

Psychometric properties of the Perception of Teasing Scale in a Spanish adolescent sample: POTS-S

G. López-Guimerà¹, J. Fauquet², D. Sánchez-Carracedo¹, J.R. Barrada³, C. Saldaña⁴, and A. Masnou-Roig¹

¹Department of Clinical and Health Psychology, Universitat Autònoma de Barcelona, Barcelona, ²Department of Psychobiology and Methodology of Health Sciences, Universitat Autònoma de Barcelona, Barcelona, ³Department of Psychology and Sociology, University of Zaragoza, Zaragoza, ⁴Department of Personality, Assessment and Psychological Treatments, Institute for Brain, Cognition and Behavior (IR3C), University of Barcelona, Barcelona, Spain

ABSTRACT. *The present study examines the psychometric properties of the Spanish version of the Perception of Teasing Scale (POTS-S). Participants were 1559 adolescents. They completed a translated version of the POTS and versions validated in Spanish population of the Rosenberg Self-Esteem Scale, the Body Dissatisfaction and Drive for Thinness subscales of the Eating Disorders Inventory-2, and the Children's Eating Attitudes Test. The results showed that the POTS-S retains the original structure of two factors, weight and competency, with satisfactory fit indices. The POTS-S constitutes a shorter questionnaire than the original version; specifically, it consists of 9 items instead of 11. The POTS-S showed good internal consistency and satisfactory test-retest stability. The relationship between the weight subscale and the variables related to eating and weight were statistically significant. As regards the competency subscale, the correlations were all lower than those for the weight subscale, except in the case of the self-esteem variable. The POTS-S showed good psychometric properties, indicating its suitability as an instrument for assessing the perception of teasing in Spanish adolescents.*

(*Eat. Weight Disord.* 17: e210-e218, 2012). ©2012, Editrice Kurtis

INTRODUCTION

Teasing can encompass a broad array of targeted negative verbal behavior, such as joking and name-calling, which is often accompanied by acts of social aggression such as exclusion, being singled out, and being laughed at (1). Teasing is a common experience among adolescents, especially the type of teasing that focuses on weight and body shape. Cross-sectional and longitudinal studies indicate that the prevalence rate of weight-related teasing among average-weight adolescents is around 20%, while more than 50% of overweight peers report having been teased about their weight or about aspects of their appearance (1-5). Research also shows that the risk of being teased about one's weight by peers and family members' increases across weight status from normal weight to overweight and obesity (2, 5-7).

Although research in weight-related teasing is scarce, there is some evidence that it is associated with adverse psycho-

logical and physical outcomes (2, 8). Cross-sectional studies suggest that being teased about one's weight is positively associated with depressive symptoms, suicidal ideation and suicide attempts, low self-esteem, weight concerns, body dissatisfaction, dieting onset and disordered eating behaviors such as purging, binge eating and fasting in both male and female adolescents (2, 5, 9-11). An important concern is to assess the impact that teasing can have on adolescents. Most studies that have explored this issue have focused mainly on weight-related teasing, while research on competency-related teasing – which is focused on a person's capacity or competence to understand, say or do something – and its relation with eating and weight-related problems is not only scarce and but also very limited in scope (2, 12). Prospective studies have found that being teased about one's weight is associated with established risk factors for eating disorders and obesity, such as body dissatisfaction, depressive symptoms, low self-esteem,

First online ahead of publication February 6, 2012 as DOI: 10.3275/8245

Key words:

Psychometrics, confirmatory data analysis, adolescence, teasing, weight-related issues, overweight.

Correspondence to:

Gemma López-Guimerà, PhD,
Department of Clinical and Health Psychology,
Universitat Autònoma de Barcelona,
08193 Bellaterra
(Cerdanyola del Vallès),
Barcelona, Spain.
E-mail:

Gemma.Lopez@uab.cat

Received: April 6, 2011

Accepted: October 19, 2011

unhealthy weight-control behaviors and binge eating (3, 13-15). Other relevant variables are the frequency and source of teasing. The more often adolescents reported being teased, and from more sources (peers and family members, particularly fathers), the more likely they presented depressive symptoms, weight concerns, body dissatisfaction and unhealthy weight-control behaviors (1, 5, 6, 12).

