

## Parental eating disorders symptoms in different clinical diagnoses

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### Abstract

**Background:** The influence of parents can be an important variable in the development of eating disorders (EDs). However, few studies exist which simultaneously assess parents and their children, especially in different clinical groups. **Methods:** Our study examines the differences in ED symptoms as measured on the Eating Disorder Inventory (EDI), in parents and their children as patients with anorexia nervosa (AN), bulimia nervosa (BN), unspecified eating disorder (UED) and a control group (CG). **Results:** The mothers in the clinical group scored higher in ineffectiveness, interoceptive awareness, maturity fears, social insecurity and impulse regulation than the mothers in the control group. The patients' fathers scored higher on impulse regulation than those in the control group. In addition, the fathers of patients in the BN group scored higher than the fathers of patients in the UED group in body dissatisfaction. They also scored higher in impulse regulation than the fathers of patients with AN. Ineffectiveness and impulse regulation were the variables in which patients' scores were most similar to their parents. **Conclusions:** These results show the presence of ED psychological variables in both parents, not just mothers. Prevention and intervention activities for eating disorders must be designed to also give an active role to the father.

**Keywords:** parents, children, eating disorders symptoms.

### Resumen

**Síntomas parentales de trastornos de la conducta alimentaria en distintos diagnósticos clínicos. Antecedentes:** la influencia parental puede ser un importante factor en el desarrollo de los trastornos de la conducta alimentaria (TCA). Sin embargo, existen muy pocos estudios que evalúen de forma simultánea a ambos progenitores (padre y madre), así como a sus hijos y, de forma específica, que comparen grupos con diferentes diagnósticos clínicos. **Método:** este estudio analiza diferencias en síntomas de TCA medidos mediante el Eating Disorder Inventory 2 (EDI-2), tanto en padres como madres y sus respectivos hijos. Éstos se dividieron en: pacientes con diagnóstico de anorexia nerviosa (AN), bulimia nerviosa (BN), trastorno de la conducta alimentaria no especificado (TCANE) y grupo control (GC). **Resultados:** las madres de los grupos clínicos puntuaron más alto en ineficacia, consciencia introceptiva, miedo a la madurez, inseguridad social e impulsividad en comparación con las madres del grupo control. Ineficacia e impulsividad fueron las variables con mayor coincidencia entre pacientes y sus progenitores. **Conclusiones:** estos resultados ponen de manifiesto la presencia de variables de funcionamiento psicológico que podrían estar asociadas con TCA también en padres de pacientes. De esta forma, las actividades de intervención en estos pacientes deberían diseñarse para otorgar un papel activo no solo a las madres sino también a sus padres.

**Palabras clave:** padres, hijos, trastornos del comportamiento alimentario.

Parents are among the most frequently considered source of social influence on eating behaviors (Higgs & Thomas, 2016). Family influence is one of the core factors in the Tripartite Influence Model (Thompson, Covert, & Stormer, 1999). Studies investigating this model report findings such as a family effect on body dissatisfaction and restrictive and bulimic behaviors (van den Berg, Thompson, Obremski-Brandon, & Covert, 2002). Parental influence on eating behaviors may be operationalized in two categories: direct (verbal communication) or indirect (modeling). Both are significantly associated with drive for

thinness and bulimia symptoms (Abraczinskas, Fisak, & Barnes, 2012). However, the impacts of these types of effects of parental influence are inconsistent, especially in non-clinical samples (e.g. Hill & Franklin, 1998) or about variables such as body dissatisfaction (e.g. Presnell, Bearman, & Stice, 2004).

These discrepancies in findings may stem from limitations of the methods used to measure family influence and from not considering the different clinical profiles in the samples analyzed. First, few studies use direct information from parents. The results are based on participants' perceptions, which in many cases, are retrospective. At this point, it is worth noting that youths or adolescents with a higher risk can be much more sensitive to parental influence (encouragement to be thin), and may, thus, exaggerate the presence or real number of these types of behaviors. Thus, measures of parental influence based on levels of family criticism might be unreliable (Rodgers & Chabrol, 2009). Accordingly, Keery et al. (2006) found that although children's

perceptions of their mothers' behaviors were significantly related to their use of weight control behaviors, participants reported lower rates of maternal dieting than mothers. Presnell et al., (2004) found no effects of perceived family pressure to be thin on body dissatisfaction in male and female adolescents.

