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Psychometric characteristics of Spanish adaptation of a Test for Bulimia (BULIT)

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Introduction. The high prevalence of bulimia nervosa among eating disorders and limited repertoire of assessment tools available for these disorders in Spanish have resulted in special interest regarding the adaptation of a specific instrument such as the Bulimia Test (BULIT).

Methodology. A total of 119 outpatients, most of them women (97.5%), seen in a community mental health center, were assessed with the Spanish adaptation of the Bulimia Test (BULIT) and by Eating Attitudes Test (EAT-40). Reliability (internal consistency and temporal reliability) and validity (convergent and discriminant) were studied.

Results. Cronbach's alpha coefficient (alpha: 0.93) shows high internal consistency while the temporal reliability is supported by the high correlation observed (r = 0.83) between applications conducted in an interval of 8-10 weeks. In relationship with convergent validity, moderate correlations were observed with the global score on EAT (r = 0.38) and substantial correlation with the EAT Bulimia subscale (r = 0.69). By using an 88 cutoff on the BULIT, the test properly classified 90% of the bulimic subjects and 100% of those without eating disorder.

Conclusions. The results firmly supported the reliability and validity of this Spanish adaptation, stressing its utility as a screening device to detect current or incipient cases of bulimia and to assess severity of bulimic symptoms.

Key words:
Bulimia nervosa. Binge. Assessment. BULIT.

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Características psicométricas de una adaptación española del Test de Bulimia (BULIT)

Introducción. La alta prevalencia de la bulimia nerviosa (BN) entre los trastornos de conducta alimentaria y el escaso repertorio de instrumentos de evaluación para estos trastornos en español confieren particular interés a la adaptación de instrumentos específicos como el Test de Bulimia (BULIT).

Metodología. Ciento diecinueve personas, en su mayoría mujeres (97,5 %), atendidas en centros de salud mental de distrito fueron evaluadas mediante una adaptación española del Test de Bulimia (BULIT) y el Test de Actitud hacia la Alimentación (EAT-40). Se exploró la consistencia interna y la fiabilidad temporal, así como la validez convergente y discriminante.

Resultados. El coeficiente α de Cronbach (α: 0,93) muestra una alta consistencia interna, mientras que la fiabilidad temporal es apoyada por la alta correlación observada (r = 0,83) entre aplicaciones realizadas con un intervalo de 8-10 semanas. En cuanto a la validez convergente se observan correlaciones moderadas con la puntuación global en EAT (r = 0 ,38) y sustanciales con la subescala de Bulimia del EAT (r = 0,69). Considerando una puntuación de 88 como puntuación de corte, la prueba permite clasificar correctamente al 90 % de los casos diagnosticados de BN y al 100 % de los casos sin trastorno de conducta alimentaria.

Conclusiones. Los resultados apoyan sólidamente la fiabilidad y validez de esta adaptación, destacándose su utilidad para la identificación de casos de BN, así como para cuantificar la gravedad de los síntomas bulímicos.

Palabras clave:
Bulimia nerviosa. Atracones. Evaluación. Test de Bulimia.

INTRODUCTION

Eating behavior disorders (EBD) form a diagnostic group whose relevance has been receiving increasing recognition in the last decades. Although their prevalence is limited in comparison with other mental health diseases, there are of special interest due to different factors: *a)* the social alarm they cause; *b)* their complex organic and psychological manifestations, that require a coordinated response from different health care services and professionals; *c)* the severe

The Spanish adaptation on the Bulemia Test is available on request to the authors.

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consequences that occur in some cases, with serious somatic, familial and social dysfunction, and *d)* the rapid increase of their prevalence[1-3].

Bulimia nervosa (BN) stands out among EBD. It was identified for the first time by Russell[4] and is fundamentally characterized by: *a)* recurrent binging episodes; *b)* recurrent compensatory behaviors (self-induced vomiting, intense physical exercise or others), and *c)* morbid fear of gaining weight.

Its importance is supported by its considerable prevalence within EBD. Different studies have indicated a 1%-4% prevalence of BN in women during their lifetime[5-7].

