

RESEARCH ARTICLE

Relevance of Social and Self-standards in Eating Disorders

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Abstract

Objective: To compare the importance given to self/other standards by eating disorder (ED) patients and healthy controls.

Methods: A total of 392 individuals (240 consecutively referred and 152 healthy controls) took part in this study. All subjects were diagnosed according to the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision criteria and were female patients. Participants completed the Family Style, Self-Expectations and Emotional related subscales of the Cross-Cultural Questionnaire.

Results: Three domains (namely, family standards, self-achievement and physical appearance) were associated with ED. Family standards scores discriminated for the presence of an ED (area under receiver operating characteristic curve equals 0.89), the main predictors being a higher level of importance of physical appearance ($p < .001$), family standards ($p = .029$) and conflicts with parents about physical appearance ($p < .001$). Higher self-standards, in physical appearance, were more relevant in bulimia nervosa and ED not otherwise specified, whereas higher family standards were more associated with anorexia nervosa.

Conclusions: High self-standards and social standards are common features in ED. The parallelism that ED may establish between reaching them and their life success may have a crucial role as a developing and maintaining factor in ED. Copyright © 2011 John Wiley & Sons, Ltd and Eating Disorders Association.

Keywords

eating disorders; eating disorder subtypes; self-achievement; physical appearance; self-esteem; self-standards; social standards

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Published online in Wiley Online Library (wileyonlinelibrary.com) DOI: 10.1002/erv.1148

Introduction

Several environmental risk and maintaining factors have commonly been described among eating disorder (ED) subtypes (Jacobi, Hayward, de Zwaan, Kraemer, & Agras, 2004), including social and parental pressure (Klump, Wonderlich, Lehoux, Lilienfeld, & Bulik, 2002), low self-esteem and satisfaction with oneself (Cockerham, Stopa, Bell, & Gregg, 2009; Klump et al., 2002; Mendelson, McLaren, Gauvin, & Steiger, 2002; Silvera et al., 1998) high self-standards and negative social comparison (Troop et al., 2003).

Because of the complexity of these elements, various authors have suggested assessing several areas together when trying to untangle associated risk factors to EDs (Dobmeyer & Stein, 2003; Jacobi et al., 2004; Mazzeo et al., 2010). There is interest in the following: (i) whether these factors evolve more aspects within the family, society or individually and (ii) whether they differ for different ED subtypes.

High self-standards

The *social ideal self* has been the concept used to describe the act of comparing one's actual self to what oneself expect others to expect one to be (Higgins, 1987). This has been elaborated further on and is a new concept; *perceived incompetence* has been introduced to measure the feeling of being inadequate in specific life domains (Ferrier & Martens, 2008). Perceived incompetence related to ED can be measured in areas such as physical appearance, family, morality and social acceptance, and influence the body image development in young women and hence, cause a higher prevalence of ED (Cash & Deagle, 1997). Some ED researchers (Hinrichsen, Garry, & Waller, 2006; Steiner et al., 2003) suggest that a disordered concept of the *self* as in low self-esteem is a core part of the pathology (Fairburn, Cooper, & Shafran, 2003). Individuals with EDs have high self-standards but consider themselves as unsuccessful in reaching these standards (Westra & Kupier, 1996; Silva, 2007). In terms of self-concept and, in this case,

self-standards, if a person thinks of their 'actual' self differently to how they feel about their 'ideal' self, this discrepancy will lead to emotional vulnerability (Higgins, 1987). Bruch (1973) argued that a deficit in the definition of the self is one of the factors that can lead to ED. The self-standards are often founded around physical appearance and social value (Cash & Deagle, 1997; Dingemans, Spinhoven, & van Furth, 2006).

Appearance body scheme

Eating disorder patients have higher discrepancies than controls between their 'actual' and 'ideal' self in terms of body image appearance (Cash & Deagle, 1997). The body image disturbance is often associated with the severity of the distorted eating (Fernández-Aranda, Dahme, & Meermann, 1999). Two aspects of body image dysfunction are perceptual body-size distortion and body dissatisfaction (Cash & Deagle, 1997). Bulimia nervosa (BN) patients have a higher wish to be thin and have higher body dissatisfaction than anorexia nervosa (AN) patients as well as controls (Cash & Deagle, 1997). However, this is not associated to a distorted body image (Fernández, Probst, Meermann, & Vandereycken, 1994).

