European Journal of Clinical Nutrition (2005) 59, 459–462
 0954-3007/05 $30.00
www.nature.com/ejcn

SHORT COMMUNICATION

Characteristics of eating disorders in a university hospital-based Spanish population

A Rodríguez Martín[1]*, JP Novalbos Ruiz[1], JM Martinez Nieto[1], L Escobar Jiménez[2] and AL Castro de Haro[1]

[1]*Area of Preventive Medicine and Public Health, University of Cádiz, Spain; and* [2]*Endocrinology and Clinical Nutrition Service, University Hospital 'Puerta del Mar', Cádiz, Spain*

Objective: To describe the personal and family antecedents and clinical characteristics of patients with eating disorders (EDs) in a population of the south of Spain; to analyse the influence of lifestyles, family functioning, socioeconomic status (SES), and psychological characteristics in these processes.
Design: A university-based case–control study.
Setting: University Hospital (Andalusia, Spain).
Subjects: A total of 120 patients with EDs and 240 controls.
Interventions: SCOFF, EDI, APGAR family, and SES questionnaires.
Results: In all, 67.5% of patients presented anorexia (AN), 15% bulimia (BN), and 17.5% mixed forms. EDs emerged at around 18–20 y (95% CI 17.9–19.8). Factors associated with EDs are psychiatric conditions (depression OR: 4.16, anxiety OR: 4.59), more frequent use of medication (OR: 2.26), dietary fibre (OR: 2.59), and laxatives (OR: 3.47). Toxics consumption, sport activity, SES, and family antecedents of pathology are not associated with EDs. An inverse relationship was found between family functioning and the scores in various subscales of the EDI.
Conclusions: Eating disorders in Andalusia (Spain) are influenced significantly more by psychological, family, and cultural factors than by social factors.
European Journal of Clinical Nutrition (2005) **59,** 459–462. doi:10.1038/sj.ejcn.1602095
Published online 19 January 2005

Keywords: anorexia; bulimia; epidemiology

Introduction

Numerous studies on eating disorders (EDs) in Spain have been conducted (Pla & Toro, 1999; Pérez Gaspar *et al*, 2000) but, in recent years, no epidemiological study has been published on a population of southwest Spain. Andalusia presents worse socioeconomic indicators and cultural differences from the rest of the country (predominance of rural population, extended family groups, lower educational levels, more practice of open-air activities, and a closer inter-relationship between social factors and eating habits). All these differences could influence the development and clinical course of EDs (Fairburn *et al*, 1999). This study is intended to fill this information gap, and is based on a typical province of southern Andalusia, Cádiz.

Our objectives are to analyse the association between predisposing factors, such as family functioning, socioeconomic status (SES) and psychological characteristics, and EDs, and to study life styles of the patients in our area.

Material and methods

A case–control study was conducted in adolescents and young adults aged between 12 and 40 y, residents of the province of Cádiz.

The cases comprise patients diagnosed with EDs according to DSM-IV criteria, attending the Endocrinology and Clinical Nutrition Service of the 'Puerta del Mar' University Hospital, Cádiz during 2002. The controls comprise young people with an identical distribution by age and sex, sampled from

***Correspondence: A Rodríguez Martín, Area de Salud Pública, Escuela de Enfermería y Fisioterapia, Avda. Duque de Nájera 18, 11002 Cádiz, España, Spain.**
E-mail: amelia.rodriguez@uca.es
***Guarantors*: A Rodríguez Martín and JP Novalbos Ruiz.**
***Contributors*: All authors were responsible for planning the study. All authors contributed to statistical analysis and writing of the paper.**
Received 14 January 2004; revised 25 May 2004; accepted 11 October 2004; published online 19 January 2005

public and private schools, universities, and public administrations. The SCOFF test was utilised (Morgan *et al*, 1999b) to exclude subjects with high probability of EDs (scores ≥ 2).

The instruments utilised were:

(a) Spanish adaption of the Eating Disorder Inventory (Garner *et al*, 1983).
(b) Apgar family test, which rates the perceived degree of satisfaction with family functioning by three categories (normofunctional, moderately dysfunctional and seriously dysfunctional families) (Smilkstein, 1978).
(c) Socioeconomic assessment of the family utilising the Garcia-Caballero test (Broadhead *et al*, 1983).
(d) Clinical data, comorbidity, treatment, and monitoring of the patients. Patients were classified according to the time course of the diseases as 'acute' (≤ 2 y of treatment or evolution), 'in progress' (>2 y evolution and remission of some diagnostic criteria); and 'in crisis' (reactivation of process after 2+ y evolution, with a previous partial remission).
(e) Lifestyles were assessed using a self-administered questionnaire.

