

Risk Factors Related With Eating Disorders in a Community of Adolescents

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Objective. To detect risk factors related with eating disorders.

Design. Descriptive, cross-sectional study.

Setting. 5 secondary schools in the Virgen de Rocío health area in Seville, Spain.

Participants. 789 students enrolled in the first and second years of compulsory secondary school, and their families.

Main measures. Body mass index, risk behaviors related with food and exercise, influence of the mass media on models of desirable body types, and family climate. Data were obtained with three validated questionnaires: the Eating Attitudes Test (EAT-40), the CIMEC-26, and the Family Environment Scale (FES).

Results. In 6.9% of the participants, BMI was between 15 and 17, reflecting slight malnutrition. On the EAT scale, 68 participants (8.8%) had scores that were indicative of illness or risk of illness, and 25 (3.3%) could be diagnosed as having eating behavior disorder according to DSM-IV criteria. According to the CIMEC questionnaire, 104 participants (13.5%) were found to be significantly vulnerable to media pressures, and 85 (11.1%) were considered highly vulnerable. Parents' comments on eating behavior were related with the results on the EAT-40 CIMEC questionnaires ($P=.01$). No statistically significant relationship was found between family climate scores and the scores on the EAT-40 or CIMEC questionnaires. Students in rural or suburban area schools scored higher on the EAT-40 ($P=.04$) and CIMEC ($P=.01$) than students in urban or city center schools.

Conclusion. The identification of persons considered at risk will allow us to use primary prevention programs more efficiently.

Key words: Eating behavior disorders. Anorexia nervosa. Bulimia nervosa. Risk factors. Adolescents.

FACTORES DE RIESGO RELACIONADOS CON TRASTORNOS EN LA CONDUCTA ALIMENTARIA EN UNA COMUNIDAD DE ESCOLARES

Objetivo. Detectar factores de riesgo relacionados con trastornos de la conducta alimentaria (TCA).

Diseño. Estudio descriptivo, transversal.

Emplazamiento. Cinco institutos de ESO del Área Sanitaria Virgen del Rocío de Sevilla.

Participantes. Un total de 789 escolares de primero y segundo y sus padres/madres.

Mediciones principales. Índice de masa corporal, conductas de riesgo relacionadas con las comidas y el ejercicio, influencia de los medios de comunicación en el modelo estético corporal y ambiente familiar. Para la recogida de información se utilizaron los cuestionarios validados EAT-40, CIMEC 26 y FES.

Resultados. El 6,9% presenta un índice de masa corporal (IMC) de 15-17, que se corresponde con una desnutrición ligera. Escalas: EAT, 68 sujetos (8,8%) tienen una puntuación significativa (si no presentan la enfermedad se considera población de riesgo) y 25 (3,3%) podrían diagnosticarse de TCA según criterios de la DSM-IV. CIMEC, 104 sujetos (13,5%) se muestran significativamente vulnerables a la presión de los medios de comunicación y 85 (11,1%) se consideran muy vulnerables. Hay relación entre observaciones de los padres sobre la conducta alimentaria de los hijos con resultados en EAT-40 y CIMEC ($p = 0,01$). No se detectan relaciones estadísticamente significativas entre ambiente familiar (FES) y las puntuaciones obtenidas en CIMEC y EAT. Los alumnos de los institutos de zonas rurales/periféricas presentan puntuaciones más altas en el EAT ($p = 0,04$) y CIMEC ($p = 0,01$) que los de zonas urbana/centro.

Conclusión. La identificación de sujetos considerados población de riesgo nos permitirá emplear programas para su prevención primaria más eficazmente.

Palabras clave: Trastornos de la conducta alimentaria. Anorexia. Bulimia. Factores de riesgo. Adolescentes.

