Does the opinion of the therapeutic team match with psychometric measures during the course of eating disorders?


Abstract

*Introduction:* Is there a group of psychometric variables, which correlates with the criteria of an interdisciplinary team about the course of ED?

*Objectives:* The aim of this study was to analyze the correlation between the clinic criteria of an interdisciplinary team with respect to the course of eating disorders (ED) and different psychometric criteria.

*Methods:* The course was analyzed in a final sample of 30 ED outpatients during their six first months of treatment. A scale of clinical criteria of the course of ED (therapeutic team’s opinion) and different questionnaires on psychological, psychopathological and eating-related variables were used. The statistical analysis comprised of a discriminant analysis in order to find the variables with a discriminant function to distinguish a fair-bad course and a good course.

*Results:* Perceived stress, self-esteem, the variables of the SCL-90-R, depression, thought-shape fusion, anxiety, food craving and the score on body shape questionnaire were found to have discriminant function. Comparing the therapeutic team’s criteria and the results of the questionnaires a 10% of patients were misclassified.

*Discussion:* The results highlight the necessary and permanent checking of the relationship among the clinical criteria regarding the course of ED (members’ team opinion) and different psychological, psychopathological and eating-related variables.

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Key words: Eating disorders. Course. Therapeutic team. Clinical criteria. Psychometric variables.

Resumen

*Introducción:* ¿Existe un grupo de variables psicométricas que correlacione con el criterio de un equipo terapéutico interdisciplinar acerca del curso de los trastornos de la conducta alimentaria?

*Objetivos:* El propósito de este estudio fue analizar la correlación entre criterios clínicos de un equipo terapéutico interdisciplinar con respecto al curso de los trastornos de la conducta alimentaria y diferentes criterios psicométricos.

*Métodos:* La evolución fue analizada en una muestra final de 30 pacientes ambulatorios con trastornos de la conducta alimentaria durante los seis primeros meses de tratamiento. Una escala de criterios clínicos (la opinión del equipo terapéutico) y diferentes cuestionarios sobre variables psicológicas, psicopatológicas y relacionadas con la conducta alimentaria fueron utilizadas. Se llevó a cabo un análisis discriminante a fin de encontrar variables con función discriminante para distinguir una buena evolución de otras evoluciones.

*Resultados:* El estrés percibido, autoestima, las variables del SCL-90-R, depresión, fusión pensamiento-forma, ansiedad, food craving y la puntuación en el cuestionario de imagen corporal tienen función discriminante. Comparando los criterios del equipo terapéutico y los resultados de los cuestionarios, un 10% de los pacientes resultaron estar mal clasificados.

*Discusión:* Los resultados ponen de relieve la necesaria y permanente evaluación a llevar a cabo entre los criterios clínicos con respecto a la evolución de los pacientes y el resultado de la medición de diferentes variables psicométricas, tanto psicológicas como psicopatológicas y relacionadas con la conducta alimentaria.

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Introduction

Studies on the course of eating disorders (ED) imply several difficulties regarding the instability of the diagnostic subtypes and some differences between adolescents and adults with respect to the course and outcome. These two issues are especially relevant in the therapeutic context. In addition, it remains controversial whether anorexia nervosa and bulimia nervosa can be considered as different disorders or can be accepted as different symptom patterns of one basic eating disorder, in which preoccupation with food and a disturbed body image are core symptoms. In fact, it has been suggested that common mechanisms are involved in the persistence of bulimia nervosa, anorexia nervosa and the atypical eating disorders. With respect to the course and outcome, it is considered that approximately 50% of patients do well over time, approximately 30% do reasonably well but continue to have symptoms, and approximately 20% do poorly. It has been concluded that adolescents have a better prognosis than adults.

Despite the fact that different ED could have specific symptoms in each case, it seems that the notion of a common psychopathology remains valid and includes the presence of some cognitive distortions like thought-shape fusion, which is present in all subtypes of ED. In order to study the course and outcome of ED, Hsu suggested different criteria to perform a good analysis taking into account sample sizes, period of follow-up, percentage of subjects lost to follow-up, the direct contact with the subjects and the use of standardised instruments.