Second, very few studies collect differentiated and simultaneous information from fathers and mothers, usually showing results of a joint assessment (parents) (e.g. Abraczinskas et al., 2012). However, it is increasingly recognized that fathers and mothers have different roles, the mechanisms of which should be investigated (McCabe & Ricciardelli, 2003; Rodgers & Chabrol, 2009), especially when measuring the differentiated effect of mothers and fathers on eating disorders in their sons and daughters (McCabe & Ricciardelli, 2005). Thus far, most studies tend to only provide information on patients' mothers (e.g., Benninghoven, Tetsch, Kunzendorf, & Jantschek, 2007) or on the possible effects of having a mother with eating disorders (Park, Senior, & Stein, 2003).

Finally, there exist even fewer studies based on information from parents comparing samples with different clinical diagnoses. In a sample of mothers of patients with unspecified eating disorders, García de Amusquibar & De Simone (2003), reported higher scores for the bulimic factor of the Eating Attitudes Test-26, more frequent binge eating episodes, and more eating disorder symptoms than the mothers from the control group. Mothers whose daughters were considered as presenting eating disorder psychopathology (as measured by daughters reported level of eating disorders symptoms comparable with clinical samples of bulimic patients) presented more eating disorder symptoms and differed in their dieting history compared with mothers of the girls who were not considered as presenting such symptoms (Pike & Rodin, 1991). Mothers of individuals with AN presented greater perfectionism and higher levels of drive for thinness, ineffectiveness and interoceptive awareness as measured on the EDI-2 (Garner, 1991) than control groups (Woodside et al., 2002). In this later study, fathers of offspring with a restrictive AN diagnosis showed elevated perfectionism.

Given the importance in prevention and intervention of identifying parental attitudes and behaviors which may reinforce the disease, it is key to explore separately the role of fathers and mothers and the degree of influence on different eating disorders. Consequently, using the EDI-2 (Garner, 1991), this study simultaneously collected information on ED-related domains from fathers, mothers and offspring in four different diagnostic groups (anorexia nervosa: AN, bulimia nervosa: BN, unspecified eating disorder: UED, and control group).

We expect the mothers and fathers in the clinical groups to score higher on EDs symptoms than those in the control group. Due to

the characteristics of the instrument used, participants in the BN group will present higher scores on the EDI-2 (Garner, Olmstead, & Polivy, 1983). According to previous studies, this effect will be more pronounced in mothers than fathers. We also expect to find similarities in the eating disorder-related psychological variables present in parents and their offspring.

“Participants”, “Instruments”, “Procedure”y “Data analysis

Methods

Participants

The sample comprised a total of 348 participants assigned to three groups of patients from the Eating Disorders Unit at the Albacete University Hospital Complex, a control group, and their corresponding mothers and fathers, distributed as shown in Table 1. Control group consisted of volunteer participants recruited in high schools and colleges from the same metropolitan area. The patients were diagnosed using the Structured Clinical Interview for DSM-IV, Axis I Disorders. Possible participants' with addictions, intellectual disability or psychotic disorders were excluded. We also excluded 32 participants and their mothers and fathers due to omissions or mistakes in the questionnaire that could not be resolved. Although significant differences were detected between the BN group and the UED group (*Bonferroni* = 3.53, *p* = .013), the interquartile distribution of age across the groups was highly similar. A total of 50% of the cases in the AN group were aged 15-18 years, in the BN group they were aged 15-22 years, in the UED group 14 to 17 years, and 15-18.5 years in the control group. No significant differences were found in the ages of the mothers (*F*(3, 118) = 2.109; *p* = .103) or the fathers *F*(3, 110) = 1.128; *p* = .341). We also found no significant differences between groups in gender, mean school grades, family socioeconomic status or marital status of the parents. Table 2 summarizes sociodemographic variables.

Instruments

*Sociodemographic questionnaire.* We collected information on date of birth, marital status, educational level, academic results, mother's and father's occupation, onset of illness in patients, number of siblings, prior physical and mental illness, and family history of mental illness.

