

BODY SHAPE AND EATING DISORDERS IN A SAMPLE OF STUDENTS IN THE BASQUE COUNTRY: A PILOT STUDY

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The goal of this study is to look into the relationship between dissatisfaction with one's body shape and symptoms of eating disorders in a sample of students in the Basque Country. A sample of 969 students, aged 11 to 18, of which 508 were female and 461 male, was assessed with the Body Shape Questionnaire (Cooper, Taylor, Cooper and Fairburn, 1987), the Eating Attitudes Test (Garner and Garfinkel, 1979), and the Body Dissatisfaction Scale of the Eating Disorders Inventory (Garner, Olmstead and Poolivy, 1983). Results show that prevalence of eating disorder symptoms is 7.1% in females and 2.4% in males. Concern over body shape appears in 32% of females, increasing with age, and 8.9% of males. There is a positive relationship between body shape concern and body weight irrespective of gender. Results confirm previous research and reaffirm the need to systematically assess these features both in pre-adolescent and adolescent populations, with a view to designing prevention campaigns.

Objetivo. Estudiar el grado de insatisfacción con la imagen corporal (IC) y los síntomas de trastornos alimentarios (TA) en estudiantes del país vasco. Método. Una muestra intencional formada por 969 estudiantes de 11-18 años, 508 chicas y 461 chicos, cumplieron el Body Shape Questionnaire (Cooper, Taylor, Cooper y Fairburn, 1987), el Eating Attitudes Test (Garner y Garfinkel, 1979) y la escala de insatisfacción corporal del Eating Disorders Inventor (Garner, Olmstead y Polivy 1983). Resultados. La prevalencia de síntomas de trastornos alimentarios hallada es del 7,1 % de las chicas y el 2,4% de los chicos. La preocupación por la imagen corporal aparece en el 32,5% de las chicas, aumentando con la edad, y el 8,9% de los chicos. En ambos sexos la relación entre la preocupación por la IC y el índice de masa corporal (IMC) es positiva. Discusión. Estos resultados confirman estudios anteriores y reafirman la necesidad de evaluar sistemáticamente estos aspectos en la población preadolescente y adolescente, cara a realizar campañas de prevención.

Schilder (1958) defined body image as "the three-dimensional mental representation that each person has of oneself." This image is continually constructed and determines a physical, psychological and social gestalt. Slade (1988) defines body image as "the picture we have in our mind of the size, outline and shape of our body and the feelings we have about these characteristics and parts that make them up." Body shape includes the following components: cognitive (thoughts and beliefs about the body), perceptual (tactile, kinaesthetic, proprioceptive, visual, olfactory, auditory), affective (feelings about one's own body), behavioural and social.

The development of body image is influenced by events affecting the body (accidents, illnesses, sexual abuse), relationships with others, self-esteem and socialization.

According to Gardner (1996), body image includes two components: one perceptual, which refers to estimation of size and appearance, and another attitudinal, which relates to feelings and attitudes towards one's own body. Cash (1994) distinguishes three dimensions in attitudes towards the body: a) evaluation (e.g., body satisfaction, cognitive appreciation and evaluative thoughts that derive from discrepancies with the ideal self); b) cognitive-behavioural factors (e.g., schemata about one's appearance, strength of internalized ideas about physical appearance), c) affect (e.g., situational dysphoria about body image).

Body distortion refers to the discrepancy between perception of and beliefs about one's figure and the observable reality. Body dissatisfaction refers to discomfort with one's own body. Garner and Garfinkel (1981) point out that alterations in body image involve two aspects that are

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related but different: perceptual distortion of the figure that leads to overestimation of the parts of the body, and the cognitive-affective alteration associated with dissatisfaction and worry with regard to one's figure.

Body image disorder includes perceptual, affective and cognitive aspects, and is defined as an exaggerated preoccupation with some imaginary or overestimated defect in physical appearance. This leads to having a low opinion of one's own appearance, worrying excessively about the opinion of others and believing that one is inadequate, and that one cannot be loved due to one's physical appearance. Thus, people with body image disorders will tend to "hide" their bodies, submit them to dieting and exercise and avoid social relationships. As Hutchinson (1982) points out, body image refers to the description of the body where body, mind and culture meet. It is the space that brings together thoughts, feelings, perceptions, attitudes, values and judgements about our body.

Preoccupation with weight in the female population should not be considered a body image disorder, since western culture encourages women to be uncomfortable with their figure, resulting in the development of a discredited body image in a very high percentage of women, some of whom will have a body image disorder. Cash and Henry (1995) found that 48% of adult women evaluated their appearance negatively, 63% were dissatisfied with their weight and 49% were worried about being overweight. Distortion of body figure is only a symptom of body image, which is a multidimensional problem involving perceptual, attitudinal and behavioural alterations (Garfinkel and Garner, 1982; Cash and Brown, 1987).