Methodological problems seem to be inherent in these field considering the type of study (retrospective vs. prospective), population of study (patients from primary care vs. patients from ED units), type of diagnostic criteria applied, number of lost cases, etc. These types of methodological problems may be more relevant when an interdisciplinary treatment is offered. Despite these problems, Nussbaum et al., reported the first study on anorectic patients follow-up treated by medicine teams, which usually include physicians, paediatricians, nurses, dieticians, psychologists and psychiatrists, and a better course has been noted when patients are treated by these medical teams.

Data which must be taken into account to assess the course of ED refer to weight, eating behaviour, purging behaviour, rituals concerning weight and food, activity, menstrual history as well as comorbid behaviours and psychiatric disorders (depression, anxiety, impulsivity). In addition physical and laboratory abnormalities usually reflect the course of ED.

The aim of this study was to analyse the correlation between the clinic criteria of an interdisciplinary team with respect to the course of ED and different psychometric criteria. Is there a group of psychometric variables, which correlates with the criteria of an interdisciplinary team about the course of ED?

Method

Participants

The initial sample comprised of 38 ED outpatients who were being treated weekly at the Eating Disorders Unit (EDU) of the Behavioural Sciences Institute from Seville (Spain). Three patients dropped out the study so the convenient sample comprised of 35 participants who completed the study. Of these 35 patients, 26 have been diagnosed with anorexia nervosa and 9 with unspecified ED. The mean age of the patients was 21.2 (SD = 5.49) years, 33 of which were women (94.28%) and 2 men (5.72%). With respect to the initial body mass index (BMI) it was 16.84 (SD = 2.56). Data were collected between January 2011 and May 2012. After having done an exploratory analysis of the data, 5 cases were removed due to a poor completion of the tests and a lot of outliers. The study was based on the final 30 participants.

Procedure

Having received informed consent and with the permission of the managers of the EDU, the various

Abbreviations

B: Bulimia subscale of EDI-2.
BAS: Body Appreciation Scale.
BD: Body Dissatisfaction subscale of EDI-2.
BDI: Beck Depression Inventory.
BIQII: Body Image Quality of Life Inventory.
BMI: Body Mass Index.
BSQ: Body Shape Questionnaire.
CSI: Coping Strategies Inventory.
DT: Drive for Thinness subscale of EDI-2.
ED: Eating Disorders.
EDI-2: Eating Disorders Inventory-2.
EDU: Eating Disorders Unit.
FCI: Food Craving Inventory.
IFBS: Irrational Food Beliefs Scale.
NDI-SF: Nepean Dyspepsia Index-Short Form.
PSQ: Perceived Stress Questionnaire.
PSQ-G: Perceived Stress Questionnaire-General.
PSQ-R: Perceived Stress Questionnaire-Recent.
SD: Standard Deviation.
SES: Self-Esteem Scale.
STAI-S: State-Trait Anxiety Inventory-State.
STAI-T: State-Trait Anxiety Inventory-Trait.
T1: First week of treatment.
T2: Six months after T1.
TSF: Thought Shape Fusion.
TSF-Q: Thought-Shape Fusion Questionnaire.

measures were administered to patients during the usual treatment sessions in two different stages: a) during the first week of the treatment (T1), and b) six months later (T2). With respect to the clinical criteria of the interdisciplinary team about the course of patients, each member of the team (dietician-nutritionist, psychologist, psychiatrist) fulfilled a scale in T2 based on the data of the weekly interviews held within the previous six months. The measures were taken independently by each member of the team giving a specific score for the scale of clinical criteria of the course of ED. Then an overall score was obtained for each patient. With respect to the tests, the administration was run in a suitable environment (i.e. space, light, noise, etc.), by means of individual sessions and in the presence of a psychologist. This psychologist responded to any queries made by patients either before or during test administration. This psychologist was not a member of the research team, and the researchers were part of the treatment providers, thus giving their opinion about the course by way of the scale of clinical criteria. In order to avoid a danger of overburdening participants, the measures were assessed in five sessions. Apart from the three lost patients, none of the rest who were invited to participate in the study refused to do so.

