

Epidemiology of eating behavior disorders in Spain

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Epidemiología de los trastornos de la conducta alimentaria en España

Summary

Considerable advances have been made in research of epidemiology of eating behavior disorders in Spain. This report summarizes recent studies. This review suggests that the prevalence of abnormal eating attitudes and behaviors in Spanish clinical and non-clinical populations is not markedly different from that already reported for other developed countries. The wide range of variation in published prevalence rates for eating disorders in adults and adolescents can be understood in the face of the many methodological problems inherent to this type of research. Anorexia nervosa and related eating disorders are most commonly investigated in adolescent girls and young women and a number of researchers have investigated prevalence rates in this «high risk» group. No good epidemiological research has been carried out with child populations and male populations.

Key words: Eating disorder. Anorexia. Bulimia. Epidemiology. Prevalence.

Resumen

Se han llevado a cabo considerables avances en la investigación de la epidemiología de los trastornos de la conducta alimentaria (TCA) en España. Este artículo resume estudios recientes. Esta revisión sugiere que la prevalencia de conductas y actitudes alimentarias anómalas en poblaciones clínicas y no clínicas españolas no difiere marcadamente de lo descrito en otros países desarrollados. El amplio rango de variación en las tasas de prevalencia de TCA publicadas en adultos y adolescentes puede relacionarse con los problemas metodológicos inherentes a este tipo de investigación. La anorexia nerviosa y los TCA relacionados son más frecuentemente investigados en chicas adolescentes y mujeres jóvenes y un buen número de investigadores se han ocupado de la prevalencia en este grupo de alto riesgo. No se han efectuado buenos estudios epidemiológicos con poblaciones infantiles o masculinas.

Palabras clave: Trastorno de la conducta alimentaria. Anorexia. Bulimia. Epidemiología. Prevalencia

INTRODUCTION

Eating behavior disorders (EBD) are not a new problem; they have a long history. However, it is now when their virulence in the present day society is causing concern¹. The frequency of eating disorders in our country need to be known as accurately as possible. Since the democracy, the Spanish society has undergone an important change that has made it an interesting place in which to investigate the EBD problem. Furthermore, information on this problem in Spain is necessary to guide mental health research and programming. Epidemiology in general population is essential to plan and supply health care resources. The importance of accuracy in epidemiological studies is found in that it is exactly these values that should be used for the plans of estimating

the health care services supported on empiric data (evidenced based medicine)^{2,4}.

WORK HYPOTHESIS

EBD prevalence in Spain does not differ greatly from the remaining western countries. There are sufficiently rigorous Spanish epidemiological research studies on these disorders in the adolescent population.

OBJECTIVES

To know the stage of epidemiological research and epidemiology of the EBD in Spain through the critical review of the Spanish studies.

METHODS

Collecting and reviewing articles on epidemiological studies on EBD prevalence in Spain published in recent

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years using a computerized search (Medline, Psycinfo), completed with a manual search in different sources: journals, books, congress summary books, among others, as well as internet.

We include studies:

- Performed in Spain in the community or in the health care setting.
- That supply data on the frequency of EBD.

STATE OF THE QUESTION

Up to the present, the number of studies on eating disorders in the Mediterranean Countries is still limited⁵. Up to a few years ago, it had been published that the epidemiological studies performed in Spain were extremely scarce⁶, and even more recently, that not many studies have been performed on the prevalence of EBD in Spain⁷. In the 1990's, there were few rigorous epidemiological studies referring to the general population⁸. The situation has changed and Spain is at the head of the epidemiological investigation on eating disorders. Until recently, measurement of EBD prevalence was no more

than simple media speculations. With the change of the millennium, the situation has varied significantly. At present, Spain has sufficiently rigorous epidemiological studies to make the data supplied reliable^{9,10}.

The first epidemiological studies were performed on clinical populations, however after, investigation was aimed at detecting cases that exist in the general population.

Secondary sources

If we consider the secondary sources of psychiatric epidemiology in the clinical samples published in Spain, the frequency by gender of these disorders can be observed in a first approach¹¹ (table 1).

In Barcelona, Tomas et al., 1990, found five men and 48 women in 53 cases from hospital centers and private practices from 1968 to 1988¹².