The magnitude of the discrepancy between self-perception of one's body and internalized ideas about it are associated with body dissatisfaction and eating disorders (ED) (Jacobi and Cash, 1994; Strauman and Glenberg, 1994; Cash and Szymanski, 1995). Bruch (1962) stressed that in patients with eating disorders, their perception of their own body does not coincide with reality. Cash and Brown (1987) and Cooper and Taylor (1988) found overestimation of figure size in patients with ED, especially those with bulimia nervosa, though such overestimation was also found, to a lesser extent, in the control group, which is attributed by Rodin, Silberstein and Striegel-Moore (1985) to the influence of culture. Patients with ED present greater discrepancies with the ideal self than control patients, and place excessive emphasis

on weight and appearance in self-judgements (Cash and Deagle, 1997). In Spain, several studies show the incidence of eating disorders and body dissatisfaction in young people (Toro, Castro, García, Pérez and Cuesta, 1989; Raich, Deus, Muñoz, Pérez and Requena, 1991a, 1991b; Raich et al., 1992; Martínez, Toro, Salamero and Blecuá, 1993; Rodríguez, 1997; De Gracia, Marcó, Fernández and Juan, 1999; Toledo et al., 1999)

The objective of this study is to detect degree of body dissatisfaction in relation to body image and ED symptoms in a non-representative sample of students in the Basque Country. The present work is an exploratory epidemiological study, with statistical significance, that forms part of a more extensive study currently in progress.

METHOD

Sample

The sample was of an intentional non-probabilistic type, and was taken from the populations of four municipalities in Guipúzcoa, a province of the Basque Country (San Sebastián, Hernani, Lasarte and Zarauz). The choice of municipalities was incidental, and the sample was obtained by the cluster sampling method. The number of schools from which the sample was taken was 5, of which 4 were public and 1 private (that of San Sebastián). In two of the schools (San Sebastián and Lasarte) the questionnaires were filled out in Spanish, and in the other three (the two in Hernani and the one in Zarauz) in Euskera (the Basque language). The total sample was made up of 1023 subjects and the definitive one, after elimination of those subjects that did not answer all the items, comprised 969 subjects: 508 girls and 461 boys. The sample that filled out the BDS (EDI-2) questionnaire and was evaluated reliably in the Body Mass Index (BMI) was made up of 330 girls and 336 boys.

Instruments

- Sociodemographic variables: measured using an ad hoc scale that included the following variables: age, sex, school year, school, subjects studied, municipality, weight and height. We obtained BMI (weight in kg/height in m²), classified in the following categories: normal (20-25), underweight (<19.9, >17), severe underweight (<17), overweight (>25-30), moderate obesity (>30-40) and severe obesity (>40).

Although in subjects under 13 years of age the BMI does not have the same value as in adult subjects, after consulting endocrinologists and dieticians in the Basque Country we were recommended to use this criterion in our young subjects, as these professionals do in their clinical practice, since the weight-age tables provided by some pharmaceutical laboratories are quite old, and unsuitable for today's population.

- Eating Attitudes Test (EAT) (Garner and Garfinkel, 1979). This is a self-applied test with 40 items evaluating attitudes, feelings and preoccupations in relation to food, weight and exercise. The cut-off point used is 30. On comparing boys and girls we eliminated item 23, as it referred to menstruation, and would distort the results. On comparing the positive cases we used two cut-off points, 30 and 29, following the two options found in the literature. Since we found no consensus among authors on which cut-off point to use with boys, we employed two criteria to categorize positive cases: 30 and 27 (on eliminating the maximum score of the item referring to menstruation), with a view to facilitating comparison of our results with those of other studies.
- Body Shape Questionnaire (BSQ) (Cooper, Taylor, Cooper and Fairburn, 1987). Self-applied questionnaire with 34 items. It is used to evaluate fear of putting on weight, feelings of low self-esteem because of one's appearance, the desire to lose weight and body dissatisfaction. Following Cooper and Taylor (1988), we classified the scores in 4 categories: not worried about body shape <81, slightly worried = 81-110, moderately worried = 111-140, extremely worried >140. This scale is designed to be applied with females, but for our study we have adapted it for use with males also.
- Body Dissatisfaction Scale (BDS) of the Eating Disorder Inventory-2 (EDI-2) (Garner, 1998), with 9 items. In this scale we did not use a cut-off point.

Procedure

The first step was to make contact with the schools and inform of them of the study's objectives. After obtaining authorization from the school, the parents and the pupils, the questionnaire application sessions were arranged. The questionnaires were distributed individually in the classroom by members of the research team, after they had given an explanation of their content and cleared up any doubts. The researchers remained in the classroom,

dealt with any problems arising and checked that the questionnaires had been filled out correctly as they were handed in. The order of administration of the questionnaires was as follows: sociodemographic variables, EAT, BSQ, and BDS of the EDI-2.