One of the problems in being able to effectively approach this disease is the lack of Spanish assessment instruments that have either been created in this language or adapted to it. Although there are a great variety of assessment instruments (at least 30 specific ones for EBD) published in other countries, there are only four adaptations in Spain, at least published in scientific journals. A systematic review made by Las Hayas, Quintana, Padierna, Muñoz, Urresti and Madrazo[8] mentions the existence of four instruments in Spanish to evaluate the EBD. All of these are adaptations of instruments developed in other countries: Eating Attitudes Test (EAT-40)[9,10] Eating Disorder Inventory (EDI-2)[11], Questionnaire for Eating Disorder Diagnoses (Q-EDD)[12,13], Eating Inventory Questionnaire (EI)[14,15]. However, none of these adapted instruments provide a complete psychometric analysis of validity, reliability and sensitivity[8]. This situation manifests the need to motivate the creation and adaptation of measurement instruments related with EBD in Spanish, given the unfavorable Spanish panorama in this subject in relationship with the international situation[16,8] and the utility of these instruments both to identify persons with a high likelihood of having EBD as well as to assess the effects of the treatments conducted for EBD[17].

The present study aims to study the psychometric characteristics of a Spanish translation of the Bulimia Test (BULIT) in an attempt to increase the collection of instruments available for clinical practice and research in this important health care setting.

DESCRIPTION OF THE BULIMIA TEST (BULIT)

This test was designed by Smith and Telen[18] in order to cover some needs detected in the BN evaluation setting, such as distinction between: *a)* persons with BN versus without EBD problems; *b)* persons with BN versus those with other EBD, and *c)* bulimia subgroups based on specific criteria.

It has 32 items (plus four more items having an informative character regarding laxative and diuretic abuse and menorrhea). Their contents are related to bingings or to gluttonous behavior, mood state changes, purgative behaviors and weight changes. Each item is presented on a 5 point scale (from 1 to 5), with forced choice Likert type format in which the answers are mutually exclusive and exhaustive. The most symptomatic answer for several items is presented at the end instead of at the beginning to prevent a bias in the answer due to presentation order (these items are inverted in the correction to permit the total sum).

Each answer is scored from 1 to 5, going up to 5 points as the response approaching «bulimic» increases and lowering to 1 point for those items in which the response is in the «normal» direction.

Five dimensions were identified by means of a factorial analysis[18]: *a)* bingings or lack of control of meals (items 1, 2, 3, 4, 8, 11, 12, 17, 18, 22, 24, 28, 31, 35); *b)* malaise (items 5, 6, 10, 14, 16, 19, 20, 23, 26, 29); *c)* vomiting (items 1, 8, 15, 27, 30); *d)* food type (items 9, 21), and *e)* weight fluctuation (items 25, 32).

The sum of all the items (except for those that are purely informative: 7, 33, 34, 36) make it possible to obtain a global score, that ranges from 32 to 160, with a greater score indicating greater intensity of the bulimic symptoms. Furthermore, the sum of the items corresponding to each one of the five dimensions makes it possible to obtain the scores for each one of them. Thus, a global score and five scores corresponding to each one of the dimensions are obtained.

The data obtained with the original version indicate that this is a reliable, valid and objective instrument to identify persons with bulimic symptoms, verifying its utility to detect those persons in the general population who have BN or who are at risk of having it.

There is a later version called BULIT-R that greatly correlates with the first version (r = 0.99). Its most important contribution is its adaptation to the DSM III-R criteria[19] and then to the DSM-IV[20], however, it does not, at first, have any other advantages of great interest.

This initial version of BULIT was chosen for this adaptation for several reasons, above all practical ones: it had been translated by the authors of the present study and it has been used in the health care practice, It also: *a)* has greater correlation with BULIT-R, and *b)* provides fewer false negatives than the BULIT-R[19]. Thus, it is preferable for a test that has, among others, an important screening function.

METHODOLOGY

Subjects

One hundred nineteen subjects seen in health care centers, mostly women (97.5%), with a mean age of 23.8 years (SD: 7.94; range: 13-54) were included. In regards to civil status, 104 were single and only 15 married.

Mean body mass index (BMI) was 22.16 (SD: 4.40; range: 14.80-35.4).

Distribution by age groups, educational level, diagnosis and distribution by range of body mass index are shown in table 1.