Social values

Controlling and perfectionist parents can lead children to expect too much from themselves and develop an ED, which, according to the literature, is developing a sense of the self through self-control (Stein, 1996). High self-standards can therefore lead to maladaptive cognitions affecting body satisfaction and self-esteem (Dobmeyer & Stein, 2003).

Maladaptive parental and peer influences, including criticism or comments related to a child's physical appearance or body weight, can lead to negative body attitudes (Rodgers & Chabrol, 2009). Agras, Bryson, Hammer, and Kraemer (2007) showed that fathers with high body dissatisfaction or high drive for thinness were more likely to have daughters developing an ED, caused by their higher thin body preoccupation (Agras *et al.*, 2007). In other words, young girls with parents who over-control their eating or put pressure to be thin are more likely to develop an ED.

High family standards often reflect sociocultural pressures, including the ideal to be thin (McCarthy, 1990). Various studies (Young, Clopton, & Bleckley, 2004) have shown that if parents highly value success and high social status, this may cause EDs because high social status often involves the ideal to be thin. Moreover, if a child is expected to achieve a physical appearance close to perfection in the parents' eyes, this may also contribute to an ED (Young *et al.*, 2004). Individuals may therefore have misconceptions about what is expected from them because their parents' expectations to be thin and beautiful are too high (Rodgers & Chabrol, 2009). Interestingly, some recent studies (Steiner *et al.*, 2003; Young *et al.*, 2004) contradicted these findings by suggesting that high family standards protects against EDs because they often involve higher family caring, involvement and less psychological distress (Young *et al.*, 2004). This may be true; however, parents that have a high drive for thinness and body dissatisfaction are more likely to project this on their children and encourage them to be thin (Agras *et al.*, 2007).

High imposed standards

According to McClelland (1967), need for achievement, power and affiliation are the main components of human motivation. The need for achieving a set of standards and being successful and, moreover, the difference between people who are motivated to perform high versus low are of value for the present hypothesis. Generally, however, individual achievement and its associations with negative body attitude and eating behaviour are rarely examined (Meyer, Leung, Barry, & De Feo, 2010; Yanover & Thompson, 2008). Presently, models of cognitive aspects of ED tend to focus on distorted cognitions regarding weight, body shape and food but most often leave other core beliefs unexplored (Fairburn, Welch, Doll, Davies, & O'Connor, 1997) such as personal inadequacy and failure to achieve, and can therefore not fully account for the development of an ED (Fairburn *et al.*, 1997).

Even though a considerable amount of work has already been accomplished in the field of individual and social risk factors for ED, it should be noted that previous studies assessing these factors have suffered from various shortcomings in terms of measuring factors concerning family style, family standards and self-standards. Studies have lacked more accurate ways, even if so measured by self-perceived measures, to study the aspects of the self, self-standards and self-perceptions. Moreover, past literature has been limited to studies of EDs in general and their associations to single topics (i.e. self-esteem, specific attitudes) but not to a more comprehensive construct that consider several topics, as in the case of this study.

Aims of the study

After considering the aforementioned shortcomings, the overall aim of the present study was to explore the relevance of social-other and self-standards in a large sample of female ED patients and healthy controls. Our objectives were fourfold: (i) to examine in more detail some of the social-other and self-standards, which may be associated with the development of a subsequent ED; (ii) to assess the level of discrepancies between one's own/others importance given to these factors and their achievement capacity when compared to ED and controls; (iii) to evaluate whether all of the previous objectives differed across ED subtypes; and (iv) and finally, to assess the association between dysfunctional standards and the presence of an ED. We hypothesized that large self-discrepancies in terms of social and self-standards would be specifically related to the development of an ED, when compared with controls, and that the results would be different for different ED subtypes.