Measures

The following measures are usually applied during the treatment process in the EDU of the Behavioural Sciences Institute from Seville (Spain). Despite being a lot of measures, all of them are relevant to assess the course of the patients with regard to different areas such as psychological, psychopathological and social. In addition, the inclusion of such a number of measures would permit to distinguish between those who have and have not a discriminant function in order to explore the course of ED.

a) Scale of clinical criteria of the course of ED. Each member of the interdisciplinary team fulfilled a scale, which comprises of 18 items referring to the following points: a) physical data and eating behaviour (weight, menses, purging behaviours, skipping meals, general improvement of eating behaviour, adequate responses to hunger and satiety); b) psychological data (feeling of self-control, preoccupation with food and weight, self-regulation, taking responsibility, awareness about self-wishes and needs, self-esteem, body image satisfaction), and c) social topics (authentic communication, coping skills, quality of life, others’ communication with the patient, familial conflicts). After having scored each item (from 0 = problematic to 10 = improved) the mean was obtained. This mean score permitted to classify patients into two groups: fair-bad course and good course.

b) Psychological variables:

Rosenberg Self-Esteem Scale. The Spanish version of this self-reported scale was used. It comprises of 10 items that are scored with a Likert format (from strongly agree to strongly disagree; the higher the score, the higher the degree of self-esteem). Reliability in the Spanish population has been shown to be adequate (Cronbach’s α coefficient = 0.87), with test-retest correlation of 0.72.

Perceived Stress Questionnaire (PSQ). This self-reported questionnaire measures perceived stress, and consists of 30 items that differenfly measure the general (PSQ-G) and recent (PSQ-R) forms of perceived stress. The Spanish version (Sanz-Carrillo et al., 2002) was used here, which has shown excellent psychometric properties (internal consistency of 0.90 for the PSQ-G and 0.87 for the PSQ-R). The questionnaire has been used in research, demonstrating good predictive value in stress-related diseases.

Coping Strategies Inventory (CSI). The CSI is a self-reported test in which eight primary, four secondary and two tertiary strategies are explored on the basis of the description of a stressful situation. The 40-item Spanish version was used for the current study, and it shows excellent psychometric properties, with Cronbach’s α coefficients between 0.63 and 0.89.

Body Appreciation Scale (BAS). This 13-item self-reported instrument comprises of a single dimension and shows adequate internal consistency (Cronbach’s α coefficient = 0.94) and construct validity, and seems to be useful for studying the positive aspects of body image. BAS items are rated along a 5-point scale (i.e., 1 = never, 2 = seldom, 3 = sometimes, 4 = often, 5 = always) and are averaged to obtain an overall body appreciation score. When giving the BAS to men Item 12 is revised to: “I do not allow unrealistically muscular images of men presented in the media to affect my attitudes toward my body”. Again the Spanish version of the BAS was used here (Jáuregui-Lobera et al., 2011), which has shown adequate psychometric properties (Cronbach’s α coefficient = 0.91).

Body Shape Questionnaire (BSQ). This self-reported questionnaire comprises of 34 items with respect to body image, which are rated from 1 = never to 6 = always. The total score ranges between 34 and 204. For this study the Spanish version was used, which has shown a Cronbach’s α coefficient between 0.93-0.97.

Body Image Quality of Life Inventory (BIQLI). The BIQLI is a self-reported questionnaire that comprises of 19 items. To avoid pathology-oriented biases, those items are evaluated on a 7-point bipolar scale, from +3 (very positive effect) to 0 (no impact) to -3 (very negative effect). The BIQLI has shown high internal consistency (Cronbach’s coefficient = 0.95). The Spanish version of the BIQLI was used for the current study with Cronbach’s α coefficient = 0.95.

c) General psychopathological variables:

State-Trait Anxiety Inventory (STAI). It is a 40-item, self-report questionnaire, that measures state anxiety
(STAI-S) and trait anxiety (STAI-T). It has a good internal consistency (between 0.90 and 0.93 for the STAI-S and between 0.84 and 0.87 for the STAI-T). The present study used the Spanish version of the STAI.  