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A commentary follow this article (pág. 408)

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Introduction

The DSM-IV recognizes the existence of mental disorders related with food consumption—disorders characterized by intense preoccupation with food, weight gain and body image changes.¹ These disorders constitute a diagnostic category termed «eating disorders» (ED). This category is subdivided into anorexia nerviosa, bulimia nerviosa and nonspecific ED.

Eating disorders are currently a health problem that is characteristic of developed countries, and their incidence and prevalence are increasing² to the extent that they have been considered by some to be reaching epidemic proportions. Among adolescents, ED are the third most common chronic illness.³ The ages at which they appear most often (12–25 years) are a further motive for concern, and it has become clear that the age of onset is falling. These disorders appear mainly in girls and women at a ratio 10:1 in comparison to boys and men.

The epidemiological data compiled by Saldaña for several countries indicate that anorexia occurs in 1 out of every 250 young persons between the ages of 12 and 14 years.⁴ Cervera noted that 1 out of every 100 young women now has anorexia.⁵ In 10 years the incidence of anorexia and bulimia in Spain have equalled the figures for other European countries, making this the third most common disease among Spanish adolescents.^{6–8} Toro and colleagues have noted that in Western countries, from 0.2% to 0.8% of the patients have anorexia.⁹

Children and adolescents are one of the main risk groups for nutritional deficiency, a problem that has worsened in recent years because of cultural, social and demographic changes that have influenced eating patterns in industrialized countries. This situation, as Moraleda et al¹⁰ have noted, requires preventive strategies and an active search for patients with ED in view of the high prevalence and large percentage of adolescents with risk behaviors.

The overall aim of this study was to identify risk factors related with ED in a community of adolescents. Our specific aims were to evaluate the nutritional status and eating habits in a population of students aged 12 to 15 years, to explore family

relations and eating habits, and to identify the degree of influence of the mass media on students' habits.

Methods

Design

This descriptive, cross-sectional study was carried out during 2001 in the province of Seville in Southern Spain.

Study population

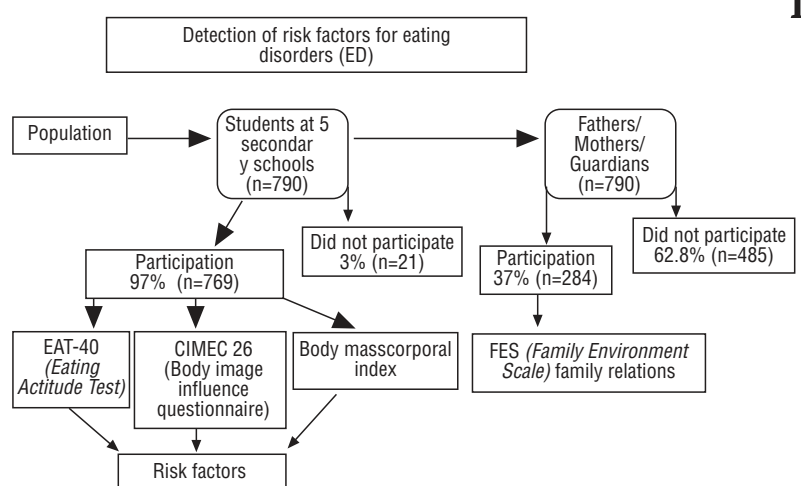
The sample population consisted of 789 first and second year students in compulsory secondary school (aged 12 to 15 years). The students were recruited at five secondary schools within the Virgen del Rocío and Virgen de Macarena health service areas in Seville. The schools were selected to ensure variety in rural or urban location, socioeconomic level, and health service district:

- Instituto Pablo Neruda (135 students) in Castilleja de la Cuesta. Camas health service district.
- Instituto Beatriz de Suabia (213 students) in Seville (city center). Este-Oriente health service district.
- Instituto Fernando de Herrera (179 students) in Seville. Este-Oriente health service district.
- Instituto Pablo Picasso (119 students), in Barriada de Alcosa, Sevilla. Sur-Guadalquivir health service district.
- Instituto Torre del Rey (143 students) in Pilas. Aljarafe health service district.