Method

Participants

The present study employed a cross-sectional case study design using a retrospective interview. Entry into the study was between March 2001 and September 2006. The sample comprised 240 female ED patients [33.6% AN, 47.2% BN and 19.2% ED not otherwise specified (EDNOS)] and 152 female healthy controls. All clinical participants were diagnosed according to the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision (DSM-IV-TR) criteria (APA, 2000), using a semi-structured clinical interview conducted by experienced

clinicians. Clinical participants were consecutive referrals for assessment and treatment at the Department of Psychiatry of the University Hospital of Bellvitge in Barcelona.

The inclusion criteria for the ED sample were as follows: (i) female patients; (ii) over 18 years of age; and (iii) diagnosed with one of the ED disorders: AN, BN or EDNOS according to the criteria of DSM-IV-TR.

Healthy controls were recruited from the same catchment area as the clinical participants and had similar demographic features. The exclusion criteria for the control group were the following: (i) under 18 years old of age and (ii) a history of health or mental illness (including EDs) screened by the General Health Questionnaire-28 (GHQ-28) (Goldberg & Hillier, 1979) and the DSM-IV-TR criteria, respectively (APA, 2000). From an initial recruited sample of 158 controls, six participants who had a lifetime ED were excluded. Ethical approval for the study was obtained from the Ethics Committee of the University Hospital of Bellvitge, and informed consent was obtained from all the participants.

Assessment

The Family Style, Expectations and Independence section of the Cross-Cultural Questionnaire

The Cross-Cultural Questionnaire (CCQ) is a self-report questionnaire that assesses a wide range of factors related to the development and maintenance of ED (childhood eating patterns, meaning and value of food, family style, independence, social and individual standards, and social ideals of thinness and fitness). It was developed by an expert group from various European countries on the basis of the major instruments in the field of EDs, which are the Oxford Risk Factor Interview (Fairburn et al., 1997, 1998; Fairburn, Cooper, Doll, & Welch, 1999) and the McKnight Risk Factor Interview (Shisslak et al., 1999). A more detailed description of the CCQ can be found in earlier publications (Fernández-Aranda et al., 2007; Krug et al., 2008, 2009; Penelo et al., 2011).

The 'Family Style, Expectations and Independence' section used in this study includes three sets relating to social and self-standards. Fifteen life values (intelligence, professional success, independence, education, self discipline, governing own actions, being wife/husband, being mother/father, being homemaker, meeting others' needs, conformity, physical attractiveness, slimness, popularity and physical fitness) are rated in terms of importance for the individual, in terms of success for the individual and in terms of conflict with others. All these items were assessed with a five-point Likert-type scale. The questionnaire can be requested from the corresponding author.

General Health Questionnaire-28 (Goldberg & Hillier, 1979)

The GHQ-28 is a self-report questionnaire measuring psychological well-being. In the current study, the Likert scoring procedure (0–3) was used. An SPSS computer code (IBM Corporation, Somers, NY, USA) was used to score the GHQ-28, which generated new variables. A cut-off score of 6/7 (6 = *no case*; 7 = *case*) was employed for the new total subscale variables in order to exclude individuals with an elevated likelihood of a present psychiatric disorder. In previous studies, this cut-off score has yielded a sensitivity of 76.9% and a specificity of 90.2% (Molina et al., 2006).

Procedure

All patients were first assessed by experienced psychologists, and psychiatrists conducted a 2-hour structured interview to measure ED symptoms and psychopathological traits. ED diagnoses were based on this interview and were consensually derived among members of the clinical team who had participated in the assessment. Participants completed the questionnaires individually in a room prior to starting the treatment. For the control group, screening for a current or lifetime ED and/or general distress was measured by self-report with the GHQ-28 (Goldberg & Hillier 1979) and ED Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) criteria (APA, 2000). Ethics approval was obtained, and an information sheet at the start of the questionnaire informed the participants about the purpose of the study and assured confidentiality of the results.

Statistical analysis

The statistical analysis was carried out with the PASW 17 (SPSS system). A principal component analysis with direct oblimin rotation for each of the three sets of items (importance for satisfaction, level of success and level of conflict) was conducted separately with the ED cohort. Solutions based on one to five factors were considered to be final candidates. Only components with an eigenvalue higher than 1 were retained, and the Cattell's scree test for the number of factors was applied (Cattell, 1966). A minimum of 50% of the explained variance was required to select a final model, which should also explain a relevant percentage of variance in comparison with the rejected ones. Acceptable factor loading values were considered above 0.30. Furthermore, according to the criterion of parsimony, those solutions that described data in the simplest way were prioritized, and only those dimensions with a clear clinical interpretation were considered. Finally, we examined the factor congruence of the final selected models across the three sets of items through the *c* Tucker's coefficient of congruence (Tucker, 1951). Cronbach's alpha evaluated the internal consistency of the resulting scales.