Instruments

Eating Attitudes Test (EAT-40)

This questionnaire was developed by Garner and Garfinkel[9] and subsequently validated for the Spanish population by Castro, Toro and Salamero and Guimerá[10]. This is one of the questionnaires used most for the evaluation of anorexia nervosa. It has 40 items that are answered on a scale with six possible answers (from «never» to «always»). These answers are then scores as 3, 2, 1, 0, 0,0 in some cases and as 0,0, 0, 1, 2, 3 in others, respectively. The total score ranges from 0-120. It provides a seriousness index of eating disorder, 21 being the most used cut-off score.

Table 1 Sociodemographic characteristics n = 119

Variables	N	%
Age		
Less than 15	7	5.9
16-20	36	30.3
21-25	42	35.3
26-30	21	17.6
More than 30	13	10.9
Education level		
Primary education	3	2.5
Compulsory secondary education	16	13.4
Upper secondary/vocational training	46	38.7
Middle university education	17	14.3
Upper university education	13	10.9
Unknown	24	20.2
BMI		
Less than 17	5	4.2
17-19.9	29	24.4
20-24.9	45	37.8
25-29.9	17	14.3
More than 30	7	5.9
Diagnosis		
Depression	2	1.6
Anxiety	14	11.8
Adaptive disorder	5	4.2
Personality disorder	3	2.5
Anorexia (F50.0)	14	11.8
Anorexia (F50.1)	17	14.3
Bulimia (F50.2)	24	20.2
Bulimia (F50.3)	29	24.4
Other EBDs (F50.9)	6	5
With no disease	5	4.2

BMI: body mass index; EBD: eating behavior disorder.

Procedure

First of all, two independent translations were made of the original version in English. After comparing the two versions and identifying the points of disagreement between them, the translation of these points was agreed on based on a more detailed review of the original version and of the different scientific literature on EBD. After that, the scale was administered to 10 subjects, identifying terms subject to confusion and possible difficulties in its application, and then confirming adequate understanding of each question and of the different response options in an interview. Finally, pertinent adjustments in the writing were made, considering the existing terminology in the Spanish literature on EBD.

The test was administered to 125 persons, although finally only 119 of them were included in the analysis, since the remaining six had some item that was not filled out.

In order to analyze time reliability, BULIT was re-administered to 30 patients in an 8-10 week interview. However, only 27 of these scales could finally be used because the remaining three were incomplete.

Convergent validity was evaluated by simultaneously administering one of the scales considered as «gold standard», the Eating Attitudes Scale (EAT 40) of Garner and Garfinkel[9]. Although it was administered to 100 subjects, at the end only 93 of these applications could be used in the analysis because the remaining six were incomplete.

The test-retest reliability analysis was made using Pearson's r correlation and the difference of means using the student's *t* test for related samples. Furthermore, validity was examined with Pearson's r correlation between the global score in BULIT and the scores corresponding to EAT-40.

Validity of the known groups was examined by comparing the scores obtained in BULIT by two groups that presumably had differences in regards to bulimia using the Student's *t* test for independent samples: persons diagnosed clinically of bulimia nervosa and those with no diagnosis of eating behavior disorder. Diagnosis was based on political opinion available in their clinical history made according to the ICD-10 criteria.

RESULTS

Descriptive statistics

Mean global score in BULIT for the all the persons included in the study is 86.5, with standard deviation of 28.91 and a range of 36-154.

Reliability

Internal consistency

Cronbach's alpha coefficient for the complete sample had a score of 0.934.

Temporal reliability

Temporal reliability for an 8-10 week interval, using 27 patients, showed a substantial and significant correlation, with r = 0.83 for a global score on BULIT, there being no differences in the means between both administrations (t: 0.732; gl: 26; bilateral significance: 0.471).

The correlations for each one of the BULIT dimensions ranged from 0.66 in food type to 0.85 in binging. It was also observed that there were no significant differences in any of the scores.

Thus, there is not only correlation but also concordance between the scores of one administration and another of the BULIT.

Validity

Convergent validity

Global scores obtained on the BULIT show significant correlations with the total scores on EAT ($r = 0.38$; $p < 0.01$). Furthermore, correlations were observed between the score on BULIT and the three EAT subscales: oral ($r = 0.22$; $p < 0.05$), diet ($r = 0.40$; $p < 0.01$) and strongly with bulimia ($r = 0.69$; $p < 0.01$).