All the data obtained have been tabulated and analysed employing the SPSS v10 statistical program. For the measurement of risk, the ratio of advantages or odds ratio was utilised; and in the multivariate analysis, by logistic regression OR = e^{β} was obtained.

Results

Patient sample characteristics

A total of 360 subjects were studied, 120 cases and 240 controls, paired by sex and age, the mean age was 21.65 y. Women comprised 111 (92.5%) of total cases.

Of total patients, 67.5% presented a clinical condition of anorexia (AN), 15% presented bulimia (BN), and 17.5% presented mixed forms. By length of evolution in time, 14.2% presented a recent acute form, 11.7% presented already established processes leading to crisis, and 74.2% were in evolution/partly recovered.

The mean age for the emergence of EDs is high, at around 18–20 y (95% CI 17.9–19.8). Average length of evolution is 32.6 months (95% CI 25.6–39.5), but longer in AN. BMIs in AN are not unusually low (95% CI 19.0–20.3), the patients studied showing a high rate of recovery.

Table 1 gives the association between variables studied and EDs. Lack of appetite, loss of weight, and vomiting are the most notable symptoms associated with EDs; no significant difference between cases and controls is found in respect with associated physical pathologies; however, a stronger association has been found in respect of various psychiatric pathologies, particularly depression (OR = 4.16, 95% CI 2.11–8.18) and anxiety (OR = 4.59, 95% CI 1.86–11.34).

At the time of completing the questionnaire, 84.2% of patients were receiving treatment, 55.8% of them both psychological and medical.

Table 1 Association of habits, lifestyles, and symptomatology with disorders of eating behaviour (bivariant and multivariant analysis)

	OR	*95% CI*	P-*value*
Feeding on artificial milk	1.63	1.04 2.56[a]	<0.05
Utilisation of toxic substances			
Tobacco	0.90	0.78 1.04	NS
Alcohol	0.76	0.66 0.88[a]	<0.05
Other toxic substances	0.85	0.68 1.07	NS
Purgative substances			
Medication	2.26	1.52 3.37[a]	<0.05
Laxatives	3.47	1.44 8.36[a]	<0.05
Dietary fibre	2.59	1.47 4.54[a]	<0.05
Practice of exercise			
Group physical exercise	1.09	0.95 1.27	NS
Individual physical exercise	0.82	0.66 1.02	NS
Sexual relations			
Practised vs not practised			
Satisfactory vs Not satisfactory	2.77	1.76 4.38[a]	<0.05
	0.11	0.03 0.45[a]	<0.05
Multivariant analysis(*)	*Exp(B)*	*95% CI*	P-*value*
Utilisation of toxic substances			
Alcohol	0.42	0.26 0.68	0.0001
Constant	0.68		
Purgative substances			
Consumption of substances without medical prescription	8.79	0.95 81.13	0.055
Consumption of laxatives	4.96	1.49 16.45	0.009
Consumption of dietary fibre	4.77	2.05 11.09	0.0001
Constant	0.37		
Sexual relations			
Satisfactory sexual relations	0.11	0.03 0.45	0.002
Constant	2.33		

[a]Variables not included in the final model: physical exercise, tobacco and other toxic substances. No sexual relationship.
NS, not significant.

