

O. Zúñiga
E. Padrón

Translation and psychometric properties of the Kid's Eating Disorders Survey (KEDS)-Spanish version

Hospital Psiquiátrico Infantil Juan N. Navarro
México D.F.

Introduction. Few studies have used standardized instruments for evaluate the psychopathology of the Eating Behavior Disorders (EBD) in child and adolescence.

Objective. The objective of this study was to determine the psychometric properties of the Kid's Eating Disorders Survey (KEDS)-Spanish version [Cuestionario infantil para trastornos de la conducta alimentaria (CITCA)].

Method. The following instruments were applied to subjects aged 7-17 years: K-SADS-PL-MX, Eating Attitude Test-40 (EAT-40) and CITCA (Spanish version of the KEDS).

Results. A total of 98 females, age 12.5 ± 2.5 (7-17), participated. Cronbach's alpha coefficient for the total of the KEDS was 0.92. The scale items were grouped into two main components, which accounted for 74.4% of the variance. The convergent validity between the Spanish version of the KEDS and the EAT-40 was significant: $r = 0.832$ ($p = 0.01$). The criterion validity, on comparing the Spanish version of the KEDS with the K-SADS-PL-MX, was acceptable, with a $r = 0.899$ ($p = 0.01$). The test-retest at 15 days was positive: $r = 0.967$ ($p = 0.01$).

Key words:
Eating disorders. Childhood. Adolescence.

Actas Esp Psiquiatr 2009;37(6):326-329

Traducción y propiedades psicométricas de la versión en español del Cuestionario infantil para trastornos de la conducta alimentaria (CITCA)

Introducción. Pocos estudios han utilizado instrumentos estandarizados para evaluar la psicopatología de los trastornos de la conducta alimentaria en niños y adolescentes.

Objetivo. El objetivo de este estudio fue determinar las propiedades psicométricas de la versión en español del Cuestionario infantil para trastornos de la conducta alimentaria (CITCA).

Método. Se aplicaron los siguientes instrumentos a sujetos con edades entre 7-17 años: K-SADS-PL-MX, el Test de actitudes alimentarias-40 (TAA-40) y el CITCA.

Resultados. Participaron 98 mujeres, la edad promedio fue $12,5$ años $\pm 2,5$ (7-17). El coeficiente alfa de Cronbach para el total del EITCA fue de 0,92. La estructura factorial mostró que los reactivos se agruparon en dos componentes principales, los cuales explicaban el 74,4% de la varianza. La validez convergente entre el CITCA y el TAA-40 fue significativa: $r = 0,832$ ($p = 0,01$). La validez de criterio al comparar el CITCA con el K-SADS-PL-MX fue aceptable: $r = 0,899$ ($p = 0,01$). El test-retest a los 15 días correlacionó positivamente: $r = 0,967$ ($p = 0,01$).

Palabras clave:
Trastornos de la conducta alimentaria. Infancia. Adolescencia.

INTRODUCTION

The reported incidence of eating behavior disorders (EBD) in the pediatric age is approximately 1%.¹⁻³ The nature, course and prognosis of EBDs in children and adolescents have been described in the literature in a series of reports and follow-up studies.⁴ However, not many of these studies have used standardized instruments to evaluate EBD psychopathology in children and adolescents.

There are several clinimetric instruments to diagnose EBD in the adult population, but few have been adapted to the pediatric population. The most used instrument in this age group may be the Eating Attitude Test for Children (EAT-c)⁵. However, this instrument requires previous training in its application, which hinders its general use. Thus, we have considered that practical, simple, understandable and fast-application instrument is needed for children and adolescents.

Correspondence:
Oscar Zúñiga Partida
Hospital Psiquiátrico Infantil
Juan N. Navarro
Guayaquil 2387, Col. Providencia
Guadalajara, Jalisco
México, CP 44630
E-mail: drozup@hotmail.com

In 1989, the eating disorder survey (EDS)⁶ was developed and validated based on the DSM III criteria, and carried out in secondary education students. Because of the significant differences in the development of children and adolescents and the complexity of the EDS, a short and easy version was developed, the KEDS^{7,8}. It consists in 12, self-applicable items that are answered in a «yes,» «no,» and «don't know» format, in addition to having a set of 8 drawings of human figures to graphically measure body dissatisfaction and self-image. The KEDS is made up of two principal factors: «body dissatisfaction» and «restricting/purgative.» Spearman's correlation between items in the original study was significantly high ($r = 0.83$) with an equally high internal consistency ($\alpha = 0.73$). It should be mentioned that the KEDS does not make a diagnosis in accordance with the EBD DSM IV criteria per se in children and adolescents. However, it serves as a sensitive instrument to detect behaviors and attitudes in children and adolescents who may be at risk of presenting these disorders.

This study has aimed to translate the KEDS into Spanish (name in Spanish: CITCA) and to determine its psychometric properties in a pediatric sample in Mexico City.

