variables considered in the study. As shown in Table 1, these analyses revealed a global significant effect in many of the variables. Furthermore, as

expected, the women with nonspecific AN scored worse in the majority of variables. Those which scored better, on the other hand, were the nonspecific BN and the non purgative BN groups. The effect size was calculated using the Eta^2 coefficient. In general, this size was fairly modest. The variables which had the largest effect size were Need for Control (.18), the Positive thinking coping variable (.17), Trait anxiety (.16) and Negative perception of emotions (.14).

Scheffé post hoc tests revealed statistically significant differences between some groups. The clearest differences were observed between the nonspecific AN group and the nonspecific BN group. Specifically, the nonspecific AN group scored significantly higher than the nonspecific BN group in some of the variables considered to be negative: Trait anxiety ($p = .007$), Difficulty describing feelings ($p = .048$), Negative attitude towards emotional expression ($p = .02$) and Need for control ($p = .001$). And the nonspecific BN group scored significantly higher than the nonspecific AN group in some of the variables considered to be positive (all coping variables): Primary control engagement coping ($p = .017$), Emotional expression ($p = .041$), Secondary control engagement coping ($p = .033$) and Positive thinking ($p = .007$). Statistically significant differences were also found in certain variables between the nonspecific AN group and the non purgative BN group. Specifically, the nonspecific AN group scored significantly higher than the non purgative BN group in some of the variables considered to be negative: Difficulty describing feelings ($p = .028$) and Negative perception of emotions ($p = .036$). And the non purgative BN group scored significantly higher than the nonspecific AN group in the positive coping variable Positive thinking ($p = .02$).

Furthermore, in order to obtain a more global overview of the emotional profiles of the different groups, cluster analyses were carried out with all variables, and the presence of the resulting profiles was analyzed in the different groups using Chi-squared tests.

Table 2 shows the centers of the two final clusters. As shown in the table, the second emotional profile is more negative than the first, since it includes higher scores in all the negative variables (Trait anxiety, Difficulty identifying feelings, Difficulty describing feelings, Negative perception of emotions, Negative attitude towards emotional expression, Influence of diet, weight and body shape on mood, Need for control, Disengagement coping, Involuntary engagement responses and Involuntary disengagement responses) and lower scores in the positive variables (Primary control engagement coping and Secondary control engagement coping).

The Chi-squared test carried out to analyze the relationship between these two emotional profiles and the fact of belonging to different ED groups (nonspecific AN, purgative BN, non purgative BN and nonspecific BN) revealed a significant effect, $\chi^2(3, N = 93) = 14.53, p = .002$. As shown in Table 3, women with nonspecific BN and non purgative BN had a very similar profile. The majority of them (76.9% in the case of women with nonspecific BN and 76.5% in the case of women with non purgative BN) were found to have the first emotional profile (i.e. the more positive one). Very few (23.1% of those with nonspecific BN and 23.5% of those with non purgative BN) were found to have the second emotional profile (i.e. the more negative one). On the other hand, women with nonspecific AN had a very different profile from those mentioned above: The majority (70%) were found to have the more negative emotional profile (i.e.

Table 1. Differences between the different ED groups for all variables.