Beck Depression Inventory (BDI). This measures the intensity of depression and is used as a screening test in the general population. It is a self-report instrument comprising of 21 items and four response levels (0 to 3 for each item). The scores obtained are linked to three categories: absence of depression (0-9), dysthymia or mild depression (10-15), and depression (over 15). The BDI shows adequate reliability (0.93) and a convergent validity between 0.62 and 0.66. The present study used the Spanish version of the BDI.  

Symptom Checklist (SCL-90-R). It is a self-report inventory, which measures nine dimensions of psychological symptoms and three global indexes of distress. The values of Cronbach’s a coefficient range from 0.81 to 0.90 and the instrument shows adequate concurrent and predictive validity. The Spanish version was used.  

d) Specific psychopathological variables:  

Eating Disorders Inventory (EDI-2). For this study the Body Dissatisfaction (BD), Bulimia (B), and Drive for Thinness (DT) scales were administered. The BD subscale measures dissatisfaction with the overall shape and size of those parts of the body most related to eating disorders. The B subscale was designed to assess the tendency to preoccupation with weight, and fear of weight gain. With regards to eating disorders the DT subscale has been used as a screening test. The internal consistency (Cronbach’s a coefficient) of the test, and its subscales, ranges between 0.81 and 0.92 in patient samples.  

Thought-Shape Fusion Questionnaire (TSF-Q). The Spanish version of the TSF-Q was used. The TSF-Q measures the fusion between thought and body shape or image. It is a 34-item self-report questionnaire, which is divided into two sections: a conceptual section (that measures the importance attached to thoughts related to eating and the body) and an interpretative section, which evaluates how these thoughts are interpreted by participants. Each item is scored from 0 to 4 (where 0 = not at all and 4 = totally) according to how much the subject agrees with its content. The questionnaire has been shown to have high internal consistency (Cronbach’s a coefficient: 0.95 for the conceptual subscale and 0.97 for the interpretative one).  

e) Eating-related variables assessment:  

Visual Analogue Scale for Functional Dyspepsia. This self-report instrument gathers information about the following symptoms: postprandial fullness, early satiation, bloating, epigastric discomfort (an ache or discomfort after eating, poorly localised), epigastric pain (a sharp, easy-to-pinpoint pain after eating), postprandial nausea, belching after meals, and vomiting. Respondents mark the severity of each symptom on a 100-mm visual analogue scale, and the score on each of the eight subscales is then added to give a total score.  

Nepean Dyspepsia Index-Short form (NDI-SF). This is a 10-item short form of the Nepean Dyspepsia Index, an instrument developed to assess quality of life in patients with functional dyspepsia. Again the Spanish version was applied (Jáuregui-Lobera et al., 2011).  

Food Craving Inventory (FCI). The FCI is a self-report inventory designed to measure food craving. The 28-item Spanish version of the FCI was used. Each item is scored from 0 to 4 (where 0 = never; 1 = rarely; 2 = sometimes; 3 = often; and 4 = always/almost every day) according to the strength of the craving. The internal consistency of this version and its subscales was determined by means of Cronbach’s a coefficient, with values ranging between 0.78 and 0.95.  

Irrational Food Beliefs Scale (IFBS). The IFBS was developed with the aim of analysing the cognitive distortions and inappropriate attitudes and beliefs about food. For the current study, the Spanish version was used. The scale has shown adequate psychometric properties and factor analysis revealed two factors, corresponding to the irrational food beliefs subscale and the rational food beliefs subscale. The internal consistency (Cronbach’s a coefficient) of the IFBS as a whole and of the irrational and rational subscales was 0.86, 0.88 and 0.78, respectively.  

Statistical analyses  

The differences between T1 and T2 in the different psychometric variables were transformed into a new list of variables, thus reflecting the magnitude of change under treatment. With the objective of selecting a group of psychological, psychopathological and eating-related variables that distinguished between patients with fair-bad and good course from the point of view of the therapists, a discriminant analysis was performed. For that proposal the all above-mentioned variables were included.  

Results  

Clinical criteria of the course (the team’s opinion)  

After scoring the 18 items of the scale weekly, patients were classified into two groups: fair-bad course (total score < 6) and good course (total score ≥ 6). As a result, the team considered that 16 patients had a good course and the other 14 patients had a fair or bad course.  