*Eating disorder diagnostic interview using DSM-IV criteria.* Conducted by the first author, coordinator of the Eating Disorders Unit at the University Hospital Complex (Albacete) with 20 years' experience in diagnosing EDs.

Table 1  
Sample size (n), proportion of males (%) and mean ages (standard deviation) by groups

	Offspring		Mothers		Fathers	
	n (male%)	Age(SD)	n	Age(SD)	n	Age(SD)
AN	30(13.3%)	17.4(5.27)	30	48.4(5.8)	28	49.1(7.6)
BN	30(3.3%)	19.5(5.12)	29	47.4(7.5)	24	49.4(6.6)
UED	30(3.3%)	15.9(2.23)	30	43.6(5.9)	30	46.9(6.6)
C	30(10.0%)	17.3(4.21)	29	46.0(4.7)	28	50.0(7.3)

AN = Anorexia Nervosa; BN = Bulimia Nervosa; UED = Unspecified Eating Disorders, C = Controls

Table 2  
Sociodemographic characteristics

	Anorexia nervosa	Bulimia nervosa	Unspecified eating disorder	Control group
<i>Socio-economical level (%)</i>				
High	0.0	3.3	0.0	0.0
Medium-high	10.0	20.0	20.7	16.7
Medium	36.7	36.7	48.3	43.3
Medium-low	43.3	33.3	24.1	40.0
Low	10.0	6.7	6.9	0.0
<i>Civil status (%)</i>				
Married	90.0	87.0	87.0	91.0
Separated	10.0	6.0	3.0	7.0
Divorced	0.0	4.0	7.0	0.0
Widower	0.0	4.0	0.0	2.0
With a partner	0.0	0.0	3.0	0.0

*Eating Disorders Inventory EDI-2 (Garner, 1991)*. We used an adaptation in Spanish (Corral, González, Pereña, & Seisdedos, 1998), consisting of 91 Likert-type items, the subscales of which have a Cronbach's alpha of between .83 and .93. The subscales are: drive for thinness, bulimia, body dissatisfaction, ineffectiveness, perfectionism, interpersonal distrust, interoceptive awareness, maturity fears, asceticism, impulse regulation, and social insecurity.

**Procedure**

Patients were recruited from external consultations of the Eating Disorders Unit (EDU) of the University Hospital Perpetuo Socorro in Albacete: Clinical Psychology, Psychiatry and Endocrinology. After an assessment interview, they were informed about the general characteristics of the research and were invited to voluntarily participate. Those who agreed to participate had a second meeting with the director of the EDU who informed in detail to both, patients and parents, before obtaining informed consent and sociodemographic information.

Data was finally recorded in a third meeting at the Hospital where parents and patients attended together. Instructions were provided orally and participants completed questionnaires at their own pace. Control group completed questionnaires at their own Secondary Schools under the supervision of collaborative counsellors.

**Data analysis**

To calculate the differences between groups, we conducted a two-factor partially repeated measures ANOVA for each dependent variable (EDI-2 subscales). This partially repeated measured method allows assess the relationship between response patterns for each family member. The main factor was the “diagnostic group” (AN, BN, UED, CG) while “family member” was the repeated-measure factor (patients/controls, mothers and fathers). No differences were found between Pillai's trace and Lambda of Wilks in each subscale. In this analysis, Pillai's trace was used to assess the significance of the effects. Data interpretation took into account the results of Mauchly's Test of Sphericity. When this test was significant, we obtained the levels of statistical significance by means of the Greenhouse-Geisser test. For each analysis in which the main effect and/or the interaction were significant, we conducted multiple between-group comparisons within each repeated measure patients/controls, mothers and fathers) using the Sidak correction for multiple comparisons. Finally, we obtained the effect size using the  $\omega^2$  statistic. The analyses were carried out with the Statistical Package SPSS 19.0.

**Results**

The results of the statistical analysis of the EDI-2 subscales revealed significant effects for the interaction of the intra- and inter-groups factors and medium to high effect sizes for drive for thinness, bulimia, body dissatisfaction, body image, ineffectiveness, interocopetive awareness, asceticism, impulse regulation, and social insecurity. Table 3 summarizes statistics for factors, interactions and effect sizes.