Statistical analyses

We first carried out descriptive analyses of some socio-demographic variables and scores in the tests used. We studied the internal consistency of each test and the correlations between them. Subsequently, we carried out variance and covariance analyses, chi-squared, correlations and t-tests for comparing different groupings of the sample.

RESULTS

Reliability of the questionnaires

The internal consistency index of the BSQ, obtained by means of Cronbach's alpha coefficient, was $\alpha = .97$ for girls, and $\alpha = .96$ for boys, the same as that found by Mora and Raich (1993) with students, and similar (.93) to that of the instrument's authors (Cooper et al., 1987). As far as the EAT is concerned, Cronbach's alpha for the girls was $\alpha = .87$, and for the boys, $\alpha = .79$. The alpha coefficient obtained with the BDS of the EDI-2 was, for girls, $\alpha = .89$, and for boys, $\alpha = .87$. Convergent validity was measured by correlating total scores in the BDS with those of the EAT. For girls, a correlation of $r = .67$ ($p = .000$) was obtained, and for boys, $r = .58$ ($p = .000$) (the authors of the questionnaire obtained .61 with students and .35 with bulimia patients, while Mora and Reich obtained .71). We also correlated the BSQ with the BDS subscale of the EDI-2, obtaining a correlation for girls of $r = .64$ ($p = .000$) and for boys, of $r = .44$ ($p = .000$). Cooper et al. (1987) obtained .66 with bulimia patients, and Mora and Raich (1993) obtained .78. Finally, on correlating the EAT with the BDS subscale of the EDI-2, we found $r = .35$ ($p = .000$) in girls and $r = .44$ ($p = .000$) in boys. Gross, Rosen, Leitenberg and Willmuth (1986) found .50.

Descriptors

The distribution of the sample by schools and ages can be seen in Tables 1 and 2.

With regard to the percentages of pathological cases in the EAT and the different categories of the BSQ, we can see in Table 3 that 7.15% of girls and 2.4% of boys present ED symptoms, but if we lower the cut-off point to 27 in

the boys, due to the elimination of item 23, we find 20 (4.35%) cases with ED symptoms. Table 4 shows that 32.5% of the girls and 8.9% of the boys are worried about body image (BSQ>80), with moderate or extreme levels of concern in 16.8% of the girls and 4.4% of the boys.

Comparisons by sex

The differences in the BSQ and EAT categories between boys and girls are statistically significant: EAT, with cut-off point at 30, chi-squared = 11.570, df 1, $p = .001$; with the cut-off point at 29 the results did not differ. BSQ, chi-squared = 81.708, df 3, $p = .000$. On comparing the sexes in two categories of the BSQ (<111/>110), no concern/mild concern against moderate/extreme concern, we found a significant difference between the sexes, chi-squared = 38.29, df 1, $p = .000$. We observed the same on comparing the two groups in the means (eliminating item 23), as Table 5 shows. The EAT with the 40 items shows in girls a mean of 13.39 (s.d. = 12.13).

On comparing by sexes the possible "criterion items" of anorexia and bulimia nervosa, we found significant differences, with higher scores in girls, for the items: 4

("I am terrified about being overweight"), 15 ("I'm pre-occupied with a desire to be slimmer"), 25 ("I'm pre-occupied with the thought of having fat on my body"), 28 ("I take laxatives"), 37 ("I engage in dieting behaviour"); there were no significant differences in the items: 7 ("I have gone on eating binges"), 13 ("I vomit after I have eaten"), 30 ("I eat diet foods") and 40 ("I have the impulse to vomit after meals"). There were no differences in the items referring to binge eating and vomiting, while those relating to worry over one's weight and the use of laxatives differed between the sexes, with girls scoring higher.

	Boys		Girls	
	n	%	n	%
San Sebastián	196	38.6	218	47.3
Hernani 1	49	9.6	48	10.4
Hernani 2	63	12.4	39	8.5
Zarauz	22	4.3	32	6.9
Lasarte	178	35.0	124	26.9
Total	508	100.0	461	100.0

	Boys		Girls	
	n	%	n	%
11	35	6.9	44	7.5
12	54	10.6	52	11.3
13	49	9.6	53	11.5
14	62	12.2	60	13.0
15	82	16.1	84	18.2
16	120	23.6	103	22.3
17	90	17.7	53	11.5
18	22	4.3	18	3.9
Total	508	100.0	461	100.0

EAT	Boys		Girls	
	n	%	n	%
<31	472	92.9	450	97.6
>30	36	7.1	11	2.4
>27			20	4.3
Total	508	100.0	461	100.0

EAT = Eating Attitude Test.