After selecting the best factor models, scale scores for each dimension were obtained, calculated through the average of the corresponding items. In addition, scores for *self-discrepancy* were calculated as the difference between scores on *importance for satisfaction* and *level of success* on each item.

Scale scores were compared between cases and controls and among ED subdiagnoses with analysis of variance (ANOVA) procedures adjusted by age. The empirical factor scores were entered as independent variables in two binary logistic regressions adjusted by age: the first model included all the scale scores for importance, success and conflict derived from the principal component analysis simultaneously, and the second model also included all the self-discrepancy scale scores simultaneously. The predictive accuracy of both models on the presence of an ED diagnosis was examined with the area under curve of the receiver operating characteristic procedure. The same variables were also included as predictors in two multinomial regressions adjusted by age, and the dependent variable was the ED subtype (reference category: control group). Predictive validity for all regression models was based on Nagelkerke's R^2 coefficient.

Results

Sociodemographical and clinical features

Age did not significantly differ between the ED patients and the controls (ED cohort: $M=24.84$, $SD=5.63$; control group: $M=25.59$, $SD=5.55$; $p=.202$). The body mass index did not differ between both groups (ED cohort: $M=21.29$, $SD=5.23$; control cohort: $M=21.42$, $SD=2.62$; $p=.905$). The mean duration of the ED disorder for the ED cohort was 6.4 years ($SD=4.8$).

Results of the principal component analysis procedure

For each set of items analysed in the study (importance, success and conflict), the final solution included 10 of the initial 15 items. Table 1 contains the rotated factor loadings for the corresponding final solution of each model obtained. One factor, labelled *family standards*, included the items 'being a wife/husband', 'being a mother/father' and 'being a homemaker'. A second factor, labelled *self-achievement*, was associated with the theme of personal and professional success, and included the items 'intelligence', 'independence', 'education' and 'professional success'. Finally, a third factor, labelled *physical appearance*, included the following variables: 'physical attractiveness', 'slimness' and 'physical fitness'. The total variance explained by each model was satisfactory, with values equal to 63.26% (importance), 66.63% (success) and 63.48% (conflict).

There was a constant solution across the three sets of items of importance, level of success and level of conflict. Tucker's congruence index ranged from 0.86 to 0.97 for analogous factor pairs, and it was lower than 0.29 for non-analogous factor pairs.

Internal consistency values ranged from moderate ($\alpha=.64$ for factor 'self-achievement' in the 'level of conflict' model) to high ($\alpha=.80$ for factor 'physical appearance' in the 'level of conflict' model). These results can be valued as especially adequate considering the low number of items retained in the factors (between three and four).

Comparison between cases and controls on social and self-standards scores

Table 2 includes the mean and standard deviation of the derived scores for ED patients (cases) and controls. As mentioned earlier, these scale scores are the mean of the retained items in each factor. In the total sample (Table 2, left), ANOVA comparisons adjusted by age indicated that cases obtained higher scores in the *level of importance* given to several factors to reach life satisfaction, such as *physical appearance* ($p<.001$), *family standards* ($p=.019$) and *self-achievement* ($p=.002$), when compared with controls.

Regarding the *level of success*, cases obtained lower means on *self-achievement* ($p<.001$) than controls. In terms of *level of conflict with significant others*, cases obtained higher means in the three factors: *physical appearance*, *family standards* and *self-achievement* ($p<.001$). For the variable *self-discrepancy* (difference between importance given and how successful estimated themselves to achieve them), cases obtained lower means in all of the factors: *physical appearance* ($p<.001$), *family standards* ($p<.001$) and *self-achievement* ($p<.001$). In other words, cases estimated themselves as less successful to achieve their social and self-standards than the non-ED group.