Table 3  
Statistics for factors, interactions and effect sizes

	Between subjects Factor			Within subjects Factor			Interaction		
	F	p	$\omega^2$	F	p	$\omega^2$	F	p	$\omega^2$
DT	12.26	.000	.094	48.94	.000	.179	10.02	.000	.103
B	25.31	.000	.184	30.45	.000	.105	19.99	.000	.186
BD	14.27	.000	.109	56.09	.000	.225	7.68	.000	.095
I	14.73	.000	.113	61.88	.000	.201	8.58	.000	.086
P	1.65	.182	.006	4.96	.008	.022	1.36	.234	.006
ID	5.12	.002	.037	2.95	.055	.011	2.44	.027	.025
IA	14.56	.000	.112	32.88	.000	.135	6.87	.000	.079
MF	6.23	.001	.046	7.36	.001	.038	2.03	.063	.019
A	3.97	.010	.027	16.91	.000	.080	7.31	.000	.105
IR	14.37	.000	.110	37.59	.000	.162	8.17	.000	.102
SI	13.90	.000	.107	14.51	.000	.064	4.92	.000	.057

DT: Drive for Thinness; B: Bulimia; BD: Body Dissatisfaction; I: Ineffectiveness; P: Perfectionism; ID: Interpersonal Distrust; IA: Interoceptive Awareness; MF: Maturity Fears; A: Asceticism; IR: Impulse Regulation; SI: Social Insecurity

Differences between offspring groups and control group (table 4)

On *Drive for Thinness*, patients in all the clinical groups scored significantly higher than the individuals in the CG (AN,  $p = .010$ ; BN,  $p < .001$ ; UED,  $p < .001$ ). The BN group patients scored higher than the AN ( $p = .003$ ) and UED ( $p = .003$ ) patients on this subscale. On the *Bulimia* subscale, the BN group patients obtained a significantly higher mean score compared with the controls CG ( $p < .001$ ), the AN patients ( $p < .001$ ), and the UED patients ( $p < .001$ ). The AN and UED groups, however, did not differ significantly from the CG on this subscale. With regard to *Body Dissatisfaction*, highly significant differences were found between patients in the three clinical groups and the CG (AN,  $p = .014$ ; BN,  $p < .001$ ; UED,  $p < .001$ ). *Body Dissatisfaction* was significantly higher in BN patients than in those with AN ( $p = .002$ ). Furthermore, we found significant differences between the clinical groups and the CG in *Ineffectiveness* (AN,  $p = .016$ ; BN,  $p < .001$ ; UED,  $p = .001$ ). The differences between the AN and BN groups on this subscale were also significant ( $p = .010$ ). On the *Asceticism* subscale, significant differences were found between the three groups of patients and the CG (AN,  $p = .003$ ; BN,  $p < .001$ ; UED,  $p = .001$ ). There were, however, no differences between the clinical groups. The three groups of patients were found to be significantly more impulsive than the CG (AN,  $p = .019$ ; BN,  $p < .001$ ; UED,  $p < .001$ ), and significant differences were also found between the BN and AN patients on this subscale ( $p = .002$ ).

Differences in mothers

As regards the mothers (Table 5), in the BN group, they obtained higher scores than the CG on *Ineffectiveness* ( $p = .008$ ), *Interceptive Awareness* ( $p = .034$ ), *Maturity Fears* ( $p = .002$ ) and *Social Insecurity* ( $p = .021$ ). The UED patients' mothers scored higher on *Impulse Regulation* than the CG mothers ( $p = .004$ ).