Lifestyles

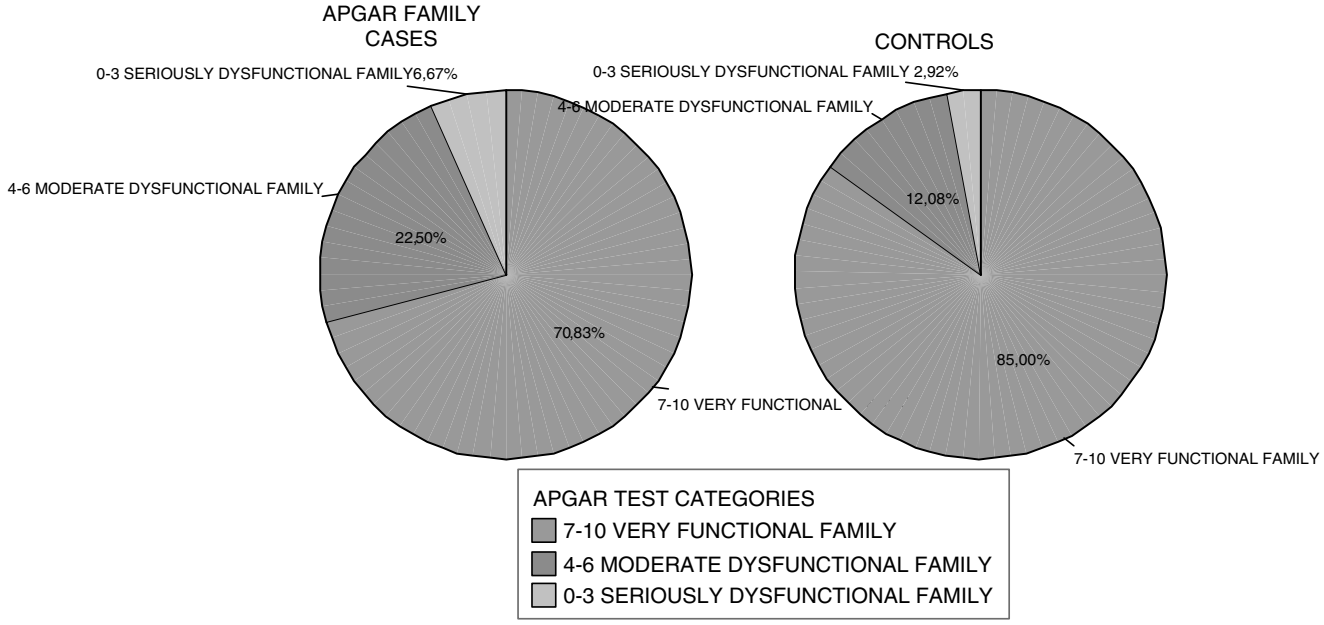
No significant difference was found in the consumption of tobacco or other toxic substances, ED patients are characterised by lower alcohol consumption (OR = 0.76, 95% CI 0.66–0.88), more frequent use of medication in general (OR = 2.26, 95% CI 1.52–3.37), dietary fibre (OR = 2.59, 95% CI 1.47–4.54) and laxatives (OR 3.47, 95% CI 1.44–8.36). This difference is maintained after the multivariate analysis .

In ED patients, more physical exercise is observed in bulimic patients and/or those with a higher BMI, and exercise tends to be practised individually.

In those subjects who acknowledged having sexual relations, reported unsatisfactory practice of sex is a risk factor for EDs (OR = 2.64, CI 1.02–6.83).

Family factors

No association was found between family antecedents of pathology (depression, obesity, diabetes, drug addiction, and



Graph 1 Apgar family test.

other processes) and the appearance of EDs; only 9.2% of patients presented family antecedents of EDs (siblings).

A higher proportion of patients were not breast-fed in infancy; this was associated with a risk of 1.63 (95% CI 1.04–2.56) of ED. The normal functional family accounts for 85% in controls, against 70.8% in patients (Graph 1). These differences are maintained when analysing each of the Apgar parameters independently.

Educational and SES

A higher educational level was found in ED patients (35% of cases with university level against 9.2% of controls).

Although a higher percentage of cases were classified as higher SES, this difference is not significant. Similarly, no association is seen between SES and consumption of toxic substances, sexual practices, or family functioning.

Regarding the influence of predisposing factors, significant differences in psychological characteristics between cases and controls are found in parameters assessed in the EDI (obsession with slimness, corporal dissatisfaction, perfectionism, interpersonal distrust, interoceptive awareness, fear of maturity, and social insecurity). Such differences are maintained even after long evolution and partial remissions.

Discussion

In populations less socioeconomically developed but culturally distinctive, one would expect to find ready evidence of a relationship between EDs and such characteristics (Rogers *et al*, 1997; Westermeyer & Specker, 1999; McClelland & Crisp, 2001). We have not found associations between family socioeconomic level and the frequency of these disorders, nor with difference in their evolution. However, some relationship is found with higher educational level.

Clinical characteristics of patients are similar to those found in other studies (Lewinsohn *et al*, 2000; Patrick, 2002), apart from a later age of presentation. Few differences from the healthy population were found in habits like consumption of alcohol and other toxics. The practice of sport reported by other authors (Rodríguez-Martín *et al*, 1999; Byrne & McLean, 2001) is only seen in patients with bulimia or higher BMIs.

Of the factors studied in our area, EDs are associated with those variables that could indicate a predisposing family factor (Laliberte *et al*, 1999; Lilenfeld *et al*, 2000), such as the existence of EDs in a first degree family member (Bellodi *et al*, 2001), lower frequency of infant breast-feeding, and greater prevalence of EDs in dysfunctional families (Dare & Key, 1999).