BSQ	Boys		Girls	
	n	%	n	%
<81	343	67.5	419	90.9
81-110	80	15.7	21	4.6
111-140	47	9.3	15	3.3
>140	38	7.5	5	1.1
Total	508	100	460	99.8

BSQ = Body Shape Questionnaire

	Sex	n	Mean	S.D.	E.t.	t	df	Sig.
EAT	girl	508	12.41	11.95	.53	2.014	930.600	.044
	boy	461	11.06	8.85	.41			
BSQ	girl	508	73.46	35.63	1.58	12.759	892.005	.000
	boy	460	48.80	23.87	1.11			
BDS (EDI-2)	girl	330	9.08	7.75	.43	8.091	627.968	.000
	boy	336	4.68	6.18	.34			

EAT = Eating Attitude Test; BSQ = Body Shape Questionnaire; BDS (EDI) = Body Dissatisfaction Scale of the Eating Disorders Inventory

Comparison according to the Body Mass Index (BMI)

On comparing means in the BSQ between the groups constituted according to BMI category (normal, low weight, severe underweight and overweight), we found significant differences between the groups in girls (see Table 7). On carrying out multiple comparisons with the Scheffé test we found that in the BSQ there were significant differences for the normal weight group compared to those with low weight ($p = .000$), severe underweight ($p = .000$) and overweight ($p = .000$). The highest score was in overweight, followed by normal weight. Significant differences also appeared between low weight and overweight ($p = .033$), and between overweight and severe underweight ($p = .002$). In the boys we also found significant differences between groups (see Table 7): between normal BMI and low weight ($p = .021$), between low weight and overweight ($p = .024$) and between overweight and severe underweight ($p = .043$). In both boys and girls, the higher the BMI, the greater the body dissatisfaction.

On analyzing the relationship between BMI and body image dissatisfaction evaluated with the BDS (EDI-2), we found results similar to those found with the BSQ: in girls, $F(3, 329) = 11.79, p = .000$, and in boys, $F(3, 332) = 6.935, p = .000$. The differences are between the following groups: in girls, between normal weight and low weight ($p = .002$), normal weight and severe underweight ($p = .000$), and between overweight and severe underweight ($p = .003$); in boys, between normal weight and low weight ($p = .002$), and between low weight and overweight ($p = .019$). In both sexes we found that the higher the BMI, the greater the body dissatisfaction. On carrying out the same analyses with the EAT we found that there was no relationship between BMI and EAT score.

In order to determine whether BMI influenced EAT, BSQ and BDS (EDI-2), we carried out covariance analyses separately for each scale (EAT, BSQ and BDS of the EDI-2), with sex as independent variable and BMI as covariable. After confirming that the interaction effect "sex X covariable" was non-significant and eliminating the interaction term, the BMI was found to be significantly related to the BSQ and the BDS (EDI-2). After adjusting for the covariable BMI, we found that there were no significant differences in the EAT between sexes. In the BSQ and BDS (EDI-2), after controlling the BMI, we continued to find significant differences

between the sexes: BSQ, $F(1, 662) = 158.84, p = .000$ and an effect size of .194; BDS (EDI-2), $F(1, 662) = 96.09, p = .000$ and an effect size of .127. We also checked correlations between BSQ, EAT and BDS (EDI-2) with BMI, finding a positive correlation between BMI and BSQ ($r = .21, p = .000$) and between BMI and the BDS of EDI-2 ($r = .21, p = .000$).

Table 6
Comparison by sex of "criterion items" of anorexia and bulimia nervosa of the EAT

	Sex	n	Mean	S.D.	E.t.	t	df	Sig.
EAT04	girl	508	.67	1.09	.48	7.458	883.16	.000
	boy	461	.23	.72	.33			
EAT15	girl	508	.40	.91	.40	5.665	842.33	.000
	boy	461	.13	.54	.25			
EAT25	girl	508	.61	1.06	.47	6.394	905.25	.000
	boy	461	.24	.73	.34			
EAT28	girl	508	.09	.09	.43	-2.518	967	.012
	boy	461	.05	.36	.16			
EAT37	girl	508	.17	.58	.25	3.338	832.53	.001
	boy	461	.06	.34	.15			
EAT07	girl	508	.17	.56	.24	-.334	967	.738
	boy	461	.18	.61	.28			
EAT40	girl	508	.05	.29	.12	.936	967	.350
	boy	461	.03	.32	.14			
EAT13	girl	508	.01	.18	.80	-1.666	682.03	.096
	boy	461	.04	.35	.16			
EAT 30	Girl	508	.12	.49	.21	1.738	950.84	.083
	boy	461	.06	.39	.18			

EAT = Eating Attitude Test

Table 7
Comparison by sex in the BSQ by Body Mass Index categories

Girls	n	M	S.D.	df	F	Sig.
BMI						
Normal (>20<25)	37	84.55	38.14			
Underweight (17-19.9)	164	64.53	30.23			
Overweight (>25<30)	6	105.50	20.75			
Severe underweight <17	23	46.30	19.05			
Total	330	72.32	35.28			
				3	16.022	.000
Boys	n	M	S.D.	df	F	Sig.
BMI						
Normal (>20<25)	173	51.66	23.60			
Underweight (17-19.9)	108	43.48	15.80			
Overweight (>25<30)	26	57.88	31.49			
Severe underweight <17	29	41.38	10.83			
Total	336	48.63	21.77			
				3	6.033	.001