Differences in fathers

The fathers in the BN group scored higher than the fathers in the other groups. These differences were significant (Table 6)

**Table 4**  
Mean scores (SD) on the EDI-2 by clinical and control groups

Factors	AN	BN	UED	CG
DT	7.13(7.31)	13.57(6.37)e	8.67(8.37)d	1.60(1.99)a,b,c
B	1.03(2.98)	7.70(6.37)e	1.47(2.79)d	.37(.77)b
BD	10.07(8.31)	17.13(9.11)e	13.60(9.03)	3.43(3.14)a,b,c
I	7.67(7.41)	12.47(7.57)e	9.07(8.18)	1.60(1.96)a,b,c
P	4.77(3.50)	4.03(3.79)	4.97(4.45)	2.60(2.66)
ID	4.70(3.59)	4.90(4.40)	4.63(3.85)	1.80(1.85)a,b,c
IA	6.10(5.54)	10.03(6.96)e	7.80(6.48)	.73(.94)a,b,c
MF	7.73(4.09)	9.37(5.01)	9.77(5.83)	5.27(3.70)a,b,c
A	5.37(4.63)	7.03(4.55)	5.63(4.24)	1.53(1.50)a,b,c
IR	4.93(5.21)	8.77(6.96)e	7.63(6.63)	.70(1.37)a,b,c
SI	5.10(4.35)	7.63(4.89)e	5.67(4.84)	1.33(1.97)a,b,c

a: AN vs. CG; b: BN vs. CG; c: UED vs. CG; d: BN vs. UED; e: AN vs BN DT: Drive for Thinness; B: Bulimia; BD: Body Dissatisfaction; I: Ineffectiveness; P: Perfectionism; ID: Interpersonal Distrust; IA: Interoceptive Awareness; MF: Maturity Fears; A: Asceticism; IR: Impulse Regulation; SI: Social Insecurity

between the BN group fathers and the CG fathers on the *Impulse Regulation* subscale ( $p = .019$ ), and between the BN group fathers and the UED group fathers on the *Body Dissatisfaction* subscale ( $p = .016$ ). The BN group fathers also scored higher than the AN group fathers on *Impulse Regulation* ( $p = .022$ ).

Discussion

In the case of the offspring, as expected, the EDs symptoms were notably more present in all the clinical groups than in the control group. There are, however, differences between the clinical groups worth analyzing. First, we should note the high scores obtained by the BN group in almost all the subscales. This coincides with the findings of previous research based on the same questionnaire as we have used in the current study. Unikel et al. (2006) found that patients with restrictive AN had the lowest scores in all sub-scales except for Maturity Fears, while bulimia nervosa patients had the

**Table 5**  
Means scores (SD) on the EDI for the mothers of the clinical groups and the control group

Factors	AN	BN	UED	CG
DT	1.77(2.46)	3.83(3.81)	3.90(4.23)	2.97(3.09)
B	.43(1.41)	.79(1.21)	1.07(1.53)	.41(.867)
BD	5.47(5.69)	7.79(6.03)	7.50(6.34)	4.03(4.44)
I	2.53(2.96)	4.21(3.30)	2.93(2.95)	1.52(1.66)b
P	2.80(2.73)	2.72(2.12)	3.40(2.57)	2.62(2.85)
ID	3.70(3.01)	3.72(3.90)	2.60(2.39)	2.83(2.42)
IA	1.63(2.37)	4.38(4.08)	3.50(4.25)	1.17(2.07)b
MF	5.30(3.51)	8.86(5.06)	6.50(4.25)	3.76(3.07)b
A	2.40(2.59)	3.45(2.13)	3.17(2.32)	3.03(4.34)
IR	1.77(2.97)	2.62(2.72)	3.67(3.40)	1.07(1.81)c
SI	2.87(2.43)	3.93(3.05)	2.50(2.42)	2.00(1.93)b

b: BN vs. CG; c: UED vs. CG; DT: Drive for Thinness; B: Bulimia; BD: Body Dissatisfaction; I: Ineffectiveness; P: Perfectionism; ID: Interpersonal Distrust; IA: Interoceptive Awareness; MF: Maturity Fears; A: Asceticism; IR: Impulse Regulation; SI: Social Insecurity