The first questionnaire to assess teasing experiences was the Physical Appearance Related Teasing Scale (PARTS) (16). Later, this scale was modified, resulting in the Perception of Teasing Scale (POTS) (17), which overcame the limitations of the PARTS. The POTS is the most widely used measure of teasing in studies on weight and appearance-related teasing, body dissatisfaction and disordered eating (12), and is the gold standard scale for the assessment of teasing in the eating and weight-related disorders field. The development and validation of the POTS (17) was carried out in three different studies. Study 1 involved the psychometric evaluation of the questionnaire in a sample of 227 female college students, two factors emerging: Weight-Related Teasing and Teasing about Competencies. In Study 2 the integrity of the factor structure of these two scales was established with a sample of 87 female college students. In Study 3, 92 female college students were administered several related measures to test for convergence with the POTS. The final scale consisted of 11 items and assessed the respondent's history of being teased about weight and abilities/competencies. The instrument yields a 6-item Weight-Related Teasing subscale (POTS-WT) and a 5-item Competency-Related Teasing subscale (POTS-CT). Each item comprises two parts, the first of which is aimed at the assessment of teasing frequency, and answered on a 5-point scale ranging from 1 (never) to 5 (very often); the second part of each item deals with the effect of the teasing, and requires a response only if the participant gives an answer other than "never" to the first part. This second part also has five response categories, from 1 (not upset) to 5 (very upset). Total score on each item is the sum of the score on the two parts. Internal consistency (Cronbach's α) was 0.88 for the POTS-WT and 0.84 for the POTS-CT.

The POTS or just one of its subscales, usually the POTS-WT, has been translated and used to assess teasing in adolescents and female college students from China, Sweden, Australia and Italy (18-20). However, in some of these studies the items (18) or the response scale (20) from the original version of the POTS were

modified. Moreover, none of the previous studies carried out a validation of the questionnaire; only its internal consistency was evaluated. No more than one recent study has investigated the construct validity of the POTS, using a sample of 381 preadolescent children and confirmatory factor analysis (21).

The aim of the present study was to examine the psychometric properties of the POTS in a Spanish adolescent sample. The principal differences between this study and the original one (17) are: a) the change of language, b) the assessment with a sample of adolescents, and c) the use of confirmatory factor analysis.

In Spain there are no data available on the prevalence of teasing because there are no questionnaires for the assessment of: a) how many adolescents are teased, b) what kind of teasing is most frequent, c) the source of teasing, and d) the possible effects. However, Spanish official data show that obesity prevalence rates in children and adolescents (aged 6-17) are among the highest in Europe, ranging from 10 to 22% (depending on age and sex) (22). We believe that these data constitute a good reason for making available a questionnaire to assess teasing experiences among Spanish adolescents, provided it has been shown that overweight and obese adolescents are more likely to be teased about their weight than normal-weight adolescents (2) and therefore, according to previous evidence, more likely to use unhealthy weight-control behaviors and binge eating (3,13,15), which increase the risk of weight gain (23-26).

METHODS

Participants

The sample consisted of 1559 adolescents (749 girls and 810 boys) recruited from 5 schools (2 public and 3 grant-aided private schools) from the area of Barcelona (Spain). Participants' ages ranged from 12 to 17 years [mean=14.3, standard deviation (SD)=1.4]. The sample comprised students from the four Mandatory Secondary Education (MSE) years of the Spanish system (7th to 10th grade in the USA). Participants were roughly equally distributed across grades. The self-reported origin of participants was as follows: 83.4% were Spanish, 7.2% were Latin-American, 2.3% were from other European countries (Spain excluded), 1.0% were African (0.9% from North Africa and 0.1% from Sub-Saharan Africa), 5.7% had mixed origins, and 0.4% did not specify their origin. The mean body mass index (BMI) of the total sample was 20.21 kg/m²

(SD=3.12 kg/m²). These results correspond to a normal weight status range according to international criteria (27, 28). The distribution of BMI as weight status was 8.6% underweight, 75.9% normal weight, 13.5% overweight and 2.0% obese.

Procedure

The research was approved by the Clinical Research Ethics Committee of the "Parc Taulí" Health Corporation in Sabadell (Barcelona, Spain). Furthermore, informed consent was obtained from the families through the mediation of the Fundació Privada Instituto de Psicologia of Barcelona and the participating schools. Adolescents were given the opportunity to assent only if their parent/guardian did not return a consent form indicating their refusal to let their child participate.

Administration of the questionnaires took place during the period from February to May 2009. The questionnaires were administered by graduate and post-graduate psychologists who received detailed verbal and written instructions on how to proceed. Weight and height were measured in situ by trained research staff in a private room near the questionnaire administration area, with participants standing up, without shoes, wearing light clothing and without any personal objects (such as watches, bracelets or mobile phone). Height was measured to the nearest millimeter using portable stadiometers, and body weight was assessed to the nearest 0.1 kg using digital scales. Weight was subsequently corrected, subtracting 0.9 kg from the boys and 0.7 kg from the girls, which were average values estimated after weighing several sets of clothes similar to those worn at the time of the assessment.

A test-retest study was conducted in one school among four classes randomly selected from each of years 1 to 4 of MSE with a final sample of 99 adolescents (46 girls and 53 boys). Participants completed the POTS twice, with a 4-week inter-test interval.

Instruments

Perception of Teasing Scale (POTS-S). The Spanish version of the POTS was used for this study. The translation had been carried out by two highly qualified and independent translators, and the final Spanish version (POTS-S) was revised and agreed upon by experts in adolescent health and eating and weight-related disorders, following the international guidelines for translating and adapting tests (29, 30).