| | Nonspecific AN | | | Purgative BN | | | Non purgative BN | | | Nonspecific BN | | | F | p | Eta ² |
|--|----------------|-------|----|--------------|-------|----|------------------|-------|----|----------------|-------|----|----|------|------------------|
| | M | SD | n | M | SD | n | M | SD | n | M | SD | n | | | |
| Trait anxiety* | 42.26 | 9.78 | 22 | 39.67 | 9.67 | 17 | 34.38 | 10.53 | 17 | 31.64 | 10.55 | 41 | 97 | 6.1 | .001 |
| Difficulty identifying feelings | 26 | 7.2 | 22 | 22.88 | 6.78 | 17 | 20.53 | 8.86 | 17 | 21.68 | 7.05 | 41 | 97 | 2.22 | .091 |
| Difficulty describing feelings | 18.74 | 4.9 | 22 | 15.12 | 4.87 | 17 | 14.12 | 4.57 | 17 | 15.22 | 4.45 | 41 | 97 | 4.01 | .01 |
| Negative perception of emotions | 3.56 | .89 | 21 | 3.34 | .83 | 17 | 2.63 | .93 | 17 | 2.87 | .86 | 41 | 96 | 4.91 | .003 |
| Negative attitude towards emotional expression | 59.97 | 14.96 | 21 | 49.12 | 18.22 | 17 | 45.58 | 13.63 | 17 | 46.04 | 13.96 | 41 | 96 | 4.56 | .005 |
| Influence of diet, weight and body shape on mood | 4.54 | .57 | 22 | 4.44 | .72 | 17 | 4.27 | .91 | 17 | 3.91 | .79 | 42 | 98 | 4.15 | .008 |
| Need for control | 4.53 | .47 | 22 | 4.21 | .77 | 17 | 3.83 | .91 | 17 | 3.67 | .79 | 42 | 98 | 7.04 | .001 |
| Primary Control Engagement Coping | 2.27 | .5 | 21 | 2.68 | .49 | 17 | 2.56 | .32 | 17 | 2.73 | .49 | 42 | 97 | 4.69 | .004 |
| Problem Solving | 2.41 | .56 | 21 | 2.75 | .69 | 17 | 2.71 | .47 | 17 | 2.78 | .61 | 42 | 97 | 1.87 | .14 |
| Emotional Regulation | 2.24 | .6 | 21 | 2.55 | .46 | 17 | 2.44 | .43 | 17 | 2.65 | .54 | 42 | 97 | 3.01 | .034 |
| Emotional Expression | 2.12 | .69 | 19 | 2.77 | .9 | 17 | 2.55 | .56 | 14 | 2.8 | .69 | 39 | 89 | 4.08 | .009 |
| Secondary Control Engagement Coping | 2.03 | .44 | 21 | 2.25 | .5 | 17 | 2.48 | .48 | 17 | 2.49 | .54 | 42 | 97 | 4.5 | .005 |
| Positive Thinking | 1.91 | .57 | 21 | 2.22 | .66 | 17 | 2.71 | .62 | 17 | 2.63 | .81 | 42 | 97 | 6.35 | .001 |
| Cognitive Restructuring | 2.01 | .56 | 21 | 2.1 | .66 | 17 | 2.44 | .56 | 17 | 2.41 | .68 | 42 | 97 | 2.62 | .056 |
| Distraction | 2.24 | .62 | 21 | 2.43 | .48 | 17 | 2.33 | .44 | 17 | 2.51 | .54 | 42 | 97 | 1.35 | .263 |
| Acceptance | 1.91 | .45 | 21 | 2.24 | .59 | 17 | 2.56 | .75 | 15 | 2.41 | .75 | 42 | 95 | 3.64 | .02 |
| Disengagement Coping* | 2.54 | .64 | 21 | 2.44 | .44 | 17 | 2.4 | .53 | 17 | 2.35 | .55 | 42 | 97 | .58 | .63 |
| Avoidance | 2.63 | .65 | 21 | 2.56 | .65 | 17 | 2.5 | .61 | 17 | 2.44 | .48 | 42 | 97 | .55 | .648 |
| Denial | 2.21 | .85 | 21 | 2.03 | .65 | 17 | 2.03 | .76 | 17 | 1.98 | .64 | 42 | 97 | .5 | .684 |
| Wishful Thinking | 2.87 | .72 | 21 | 2.83 | .66 | 16 | 2.75 | .6 | 17 | 2.74 | .88 | 42 | 96 | .18 | .91 |
| Involuntary Engagement Responses | 3.22 | .56 | 21 | 3.29 | .5 | 17 | 2.91 | .64 | 17 | 2.92 | .54 | 41 | 96 | 2.82 | .044 |
| Rumination | 3.33 | .6 | 21 | 3.33 | .63 | 17 | 2.9 | .65 | 17 | 2.94 | .64 | 41 | 96 | 3.21 | .027 |
| Impulsive Action | 3.08 | .7 | 20 | 3.23 | .62 | 16 | 2.92 | .74 | 17 | 2.89 | .69 | 41 | 94 | 1.07 | .364 |
| Involuntary Disengagement Responses | 2.56 | .75 | 21 | 2.6 | .65 | 17 | 2.3 | .49 | 17 | 2.31 | .56 | 42 | 97 | 1.54 | .21 |
| Inaction | 2.67 | .74 | 21 | 2.73 | .7 | 17 | 2.39 | .57 | 17 | 2.34 | .66 | 41 | 96 | 1.97 | .124 |
| Escape | 2.43 | .92 | 20 | 2.47 | .93 | 17 | 2.22 | .58 | 17 | 2.25 | .7 | 41 | 95 | .56 | .643 |

* Labels in bold indicate principal variables.