Differences with respect to all psychometric variables  

After having scored the different psychometric variables, differences between T1 and T2 were obtained, and then those differences were transformed into a new list of variables, which represent the magnitude of change under treatment. This magnitude of change is showed
Tables I-II. It must be noted that the result of the differences may have a positive sign or a negative one. For example if the result of the difference between self-esteem at T1 and T2 is negative, that implies that self-esteem is better in T2 comparing with T1, etc.

**Discriminant analysis**

With the objective of selecting a group of psychological, psychopathological and eating-related variables that distinguished between patients with fair-bad and good course from the point of view of the therapists, a discriminant analysis was performed. The above-mentioned transformed variables were included in the analysis. As a result, a discriminant function was found, with a Wilks’ Lambda of 0.076 (p = 0.000). The standardised coefficients of the canonical discriminant function are shown in table III. The eigenvalue associ-
ated with the discriminant function was 3.950, which explained 100% of the variance. The simple correlation between the discriminant scores and the position in the two groups (fair-bad and good course), namely canonical correlation, was 0.902, so the discriminant variables permitted to distinguish between the two groups. In order to discriminate the membership of a patient to one or another group it is necessary to explore the non-standardised coefficients, which are shown in Table IV. The corresponding histograms to the different groups were obtained in order to check graphically the degree of separation among the variables (figs. 1-2). The groups’ centroids’ functions (which refer to the mean of the discriminant function) were -2.153 (fair-bad course) and 1.796 (good course). With respect to the patients’ classification, three of them were misclassified (10%). Having been evaluated as being a fair-bad course, the discriminant analysis included these three patients in the group of good course.

Discussion

Long-term follow-up studies on ED indicate a dichotomy in outcome over time, with recovery for some and severe chronicity or even death for the rest.27 This study is a prospective longitudinal study but not a long-term one due to the fact that the main proposal was to analyse whether the clinical criteria of a therapeutic team about the initial course of the patients could have a reliable correlation with different quantitative variables referred to different facets of ED.

With respect to the psychological variables, self-esteem, perceived stress and the score on body shape questionnaire have shown a discriminant function between patients with fair-bad and good course. Lower self-esteem has been reported as a factor, which predicts a poor ED outcome27 and body image disturbances are a key factor in the outcome of ED, particularly anorexia nervosa.28 With respect to perceived stress, it must be noted that stressful life events have been repeatedly associated with ED relapse.29 Considering the general psychopathological variables, anxiety and depression measured by means of STAI and BDI respectively have a discriminant function. The presence of anxiety and depression as lifetime comorbidity among ED patients is well known. In the follow-up study of Fichter et al. (2006) anxiety disorders were found in 46.8% and mood disorders in

Table IV

Non-standardised coefficients of the canonical discriminant function

<table>
<thead>
<tr>
<th></th>
<th>Function 1</th>
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<tbody>
<tr>
<td>Perceived stress-recent</td>
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<tr>
<td>Perceived stress-general</td>
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<tr>
<td>Self-esteem</td>
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<td>Somatizations</td>
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<td>Obsessive-compulsive</td>
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</tr>
<tr>
<td>Interpersonal sensitivity</td>
<td>2.875</td>
</tr>
<tr>
<td>Depression (SCL-90-R)</td>
<td>5.958</td>
</tr>
<tr>
<td>Anxiety (SCL-90-R)</td>
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</tr>
<tr>
<td>Hostility</td>
<td>3.904</td>
</tr>
<tr>
<td>Phobic anxiety</td>
<td>3.368</td>
</tr>
<tr>
<td>Paranoid ideation</td>
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<td>Psychoticism</td>
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<td>Positive symptom total</td>
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<tr>
<td>Positive symptom distress index</td>
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<tr>
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<tr>
<td>TSF-total</td>
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<tr>
<td>State-anxiety (STAI)</td>
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<tr>
<td>Trait-anxiety (STAI)</td>
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<tr>
<td>Body shape questionnaire</td>
<td>-0.005</td>
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<tr>
<td>Food craving-total</td>
<td>0.034</td>
</tr>
</tbody>
</table>

Fig. 1.—Histograms representing the classification of patients with fair-bad course.