Rosenberg Self-Esteem Scale (RSES) (31). This scale was used to measure adolescent self-esteem by means of 10 items and a 4-point Lik-

ert scale ranging from 1 (strongly disagree) to 4 (strongly agree). We used the Spanish validation (32), which has an internal consistency of 0.85 to 0.88. In our study, the RSES showed an internal consistency, measured by Cronbach's α , of 0.77.

Eating Disorders Inventory-2 (EDI-2) (33). In this study we used the Body Dissatisfaction scale (EDI-BD) and Drive for Thinness scale (EDI-DT) from this instrument. The EDI-BD scale contains 9 items that measure satisfaction with specific body sites, such as the waist, thighs and buttocks. Response options ranged from 1 (always) to 6 (never). The validated Spanish version (34) presents an internal consistency of 0.71 to 0.87 (0.87 in the present study). The EDI-DT is a 7-item scale that measures restrictive tendencies, including excessive concern with dieting, weight concerns, and pursuit of thinness; response options range from 1 (always) to 6 (never). The validated Spanish version (34) has an internal consistency of 0.75 to 0.88 (0.85 in the present study).

Children's Eating Attitudes Test (ChEAT) (35). This is a well-established test including a 26-item scale designed to assess maladaptive or problematic eating attitudes and behaviors among children and adolescents. Each item is rated on a Likert scale from 1 (always) to 6 (never). We used the validated Spanish version (36), whose internal consistency is 0.73. In the published, validated Spanish version, 6 items of the original 26 were removed due to the requirements of the agency that authorized the study. In our research we maintained the wording of the 20 items included in the adapted version and added the missing 6. The Cronbach's α value obtained in this study was 0.83.

Weight status. Height was measured by means of a SECA portable stadiometer, model 214 (20-207 cm; accuracy range of 0.1 cm), and weight was measured using SECA scales, model 872 (0-200 kg; accuracy range of 0.1 kg; accuracy $\pm 0.15\%$). As previously noted, weight was corrected to take into account participants' clothing and converted, following international guidelines (27, 28), to a four-point scale of weight status (underweight, normal weight, overweight and obesity).

Statistical analysis

The psychometric assessment was conducted in four distinct phases. First, we studied the internal structure of the scale. The two-factor structure of the questionnaire (weight-related teasing and competency-related teasing) was assessed by means of confirmatory factor analysis (CFA) with robust maximum-likelihood esti-

mation, and goodness-of-fit was assessed with the common fit index (37, 38). Thus, we consider the model satisfactory if the Comparative Fit Index (CFI) and Tucker-Lewis Index (TLI) have values >0.95 , the Root Mean Square Error of Approximation (RMSEA) is <0.06 , and the Standardized Root Mean Square Residual (SRMR) is <0.08 (37, 38). Secondly, we examined the reliability of the POTS scores (POTS-WT and POTS-CT) in terms of internal consistency and test-retest stability. We calculated the Cronbach's α coefficient for internal consistency and Pearson's correlations for test-retest stability (with a time interval of four weeks). We considered as satisfactory reliability indicators Cronbach's α and test-retest correlations >0.70 (39). Thirdly, we carried out a factor invariance study, since an internal structure in line with what would be expected does not necessarily mean that this structure will be maintained for the different subgroups of interest in the sample, namely sex and grade. When testing the invariance of a scale internal structure a series of sequential steps are followed. These steps have been given different names in the literature. The first step is to check the equal form invariance, that is, to verify that the number of factors and distribution of items to factors remain the same. This is the baseline model. If this model fits, the next step is to check whether the unstandardized loadings are the same among groups. The equal loadings invariance is accepted when this restriction implies a decrease in the CFI of <0.01 . The final step was to check whether the intercepts of the items can be equalized among groups. The same criteria will be used to define the equal intercepts invariance. If all of these invariances are established, the scale performs equally across groups, and thus the scores can be compared among groups. Finally, we analyzed by means of Pearson's correlations the association between the total scores of the POTS-S-WT and POTS-S-CT and the total scores of weight status, ChEAT, EDI-BD, EDI-DT and RSES. Prior to the analysis we assume the conventional criteria on the interpretation of correlation coefficients as effect size measurement (40): correlations of 0.10 indicate a small effect size, 0.3 a medium effect size, and 0.5 or above a large effect size. Data analysis was carried out using SPSS 17.0 and Mplus 5.2.

RESULTS

Missing data analysis

With respect to missing data, participants whose percentage of missing data was $>10\%$ in any of the questionnaires were excluded from

TABLE 1
Indices of goodness of fit for complete version (POTS-S11) and the final version (POTS-S9).