Information obtained

The directors and parents' associations of each school were contacted to request authorization for the students to participate in the study.

Material and methods



General scheme of the study

Detection of risk factors for eating disorders (ED).

The questionnaires were handed out to students and collected during class hours.

The validated Spanish version¹¹ of the Eating Attitudes Test (EAT-40) designed by Garner and Garfinkel¹² was used to evaluate behaviors and attitudes toward food, weight and exercise. The participant chose one of six possible answers for each of the 40 items in this inventory, and the answers were scored from 0 to 3. The cut-off score was set at 30, for a sensitivity of 67.9% and a specificity of 85.9%.

The CIMEC-26, designed by Toro, Salamero and Martínez,¹³ is intended to evaluate the influence of agents and situations that transmit prevalent models of body image. A cut-off score of ≥ 23 –24 was used; higher scores indicated that the participant was easily influenced by and highly receptive to external agents.

El Family Environment Scale (FES)^{14,15} evaluates and characterizes the relationships between family members, the most important personal growth factors and basic family structure. This scale consists of 90 items grouped into 10 subscales that measure three dimensions: *a*) relationships: communication and free expression in the family; *b*) personal growth (importance of certain processes for the family), and *c*) system maintenance: family organization and degree of control of some members over others. The highest possible score in each of the 10 subscales is 9.

After the questionnaires were collected, each student was weighed and measured to calculate body mass index (BMI).

The EAT-40 and CIMEC-26 questionnaires were completed by the students, and the FES was given to the students in a sealed envelope for them to take home to their parents. The students later returned the completed questionnaires to their school advisor.

Statistical analysis

All data were entered into a database for treatment with version 10.0 of the SPSS program for Windows. Analyses were done with techniques for descriptive statistics (frequency distribution and mean values with 95% confidence intervals) and the χ^2 test.

Results

A total of 764 valid questionnaires were received (97%) from 334 adolescent girls and 430 adolescent boys. Mean age was 13.2 years, with a standard deviation of 0.9 years. The distribution of returned questionnaires by school was Pablo Picasso 13.5%, Pablo Neruda 17.5%, Torre del Rey 15.2%, Beatriz de Suabia 27.6%, and Fernando de Herrera 23.2%.

More than one-third (37.5%) of the families returned useful FES questionnaires. Of the questionnaires that the students turned in, 13% were invalid because of errors in responding to some items. The distribution of family members who completed the FES was: father 6.9%, mother 55.9%, both 25.3%, others 1.9%.

The distribution of the number of siblings in the family was: only child, 3.2%; 1 sibling, 52.5%; 2 siblings, 23.7%; 3 siblings, 7.1%; 4 or more siblings, 3.5%.

The results for nutritional status are summarized in Table 1. Body mass index was <15 (severely underweight, malnutrition) in 0.3% of the students and 15–17 (moderately underweight, slight malnutrition) in 7%.

TABLE 1 Distribution of the sample by body mass index (BMI) categories

BMI		N	%
<15	Severely underweight	2	0.3
15-16.9	Moderately underweight	52	6.8
17-18.9	Mildly underweight	153	20.0
19-22.9	Healthy range	328	42.9
23-24.9	Mildly overweight	168	22.0
25-34.9	Moderately obese	57	7.5
≥ 35	Severely obese	4	0.5
		764	100.0

Weight: mean, 56.7; SD, 12.7; range 30–60.

Height: mean, 1.61; SD, 0.08; range, 1.41–1.83.