In Madrid, San Sebastian et al. 1990 found two men and seven women in a sample of nine prepuberal patients diagnosed of anorexia nervosa (AN)¹³.

In addition, in the same year in Madrid, de la Serna published a series of 10 men and 53 women¹⁴ and Gó-

TABLE 1. Studies in Spanish clinical samples

Author	City	Date	Age	Diagnosis	Female	Male
Tomás et al.	Barcelona	1968-1988	10-21	AN DSM-III-R	48/53	5/53
San Sebastián et al.	Madrid	1987-1989	12-15	AN DSM-III	7/9	2/9
de la Serna	Madrid	1978-1988	12-38	AN DSM-III-R	53/63	10/63
Gómez et al.	Madrid	1990	Mean: 18 ± 5	AN DSM-III	19/23	4/23
Turón et al.	Barcelona	1975-1990	12-33	AN DSM-III-R	103/107	4/107
Toro et al.	Barcelona	1985-1991	11-26	AN DSM-III-R	204/221	17/221
Lázaro et al.	Barcelona	1984-1993	Mean: 15 10-17	AN DSM-III-R AN DSM-III-R	98/108	10/108
Velilla et al.	Zaragoza	1975-1994	Adolescents	AN OMS	12/118	106/118
Quintanilla et al.	Zaragoza	1981-1985 1991-1995	Mean: 15,19 Mean: 15,57 Mean: 15,62	AN CIE-10 AN CIE-10 BN CIE-10	28/30 70/76 13/14	2/30 6/76 1/14
Cerveraa and Quintanilla	Pamplona	1995	Mean: 19,17	AN Feighner	48/50	2/50
Mirón et al.	Salamanca	1994-1997	Mean: 17	AN CIE-10	20/23	3/23
Bueno et al.	Zaragoza	1976-1997	Adolescents	AN CIE-10 BN CIE-10	286/313	27/313
de la Serna	Madrid	1998	17-32	BN CIE-10	40/45	5/45
Vázquez et al.	Castellón	1997-1998	12-58	TCA DSM-IV	117/122	5/122
Pérez del Yerro	Algeciras	1992-1997	Mean: 16,1	AN BN TCANE	35/40	5/40
Menéndez and Pedreira	Avilés	1997-1998	11-17	TCA CIE-10	25/29	4/29
	Coruña	1990-1997	< 15	AN CIE-10	16/18	2/18
Padierna et al.	Vizcaya	1999	14-65	AN DSM-IV BN DSM-IV Binge eating	137/141	4/141
Padierna et al.	Vizcaya	2000	14-65 Mean: 22,3	AN DSM-IV BN DSM-IV	129/131	2/131
Vega and Rasillo	Castilla y León	1999	Mean M: 21 Mean V: 19,6	New recording TCA	184/205	21/205

AN: anorexia nervosa; BN: bulimia nervosa; TCA: eating behavior disorder; USEBD: unspecified eating behavior disorder; WHO: World Health Organization; ICD: International Disease Clasification; DSM: diagnosis and statistical manual of mental disorders.

mez et al. another one with four men and 19 women out of 23 patients with AN¹⁵.

In Barcelona, Turón et al. 1992 studied the demographic and clinical characteristics of 107 cases of AN admitted to hospital over a period of fifteen years, four of whom were men (3.7 %) and 103 women, with a proportion of 1/25¹⁶.

In Zaragoza, in the Infant-Juvenile Psychiatry Unit of the Hospital Clínico Universitario of Velilla, 118 cases (12 men and 106 women) were recorded from 1975 to 1997¹⁷.

Furthermore, in Barcelona, Toro et al. 1995 performed a descriptive study of 221 patients with AN, 17 (7.7%) of whom were men and 204 women¹⁸.

In the University Clinic of Navarra, Cervera and Quintanilla, 1995, studied 50 cases, 48 women and two men, diagnosed of AN with the Feighner criteria¹⁹.

Also in Barcelona, Lázaro et al. 1996 reported that in a group of 108 adolescent patients with AN, 10 (9.3%) were men and 98 women²⁰.

Again in Zaragoza in 1998 other members of the same group from the Hospital Clínico compared the patients seen between the years 1981-1985 (30 cases) with those from 1991 to 1995 (90 cases). The proportion by gender remained stable over time and for the different diagnoses (10/1 in favor of women)²¹.