**Table 6**  
Mean scores (SD) on the EDI of the fathers in the clinical groups and the control group

Factors	AN	BN	UED	CG
DT	1.29(1.78)	2.54(4.03)	1.50(3.05)	2.50(3.07)
B	.29(.60)	.96(1.97)	.50(1.17)	.68(1.02)
BD	3.14(3.62)	4.79(3.49)	2.00(3.10)d	2.82(2.80)
I	1.71(1.58)	2.29(2.07)	1.63(2.14)	1.54(2.19)
P	3.07(2.93)	3.75(3.39)	3.17(2.38)	3.64(3.25)
ID	3.61(2.85)	4.13(2.97)	3.80(2.91)	2.68(2.45)
IA	2.43(2.83)	3.96(4.37)	1.80(1.65)	2.00(2.83)
MF	7.25(3.83)	7.54(4.08)	7.03(4.13)	6.57(3.73)
A	2.61(1.91)	3.00(1.98)	2.30(2.10)	3.07(2.43)
IR	1.54(2.22)	4.13(4.71)e	1.90(2.87)	1.71(2.98)b
SI	3.25(2.77)	3.87(3.01)	2.63(2.08)	2.89(3.17)

b: BN vs. CG; d: BN vs. UED; e: AN vs BN; DT: Drive for Thinness; B: Bulimia; BD: Body Dissatisfaction; I: Ineffectiveness; P: Perfectionism; ID: Interpersonal Distrust; IA: Interoceptive Awareness; MF: Maturity Fears; A: Asceticism; IR: Impulse Regulation; SI: Social Insecurity

highest scores on the EDI. When we compare the groups with each other, we find that BN patients scored significantly higher than patients in the other clinical groups on drive for thinness and bulimia, and higher than AN patients on body dissatisfaction, ineffectiveness, interoceptive awareness, and social insecurity. Accordingly, meta-analytic studies have shown that measures such as body dissatisfaction (weight- or shape-related) are higher in groups of patients with BN than in patients with AN (Cash & Deagle, 1997).

Thus, our results evidence higher levels of psychological deterioration in BN patients compared with patients with other EDs. It is also worth noting the absence of significant differences between the AN and BN groups and the CG in the perfectionism variable, which is traditionally regarded as a critical variable in EDs (Heatherton & Baumeister, 1991). Although some authors differentiate between adaptive and maladaptive perfectionism, the perfectionism measured in our study correlates positively and significantly with maladaptive perfectionism in EDs (Scappatura, Bidacovich, Banasco, & Rutzstein, 2017). As suggested by other authors, it might be an indicator of denial or lack of insight into illness (Abbate-Daga et al., 2014).

Regardless of the diagnosis of their sons and daughters, the patients' mothers scored higher on most of the factors for EDs, as measured on the EDI, especially in the BN group. Findings of previous studies, regarding bulimic symptoms in particular, support this modeling effect (Stice, Ziemba, Margolis, & Flick, 1996). In a non-clinical sample of boys and girls, the mothers' body dissatisfaction, drive for thinness, ineffectiveness and interoceptive awareness were related to long-term ED (Canals, Sancho, & Arija, 2009). In our study, with a clinical sample and a higher mean age, ineffectiveness and interoceptive awareness remain as EDs symptoms in the mothers.

Regarding the fathers, although they clearly exhibited fewer EDs symptoms than their partners, they did score higher on certain factors than some of the other groups, especially on impulse regulation and in comparison with the BN group. In non-clinical samples, eating disorders symptoms have been associated with paternal body dissatisfaction (Keel, Fulkerson, & Leon, 1997), perfectionism, and drive for thinness (Canals et al., 2009). The association between impulsivity and EDs is considered a key variable in maintaining a diagnosis of BN (Waxman, 2009). Thus, our results suggest the importance of designing therapeutic interventions to address impulsivity, which specifically include patients' fathers.

This study demonstrates the presence of symptoms for eating disorders in mothers and fathers of patients with a clinical ED diagnosis. These factors were more intensely present in BN patients and their parents, suggesting a more psychopathological profile in this diagnosis compared with other EDs. A larger number of symptoms were observed in mothers compared with fathers. This finding underlines the potential therapeutic use of the father in ED interventions, since, according to our results, fathers exhibit fewer ED-related pathology. This might allow them to be actively integrated into the therapy as a positive element in the parents-child dynamic interaction.

#### Conflict of interest

All authors declare that they have no conflicts of interest.

#### Acknowledgments

The authors would like to thank Cristina Cuesta Zamora for her support with bibliography.

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