BSQ = Body Shape Questionnaire

Comparison by schools

On comparing the EAT, BSQ and BDS (EDI-2) scores between the different schools, we found that, in boys, there were significant differences between schools, $F(3, 332) = 11.181, p = .000$; body dissatisfaction was significantly greater in the Hernani schools compared to the San Sebastián school ($p = .000$ and $p = .003$). In the Lasarte school this questionnaire was not administered. In girls, we also found significant differences for the BSQ, $F(4, 503) = 3.256, p = .012$, but on applying the post hoc Scheffé test we found only a tendency to significance ($p = .063$) in the difference between the San Sebastián school (with lower score in the BSQ) and one of the Hernani schools.

Comparison by age

On comparing the means for EAT, BSQ and BDS (EDI-2) between ages, separating the sexes, we found that, in girls, there are statistically significant differences in the BSQ, $F(7, 500) = 7.313, p = .000$. On carrying out the Scheffé post hoc test we found that these differences are between subjects aged 11 and those aged 15 ($p = .03$), 16 ($p = .001$), 17 ($p = .001$) and 18 ($p = .02$), and between those aged 12 and those aged 16 ($p = .01$) and 17 ($p = .01$). As age increases, so does concern over appearance. In the BDS (EDI-2) we also found statistically significant differences, $F(7, 322) = 3.599, p = .001$; however, on carrying out the post hoc Scheffé test we found only a tendency to significance between those aged 11 and 18 ($p = .055$), with greater worry at age 18. In boys we found statistically significant differences in the BDS

(EDI-2), $F(7, 328) = 2.530, p = .01$, but on carrying out the post hoc Scheffé test we did not find significant differences.

On studying the scores in the three tests, separating the sexes and comparing the different ages by pairs, following chronological order (10-11, 11-12, 12-13, etc.), we found that in boys there were significant differences between those aged 13 and those aged 14, with higher scores in the 13-year-olds in the EAT, BSQ and BDS (EDI-2). In the girls, in contrast, we found only one significant difference in the EAT: they scored higher at age 14 (the highest mean of all ages) than at age 13 (the lowest mean of all ages); we also found a tendency to significance in the BSQ (see Table 8).

On comparing the boys aged 14 and 15, significant differences appear in the BDS (EDI-2) ($t = 2.600, df 50.03, p = .012$); the lowest mean of all ages is for 14-year-olds and the highest for those aged 15. In girls, the difference appears between age 11 and 12, with 12-year-olds scoring higher in the BSQ than 11-year-olds ($t = 2.184, df 81, p = .032$). In the rest of the age pairs no significant differences were found.

Finally, we made correlations between age and EAT, BSQ and BDS (EDI-2), finding, in girls, positive correlations between age and BSQ ($r = 2.94, p = .000$) and between age and BDS (EDI-2) ($r = 2.63, p = .000$), that is, as age increases, so does worry about physical appearance. In boys, on the other hand, we found only a negative correlation between age and EAT ($r = -1.47, p = .002$), that is, the younger the boys, the more inappropriate the eating behaviour.

DISCUSSION

The reliability and validity of the scales obtained, similar to that of other studies, shows that they are suitable instruments for carrying out cross-cultural studies, though disparity in the cut-off points makes it difficult to make comparisons between them.

The results of this study show a percentage of cases with anomalous eating behaviours, susceptible to constituting an ED (7.1% of the girls and 2.4% of the boys), similar to that found by Raich et al. (1991b) and lower than those found by Carbajo, Canals, Fernández-Ballart and Doménech (1995) and by Santonastaso et al. (1996) (11%). Toro et al. (1989) found a percentage higher than ours in girls (9.8%) and lower in boys (1.2%). ED symptoms are more frequent in girls, as was found in other studies carried out in Spain (Toro et al., 1989; Raich et

Table 8

Comparison by sex in EAT, BSQ and BDS (EDI-2) for ages 13-14

Girls	age	n	Mean	E.t.	t	df	Sig.
EAT	14	62	15.84	1.31	2.781	102.239	.006
	13	49	11.43	0.89			
BSQ	14	62	73.21	4.01	1.966	109	.052
	13	49	62.31	3.63			
Boys	age	n	Mean	E.t.	t	df	Sig.
EAT	14	60	10.03	.67	-2.549	88.766	.013
	13	53	13.23	1.06			
BSQ	14	60	43.42	2.13	-2.634	75.523	.010
	13	53	56.28	4.40			
BDS (EDI)	14	44	2.25	0.49	-2.719	81.245	.008
	13	53	4.94	0.86			

EAT = Eating Attitude Test; BSQ = Body Shape Questionnaire; BDS (EDI-2) = Body Dissatisfaction Scale of the Eating Disorders Inventory-2.

al., 1991b; Carbajo et al., 1995; Toledo et al., 1999) and in other countries (Rosen, Silberg and Gross, 1988; Ledoux, Choquet and Flament, 1991; Raich et al., 1992; Wood, Waller, Miller and Slade, 1992; Buddeberg-Fisher, Bernet, Sieber, Schmid and Buddeberg, 1996). Likewise, the mean scores in the EAT in our study are higher in girls than in boys.