In the Hospital Clínico of Salamanca, from 1994 to 1997, 23 admissions were coded as AN: 13% men and 86% women for Mirón et al. in 1998²².

In 1998, de la Serna published a clinical sample of 45 out-patients from Madrid with bulimia nervosa (BN), 11.1% of whom were men (n = 5)²³.

During 1976 to 1997, 313 cases of EBD in the Infant-Juvenile Psychiatry Unit of the Hospital Clínico Universitario Lozano Blesa in Zaragoza were studied. A total of 8.6% were men and 91.3% women. These data were published in 1999²⁴.

In the Eating Disorders Unit of the Hospital Provincial of Castellón de la Plana, Vazquez et al. saw 117 women (96%) and 5 men (4%) with EBD in the period going from June 1, 1997 to August 31, 1998²⁵.

In Algeciras, Pérez del Yerro et al., in 1999, analyzed the patients treated in the Mental Health Care Unit of Comarcal «Punta de Europa» between 1992 and 1997, using a retrospective cross-over study with 40 clinical records: 35 women (82%) and 5 men (18%)²⁶.

In one same study in 1999, they presented data on Asturias and Galicia. In Aviles (Asturias), in the Infant-Juvenile Mental Health Care Unit, Pedreira collects the patients referred for EBD during two years with ages between 11 and 17 years from the Accumulative Registry of Psychiatric Cases. There were a total of 29, 22 of whom complied with the ICD-10 criteria. The male/female proportion was 6/1. In the Infant-Juvenile Mental Health Care Unit of Coruña (Galicia), Menéndez saw 34 cases of up to 15 years from 1990 to 1997, with a prevalence of approximately 1%. AN was diagnosed in 18 cases (0.6% seen prevalence rate) and girl/boy ratio was 8:1²⁷.

Padierna et al., in the Hospital of Galdakao of the inner district of Vizcaya, studied 141 subjects under

out-patient treatment, diagnosed of eating disorder with DSM-IV criteria: with a mean age of 23.5 ± 6.2 years (137 women [97%] and 4 men [3%])²⁸. The same group, in a sample of 131 subjects treated for restrictive, purgative anorexia or bulimia nervosa (BN) with a mean age of 22.3 years, found 98.5% of women (n=129)²⁹.

Tomas and Rasillo, in selected mental health teams from Castilla y León, recorded 205 new cases (184 women and 21 men) diagnosed of EBD during 1999. The incidence rate of new diagnoses was 37.8 per every 100,000 inhabitants³⁰.

Primary sources

If we review the primary sources, we observe that many community epidemiological studies have been performed in Spain with adolescents (tables 2 and 3).

In Barcelona, Toro et al., in a pioneer study, found that in 1989, 1.2% (n = 8) of the males and 9.8% (n = 56) of the females out of 1264 adolescents from 12 to 19 years of age exceeded the «pathological» cut off, equal to or greater than 30 on the Eating Attitudes Test (EAT)^{31,32}.

In Reus, in 520 students males aged 14 years and females 13 years, and using the eating attitudes test (EAT), Canals et al., 1990, found different mean scores of 15.3 in the girls and 13.6 in the boys³³.

In eight cities of Catalonia, Raich et al. in 1991 in a study of 1,263 women and 1,155 men, between 14 and 17 years of age, students of first and second year secondary school and vocational training, found 2.6% (n = 40) of males with an EAT equal to or greater than 34 and 7.3% of women (n = 110)³⁴. The same group, in 1992, in a transcultural study with the United States, and using the EAT, found that 0.1% of the males and 0.9% of the females out of 3,544 adolescent student in Catalan centers of secondary school and vocational training had bulimia symptoms³.

In a study of Carbajo et al., 1995, the continuation of that published by Canals et al., it was found that between 515 adolescents, 8.3% males and 12.4% females, exceeded the EAT cut off (equal to or greater than 30)³⁵. Using the Schedules for Clinical Assessment in Neuropsychiatry (SCAN) when the sample was 18 years old (only 304 subjects could be enrolled, they filled out self-report questionnaire and 290 were interviewed), 0% of the males and 5.2% of the females (2.6% with DSM-III-R criteria) complied with the ICD-10 criteria of EBD³⁶.