Considering the ED subtype (Table 2, right), in the degree of *importance* section, statistical significant differences were observed

Table 1 Rotated (direct oblimin) factor loadings in principal component analysis in the clinical sample ($N=240$)

	Importance			Level of success			Level of conflict			
	F1	F2	F3	F1	F2	F3	F1	F2	F3	
Being a wife		0.81			0.85				-0.89	
Being a mother		0.82			0.82				-0.89	
Being a homemaker		0.73			0.74				-0.67	
Intelligence			0.66	0.75			0.75			
Independence			0.81	0.63	0.43		0.55			
Professional success	0.49		0.40	0.77			0.88			
Education			0.80	0.81			0.62			
Physical attractiveness	0.92					-0.84		0.80		
Slimness	0.90					-0.92		0.89		
Physical fitness	0.50					-0.64	0.41	0.53		
Correlations between factors										
F2	0.17			0.14			0.28			
F3	0.31	0.06		-0.30	-0.11		-0.40	-0.27		
Cronbach's alpha (average inter-item correlation if $\alpha<.70$)	0.71	0.72	0.72	0.76	0.76	0.71	0.72	0.64 (0.37)	0.80	
Variance explained (KMO)		63.26% (0.74)			66.63% (0.72)			63.48% (0.75)		

Factor loadings <0.40 (in absolute value) are omitted.

In bold, items retained into the factor.

KMO, Kayser-Meyer-Olkin test.

Table 2 Comparison of empirical factor scores between cases and controls, but also according to eating disorder (ED) subtype

Section	Factor	Total sample (N=392)				ED sample (N=229)					
		Controls (n=152)		ED cases (n=240)		AN (n=77)		BN (n=108)		EDNOS (n=44)	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Importance for satisfaction	Physical appearance	2.61*	0.66	3.55*	0.86	3.25*	0.85	3.75*	0.74	3.59*	1.01
	Family standards	2.78*	0.83	3.01*	1.01	3.00	1.06	2.99	0.94	3.12	1.04
	Self-achievement	3.81*	0.55	4.01*	0.64	3.92	0.68	4.04	0.60	4.07	0.69
Level of success	Physical appearance	2.53	0.67	2.35	0.94	2.39	0.81	2.26	1.06	2.58	0.87
	Family standards	2.17	1.10	1.94	0.99	1.81	1.01	1.95	0.98	2.26	1.03
	Self-achievement	3.12*	0.57	2.80*	0.80	2.74*	0.68	2.72	0.82	3.06*	0.87
Level of conflict with others	Physical appearance	1.52*	0.64	2.69*	1.04	3.00*	0.99	2.59*	1.08	2.44*	0.88
	Family standards	1.35*	0.53	1.75*	1.02	1.90	1.24	1.72	0.89	1.61	0.95
	Self-achievement	1.58*	0.62	1.95*	0.87	1.98	0.91	2.03	0.87	1.78	0.80
Degree of discrepancy	Physical appearance	0.10*	0.84	1.22*	1.28	0.89*	1.21	1.51*	1.31	1.02*	1.16
	Family standards	0.58*	1.03	1.04*	1.02	1.21	1.22	1.05	0.83	0.62	1.05
	Self-achievement	0.71*	0.68	1.21*	0.90	1.18	0.87	1.31	0.93	1.01	0.90

Results obtained in analysis of variance (ANOVA) procedures adjusted by age.

SD, standard deviation; AN, anorexia nervosa; BN, bulimia nervosa; EDNOS, eating disorder not otherwise specified.

* $p < .05$.

in *physical appearance* between the AN group (showing lower mean scores) and the rest (BN group, $p < .001$; EDNOS group, $p = .031$). For the variable *level of success*, significant differences were observed in the factor *self-achievements* between AN and EDNOS ($p = .036$) groups, BN showing the lowest mean scores. The ANOVA comparisons for the variable *level of conflict* indicated that the AN group presented higher mean scores and obtained statistically significant differences in the factor *physical appearance* when compared with BN ($p = .009$) or EDNOS ($p = .007$). In the *self-discrepancy* variable, BN rated higher than AN ($p = .001$) or EDNOS ($p = .035$) groups in the factor *physical appearance*, and differences were also observed between AN and

EDNOS ($p = .025$) group in the factor *family standards*, AN showing the lowest mean scores.