Version	χ^2	df	RMSEA	SRMR	TLI	CFI
POTS-S11	339.740	43	0.068	0.049	0.870	0.898
POTS-S9	80.947	26	0.038	0.030	0.960	0.971

χ^2 : Chi-square test; df: degrees of freedom; RMSEA: Root Mean Square Error of Approximation; SRMR: Standardized Root Mean Square Residual; TLI: Tucker-Lewis Index; CFI: Comparative Fit Index; POTS-S11: 11-item Spanish version of the Perception of Teasing Scale; POTS-S9: 9-item Spanish version of the Perception of Teasing Scale.

the analysis, so that the effective sample size was 1501 participants (96.28% from original sample). Initial and final included samples did not vary in terms of ethnicity or gender. Next, we applied a multiple imputation procedure for missing data (41-44) on the effective sample. Five complete datasets were generated.

Internal structure of the scale

The original two-factor structure of POTS presented in the method section was tested. As shown in Table 1, analysis of the factor structure revealed that the fit indices showed unsatisfactory values (37).

Inspection of the modification indices indicated that the model fit could be improved by freeing the covariance between the uniqueness of two pairs of items (item 1 with item 2; item 5 with item 6). In other words, two pairs of items were highly redundant. The effect of correlated errors can be modeled when computing a factor score, but not when the final score of the scale is the sum of the score of the items. In this case, a part of the construct domain is oversampled within the test, reducing the content validity of the scale. In view of this, we opted for the deletion of two items. The inspection of factor loading and the judgments of content experts led to the exclusion of item 1 and item 6. Factor analysis on the 9-item version showed satisfactory values (Table 1). All of the item loadings were statistically significant ($p<0.001$), and showed standardized factor loadings ranging from 0.77 to 0.83 in the weight factor, and from 0.54 to 0.69 in the competency factor (Table 2). Weight-related teasing and competency-related teasing correlated with a value of 0.26. Consequently, the final version consists of 9 items: item 2 to item 5 from the original weight-related teasing subscale (POTS-S-WT) and item 7 to item 11 from the original Competency-Related Teasing subscale (POTS-S-CT). The Pearson's correlations between the subscale POTS-S-WT (4 items)

TABLE 2
Inter-item correlation matrix, descriptive index, factor loadings, and description of items.

Items	1	2	3	4	5	6	7	8	9	10	11	F _{WT}	F _{CT}
1	1	0.83	0.63	0.72	0.58	0.50	0.19	0.18	0.08	0.08	0.08	NA	
2		1	0.61	0.73	0.62	0.51	0.21	0.20	0.10	0.13	0.10	0.83	
3			1	0.63	0.66	0.59	0.22	0.24	0.16	0.15	0.13	0.78	
4				1	0.60	0.53	0.21	0.21	0.12	0.12	0.10	0.83	
5					1	0.71	0.19	0.20	0.14	0.16	0.15	0.77	
6						1	0.21	0.24	0.14	0.19	0.16	NA	
7							1	0.43	0.46	0.41	0.35		0.69
8								1	0.36	0.37	0.31		0.61
9									1	0.40	0.33		0.63
10										1	0.40		0.63
11											1		0.54
M	1.96	1.83	1.32	1.54	1.27	1.24	2.98	2.25	2.20	2.31	2.20		
SD	2.16	2.05	1.26	1.73	1.25	1.15	2.23	2.00	1.92	2.03	1.80		
Items	Description of items												
1	People made fun of you because you were heavy (not applicable in Spanish version)												
2	People made jokes about you being too heavy												
3	People laughed at you for trying out for sports because you were heavy												
4	People called you names like "fatso"												
5	People pointed at you because you were overweight												
6	People snickered about your heaviness when you walked into a room alone (not applicable in Spanish version)												
7	People made fun of you by repeating something that you said because they thought it was dumb												
8	People made fun of you because you were afraid to do something												
9	People said you acted dumb												
10	People laughed at you because you didn't understand something												
11	People teased you because you didn't get a joke												
M: mean; SD: standard deviation; F _{WT} : factor loadings of the Weight-Related Teasing subscale; F _{CT} : factor loadings of the Competency-Related Teasing subscale; NA: not applicable in the final version.													

and the original version (6 items), and between total scores of POTS-S (9 items) and the original version (11 items) were 0.99 ($p < 0.001$) and 0.98 ($p < 0.001$), respectively.

Reliability

Internal consistency, examined using Cronbach's α coefficients, was satisfactory. The α coefficients for the POTS-S-WT (4 items) and POTS-S-CT (5 items) subscales were, respectively, 0.86 and 0.76. Alphas within the 0.50 range are generally considered acceptable for scales with a small number of items, so that these results are highly satisfactory (45). In this sense, our results are comparable to those obtained in the original study with female college students (0.88 and 0.84, respectively, $N=223$) and its subsequent replication (0.88 and 0.75, respectively, $N=87$) (17). Pearson's correlations were applied to assess test-retest stability at follow-up after a 4-week interval ($N=99$). The values obtained were 0.85 for POTS-S-WT and

0.65 for POTS-S-CT. In the original study, test-retest results were presented with each of the scales divided by frequency and effect of teasing, so that no direct comparison can be made. Our results indicate that competency-related teasing is slightly less stable than weight-related teasing. Following our criteria, the POTS-S-WT showed satisfactory test-retest reliability; however, this indicator of reliability was slightly below our limit for the POTS-S-CT.