All these elements could indicate the involvement of affective deficits in the origin or development of these processes, already examined in other studies (Laliberte *et al*, 1999; Morgan *et al*, 1999a). The finding that dissatisfaction with sexual relationships was associated with a higher risk of EDs would support this hypothesis.

We conclude that, in our area, EDs and their evolution are influenced more by psychological factors, family functioning, and cultural environment. An association with SES could not be demonstrated. The role of affective deficits in these processes needs to be confirmed by future studies.

References

Bellodi L, Cavallini MC, Bertelli S, Chiapparino D, Riboldi C & Smarald E (2001): Morbidity risk for obsessive-compulsive spectrum disorders in first degree relatives of patients with eating disorders. *Am. J. Psychiatry* **158**, 563–569.

Broadhead WE, Kaplan BH, James SA, Wagner EH, Schoenbach VJ, Grimson R, Heyden S, Tibblin G & Gehlbach SH (1983): The epidemiologic evidence for a relationship between social support and health. *Am. J. Epidemiol.* **117**, 521–537.

Byrne S & McLean N (2001): Eating disorders in athletes: a review of the literature. *J. Sci. Med. Sport.* **4**, 145–159.

Dare C & Key A (1999): Family functioning and adolescent anorexia nervosa. *Br. J. Psychiatry* **175**, 89–90.

Fairburn CG, Cooper Z, Doll HA & Welch SL (1999): Risk factors for anorexia nervosa: three integrated case-control comparisons. *Arch. Gen. Psychiatry* **56**, 468–476.

Garner D, Olmstead M & Polivy J (1983): Development and validation of multidimensional eating disorder inventory for anorexia nervosa and bulimia. *Int. Eat. Disord.* **2**, 15–34.

Laliberte M, Boland FJ & Leichner P (1999): Family climates: family factors specific to disturbed eating and bulimia nervosa. *J. Clin. Psychol.* **55**, 1021–1040.

Lewinsohn PM, Striegel Moore R & Seeley JR (2000): Epidemiology and natural course of eating disorders in young women from adolescence to young adulthood. *J. Am. Acad. Child. Adolesc. Psychiatry* **39**, 1284–1292.

Lilenfeld LR, Stein D, Bulik CM, Strober M, Plotnicov K, Pollice C, Rao R, Merikangas KR, Nagy L & Kaye WH (2000): Personality traits among currently eating disordered, recovered and never ill first-degree female relatives of bulimic and control women. *Psychol. Med.* **30**, 1399–1410.

McClelland L & Crisp A (2001): Anorexia nervosa and social class. *Int. J. Eat. Disord.* **29**, 150–156.

Morgan JF, Lacey JH & Reid F (1999a): Anorexia nervosa: changes in sexuality during weight restoration. *Psychosom. Med.* **61**, 541–545.

Morgan JF, Reid DF & Lacey JH (1999b): The Scoff questionnaire: assessment of a new screening tool for eating disorders. *BMJ* **319**, 1467–1468.

Patrick L (2002): Eating disorders: a review of the literature with emphasis on medical complications and clinical nutrition. *Altern. Med. Rev.* **7**, 184–202.

Pérez Gaspar M, Gual P, de Irala Estevez J, Martínez Gonzále MA, Lahortiga F & Cervera S (2000): Prevalencia de trastornos de la conducta alimentaria en las adolescentes navarras. *Med. Clin.* **114**, 481–486.

Pla C & Toro J (1999): Anorexia nervosa in a Spanish adolescent sample: an 8 year longitudinal study. *Acta. Psychiatr. Scand.* **100**, 441–446.

Rodríguez-Martín A, Martinez Nieto JM, Ruiz Jimenez MA, Novalbos Ruiz JP, Vazquez MC, Fernandez YC, Gomez MA & Fernandez CC (1999): Unhealthy eating behaviour in adolescents. *Eur. J. Epidemiol.* **15**, 643–648.

Rogers L, Resnick MD, Mitchell JE & Blum RW (1997): The relationship between socioeconomic status and eating-disordered behaviors in a community sample of adolescent girls. *Int. J. Eat. Disord.* **22**, 15–23.

Smilkstein G (1978): The family APGAR: a proposal for a family function test and its use by physicians. *J. Fam. Pract.* **6**, 1231–1239.

Westermeyer J & Specker S (1999): Social resources and social function in comorbid eating and substance disorder: a matched-pairs study. *Am. J. Addict.* **8**, 332–336.