Table 2. Participants' emotional profiles. Final cluster centers.*

| | 1 | 2 |
|--|------|------|
| Trait anxiety | -.54 | .92 |
| Difficulty identifying feelings | -.51 | .79 |
| Difficulty describing feelings | -.42 | .71 |
| Negative perception of emotions | -.55 | .85 |
| Negative attitude towards emotional expression | -.43 | .74 |
| Influence of diet, weight and body shape on mood | -.29 | .5 |
| Need for control | -.51 | .82 |
| Primary Control Engagement Coping | .31 | -.51 |
| Secondary Control Engagement Coping | .38 | -.62 |
| Disengagement Coping | -.36 | .62 |
| Involuntary Engagement Responses | -.43 | .74 |
| Involuntary Disengagement Responses | -.46 | .78 |

*Non-hierarchical *k*-means cluster analysis, Ward's criterion.

Table 3. Proportion of women from the different ED groups in the clusters.*

| | 1 | 2 | Total |
|------------------|------------|------------|-----------|
| Nonspecific BN | 30 (76.9%) | 9 (23.1%) | 39 (100%) |
| Non purgative BN | 13 (76.5%) | 4 (23.5%) | 17 (100%) |
| Purgative BN | 9 (52.9%) | 8 (47.1%) | 17 (100%) |
| Nonspecific AN | 6 (30%) | 14 (70%) | 20 (100%) |
| Total | 58 (62.4%) | 35 (37.6%) | 93 (100%) |

*n (%)

the second one); and only 30% were found to have the first (or more positive) emotional profile. Finally, women with purgative BN were found to have an intermediate profile between that of women with nonspecific BN and non purgative BN and that of those with nonspecific AN: almost half of this group (47.1%) had the second (more negative) profile, while 52.9% had the first (more positive) one.

DISCUSSION

On the whole, the results clearly support the hypothesis that women with AN (nonspecific, in this case) are those with the most negative emotional profile. In the case of women with bulimia, certain differences were observed in relation to the type of bulimia they were suffering from. Specifically, women with purgative BN presented the most negative emotional profile, followed by those with non purgative BN and, finally, by those with nonspecific BN. Of all the women with EDs, this last group was found to have the least negative emotional profile. These results regarding bulimia are consistent with those indicating that people with purgative BN have higher psychopathology levels

and a greater number of autoaggressive behaviors than those with non purgative BN (Mitchell, 1992; Mitchell, Pyle, Eckert, Hatsukami, & Soll, 1990); indeed, it follows that those with more serious psychopathological symptoms would have a more negative emotional profile. However, some of the results in the present study are not consistent with those obtained in previous studies.

Regarding anxiety, our results reveal that women with nonspecific AN showed significantly higher anxiety levels than women with nonspecific BN. This difference is the opposite of that observed by Norman and Herzog (1983). However, this result was not surprising since we suspected (based on both the general symptoms associated with the different EDs and on clinical observation) that women with AN might show higher levels of anxiety than their counterparts with other EDs. Nevertheless, we believe that, in light of the existing contradictory results, this question requires further research.

In relation to alexithymia, our results indicate that women with nonspecific AN have greater difficulty describing their feelings than those with non purgative BN and nonspecific BN. This finding is consistent with the results of other studies, in which women with AN were observed to have higher levels of alexithymia than women with BN (Schmidt *et al.*, 1993; Sexton *et al.*, 1998), although this conclusion cannot be generalized to include all types of BN.

It is interesting to underscore one point related to the type of ED suffered by the women participating in the current study. As stated earlier, the majority of participants suffered from EDNOS; very few women had a specific ED. This result supports the idea sustained by a number of different authors regarding the greater prevalence of EDNOS over other types of EDs (Crow, 2007; Fairburn *et al.*, 2007; Walsh & Sysko, 2009). In light of these results, we believe that this greater prevalence of EDNOS should be taken into account more in the DSM classification. One of the ways of recognizing the importance of the EDNOS would be not to group all the different nonspecific disorders into a single category ("Eating Disorders Not Otherwise Specified"), as the DSM-IV-TR (APA, 2000) does. Rather, it would be better to include those nonspecific cases that are most similar to AN in the AN category (for example, by creating a nonspecific subgroup in this category) and those most similar to BN in the BN category, as in the ICD-10 (World Health Organization, 1992) (in this case, the terms used are atypical AN and atypical BN), and as we indeed did in the present study. We believe that this would enable us to gain a more precise understanding of the disorder. At the beginning of the study, we suspected that clear emotional differences would be observed between women with "nonspecific AN" and those with "nonspecific BN", and for that reason we decided to analyze them separately. As shown, the results fully confirmed this suspicion, since these two groups showed the clearest differences in the majority of the variables considered. If these two categories had been grouped, as the DSM-IV-TR (APA, 2000) does, highly valuable specific information regarding each individual disorder would have been lost.