In 1985, 1986 and 1987, Morande et al., in an adolescent school population in Madrid, found values of 11.6% of women and 1.2% of men belonging to the risk group^{37,38}.

For Morandé et al. in 1993-1994, and using similar methodology in two stages, 17.36% would be women and the percentages recorded in men would continue to be in the minority (1.96%). They could demonstrate a 0.31% to 0.69% increase in anorexia prevalence in girls, this being 0.9% to 1.24% in the case of bulimia. If full and partial syndromes are added up, 4.69% of the girls and 0.9% of the boys suffer EBD (compared to 1.55% of women and 0% of men in the 1980's). Among the students in Madrid, 49% of the women and 7% of the men were concerned about losing weight³⁹⁻⁴³.

TABLE 2. Studies in Spanish community studies

Author	City	Date	Course	Gender	Age	Number	Instrument	1 st phase	2 nd phase	Dg
Morandé et al.	Madrid	1985, 1986, 1987	Students	M & F	X = 15	636 F 86 M	EAT, GHQ	Yes	Yes	Yes
Toro et al.	Barcelona	1989	Pre-Univ, secondary, 7th year primary 8th year primary	M & F	12-19	848 M 706 F	EAT	Yes	No	No
Canals et al.	Reus	1990	Students	M & F	13-14	520	EAT	Yes	No	No
Carbajo et al.	Reus	1990 1991	Students	M & F	13-15	290 M 225 F	EAT	Yes	No	No
Raich et al.	8 catalan cities	1991	Secondary, vocational training	M & F	14-17	1.263 F 1.144 M	EAT, VAS, BSQ	Yes	No	No
Raich et al.	5 catalan cities, USA	1992	Secondary, vocational, training	M & F	14-17	1.041 F 935 M in Spain	EAT	Yes	No	Yes
Morandé et al.	Móstoles	1993, 1994	1st year secondary 2nd year secondary, training	M & F	X = 15	725 M 520 M	EDI, GHQ	Yes	Yes	Yes
Loureiro et al.	Coruña	1996	3rd year secondary	F	X = 16,7	607 F	EAT-40	Yes	No	Yes
Canals et al.	Reus	1997	Students	M & F	17-18	152 F 138 M	EAT SCAN	Yes	Sí	Yes

EAT: Eating Attitudes Test; GHQ: General Health Questionnaire; VAS: Visual Analogue Scale; BSQ: Body Shape Questionnaire; EDI: Eating Disorder Inventory; SCAN: Schedules for Clinical Assessment in Neuropsychiatry. Dg: Diagnostic.

In Coruña, in 1996, Loureiro et al., in a study of 607 students from the 3rd year of secondary school, detected 13% with disorganized eating attitudes (with EAT over 30) and 0.25% (1 case) of AN⁴⁴.

The prevalence of EBD among adolescent women students in Zaragoza found by us, Ruiz et al. Zarima Group, in 1997 in our «two-phase» cross-over epidemiological study in a representative sample of 4047 adolescents who were students in 61 secondary education centers (30 public and 31 private) from 12 to 18 years of age (2,193 women and 1854 men) is similar to that found in other European and Western countries, it being difficult to compare the epidemiological studies due to the different methodologies used.

The estimated prevalence of EBD among student adolescents in Zaragoza is 4.51% (95% CI exact method Mid-P: 3.7% to 5.4%).

In the second stage after the clinical interview (performed only in women) with strict DMS-IV diagnostic criteria, the ICD-10 shows 0.14% (95% CI exact method Mid-P: 0.0% to 0.4%) (n = 3) for F50.0 anorexia nervosa, 0.55% for F50.2 bulimia nervosa (95% CI exact method Mid-P: 0.3% to 0.9%) (n = 12) and 3.83% for F50.9 unspecified eating behavior disorder (USEBD) (95% CI exact method Mid-P: 3.1% to 4.7%) (n = 84).