Factor invariance of the scale

Results of the study on invariance among groups can be seen in Table 3. Reductions in CFI of < 0.01 are considered as indicative of invariance, so that, according to this criterion, all the kinds of invariance tested are supported in comparisons by both sex and grade. In no case did the fall in CFI exceed 0.004. The scale has the same form for all the different groups considered, with equivalent relationships between the items and the latent factor (equal

TABLE 3
Invariance factor analysis of the scale.

Sample	Invariance	χ^2	df	RMSEA	SRMR	TLI	CFI	Δ CFI
By sex	Equal form	109.955	52	0.039	0.036	0.957	0.969	
	Equal factor loadings	115.080	59	0.036	0.044	0.963	0.970	0.001
	Equal intercepts	130.595	66	0.036	0.045	0.962	0.965	-0.004
By grade	Equal form	146.583	104	0.033	0.040	0.970	0.978	
	Equal factor loadings	166.339	125	0.030	0.055	0.975	0.979	0.001
	Equal intercepts	192.681	146	0.029	0.056	0.976	0.976	-0.002

χ^2 : Chi-square test; df: degrees of freedom; RMSEA: Root Mean Square Error of Approximation; SRMR: Standardized Root Mean Square Residual; TLI: Tucker-Lewis Index; CFI: Comparative Fit Index; Δ CFI: variations in CFI.

loadings), and the amount of latent variable needed to give a positive response to the items is also the same (equal intercepts).

Relationships with other variables

Pearson’s correlations were computed between the two POTS-S subscales, that is, POTS-S-WT and POTS-S-CT, and weight status, ChEAT, EDI-BD, EDI-DT and RSES. The results obtained are in the expected direction (Table 4). The relationships between the POTS-S-WT and the variables related to eating and weight were statistically significant, and with values ranging from 0.35 to 0.42; these values indicated medium or medium-large effect sizes. Regarding the POTS-S-CT, the correlations are all lower than those for the POTS-S-WT, except in the case of the self-esteem variable, highlighting the smaller association between competency-related teasing and measures related to eating and weight. The correlations obtained were statistically significant, except for that between the POTS-S-CT and weight status, and ranged from 0.05 to 0.23 (Table 4). These results indicate effect sizes that are small (practically zero for weight status) or small-medium. With regard to the self-esteem scale, the results showed a statistically significant inverse association with both the POTS-S-WT and the POTS-S-CT, with

values of -0.10 (small effect size) and -0.25 (small-medium effect size), respectively.

DISCUSSION

The present study examined the psychometric properties of the Spanish version of the Perception of Teasing Scale (17). The results indicate that the Spanish version, called POTS-S (see Appendix), is a good measure of the perception of teasing among Spanish adolescents.

With regard to factor structure, the results show that the POTS-S retains the original structure of two factors, weight and competency, with satisfactory fit indices. However, the weight factor in the Spanish version consists of 4 items instead of the 6 items proposed in the original. The two kinds of teasing were positively and moderately correlated. The study of the reliability of the POTS-S indicates a satisfactory level of internal consistency. The test-retest reliability results after a four-week interval revealed good short-term reliability for the POTS-S-WT and moderate short-term reliability for the POTS-S-CT. Furthermore, our findings are consistent with previous cross-sectional studies which indicate that being teased about one’s weight is positively associated with

TABLE 4
Pearson’s correlations between the Weight-Related Teasing subscale and Competency-Related Teasing subscale and weight status, eating attitudes, body dissatisfaction, drive for thinness, and self-esteem.

	POTS-S-WT	POTS-S-CT	WS	ChEAT	EDI-BD	EDI-DT	RSES
POTS-WT	0.99*	0.26*	0.37*	0.38*	0.44*	0.42*	-0.11*
POTS-S-WT	1	0.26*	0.35*	0.36*	0.42*	0.40*	-0.11*
POTS-S-CT		1	0.05	0.23*	0.21*	0.18*	-0.25*

POTS-WT: original Weight-Related Teasing subscale (six items); POTS-S-WT: Weight-Related Teasing subscale (four items); POTS-S-CT: Competency-Related Teasing subscale; WS: Weight Status; ChEAT: Children Eating attitudes Test; EDI-BD: Body Dissatisfaction scale of EDI-2; EDI-DT: Drive for Thinness scale of EDI-2; RSES: Rosenberg Self-Esteem Scale. *p <0.001.

weight status, body dissatisfaction, weight concerns and disordered eating in adolescents (2, 5, 10), and negatively (and weakly) associated with self-esteem (9). Concerning competency-related teasing, our results indicate that it is positively (and moderately) associated with body dissatisfaction, weight concerns and disordered eating, though the correlations are lower than those for the POTS-S-WT. The POTS-S-CT is also negatively associated with self-esteem, this relationship being stronger than that found between the POTS-S-WT and self-esteem. Finally, our data show an absence of association between competency-related teasing and weight status.