One of the most important limitations of this study is that EDs were assessed through written responses to different tests, rather than through clinical interviews. We believe that by interviewing each participant individually we would have obtained the information necessary to assert, with a much greater degree of certainty, whether or not

the person in question had serious eating problems. Nevertheless, it is evident that this would have taken up a vast amount of time and, bearing in mind the large number of women who participated in the study (a total of 1,299), an enormous amount of work.

This study shows the serious emotional difficulties that women with non-specific AN have. Nevertheless, more research is required into the majority of the variables analyzed here. We believe that the effort is worthwhile, since the results may help improve our understanding of the emotional experience of these women, and may, in turn, help improve the way in which we tackle and treat different types of ED.

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APPENDIX: CRITERIA USED TO FORM THE EDNOS GROUP

The following are the criteria used to form the EDNOS group, or, more specifically, the “nonspecific AN” and “nonspecific BN” groups, given that, as stated in the body of the paper itself, we believed it was important to distinguish between these two categories. Since these criteria have been proposed specifically for this piece of research, we will provide a detailed description here.

Criteria for the “nonspecific AN” group

This group includes women who fulfill at least one of the following three conditions:

- A) All the general criteria of AN (not those specific to restrictive AN or compulsive/purgative AN). In specific terms, these criteria are:
 - a1. *Low weight*. BMI ≤ 17.5 .
 - a2. *Intense fear of gaining weight or becoming fat*. Having chosen option 5 (“Almost always”) or 6 (“Always”) in the item “I am terrified of gaining weight” on the Eating Disorder Inventory-2.
 - a3. *Having an altered perception of weight and body shape and exaggerating their importance*. Having chosen the option “Very fat” or “Quite fat” in the item “How do you see yourself?”. Also, an affirmative answer to at least one of the two following items: “Do you believe that being thin is very important in order to feel good about yourself?” and/or “Do you believe that being thin is very important for things to go well?”.
 - a4. *Presence of amenorrhea, not owing to pregnancy*. Affirmative response to the following item: “Have you ever missed your period for 3 or more menstrual cycles in a row over the last 12 months?”. Also, a negative response to the following item: “Are you pregnant or have you been pregnant recently?”.
- B) All the general criteria for AN, except a4. In this case, the individual in question has not missed her period for 3 or more menstrual cycles in a row over the last 12 months.
- C) All the general criteria of AN except that, despite having lost a significant amount of weight, the individual’s weight is still within the limits of normality. The only differences between this and the first case (A) are: Their BMI is not ≤ 17.5 , but rather between 18.5 and 25. Furthermore, the individual must have given an affirmative response to the following item: “Over the last 12 months, have you followed a special diet or have you changed your normal eating habits in order to lose weight?”; and have indicated ≥ 5 in the following item: “If you have been on a diet, how many kilos have you lost over the last 12 months?”.

Criteria for the “nonspecific BN” group

This group includes women who fulfill the following condition:

- A) They meet all the diagnostic criteria for BN, except that bingeing and inappropriate compensatory behaviors do not occur so frequently. Thus, in this group we include women who fulfill the following conditions:
 - a1. *Presence of bingeing (non recurrent)*. Affirmative response to the following item: “Over the last 12 months, have you binged? In other words, have you eaten a lot of food in a short space of time (i.e. one or two hours) with the feeling that you have lost control and that you cannot stop eating (not including celebrations)?”. Also, a negative response to the following item: “Over the last 12 months, have you indulged in this type of bingeing at least twice a week for 3 consecutive months?”.
 - a2. *Non recurring presence of inappropriate compensatory behaviors*. Having indicated at least one of the following options in the item “Over the last 12 months, have you engaged in any of the following activities as a means of controlling your body shape or weight?”: “I have made myself vomit”, “I have used laxatives”, “I have used diuretics” or “I have fasted”. Also, in the item “Over the last four weeks, have you engaged in any physical activity as a means of controlling your weight, changing your body shape or reducing body fat? Please indicate the time dedicated to this activity”, having responded either “Yes, less than 4 hours per week” or “Yes, between 4 and 7 hours per week”. Finally, having responded negatively to all following options in the item “Please indicate whether or not you have engaged in the following activities repeatedly (twice a week or more for three straight months over the last 12 months)”: “I have made myself vomit”, “I have used laxatives”, “I have used diuretics” and “I have fasted”.
 - a3. *The self-evaluation is unduly influenced by body shape and weight*. An affirmative answer to at least one of the two following items: “Do you believe that being thin is very important in order to feel good about yourself?” and/or “Do you believe that being thin is very important for things to go well?”.