The means found in the present work in the EAT (12.41 (s.d. = 11.95) in girls and 11.06 (s.d. = 8.85) in boys) are lower than those of other studies (Garner and Garfinkel, 1979; Leichner, Arnett, Rallo, Srikaneswaran and Vulcano, 1986; Raich et al., 1991b; Carbajo et al., 1995; Santonastaso et al., 1996). However, they are somewhat higher than those of the study by Gross et al. (1986), who found a mean of 11.5 (s.d. = 7.5) in girls. In the study by Toro et al. (1989), the mean in girls (16.1) is higher than that of our study, but that of boys (11.4) is similar to ours. Age of subjects in the studies by Toro et al. (1989) and Leichner et al. (1986) is similar to those of our sample, so that the differences are probably due to cultural factors.

Girls scored significantly higher than boys in the EAT items referring to worrying about one's weight and figure, which influences inappropriate eating behaviours. These results are similar to those of Raich et al. (1991b), though these authors found significant differences between the sexes in all the "criterion items" except item 28 (use of laxatives).

By ages, mean scores in the EAT are highest at age 14 in girls and age 11 in boys. In positive percentages of EAT, for girls this is highest at age 16 (10.8%) and for boys at age 11 (5.3%). These data show that the age at which there is most possibility of presenting an eating disorder is earlier in boys – a fact that should be taken into account in preventive programs.

In the BSQ, our means (73.46; s.d. = 35.63) in girls are lower than those of the studies by Cooper et al. (1987) (mean = 81.5; s.d. = 28.4) and Bunnell, Cooper, Hertz and Shenker (1992) (mean = 91.8; s.d. = 36.2), and quite similar to those of the study by Munford, Whitehouse and Platts (1991) with students from the Far East (mean = 70.5; s.d. = 34.2) and Caucasian students (mean = 70.5; s.d. = 31.6). The comparison with the results of Raich et al. (1991a) is not reliable because they used fewer items, though it is quite probable that, despite this bias, our means are lower. With regard to the BDS (EDI-2), our means are similar to those found by Garner (1998) in young Spaniards.

Concern about one's appearance was found in 32.5% of the girls and 8.9% of the boys, with moderate or extreme values in 16.8% of girls and 4.4% of boys. This percentage is lower than that found by Cash and Henry (1995), in whose study 48% of women valued their overall appearance negatively, 46% were dissatisfied with or worried about their weight and 51% had similar negative feelings about their body shape. De Gracia et al. (1999) found that 53.8% of adolescents reported worry over their body image. We found less preoccupation in young people from the Basque Country compared to other samples; however, these results do not permit us to suggest that there are significant differences between cultures, as the age variable is not the same in all the samples, and cut-off points vary from study to study.

Girls are more worried about and dissatisfied with their physical appearance than boys. This fact confirms that social pressure for a slim body model continues to affect girls in a more powerful way. It may also reflect the positive relationship found in Spain between advertising, a feminine aesthetic model focused on slimness and dissatisfaction with body image (Toro et al., 1989; De Gracia et al., 1999).

In both sexes we found that the greater the subject's weight, the greater the body dissatisfaction. This could be due to the culturally-imposed slimness model, and indicates that overweight is a risk factor for body dissatisfaction, and possibly for the appearance of ED.

The fact that the mean BSQ scores in girls increase with age, reaching their highest levels at age 18, appears to indicate that social pressure with regard to appearance increases with girls' age. These results for girls coincide with those of Toro et al. (1989) and previous studies (Crisp, 1984; Davies and Furhan, 1986). In boys, on the other hand, we found no relationship between age and concern over appearance, though the age with highest worry levels is 13, after which they decrease, coinciding, perhaps with the physical transformations of puberty. It may be that, in boys, muscular development and the importance given to sport in our social environment make concern about physical appearance and diet less important. These differences show once more that it is necessary to study lower age ranges in boys than in girls, when the aim is to design preventive programs.