Associations between other and self-standards scores and the presence of an eating disorder diagnosis

Table 3 contains the two binary logistic regression models adjusted by age that valued the predictive accuracy of the scale scores on the presence of an ED. The CCQ model (first model, which included the three-factor measures about *importance*, *success* and *conflict as predictors*) accounted for 54.9% of the variance. In this

Table 3 Predictive accuracy value of empirical factors for an eating disorder

Section	Factor	p	OR	CI 95% OR	R^2	H-L	AUC (CI 95%)
Importance	Physical appearance	<.001	3.06	(1.81; 5.18)	.549	0.938	0.89 (0.85; 0.93)
	Family standards	.029	1.71	(1.06; 2.76)			
	Self-achievement	.053	0.53	(0.28; 1.01)			
Success	Physical appearance	.063	0.63	(0.39; 1.02)			
	Family standards	.051	0.64	(0.41; 1.00)			
	Self-achievement	.494	0.82	(0.47; 1.45)			
Conflict	Physical appearance	<.001	3.80	(2.31; 6.24)			
	Family standards	.479	0.81	(0.46; 1.44)			
	Self-achievement	.199	1.44	(0.83; 2.51)			
Degree of discrepancy	Physical appearance	<.001	2.10	(1.56; 2.83)	.267	0.165	0.78 (0.72; 0.83)
	Family standards	.158	1.23	(0.92; 1.64)			
	Self-achievement	.266	1.25	(0.84; 1.86)			

Binomial logistic regression models. Reference category: controls.

OR, odds ratio; CI, confidence interval; AUC, area under curve.

H-L, Hosmer-Lemeshow's test for goodness-of-fit.

In bold, significant coefficients (0.5 level).

Table 4 Predictive accuracy value of empirical factors on an eating disorder subtype

Section	Factor	AN			BN			EDNOS			R ²
		<i>p</i>	OR	CI 95% OR	<i>p</i>	OR	CI 95% OR	<i>p</i>	OR	CI 95% OR	
Importance	Physical appearance	.054	1.90	(0.99; 3.64)	<.001	4.88	(2.62; 9.10)	.041	2.25	(1.03; 4.88)	.532
	Family standards	.037	1.86	(1.04; 3.33)	.081	1.62	(0.94; 2.80)	.706	1.15	(0.56; 2.37)	
	Self-achievement	.064	0.46	(0.21; 1.05)	.048	0.47	(0.23; 0.99)	.600	0.76	(0.28; 2.10)	
Success	Physical appearance	.208	0.69	(0.39; 1.23)	.025	0.54	(0.32; 0.93)	.420	0.75	(0.37; 1.51)	
	Family standards	.023	0.51	(0.29; 0.91)	.274	0.75	(0.45; 1.25)	.375	0.74	(0.38; 1.45)	
	Self-achievement	.599	0.83	(0.41; 1.67)	.455	0.79	(0.42; 1.47)	.979	1.01	(0.43; 2.37)	
Conflict	Physical appearance	<.001	5.84	(3.21; 10.61)	<.001	3.02	(1.73; 5.25)	.001	3.16	(1.58; 6.31)	
	Family standards	.940	0.98	(0.51; 1.88)	.369	0.75	(0.41; 1.40)	.710	0.86	(0.39; 1.89)	
	Self-achievement	.471	1.28	(0.65; 2.52)	.102	1.68	(0.90; 3.12)	.489	1.32	(0.60; 2.91)	
Degree of discrepancy	Physical appearance	.024	1.53	(1.06; 2.22)	<.001	2.76	(1.94; 3.93)	.008	1.87	(1.17; 2.98)	.280
	Family standards	.025	1.52	(1.06; 2.20)	.442	1.15	(0.81; 1.62)	.582	0.87	(0.54; 1.42)	
	Self-achievement	.163	1.42	(0.87; 2.32)	.491	1.17	(0.74; 1.86)	.764	1.10	(0.59; 2.06)	

Multinomial logistic regression models. Reference category: controls.

AN, anorexia nervosa; BN, bulimia nervosa; EDNOS, eating disorder not otherwise specified; OR, odds ratio; CI, confidence interval.