The present study has a number of strengths that contribute to the utility of the data: a) the effective sample size, 1501 participants, covers a wide age range, from 12 to 17, and includes both girls and boys; b) the examination of the psychometric properties of the POTS in a Spanish adolescent sample was carried out using instruments validated in Spain and which constitute the gold standard in this field; c) weight and height were measured *in situ* by trained research staff and following a standardized protocol; d) theory-driven factor analysis was applied, rather than exploratory factor analysis, allowing us to detect the redundancy of some items and the invariance of the instrument with respect to sex and grade; and e) clear criteria for the evaluation of the results were defined beforehand, and all the expected patterns of results were found (with the exception of the test-retest correlation for the competency teasing scale). Regarding recent validations that employ confirmatory factor analysis (21), our study uses a robust method of estimation, a larger simple size, and a wider age range. Of special relevance is the fact that we are not using item parcels, as was the case in that previous analysis (21). When using item parcels what is modeled by means of the CFA is not the internal structure of the different items, but the structure of the item parcels. Redundancies in the item content that were masked due to the analytical approach can emerge when considering all the items as separate units.

Our data and findings also have limitations that should be noted: a) as is common with these types of scale, the frequency and relevance of teasing is based on the historical recall of events, and this retrospective nature of the instrument means that we cannot distinguish between the effects of real teasing and remembered teasing; and b) no longitudinal data were collected. However, neither of these limitations particularly affects a study whose objective is

to offer a reliable and valid instrument for the assessment of teasing.

This study also has a number of practical implications. Teasing, and particularly weight-related teasing, may play a relevant role in the development of both obesity and eating disorders (46). The availability of an instrument for evaluating this variable will allow us to study its role in these problems with Spanish samples, as well as to rate the efficacy of interventions aimed at preventing and treating eating and weight-related problems that focus on reducing weight-related teasing in Spanish youngsters. Moreover, this scale permits us to specify the source of teasing and the subjective rating of distress (teasing effect). There is a need for further research on the sources of teasing and the teasing experience that can aid the design of more effective preventive interventions aimed at both family members and peers. Such interventions would involve educating families and children about the acceptance of size diversity and providing young people with the skills to cope with teasing (2, 6). Finally, since competency-related teasing has been only scarcely explored to date, future work could examine the prevalence of this type of teasing in the young Spanish population and investigate whether it is associated with adverse psychological and physical outcomes.

ACKNOWLEDGMENTS

This article was funded by Research Grants from the Ministry of Science & Innovation (Ref.: PSI2009-08956) of the Spanish Government.

REFERENCES

1. Libbey HP, Story MT, Neumark-Sztainer DR, et al. Teasing, disordered eating behaviors, and psychological morbidities among overweight adolescents. *Obesity (Silver Spring)* 2008; 16 (Suppl 2): S24-9.
2. Hayden-Wade HA, Stein RI, Ghaderi A, et al. Prevalence, characteristics, and correlates of teasing experiences among overweight children vs. non-overweight peers. *Obes Res* 2005; 13: 1381-92.
3. Haines J, Neumark-Sztainer D, Eisenberg ME, et al. Weight teasing and disordered eating behaviors in adolescents: Longitudinal findings from Project EAT (Eating Among Teens). *Pediatrics* 2006; 117: e209-15.
4. Haines J, Neumark-Sztainer D, Hannan PJ, et al. Longitudinal and secular trends in weight-related teasing during adolescence. *Obesity (Silver Spring)* 2008; 16 (Suppl 2): S18-23.
5. Neumark-Sztainer D, Falkner N, Story M, et al. Weight-teasing among adolescents: correlations with weight status and disordered eating behaviors. *Int J Obes Relat Metab Disord* 2002; 26: 123-31.
6. Keery H, Boutelle K, van den Berg P, et al. The impact