Fig. 2.—Histograms representing the classification of patients with good course.
General psychopathology measured by the SCL-90-R seems to be relevant with respect to the discriminant function. Its nine subscales as well as its three indexes were found to have discriminant function. Changes in the subcales of SCL-90-R have found to be relevant during the treatment of ED, particularly the obsessive-compulsive subscale. In fact, psychiatric comorbidity is one of the most relevant factors involved in the negative outcome of anorexia nervosa. Moreover different variables like a low self-esteem are usually related with eating-specific and general psychopathology. The study of Fichter et al. shows the importance of the distinction between specific eating disorder pathology and non-eating related general psychopathology, which have also been reported by other authors (e.g., Keel et al., 1999).

Considering the specific psychopathological variables, surprisingly no discriminant functions were found with respect to the variables of EDI-2. Despite the decreasing tendency of body dissatisfaction and drive for thinness comparing T1 and T2, these variables did not pass the tolerance test in the discriminant analysis. The specific variables of the EDI-2 normally are related with different changes in the course of ED. Nevertheless, in case of anorexia nervosa non-eating specific psychopathology is a better predictor for the outcome.

In the current study the main relevant finding taking into account the specific psychopathological variables is that referred to the cognitive bias namely thought-shape fusion. This concept comprises of three components related to beliefs about the consequences of thinking about forbidden foods: a) the belief that having such thoughts makes it more likely that the person will actually gain weight or change his or her shape (likelihood TSF); b) the belief that having such thoughts is as immoral as actually eating the food (moral TSF); and c) the belief that having such thoughts makes the person feel fat (feeling TSF). Thought-shape fusion has been experimentally induced, the conclusion being that the induction of this distortion in clinical groups leads to anxiety, guilt and the urge to engage in corrective behavior (for example, neutralizing the effect by imagining that one is doing some exercise or eating quickly, or checking for possible body changes in a mirror). The TSF questionnaire measures two components, conceptual and interpretative, which were found to have discriminant function. It is worth considering whether the phenomenon of thought-shape fusion might have prognostic value. It may be that treatment of eating disorders is sufficient to change the distortion for some patients, whereas for others it might interfere with treatment progress.

With respect to eating-related variables, only food craving was included in the discriminant function. This is relevant taking into account that binge eating appears across the ED, being usual over a course of illness for patients to cross over from anorexia nervosa (restricting type) to anorexia nervosa binge/purge type, and from the latter to bulimia nervosa.

This study shows the relevance of considering the “opinion” of each member of a therapeutic team about the course of the patients. This “opinion” or clinical criteria are summarised in a scale to be filled in by each member and which refers to the above-mentioned 18 relevant topics: a) physical data and eating behaviour (weight, menses, purging behaviours, skipping meals, general improvement of eating behaviour, adequate responses to hunger and satiety); b) psychological data (feeling of self-control, preoccupation with food and weight, self-regulation, taking responsibility, awareness about self-wishes and needs, self-esteem, body image satisfaction), and c) social topics (authentic communication, coping skills, quality of life, others’ communication with the patient, familial conflicts). Is it possible to use different variables to classify a patient as having fair-bad course or good course? Would this patient be correctly classified with respect to the clinical criteria of the therapeutic team? Taking into account a quantitative approach 90% of the patients would be well classified with respect to the clinical criteria.

This study has a number of limitations. First of all, the sample is small, so in future studies it should be increased. In addition, with a bigger sample it would be possible to analyse the expected differences among different subgroups of ED. The usual studies on the follow-up of ED patients comprise of higher periods of time comparing with the present study. A more extended follow-up would be necessary in order to analyse whether the initial convergence between the members’ team opinion about the course of ED is maintained or not. Taking into account that some measures seem to not have a discriminant function with respect to the course of these patients, perhaps future follow-up studies should be based on a less number of instruments. Despite these limitations, the present results highlight the necessary and permanent checking of the relationship among the clinical criteria regarding the course of ED (members’ team opinion) and different psychological, psychopathological and eating-related variables.

References