The population at risk of EBD in adolescent student males and females from Zaragoza, measured by self-question-

naires, is similar to that found in other developed countries and in other Spanish populations. A significant minority of a community sample of Zaragoza adolescents have unadapted eating behaviors and attitudes, assessed with self-applied questionnaires. In fact, the population at risk for EBD, defined by a score equal to or greater than the cut off of 30 for the EAT-40, estimated in female Zaragoza student adolescents is 16.32% (95% CI: 14.8%-17.9%) and 3.3% (95% CI: 2.6%-4.2%) in male adolescents. There are significant gender differences regarding prevalence of the «risk» population between adolescent zaragozan men and women (almost five times more in the case of the women)^{4,8,11,45-52}.

In 1997 in Navarra, in the doctorate thesis of Pérez-Gaspar, done on a sample of 2,862 women from 12 to 21 years of age in 39 academic centers, using a double phase procedure, the total prevalence of EBD was 4.1% (95% CI: 3.45-4.95%), the prevalence of AN was 0.31% (95% CI: 0.14-0.59%), of BN 0.76% (95% CI: 0.48-1.16%) and there was 3.07% of incomplete syndromes or USEBD (95% CI: 2.47-3.77%)⁵³⁻⁵⁵.

In Asturias, during the 97-98 school year, 835 youths from 13 to 21 years, who were secondary students, were studied: 415 men and 401 women. Of the 72 possible cases (cut off 13/14 on the Scale Drive for Thinness [DT] or eating disorder inventory [EDI]), 63 are women (7.7%) and 9 men (1.1%)⁵⁶.

TABLE 3. Studies in Spanish community samples

Author	City	Date	Course	Gender	Age	Number	Instrument	1 st phase	2 nd phase	Dg
Ruiz et al.	Zaragoza	1997	Secondary	M & F	12-18	2.193 F 1.854 M	EAT-40, EDI, CIMEC, SCAN	Yes	Yes	Yes
Gual	Navarra	1997	Secondary, Univesity	F	12-21	2.862	EAT-40	Yes	Yes	Yes
Saiz et al.	Asturias	1997- 1998	Secondary	M & F	13-21	415 M 401 F	EDI	Yes	No	No
Martín et al.	Cádiz	1999	Students	M & F	14-18	630	Self report	Yes	No	No
Ferrero et al.	Valencian Community	1999	Secondary Pre-univ Vocational Training I, VTII	M & F	14-21	1.227 F 731 M	EAT-40 BITE	Yes	No	Yes
Romay	Madrid	1999	6th primary 1st & 2nd year	M & F	11-16	75 M 59 F	Own questionnaire	Yes	No	No
Rojo et al.	Valencia	1999	Secondary	M & F	16-18	474	EAT, SCAN	Yes	Yes	Yes
Gandarillas y Febrel	Madrid Community	2000	Secondary	M & F	15-20	2.259 F 1.776 M	EDI GHQ-28	Yes	No	No
Martínez et al.	Gijón	2000	Secondary	M & F	14-22	430 F 430 M	EAT-26 CIMEC	Yes	No	No
Del Río et al.	Seville	2000	Secondary	M & F	Mean: 16,32	205 M	BSQ			
Del Río et al.	Seville	2001	Secondary	M & F	Mean: 16,16 f 16,12 M	374 F 477 M	EAT, BSQ	Yes	No	No
Vega et al.	Castilla y León	2001	Secondary	M & F	12-18	1,260 F 1.220 M	EAT-40	Yes	No	No
Rodríguez et al.	Cádiz	2001	Secondary	M & F	14-18	491	Questionnaire Granada	Yes	No	No
Ruiz-Lázaro et al.	Teruel	2001	Secondary	M & F	12-15	104 M 96 F	EAT-26	Yes	No	No
De Gracia et al.	Girona	2001	Secondary	M & F	14-19	479 F 476 M	EAT-40 BSQ	Yes	No	No
Beato et al et al.	Castilla- La Mancha	2001	4th year secondary	M & F	16	1.076	GHQ-28, EAT-40, BITE, BSQ, SCAN	Yes	Sí	Sí

EAT: eating attitudes test; EDI: eating disorder inventory; CIMEC: questionnaire on body shape model influences; SCAN: schedules for clinical assessment in neuropsychiatry; BITE: bulimic test of Edimburgo; GHQ: General Health Questionnaire; BSQ: body shape questionnaire. Dg: Diagnostic.

In Cadiz, a cross-over study with 630 school children from 14-18 years of age (mean 15.9), abnormal eating behavior was detected with a self-report questionnaire in 43.6% (n=292), with feminine predominance with a ratio of 2:1⁵⁷.