- of appearance-related teasing by family members. *J Adolescent Health* 2005; 37: 120-7.
7. van den Berg P, Neumark-Sztainer D, Eisenberg ME, et al. Racial/ethnic differences in weight-related teasing in adolescents. *Obesity (Silver Spring)* 2008; 16: S3-10.
 8. Agliata AK, Tantleff-Dunn S, Renk K. Interpretation of teasing during early adolescence. *J Clin Psychol* 2007; 63: 23-30.
 9. Eisenberg ME, Neumark-Sztainer D, Story M. Associations of weight-based teasing and emotional well-being among adolescents. *Arch Pediatr Adolesc Med* 2003; 157: 733-8.
 10. Janssen I, Craig WM, Boyce WF, et al. Associations between overweight and obesity with bullying behaviors in school-aged children. *Pediatrics* 2004; 113: 1187-94.
 11. van den Berg P, Wertheim EH, Thompson JK, et al. Development of body image, eating disturbance, and general psychological functioning in adolescent females: a replication using covariance structure modeling in an Australian sample. *Int J Eat Disord* 2002; 32: 46-51.
 12. Menzel JE, Schaefer LM, Burke NL, et al. Appearance-related teasing, body dissatisfaction, and disordered eating: a meta-analysis. *Body Image* 2010; 7: 261-70.
 13. Eisenberg ME, Neumark-Sztainer D, Haines J, et al. Weight-teasing and emotional well-being in adolescents: longitudinal findings from Project EAT. *J Adolesc Health* 2006; 38: 675-83.
 14. Gardner RM, Stark K, Friedman BN, et al. Predictors of eating disorder scores in children ages 6 through 14: a longitudinal study. *J Psychosom Res* 2000; 49: 199-205.
 15. Wertheim EH, Koerner J, Paxton SJ. Longitudinal predictors of restrictive eating and bulimic tendencies in three different age groups of adolescent girls. *J Youth Adolesc* 2001; 30: 69-81.
 16. Thompson JK, Fabian LJ, Moulton DO, et al. Development and validation of the Physical Appearance Related Teasing Scale. *J Pers Assess* 1991; 56: 513-521.
 17. Thompson JK, Cattarin J, Fowler B, et al. The Perception of Teasing Scale (OTS): a revision and extension of the Physical Appearance Related Teasing Scale (PARTS). *J Pers Assess* 1995; 65: 146-57.
 18. Chen H, Jackson T. Predictors of changes in body image concerns of Chinese adolescents. *J Adolesc* 2009; 32: 977-94.
 19. Lunner K, Wertheim EH, Thompson JK, et al. A cross-cultural examination of weight-related teasing, body image, and eating disturbance in Swedish and Australian samples. *Int J Eat Disord* 2000; 28: 430-5.
 20. Mautner RD, Owen SV, Furnham A. Cross-cultural explanations of body image disturbance in Western cultural samples. *Int J Eat Disord* 2000; 28: 165-72.
 21. Jensen CD, Steele RG. Validation of the Perceptions of Teasing Scale (POTS) in a preadolescent sample: associations with attitudes toward physical activity. *Child Health Care* 2010; 39: 249-65.
 22. Agencia Española de Seguridad Alimentaria [Spanish Food Safety Agency]. Estrategia para la nutrición, actividad física y prevención de la obesidad (NAOS). AESA, Ministerio de Sanidad y Consumo. <http://www.naos.aesan.msp.es/> 2010 August.
 23. Neumark-Sztainer D, Wall M, Guo J, et al. Obesity, disordered eating, and eating disorders in a longitudinal study of adolescents: how do dieters fare 5 years later? *J Am Diet Assoc* 2006; 106: 559-68.
 24. Neumark-Sztainer D, Wall M, Haines J, et al. Why does dieting predict weight gain in adolescents? Findings from project EAT-II: a 5-year longitudinal study. *J Am Diet Assoc* 2007; 107: 448-55.
 25. Stice E, Cameron RP, Killen JD, et al. Naturalistic weight-reduction efforts prospectively predict growth in relative weight and onset of obesity among female adolescents. *J Consult Clin Psychol* 1999; 67: 967-74.
 26. Stice E, Presnell K, Shaw H, et al. Psychological and behavioral risk factors for obesity onset in adolescent girls: a prospective study. *J Consult Clin Psychol* 2005; 73: 195-202.
 27. Cole TJ, Bellizzi MC, Flegal KM, et al. Establishing a standard definition for child overweight and obesity worldwide: international survey. *BMJ* 2000; 320: 1240-3.
 28. Cole TJ, Flegal KM, Nicholls D, et al. Body mass index cut offs to define thinness in children and adolescents: international survey. *BMJ* 2007; 335: 194-7.
 29. Hambleton RK, Merenda PF, Spielberg CD. Adapting educational and psychological tests for cross-cultural assessment. London, Erlbaum, 2005.
 30. International Test Commission. International Test Commission Guidelines for Translating and Adapting Tests. <http://www.intestcom.org/upload/sitefiles/40.pdf> 2010.
 31. Rosenberg M. Society and the adolescent self-image. Princeton, Princeton University Press, 1965.
 32. Martín-Albo JM, Nuñez JL, Navarro JG, et al. The Rosenberg Self-Esteem Scale: translation and validation in university students. *Span J Psychol* 2007; 10: 458-67.
 33. Garner DM, Olmstead MP, Polivy J. Development and validation of a multidimensional eating disorder inventory for anorexia nervosa and bulimia. *Int J Eat Disord* 1983; 2: 15-34.
 34. Garner DM. *Inventario de trastornos de la conducta alimentaria*. Madrid, Tea Ediciones, S.A., 1998.
 35. Maloney MJ, Mcguire JB, Daniels SR. Reliability testing of a children's version of the Eating Attitude Test. *J Am Acad Child Adolesc Psychiatry* 1988; 27: 541-3.
 36. Sancho C, Asorey O, Arijia V, et al. Psychometric characteristics of the children's eating attitudes test in a Spanish sample. *Eur Eat Disord Rev* 2005; 13: 338-43.
 37. Jackson DL, Gillaspay JA, Purc-Stephenson R. Reporting practices in confirmatory factor analysis: an overview and some recommendations. *Psychol Methods* 2009; 14: 6-23.
 38. Schreiber JB, Nora A, Stage FK, et al. Reporting structural equation modeling and confirmatory factor analysis results: a review. *J Educ Res* 2006; 99: 323-37.
 39. Nunnally JC, Bernstein IJ. *Psychometric theory*, 3rd ed. New York, McGraw-Hill, Inc., 1994.
 40. Cohen J. *Statistical power analysis for the behavioral sciences*, 2nd ed. Hillsdale, Erlbaum, 1988.
 41. Graham JW. Missing data analysis: making it work in the real world. *Annu Rev Psychol* 2009; 60: 549-76.
 42. Rubin DB. *Multiple imputation for non response in surveys*. New York, Wiley, 1987.
 43. Ibrahim JG, Molenberghs G. Missing data methods in longitudinal studies: a review. *Test* 2009; 18: 1-43.
 44. Schafer JL, Graham JW. Missing data: Our view of the state of the art. *Psychol Methods* 2002; 7: 147-77.
 45. Streiner DL. Being inconsistent about consistency: When coefficient alpha does and doesn't matter. *J Pers Assess* 2003; 80: 217-22.
 46. Haines J, Neumark-Sztainer D. Prevention of obesity and eating disorders: a consideration of shared risk factors. *Health Educ Res* 2006; 21: 770-82.