METHODOLOGY

Once the subjects and their parents or guardians authorized their participation in the study, the instrument procedure of translation-re-translation was performed and the final version was applied to a group of 30 subjects to determine the understanding of the questions on the questionnaire. After adapting the questionnaire, it was applied to subjects who came to the outpatient medical office for the first time in the Psychiatric Hospital Infantil Juan N. Navarro, of Mexico City. Weight and height of all the participants were obtained to calculate their body mass index (BMI).

To determine the criterion validity, the introductory interview, screening section and EBD supplement of the K-SADS-PL-MX (Schedule for Affective Disorders and Schizophrenia for School Aged Children- Present and Lifetime)⁹ were applied. For the concurrent validity, the TAA-40 was applied. Twenty subjects returned at 15 days to answer the instrument for the test-retest. To obtain the internal consistency of the instrument, Cronbach's Alpha coefficient for the total and subtotals of the two dimensions measured by the instrument was used. Finally, a factor analysis was made with varimax rotation to obtain the construct validity. The SPSS version 13 statistical program was used to perform the statistical procedures.

RESULTS

Sample description

A sample of 139 subjects, 41 male (31.4%) and 98 female (68.6%) was used. Ten (7.1%) subjects were diagnosed of

anorexia nervosa (AN), 90% female and 18 (12.9%) subjects were diagnosed of bulimia nervosa (BN), 14 (77%) female. The academic grade in years of study of the population was a mean of 6.4 ± 2.4 (1-12).

Age

Average age in years was 12.5 ± 2.5 (7-17). When the population was divided into two age groups, 73 (52.6%) of the subjects were in the 7 to 12 year age group and 66 (47.4%) subjects in the 13 to 17 year age group. Average age of the AN subjects was 13.4 ± 2.6 (11-17) and of those with BN 12.5 ± 1.6 (11-15).

Body mass index

The mean body mass index (BMI) of the subjects without EBD was 20.5 ± 2.8 (15.3-30.4). In the subjects with AN, the mean BMI was 16.1 ± 0.4 (15.5-16.8). Mean BMI of the subjects with BN was 22.1 ± 2.2 (19.9-24.9). Analysis of variance of the BMI of the subjects with BN, AN and without EBD was $F = 10.92$, $gl = 2$ ($p = 0.01$).

Scores on the Spanish version of the Kids Questionnaire for Eating Behavior Disorders (CITCA)

In the application of the Spanish version of the KEDS, the total scores showed a mean of 5.0 ± 6.5 (0-23). Those patients who had not been diagnosed of EBD showed a mean on the total score of 2.1 ± 2.3 (0-10). Those who had been diagnosed of AN had a mean score of 13.0 ± 1.0 (12-14); patients with BN scored a mean of 20.0 ± 2.6 (14-22). The analysis of variance of the score of the subjects with BN, AN and without EBD was $F = 380.50$, $gl = 2$ ($p = 0.01$).

Internal consistency

In the application of the Spanish version of the KEDS, a high internal consistency was obtained with the Cronbach's Alpha for the total of the questionnaire of 0.92. When the two components of the scale were separated, the body dissatisfaction dimension had a Cronbach's Alpha of 0.91 and the purgative/restrictive behavior dimension Cronbach's Alpha was 0.87.

Factor analysis

The factor structure with the varimax rotation of the Spanish version of the KEDS showed that the items were grouped into two principal components with Eigen values greater than one, which accounts for 74.4% of the variance, with a percentage of variance explained of 57.1% for the first factor (items

Table 1 Analysis of the principal components with the varimax rotation of the Kid's eating Disorders Survey (KEDS)-Spanish version

Items by dimension	Factor load in purgative/restrictive behavior dimensions Eigen value 4.2 % % of variance 35.79	Factor load in body dissatisfaction dimension Eigen value 2.6 % % of variance 22.42
1. At present, would you like to lose weight?	-0.018	0.434
2. Have you ever thought that others consider you fat?	0.174	0.826
3. Have you ever been afraid to eat because you think you are going to gain weight?	0.200	0.896
4. Have you every tried to lose weight by going on a diet (you eat less food than normal in order to lose weight)?	0.282	0.876
5. Have you ever tried to lose weight by fasting (you eat nothing solid for 24 h)?	0.656	0.610
6. Have you every forced yourself to vomit in order to lose weight?	0.818	0.401
7. Have you ever done a lot of exercise in order to lose weight (more than 1 h a day)?	0.212	0.616
8. Have you every taken any medication in order to lower your weight (including naturist)?	0.821	0.290
9. Have you ever taken diuretics in order to lower your weight (pills that make you urinate)?	0.963	- 0.009
10. Have you every taken laxatives to lower your weight (medications that make you go to the bathroom more easily)?	0.959	0.012
11. Presence of binges.	0.879	0.281
12. Alteration of body image.	0.669	0.623

5, 6, 8, 9 and 10) and 17.3% for the second factor (items 1, 2, 3, 4, 7, 11 and 12). Items 11 and 12 were grouped in the subscale of purgating/restrictive behaviors (table 1).