In the Valencian Community, Ferrero et al., in 1999, in an urban sample of 1,962 students from secondary school, aged 14 to 21 years, with EAT and bulimic test of Edinburg (BITE) used self-report measurements (with cut off of 26 on the EAT and 20 on the BITE to discriminate between case and non-case), considered 3.3% of males and 16.21% of females as an AN case and 0.82% of males and 2.93% of women as a BN case⁵⁸.

In 1999, in Madrid, Romay found 15% of children with «risk profile» among 75 males and 59 females of the 6th year of primary school and 1st and 2nd years of secondary school⁵⁹.

Rojo et al., in a double phase study, that answers our methodology, with 544 youth from 12 to 18 years, stu-

dents in the province of Valencia, found that 16.9% of the girls and 5.12% of the boys scored above the cut off on the EAT-26. Using strict DSM-IV criteria, the total prevalence is 5.89% in women (0.74% AN, 0.37% BN, 4.04% USEBD, 0.74% binge eating) and 0.37% in men (IV National Congress of Psychiatry, Oviedo, 1999).

In the Madrid Community, in a cross-over study, in one phase with EDI and the General Health Questionnaire (GHQ-28) of Gandarillas and Febrel, published in 2000, in a sample of 4,334 adolescent students from 15 to 20 years, 15.3% (13.8-16.9%) of the women and 2.2% (1.6-2.8%) of the men belonged to the group with risk⁶⁰.

In Gijon, in 860 secondary school adolescents from 14 to 22 years, Martínez et al. found that 12.8% of the women (95% CI: 9-16.5%) and 1.8% of the men (95% CI: 0.8-2.8%) had altered eating attitudes (score equal to or more than 20 on the EAT-26)⁶¹.

In Valladolid, Imaz, in his still unpublished doctorate thesis, found values that are not excessively different from the most rigorous studies (in two phases) of Madrid, Navarra and ours in Zaragoza (speech III Congress of AETCA, Seville, 2001).

In Seville, del Río et al. studied a sample of 851 adolescents, boys and girls, with the EAT and Body Shape Questionnaire (BSQ). They found purgative behaviors in the girls, that are practically non-existent in the boys, with vomiting in 9.9% and use of laxatives in 4.8% of the women (poster III Congress of AETCA, Seville, 2001).

In the Community of Castilla y León, in an extensive sample from secondary school, Vaga, Rasillo and Lozano, in a study performed in 1999, estimated a 12.3% percentage of women (95% CI: 10.4-14.3%) with high risk (EAT-40 over 30), while the men only had 3.2% (95% CI: 2.1-4.2%)⁶².

In Girona, de Gracia et al. performed an epidemiological study in a sample of 1025 adolescents (14-19 years) from secondary school, with the EAT-40, BSQ and body mass index (BMI), and identified 86 possible cases, 96% of which were women (n=83). A total of 17.3% of the women and 0.6% of the men scored equal to or more than 30 on the EAT-40 (communication to the II Virtual Congress of Psychiatry, 2001).

In Castilla-La Mancha, in a sample of 1076 secondary school students, Beato diagnosed 4.05% women with EBD and 0.4% men by a two phase study, with the EAT and BITE and SCAN interview (speech III Meeting of ADANER Cantabria, 2001).

Petit et al., the City Hall of Getafe, Area 10 Public Health Service and the Education Council of the Community of Madrid and Public Health Care System, coordinated by the Education Table for Health, are carrying out an EBD prevention project performed over five consecutive years, seeing 3,836 boys/girls and their families, 23 orientation departments and 35 tutors per academic course of the public secondary education institutes of Getafe. A total of 90% of the adolescents of both genders, studying in the first courses of secondary school in Getafe, do not present a risk of suffering EBD. A total of 10% have some of the risk factors which, if not corrected, can lead to the development of a problem of this type. A total of 0.5% of this population (12-14 years) have EBD (anorexia-bulimia) (speech in Meetings of Epidemiological Control of EBD in the Escola D'Estiu de Salut Pública. May, 2001).