In bold, significant coefficients (0.5 level).

CCQ model, higher levels of *importance* of *physical appearance*, *conflict with significant others* on their *physical appearance* and *importance of family standards*, and the presence of an ED were related to the presence of an ED. The self-discrepancy model (second model, which included the three self-discrepancy scale scores as predictors) accounted for 26.7% of the variance. A positive relationship was obtained between *physical appearance* and the presence of an ED. In other words, ED cases had greater self-discrepancy regarding their physical appearance and, hence, a greater probability for developing an ED.

Associations between other and self-standards scores and the presence of an eating disorder subtype

Table 4 contains the two multinomial logistic regression models adjusted by age that valued the predictive accuracy of the scale scores on the presence of a concrete ED subtype. The CCQ model accounted for 53.2% of the variance. Higher levels of *importance* of physical appearance increased the probability of BN ($p < .001$) and EDNOS ($p = .041$), with respect to controls. Moreover, the *level of success* regarding physical appearance was negatively related to developing BN ($p = .025$). In addition, higher levels of conflict with physical appearance increased the probability of developing an ED in all of the ED subtypes ($p < .001$). Considering the factor *family standards*, the *level of importance* increased the risk of developing AN ($p = .037$), whereas the *level of success* was negatively related to the presence of AN ($p = .023$). Considering the factor self-achievements, the *level of importance* was negatively related to the development of BN ($p = .048$).

Finally, in the self-discrepancy domain ($R^2 = .28$), the factor *physical appearance* was positively related to the probability of presenting AN ($p = .024$), BN ($p < .001$) or EDNOS ($p = .008$), with respect to the control group. Furthermore, higher scores in the factor *family standards* enlarged the probability of developing AN ($p = .025$).

Discussion

In accordance with our hypothesis, we found that people with ED had higher standards for *physical appearance*, *family standards* and *self-achievement* than controls. Furthermore, compared with control patients, ED patients showed higher levels of discrepancy between their values and confidence to attain them and the conflict generated with the significant others. Moreover, high social and self-standards were found to be associated with an increased probability of presenting an ED. Some of them were found to be different among the ED subtypes. Whereas higher self-standards, such as *physical appearance*, were more relevant in BN and EDNOS, higher social-other standards were more associated with AN.

Physical appearance domain

A higher importance of this domain was found in people with ED. This was present across all ED subtypes. However, the BN patients had the highest level of conflict within the family in this domain. The perceived pressure from the family to aspire to a thin body shape and weight has been reported previously (Young et al., 2004). Accordingly, in a previous longitudinal study (Agras et al., 2007), the perceived pressure from fathers to be thin caused their daughters to have higher preoccupation with thinness and social pressure to be thin, hence, higher risk for developing ED. As shown in previous reports (Cash & Deagle, 1997; Fernández-Aranda et al. 1999; Sarwer, Thompson, & Cash, 2005), BN patients have higher body dissatisfaction than other ED subtypes. This is considered to be due to a higher desire to lose weight, and the present results are also in line with previous findings of BN patients, having more difficulties in accepting their body size (Fernández et al., 1994).

Social values domain

Family standards (being a good mother, wife and housemaker) were self-perceived as more important and generated more

conflicts to ED cases than to healthy controls. As reported in previous research (Young et al., 2004), this may represent high standards and expectations as part of obsessive-compulsive personality disorder traits and perfectionism that have been commonly reported in people with ED and their families (Anderluch, Tchanturia, Rabe-Hesketh, & Treasure, 2003; Calvo et al., 2009). Higher levels of importance described to this domain increased the probability of presenting an ED.

Both the results in the physical appearance and social domain are in line with the new concept *perceived incompetence* introduced in the literature (Ferrier & Martens, 2008). The feeling of being inadequate in certain life domains is significantly different between BN and AN in terms of *physical appearance*. Interestingly, however, no significant differences were found among the ED subtypes in the social domain.

In agreement with the present results, previous studies have also demonstrated that high parental expectations may cause children to misconceive what is expected from them and lead to dysfunctional social and self-standards, which in turn may lead to larger *discrepancies* in terms of *self-concept* because of not being able to reach those unrealistic goals (Wade, Gillespie, & Martin, 2007). Frequently, it has been postulated that all of the aforementioned concepts might indirectly be influencing a later development of an ED (Cervera et al., 2003; Karwautz et al., 2001; Rodgers & Chabrol, 2009). However, nor our results or the current research design allows us to analyse in depth this temporal relationship.