Convergent criterion validity

The Spanish version of the KEDS score showed a positive correlation with the diagnosis of K-SADS-PL-MX with $r = 0.899$ ($p = 0.01$). The correlation between the Spanish version of the KEDS and TAA-40 was good, and statistically significant, with $r = 0.832$ ($p = 0.01$).

DISCUSSION

Unfortunately, the onset age of EBD is increasingly earlier. Thus, it is common to find cases of EBD in the child and adolescent psychiatry medical office.¹⁰ That is why there is a prevailing need to have a reliable instrument to identify the pediatric population at risk of suffering EBD in the clinical practice. The KEDS is an instrument designed for this purpose,

since the early identification of EBDs favors their prognosis.

Regarding the instrument, it should be mentioned that some subjects under 9 years had problems understanding the meaning of «laxative and diuretics,» so that the meaning of these words had to be explained to them.

The mean of the total score in the population with no diagnosis of EBD was 2.1 while the subjects with AN scored five times higher and those with BN scored ten times higher. This manifests the sensitivity of this instrument to identify the subjects at risk of EBD.

The Cronbach's alpha internal consistency indexes were high, both for the subtotals and the total of the scale. In regards to the factor analysis, it was seen, on the one hand, that the items were grouped as expected into two factors. However, on the contrary to the original scale, items 11 and 12 were grouped in the purgating/restrictive dimension. These two items evaluate the presence of binges and dissatisfaction with body image. This is unders-

tandable if we remember that bingeing often occurs after eating restriction (diet), mentioning severe diets as bingeing triggers.

When the Spanish version of the KEDS, the CITCA, was compared with the EBD section of the K-SADS-PL-MX, an adequate criterion validity was obtained. The convergent validity with EAT-40, which is one of the instruments used most on the international level to evaluate EBD, was good.

Furthermore, the correlation between the first and second application (at 15 days) of the Spanish version of the KEDS was high and statistically significant. This denotes the temporal stability of the instrument, a characteristic also relevant for measurements that aim to screen the relatively stable constructs such as those of mental disorders.

The Spanish version of the KEDS, the CITCA, behaves in a practical and adequate way to identify the pediatric population at risk of suffering EBD.

CONCLUSIONS

The Spanish version of the KEDS, the CITCA, showed test-retest and validity data in the Mexican population. Its use is adequate in the pediatric population beginning at 8 years. Thus, it can be concluded that the Spanish version of the Kids' eating disorder survey, the CITCA, is a sensitive instrument with screening purposes for EBD in Spanish-speaking children and adolescents.

ACKNOWLEDGEMENTS

To Dr. Rosa Elena Ulloa Flores of the Psychiatric Hospital Infantil Juan N. Navarro and to the Adolescent's Clinic of

the National Institute of Psychiatry Ramón de la Fuente for the support received for the performance of this work.

REFERENCES

1. Luca AR, Beard CM, O'Fallon WM. Fifty-year trends in the incidence of anorexia nervosa in Rochester, Minnesota: a population-based study. *Am J Psychiatry* 1991;148:917-22.
2. Fairburn CG, Beglin SJ. Studies of the epidemiology of bulimia nervosa. *Am J Psychiatry* 1990;147:401-8.
3. Whitaker A, Davies M, Shaffer D, Johnson J, Adams S, Walsh BT. The struggle to be thin: a survey of anorexic and bulimic symptoms in a non-referred adolescent population. *Psychol Med* 1989;19:143-63.
4. Childress AC, Brewerton TD, Hodges EL. The kids' eating disorder survey (KEDS): a study of middle school students. *J Am Acad Child Adolesc Psychiatry* 1993;32:843-50.
5. Garner DM, Olmsted MP, Bahr Y, Garfinkel PE. The eating attitude test: psychometric features and clinical correlates. *Psychol Med* 1982;12:871-8.
6. Holtkamp K, Muller B, Heussen N. Depression, anxiety, and obsessionality in long-term recovered patients with adolescent-onset anorexia nervosa. *European Child and Adolescent Psychiatry* 2005;14:106-10.
7. Childress AC, Jarrell MP, Brewerton TD. The kid's eating disorders survey (KEDS): internal consistency, component analysis, and reliability. *Eat Disord* 1993;1:123-31.
8. Brewerton TD. The Use and Scoring of the kid's eating disorders survey (KEDS). *Eat Disord* 2001;9:71-4.
9. Ulloa RE. Estudio de fiabilidad interevaluador de la versión en español de la entrevista Schedule for Affective Disorders and Schizophrenia for School-Age Children-Present and Lifetime version (K-SADS-PL). *Actas Esp Psiquiatr* 2006;34:36-40.
10. Nichol D, Lynn R, Viner R. Eating disorders in children under 13: clinical profiles from a British national surveillance study. *Arch Dis Child* 2007;92:A50-A52.