Rodríguez et al., from the University of Cádiz, studied 491 students from 14 to 18 years, with the self-applied questionnaire of the School of Nutrition in Granada. A total of 16.3% had abnormal eating behaviors related with anorexia and 17.1% with bulimia. And 33% had compensatory behaviors, with clear feminine predominance⁶³.

Finally, in Teruel in a population of rural adolescent 1st and 2nd year secondary school students, we, Ruiz-Lázaro et al., found 13/96, 13.5% (95% CI: 7.42-22.0%) of women and 4/104, 3.85% (95% CI: 1.06-9.55%) of men who would be considered to be at risk of EBD (score equal to or more than 20 in the EAT-26)⁶⁴.

DISCUSSION

The epidemiology of eating disorders in Spain is a research area that has gone from zero to the infinite in few years. Considerable advances have been carried out. From hardly not having any reliable data, in one decade, we have probably become the European nation with the most work groups and rigorous methodological studies in the general adolescent and youth population. More than repeating similar studies in all the regional communities, the future pathway that could be said to be best would be to advance in the darkest areas: childhood, adults, males and in the study of the risk factors¹⁰.

The studies having the best methodological quality published by Spanish groups are those of Morandé et al. in Móstoles, Pérez-Gaspar et al. in Navarra and Ruiz et al. in Zaragoza^{4,43,45,54}. They are two-phase cross-over studies, from the third generation of psychiatric epidemiological research of Dohrenwed and Dohrenwed, the most accepted methodology, the best design for detecting cases in the community, as well as an efficient means to estimate the prevalence of psychopathology⁴.

The Morandé et al. study was the pioneer. The authors only studied a 15 year old population and the random sample only included four centers from the 17 in Mostoles. Part of the interviews (137) were done by telephone. However, they diagnosed males, in the second phase, which gives the study special relevance. In addition, the data between 1985-1986 and 1993-1994 can be compared, which makes it possible to see the evolution of the prevalence of these disorders in Madrid⁴³.

That of Perez-Gaspar et al. is one of the few studies that exceeds 2,000 subjects studied. It is an extensive and representative sample of the Navarra student population from 12 to 21 years. It is an excellent contribution to the epidemiological knowledge of these diseases, which is worthy of mention. Diagnosis by questionnaire of 22 cases compared to the 97 diagnosed by interview takes away some of the rigor from the study, but the rest is perfect. The telephone was also used, as in the Madrid study, in 23 cases. The analysis of the data regarding the males, which was also studied, was not published due to the low prevalence of these disorders in boys^{47,54}.

The ZARIMA study of Zaragoza, done in the same year as the previous one, exceeds 4,000 adolescent student in a representative sample of the Zaragozan student population from 12 to 18 years, of both genders. The high percentage of participation in the second phase, 93,6%, is outstanding. It is the only one that makes the diagnoses with the DSM-IV and ICD-10 criteria, with the two international classifications in force. And the structured interviews, performed by the psychiatrist, are always face to face, without using the telephone in any case. However, the structured diagnostic interview was only performed in women, due to low prevalence expected in males, so that information is lacking on the diagnoses in the male adolescents. However, there are data on the male population at risk^{4,45}.

The Canals et al. study, that looks for the diagnosis of other psychiatric disorders, and not only eating disor-

ders, with its limitations due to losses to follow-up, the small size of the sample and that it only focuses on the 18 year olds, is also important³⁶.

Others, with similar methodology in the two stages, but still unpublished, are those of Beato in Castilla-La Mancha, Rojo in Valencia and Imaz in Valladolid.

In all the double phase Spanish studies, as in most the international one, the study of the existence of false negatives is lacking. This is not surprising, since it means a significant personal, organizational, and economical effort. Thus, the prevalence data may be somewhat underestimated.

The others, as they were done only with self-applied screening questions, although valuable, are limited, since they only make it possible to know populations at risk and not the prevalences of the disease. They would need the second phase with a standardized diagnostic interview that would make it possible to perform the final diagnosis.

The self-administered or self-report questionnaire serves, above all, to detect minor deviated eating behaviors. Only the clinical interview allows the diagnosis of true anorexias or bulimias⁴⁷.