An aspect to be taken into account is the age at which there are significant increases in the questionnaire scores. Boys aged 13 have significantly higher scores than those aged 14 in all three questionnaires. Girls score sig-

nificantly higher in the EAT at age 14 than at age 13, but concern over body image has already made a statistically significant leap at age 12, when worry is considerably greater than at age 11. Some authors have suggested that concern over body image may be a premorbid feature of the appearance of ED, since such concern favours anomalous eating behaviours (Striegel-Moore, Silberstein and Rodin, 1986). On the other hand, Cooper et al. (1987) argue that the BSQ should not be used as a measure of the detection of ED cases, but rather to evaluate an aspect of eating pathology. In our study, on using the BSQ and the EAT, we can observe that, in girls, first concern about appearance increases and subsequently there is an increase in anomalous eating behaviours, probably in an attempt to modify this unsatisfactory appearance. However, we should be cautious about this interpretation, as we found no relationship between age and the EAT. In the boys we found inappropriate eating behaviours to occur at an early age, whilst concern over appearance is not age-related.

With regard to the schools, the fact that dissatisfaction with body image was significantly greater in children from the two public schools in Hernani (Euskera), as against the private school in San Sebastián (Spanish), appears to suggest that social class and other cultural factors may be influencing body image; perhaps after the epidemiological study we can draw clearer conclusions about these differences, if they continue to be found with a larger sample.

Our results reaffirm the importance of the systematic study of eating behaviours and attitudes towards body image in pre-adolescents and adolescents, with a view to the prevention of pathologies with a high prevalence in our society.

REFERENCES

Bruch, H. (1962). Perceptual and Conceptual disturbances in anorexia nervosa. *Psychosomatic Medicine*, 24, 187-194.

Buddeberg-Fisher, B., Bernet, R., Sieber, M., Schmid, J. and Buddeberg, C. (1996). Epidemiology of eating behaviour and weight distribution in 14- to 19-year-old Swiss students. *Acta Psychiatrica Scandinavica*, 93, 296-304.

Bunnell, D. W., Cooper, P. J., Hertz, S. and Shenker, I. R. (1992). Body Shape Concerns Among Adolescents. *International Journal of Eating Disorders*, 11(1), 79-83.

Carbajo, G., Canals, J., Fernández-Ballart, J. and

Doménech, E. (1995). Cuestionario de actitudes alimentarias en una muestra de adolescentes: dos años de seguimiento. *Psiquis*, 16(4):139, 21-26.

Cash, T. F. (1994). Body-image attitudes: Evaluation, investment, and affect. *Perceptual and Motor Skills*, 78, 1168-1170.

Cash, T. F. and Brown, T. A. (1987). Body image in anorexia nervosa y bulimia nervosa: A review of the literature. *Behavior Modification*, 11, 487-521.

Cash, T. F. and Szymanski, M. L. (1995). The development and validation of the Body-Image Ideals Questionnaire. *Journal of Personality Assessment*, 65, 466-477.

Cash, T. F. and Henry, P. E. (1995). Women's body images. The results of a national survey in the U.S.A. *Sex roles*, 33, 19-28.

Cash, T. F. and Deagle, E. A. (1997). The nature and extent of Body-image disturbances in anorexia nervosa and bulimia nervosa: a meta-analysis. *International Journal of Eating Disorders*, 22, 107-125.

Cooper, P. J. and Taylor, M. J. (1988). Body image disturbance in bulimia nervosa. *British Journal of Psychiatry*, 153(2), 32-36.

Cooper, P. J., Taylor, M. J., Cooper, Z. and Fairburn, C. G. (1987). The development and validation of the Body Shape Questionnaire. *International Journal of eating disorders*, 6, 485-494.

Crisp, A. (1984). Psychopathology of anorexia nervosa. In A. J. Stunkard and E. Stellar (eds). *Eating and its Disorders*. New York: Raven Press.

Davies, E. and Furham, A. (1986). Body satisfaction in adolescent girls. *British Journal of Medical Psychology*, 59, 279-287.

De Gracia, M., Marcó, M., Fernández, M. J. and Juan, J. (1999). Autoconcepto físico, modelo estético e imagen corporal en una muestra de adolescentes. *Psiquis*, 20(1), 15-26.

Gardner, R. M. (1996). Methodological issues in assessment of the perceptual component of body image disturbance. *British Journal of Psychology*, 87, 327-337.

Garner, D. M. (1998). Inventario de trastornos de la conducta alimentaria (EDI-2). Madrid: TEA.

Garner, D. M. and Garfinkel, P. E. (1979). The eating attitudes test: An index of the symptoms of anorexia nervosa. *Psychological Medicine*, 9, 273-279.