Validity for known groups

The scores obtained by the two known groups based on clinical diagnosis, persons with bulimia versus those without eating behavior disorders, show significant differences in the global score of BULIT and in each one of the dimensions (table 2).

Using the cut-off of 88 provided by Smith and Telen[18] as a reference, we observed that the test made it possible to correctly classify 90 % of the cases diagnosed of BN and 100 % of those without EBD (table 3).

Table 2 Differences in BULIT for persons with diagnosis of Bulimia vs other diseases

BULIT	Bulimia (n = 32)		No EBD (n = 26)		*t*	Signif.
	Mean	SD	Mean	SD		
Excess	47	13.11	22.5	6.78	8.63	0.00
Sensations	39.56	7.83	18.17	5.09	11.67	0.00
Vomits	16.06	5.40	6.80	1.70	8.43	0.00
Food type	6.78	2.47	3.42	1.27	6.28	0.00
Weight	4.16	1.74	2.42	0.94	4.55	0.00
Global	110.34	22.67	52.42	10.88	11.94	0.00

EBD: Eating behavior disorder.

DISCUSSION

In general terms, the results firmly support reliability and validity of this Spanish adaptation of the BULIT Bulimia Test.

Internal consistence (alpha = 0.934) of the test is considerably high, it being greatly above the 0.70 coefficient, the minimum estimated value acceptable to be able to consider that the items measure the same construct.

Equally, the 8-10 week test-retest reliability is satisfactory, with an r = 0.83, similar to the correlation (r = 0.87) reported by Smith and Telen[18] for an 8 week interval and above 0.69 considered adequate for a 1 month interval[21].

In regards to validity, moderate correlation is observed with total EAT-40 total (r = 0.38), which, at first, could be considerable acceptable, if we consider that the latter is aimed at evaluating attitudes and behaviors in anorexia and

Table 3 Classification according to cut-off in BULIT of patients with bulimia nervosa vs without EBD

Diagnosis	Global score on BULIT			
	Less than 88		88 or more	
	N	%	N	%
Bulimia (F50.2+ F50.3)	5	10	45	90
No EBD	27	100	0	0

EBD: eating behavior disorder.

only partially collects the symptoms characteristic of BN. However, in a more specific analysis of the correlations between both scales, we observe that the Bulimia dimension of EAT-40 (that evaluates the most specific symptoms of BN) has a very substantial correlation (r = 0.69) with the global score in BULIT, similar to r = 0.68 reported by Smith and Telen[18]. This firmly supports the convergent validity of this scale, above all if we consider that the most frequently reported correlations in the literature range from 0.40-0.60[22].

In regards to the instrument sensitivity, the results confirm the significant differences between the scores of persons with a BN diagnosis versus those without EBD related disease. Furthermore, we observed that the classification from the recommended cut-off on the original scale (88) makes it possible to correctly classify 90 % of those with BN while it correctly classifies 100 % of those without EBD. These results widely support the use of this instrument as a screening test.

One limitation of this instrument that also occurs in similar instruments is the inexact definition of binging[17,23]. This term, used over and over again in the questionnaire, is interpreted by the person filling out the questionnaire, giving a margin of error that sometimes allows a person to consider binging as a small increase in the amount of food. However, observation in the clinical practice of this possible bias allows us to verify the limited frequency of this distortion, at least in the population under treatment.

It would be well to examine the relationship between this scale and others equally specific for BN, as for example BITE[24] or others which, at some moment, could be adapted to our language. It would also be of interest to examine the factorial structure of the scale in its Spanish adaptation to confirm the factors identified in the English version.

In brief, the results support the validity and reliability of this Spanish adaptation of BULIT.

The availability of this instrument is especially useful as its use makes it possible to identify BN in the general population since it can correctly classify a high percentage of cases with BN and it can quantify the severity of bulimic symptoms.

The availability of this instrument is especially useful given its importance for clinical work and research as it allows for the identification of patients with BN as well as the measurement of the severity of the symptoms, an essential aspect for the evaluation of the results of the different treatment types.

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