This review suggests that the prevalence of abnormal eating behaviors and attitudes in Spanish clinical and non-clinical populations do not differ greatly from that described in other developed countries⁴. The wide range of variation in the EBD prevalence rates published in adults and adolescents may be related with the methodological problems inherent to this type of investigation. Anorexia nervosa and the related EBD are more frequently investigated in adolescent girls and young women and many investigators have dealt with the prevalence in this high risk group. Such good epidemiological studies with child or masculine populations have not been performed.

The need for new epidemiological studies in representative samples of the general population has been made clear. The field of epidemiology is still an area that need a greater number of controlled investigations in which the diagnostic criteria are defined, longitudinal studies are performed and which take into account the so-called partial syndromes that appear with ever greater frequency in all the population groups and that may be of great help in the knowledge of the causal factors of the eating disorders⁶⁵. New studies on the EBD, characterized by a greater focal amplitude and great rigor in their methodology, are needed⁶⁶.

A polemic to elucidate is if the frequency of these disorders has increased, and if they are an epidemic such as the flue in winter⁵².

Until recently, the AN was contemplated as a rare disorder in our setting. However, in the last two decades, a noticeable increase in its morbidity has occurred. The increase in the incidence of the eating disorders has surprised and alarmed the health care professionals and sensitized the population in general. In the 1970's, the evidence that AN was ever more frequent led to the increase of the medical and public interest for the disorder⁶⁷.

If AN, in other times a rare disorder, has increased its prevalence to the point of no longer being considered a rare one, the sudden increase of the bulimia syndromes since the middle of the 1970's seems to be, at least, spectacular^{68,69}.

In recent years, very rapid changes have been occurring in the Spanish eating habits that follow the same evolution observed in the rest of the industrialized countries⁷⁰. There has been an increase in the altered eating behaviors in the youth, principally anorexia and bulimia, as well as a significant increase in behaviors, attitudes and beliefs related with these disorders, such as overevaluation and excess concern for weight, lack of satisfaction with body volume and weight and behaviors aimed at losing weight, either by restrictive diets and/or physical exercise⁷¹.

Some attitudes and behaviors related with the body and eating of Spanish adolescents, undoubtable risk factors for AN and BN, are very similar to those of their Western contemporaries^{18,55}. AN in our country, as in others of our socioeconomic setting, seems to be reaching epidemic proportions among women from 12 to 25 years⁴.

In the decade of the eighties, there was a true burst of anorexic invasion in medical visits. The casuistic significantly increased in Spain 15 or 20 years later than in North America or in non-southern Europe, and is spread out, from the middle-high sectors towards the other social groups in a period under ten years, a growth that is faster than that observed by the English, Scandinavian, and North American studies³⁷.

From one new clinical case per year in a specialized unit in Madrid (that of Morandé), in the sixties, it has changed to one biweekly at the end of the eighties, to one per week at the beginning of the nineties. A similar phenomenon has been observed in other hospitals in large cities. At present three new patients are received every week^{37,39,41}.

In Zaragoza, the experience of the Velilla team of the Hospital Clínico Universitario, which diagnosed two patients in 1976 compared to the 33 new cases in 1996 or the 63 in 1997, clearly verifies this alarming tendency to the increase of the affected patients in our nearby environment^{4,24}.

However, it seems that we have reached a plateau and that its frequency has become stabilized, if we consider the demand in the visits, as, on the other hand, has already occurred in Canada or the United States.

From the available data, it cannot be said that EBD represents an epidemic²⁷. However, it can be said that it is a relevant health problem in a sector having a specific age (adolescence and youth), especially the feminine gender.

CONCLUSIONS

The analysis of our data seems to indicate that the news that reaches the public through the communication media on the frequency of these disorders in our

setting may be out of proportion. However, its prevalence is not negligible, since more than 4% of the adolescents suffer it⁴.

The epidemiological studies performed in Spain in recent years allow us to know what the prevalence of these disorders is in our setting and verifies that it is similar to that of other developed societies (western Europe and North America)^{49,72-77}.

The review of the studies published up to date in Spain indicate that the magnitude of the EBD impact is clearly established and constitutes a relevant health problem in the adolescent and female youth population. The unspecified or atypical cases seem to be the most frequent. The prevalence studies invariably show that there are more cases in the student populations than those revealed by the clinical investigations⁷⁵.

Thus, it would be advisable to develop control devices for the population at risk and of the cases.

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