Garner, D. M. and Garfinkel, P. E. (1981). Body image in anorexia nervosa: Measurement theory and clinical implications. *International Journal of Psychiatry and*

- Medicine*, 2 (11), 263-284.
- Garner, D. M., Olmsted, M. P. and Polivy, J. (1983). Development and validation of a multidimensional Eating Disorder Inventory for anorexia nervosa and bulimia. *International Journal of Eating Disorders*, 2(2), 15-33.
- Garfinkel, P. E. and Garner, D. M. (1982). *Anorexia nervosa: a multidimensional perspective*. New York: Bruner-Mazel.
- Gross, J., Rosen, J. C., Leitenberg, H. and Willmuth, M. E. (1986). Validity of the attitudes test and the eating disorders inventory in bulimia nervosa. *Journal of Consulting and Clinical Psychology*, 54, 875-876.
- Hutchinson, M. G. (1982). Transforming body-image: Your body, friend or foe?. *Women and Therapy*, 1, 59-67.
- Jacobi, L. and Cash, T. F. (1994). In pursuit of the perfect appearance: Discrepancies among self and ideal percepts of multiple physical attributes. *Journal of Applied Social Psychology*, 4, 379-396.
- Ledoux, S., Choquet, M. and Flamet, M. (1991). Disorders among adolescents in an unselected French population. *International Journal of Eating Disorders*, 10(1), 81-89.
- Leichner, P., Arnett, J., Rallo, J. S., Srikameswaran, S. and Vulcano, B. (1986). An epidemiologic study of maladaptive eating attitudes in a Canadian school age population. *International Journal of Eating Disorders*, 5, 969-982.
- Martínez, E., Toro, J., Salamero, M. and Blecua, M. J. (1993). Influencias sociales sobre las actitudes y conductas femeninas relacionadas con el cuerpo y la alimentación. *Revista psiquiátrica de la facultad de Barcelona*, 20, 55-65.
- Mora, M. and Raich, R. M. (1993). Adaptació del bulimia test i BSQ en una mostra universitària. Comunicació presentada en la VIII Jornada de Teràpia del Comportament i Medicina Conductual en la Pràctica Clínica. Barcelona.
- Munford, D. B., Whitehouse, A. M. and Platts, M. (1991). Sociocultural correlates of eating disorders among Asian schoolgirls in Bradford. *British Journal of Psychiatry*, 158, 229-233.
- Raich, R. M., Deus, J., Muñoz, M. J., Pérez, O. and Requena, A. (1991a). Evaluación de la preocupación por la figura en una muestra de adolescentes catalanas. *Revista de Psiquiatría de la Facultad de Medicina de Barcelona*, 18, 210-220.
- Raich, R. M., Deus, J., Muñoz, M. J., Pérez, O. and Requena, A. (1991b). Estudio de las actitudes alimentarias en una muestra de adolescentes catalanas. *Revista de Psiquiatría de la Facultad de Medicina de Barcelona*, 18 (7), 305-315.
- Raich, R. M., Rosen, J. C., Deus, J., Pérez, O., Requena, A. and Gross, J. (1992). Eating disorder symptoms among adolescents in the United States and Spain: a comparative study. *International Journal of Eating Disorders*, 11(1), 63-72.
- Rodin, J., Silberstein, L. R. and Striegel-Moore, R. H. (1985). Women and weight: A normative discontent. In T. B. Sonderegger (Ed.). *Nebraska symposium on motivation: psychology and gender* (pp. 267-307). Lincoln: University of Nebraska Press.
- Rodríguez, M. C. (1997). Distorsión de la imagen corporal como factor de riesgo para la anorexia nerviosa: un estudio comparativo. *Anales de Psiquiatría*, 13 (8), 327-331.
- Rosen, J. C., Silberg, N. and Gross, J. (1988). Eating Attitudes Test and Eating Disorders Inventory: Norms for adolescent girls and boys. *Journal of Consulting and Clinical Psychology*, 56, 305-308.
- Santoanastaso, P., Zanetti, T., Sala., Favaretto, G., Vidotto, G. and Favaro, A. (1996). Prevalence of eating disorders in Italy: A survey on a sample of 16-year-old female students. *Psychotherapy and Psychosomatics*, 65, 158-162.
- Schilder, P. (1958). *The image and appearance of the human body*. New York: International universities press.
- Slade, P. P. (1988). Body image in anorexia nervosa. *British Journal of Psychiatry*, 153 (2), 20-22.
- Strauman, T. J. and Glenberg, A. M. (1994). Self-concept and body image disturbance: Which self-beliefs predict body size overestimation? *Cognitive research and Therapy*, 18, 105-125.
- Striegel-Moore, R. H., Silberstein, L. R. and Rodin, J. (1986). Toward an understanding of risk factors in bulimia. *American Psychologist*, 41, 246-263.
- Toledo, M., Ferrero, J. Capote, J., Roger, L., Sánchez, M., Donet, E. and Tormo, E. (1999). Incidencia de comportamientos anoréxicos y bulímicos en la comunidad valenciana. *Cuadernos de Medicina Psicosomática y Psiquiatría de Enlace*, 51/52, 38-48.
- Toro, J., Castro, J., García, M., Pérez, P. and Cuesta, L. (1989). Eating attitudes sociodemographics factors and body shape evaluation in adolescence. *British Journal of Medical Psychology*, 62, 61-70.
- Wood, A., Waller, G., Miller, J. and Slade, P. (1992). The development of Eating Attitudes Test scores in adolescence. *International Journal of Eating Disorders*, 11, 279-282.