APPENDIX

Spanish version of the Perception of Teasing Scale (POTS-S)

Las siguientes preguntas deben ser contestadas respecto al período de tiempo que comprende de los 5 años al momento actual.

Primero, puntúa con qué frecuencia crees que has sido víctima de burlas (usando la escala que va de *nunca* a *muy a menudo*).

Segundo, a no ser que hayas contestado *nunca* a una pregunta, puntúa cómo de disgustado/a te sentiste por la burla (de *no disgustado/a* a *muy disgustado/a*).

1.	La gente hacía bromas sobre ti porque estabas gordo/a.	Nunca 1	2	A veces 3	4	Muy a menudo 5
1a.	¿Cómo de disgustado/a te sentiste?	Nada disgustado/a 1	2	Algo disgustado/a 3	4	Muy disgustado/a 5
2.	Cuando intentabas hacer deporte la gente se reía de ti porque estabas gordo/a	Nunca 1	2	A veces 3	4	Muy a menudo 5
2a.	¿Cómo de disgustado/a te sentiste?	Nada disgustado/a 1	2	Algo disgustado/a 3	4	Muy disgustado/a 5
3.	La gente te llamaba cosas como "gordinflón/ona".	Nunca 1	2	A veces 3	4	Muy a menudo 5
3a.	¿Cómo de disgustado/a te sentiste?	Nada disgustado/a 1	2	Algo disgustado/a 3	4	Muy disgustado/a 5
4.	La gente te señalaba porque tenías sobrepeso	Nunca 1	2	A veces 3	4	Muy a menudo 5
4a.	¿Cómo de disgustado/a te sentiste?	Nada disgustado/a 1	2	Algo disgustado/a 3	4	Muy disgustado/a 5
5.	La gente se reía de ti repitiendo algo que habías dicho porque pensaban que era una tontería.	Nunca 1	2	A veces 3	4	Muy a menudo 5
5a.	¿Cómo de disgustado/a te sentiste?	Nada disgustado/a 1	2	Algo disgustado/a 3	4	Muy disgustado/a 5
6.	La gente se reía de ti porque tenías miedo de hacer alguna cosa.	Nunca 1	2	A veces 3	4	Muy a menudo 5
6a.	¿Cómo de disgustado/a te sentiste?	Nada disgustado/a 1	2	Algo disgustado/a 3	4	Muy disgustado/a 5
7.	La gente decía que te comportabas como un/a tonto/a.	Nunca 1	2	A veces 3	4	Muy a menudo 5
7a.	¿Cómo de disgustado/a te sentiste?	Nada disgustado/a 1	2	Algo disgustado/a 3	4	Muy disgustado/a 5
8.	La gente se reía de ti porque no entendías algo.	Nunca 1	2	A veces 3	4	Muy a menudo 5
8a.	¿Cómo de disgustado/a te sentiste?	Nada disgustado/a 1	2	Algo disgustado/a 3	4	Muy disgustado/a 5
9.	La gente se reía de ti porque no entendías una broma.	Nunca 1	2	A veces 3	4	Muy a menudo 5
9a.	¿Cómo de disgustado/a te sentiste?	Nada disgustado/a 1	2	Algo disgustado/a 3	4	Muy disgustado/a 5