BMI: mean, 21.7; SD, 3.9; range, 14.5–36.2

Parents' observations on students' eating behavior, exercise and leisure time activity were as follows: 42.6% reported that their child studied or worked a lot; 35.1% noted that their child was almost always on his/her feet; 22.5% noted poor appetite; 19.8% indicated that their child was fussy or choosy about food; 19.1% reported that their child complained that servings were too large; 7.7% reported binge eating; 6.9% noted that their child cut food into small pieces; 5.5% indicated that their child was tense during meals; 5.2% noted complaints about body image; 5.3% noted that their child ate alone or in secret; 4.2% reported that their child showed interest in diet or low-fat foods. With regard to family relations, 32.4% of the parents noted that being successful in life was important to their child; 31.3% indicated that their child compared his or her own achievements against those of other members of the

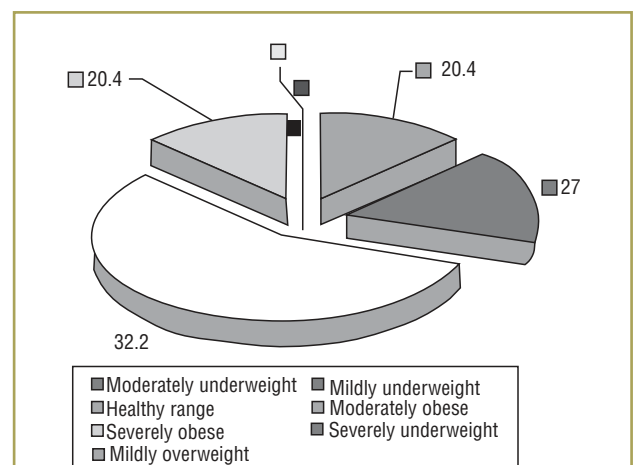


FIGURE 1 Nutritional status according to BMI.

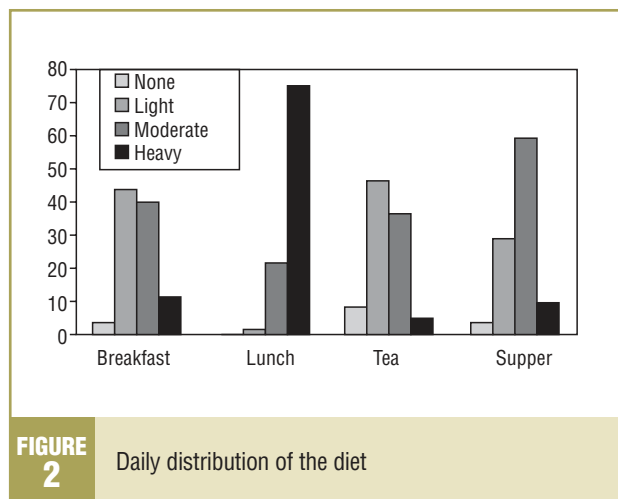


FIGURE 2 Daily distribution of the diet

family, and 26% indicated that family members provided little help and support for each other.

Family eating habits were investigated in some detail. To shop for food, a list of needed items was made in 83.5% of the families; food chosen depending on availability in the store in 12%; and each family member chose his or her own foods in 2%.

The type of diet (if any) followed in the family was vegetarian in 2%, slimming diet in 7.3%, and other in 6.6%. Among the nutritional factors considered by the family, 38.4% did not eliminate fat-rich foods, 52% did not limit sugar-rich foods, 16.5% did not eliminate snack foods, 18% of the families snacked between meals, and 23.5% of the families did not try to balance foods consumed when they ate out, or to balance food intake between lunch and supper.

TABLE 2 Scores on different subscales of the Family Environment Scale

Subscales	Mean	Stand
deviationCohesion	52.85	8.08
Expressiveness	52.36	8.06
Conflict	45.25	5.99
Independence	43.05	8.23
Achievement	50.84	8.39
Intellectual-cultural	51.93	10.46
Active-recreational	52.45	8.41
Moral-religious	51.78	8.45
Organization	54.69	8.46
Control	50.53	7.88
Global personal growth	50.01	5.40
Global system maintenance	52.63	6.71
Global relationships	50.15	4.94

All members ate together three times a day in 17.2% of the families, twice a day in 56.5%, once a day in 16%, and only on weekends in 5%.