Self-achievement domain

As expected, higher importance for *self-achievements* was found in ED than in healthy controls. These values were perceived to generate more conflicts and to be more difficult to reach by ED cases. Accordingly, the literature suggests that individuals with ED tend to expect too much from themselves and, hence, judge themselves as less successful (Westra & Kupier, 1996). To understand this finding, several individual and interpersonal factors, which are being frequently observed in ED, should be considered (Anderluch et al., 2003; Karwautz et al., 2001; Tchanturia et al., 2004; Wade et al., 2007): specific personality traits (such as rigidity, excessive goal orientation, more self-control and lack of flexibility), high parental standards, family overprotection, and so on. Moreover, low self-esteem may play an important role when it comes to self-achievements (Cockerham et al., 2009; Klump et al., 2002) in the sense that low self-esteem is argued to be a reflection of a distorted concept of self >>>(Hinrichsen et al., 2006; Steiner et al., 2003) and, therefore, also a reflection of a distorted view of one's self-achievements.

Self-discrepancy domain

The *self-discrepancy* for *physical appearance* was higher for ED subtypes than controls and was hence associated with a possible ED. The BN group had significantly higher scores than the other subtypes. BN groups' self-discrepancy regarding physical appearance might be higher because of the higher wish to lose weight for BN patients (Fernández-Aranda et al., 1999). Greater body weight may be the reason for a high body dissatisfaction leading to lower

body esteem (Gila, Castro, Gómez, & Toro, 2005). Once again, this ties in with the *self-discrepancy theory* and a discrepancy between actual/ideal/ought *self-concept* and the own/others *standpoint* (Higgins, 1987). Apart from *physical appearance*, the factor *family standards* in the self-discrepancy model increased the risk of ED and, specifically, AN. Perhaps, the reason why people with AN experience more discrepancy between the given importance and the level of success of their family is that the severity of AN causes greater family concern that can be misinterpreted as conflictive.

Limitations and strengths of the present study

The present study has some limitations that need to be highlighted. Firstly, the sample sizes for the ED subtypes might have been too small for such comparisons. Secondly, the retrospective and self-reported data collection procedures may have limited the validity and the reliability of our findings, which are subject to unreliability of individual recall. Finally, additional factors could have been considered to obtain more precise results regarding family and self-achievement.

A strength of the study was its aim to explore a topic not previously mentioned by the literature. No past literature has explicitly explored self and social standards as a whole in women with ED to their family, physical appearance and self-values.

Future research could expand these results and explore whether self-standards and the achievement model could be applied and useful for ED. Moreover, longitudinal designs could address self and social standards in the clinical course of EDs and how far those standards are somehow linked to the ED.

Our findings suggest that if clinical treatment of ED aims to address self-standards and self-values, these models may aid in increasing flexibility within one's own self-values, standards and future plans, and furthermore, also to consider emotional and cognitive aspects, as suggested in previous reports (Tchanturia et al., 2004). The models could be applied in cognitive behaviour therapy prevention programmes to increase self-criticism and specific values as well as in family therapy where they could help to inform not only the patient but also his or her significant others on their conditioned self-esteem. Bruch (1973) argued that ED not only is a weight problem but also has to do with 'the person within' and how one feels both physically and mentally about one's self.

In conclusion, the findings from the present study agree with the research underlining the relevance of self-values and self-standards in several domains (regarding oneself, family standards and appearance) in the presence of EDs.

Acknowledgements

Financial support was received from the European Union (Framework—V Multicenter Research Grant, QCK1-1999-916), Fondo de Investigación Sanitaria (PI081573; PI081714) and Agència de Gestió d'Ajuts Universitaris i de Recerca (2009SGR1554; FI-DGR 2008). CIBER Fisiopatología de la Obesidad y Nutrición and CIBER Salud Mental are initiatives of Instituto Salud Carlos III. This work is part of the dissertation of Katarina Gunnard at the University of Barcelona.

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