During meals, relations between members led to arguments in 4.6% of the families, news or information being exchanged in 14%, communication between members in 66.4%, giving orders in 1.1%, and watching TV or reading newspapers in 12%.

Only 12% of all students ate a large breakfast, and 43% had only a light breakfast (pastry or toast and milk) (Figure 2).

Scores on the questionnaires

Mean score on the EAT-40 was 15.27, with a standard deviation of 9.99. Sixty-eight participants (8.8%) had a score of more than 30 (probable ED or at risk for ED) and 25 (3.3%, 20 girls and 5 boys) satisfied DSM-IV criteria for ED.

Mean score on the CIMEC-26 was 16.55, with a standard deviation of 11.17. Of all participants, 104 (13.5%) were significantly vulnerable to pressure by the mass media, and 85 (11.1%) were considered highly vulnerable.

The scores on the FES did not bring to light any findings of interest (Table 2).

We noted that parents' evaluations of their children's eating behavior were related to and scores on the EAT-40 and CIMEC questionnaires ($P=.01$).

Students in schools in rural areas (Pilas and Castilleja) or in suburbs (Alcosa) scored higher on the EAT-40 ($P=.04$) and on the CIMEC ($P=.01$) than students in schools located in urban areas.

Discussion

The EAT-40 is considered an index of socioeconomic status rather than personality trait,¹³ and therefore the score cannot be considered diagnostic of ED. However, this instrument is useful to detect certain risk behaviors related with eating disorders.

We found positive scores on the EAT-40 in 3.3% of the participants, a lower figure than in similar studies.¹⁶⁻¹⁹

The FES, an indicator of social climate, did not provide data of interest regarding family relationships. The low rate of participation by parents (37.5%) may have been due to the large number of items—some covering similar topics—in the questionnaire, and to the manner in which the questionnaire was delivered and collected.

Eating behavior disorders can be detected early and prevented.²⁰ Evaluation of eating patterns with input from both the subjects and their families is a more effective approach to early detection of the population at risk, and to preventing the health problems that underlie eating disorders.

Thus responsibility for early detection falls to primary care professionals who have diversified their community-level activities to include health education, but who use a va-

Discussion
Key points



What is known about the subject

- Many studies have reported increases in the incidence and prevalence of eating disorders in recent years.
- These disorders are seen most often in adolescent girls.
- Most studies have focussed on adolescent girls older than 15 years.

What this study contributes

- We identified schoolchildren aged 12 to 15 years (ages when young people are easily influenced) as a population at risk.
- These findings will aid in the development of more selective and hence more effective programs for psychological and educational intervention.

riety of nonstandardized methods. Moreover, primary care professionals are unfamiliar with eating problems and their milieu, and their work is more often aimed at disease prevention, vaccination, AIDS, diabetes, etc. Nevertheless, quality criteria should implicitly involve health education activities. Because eating habits are established at an early age, it is important to begin nutritional education before behaviors and attitudes become fixed. Interventions should take advantage of the ties between persons, i.e., their social context and the community-level dimension (family, neighborhood and school). An understanding of the young person's environment can help make health education activities more efficacious and effective.

References

1. American Psychiatric Association. Practice Guideline for the Treatment of Patients with Eating Disorders. (Revisión). Am J Psychiatry 2000;157(Suppl):1.
2. Chinchilla Moreno A. Guía teórico-práctica de los trastornos de conducta alimentaria: anorexia nerviosa y bulimia nerviosa. Barcelona: Masson, 1996.
3. Casper RC, Larson R. Weight and eating concerns among pre and young adolescents boys and girls. J Adolesc Health Care 1999;11:203-9.
4. Saldaña C. Trastornos del comportamiento alimentario. Madrid: Fundación Universidad-Empresa, 1994.
5. Cervera M. Riesgo y prevención de anorexia y bulimia. Barcelona: Martínez Roca, 1996.
6. Pérez-Gaspar M, Gual P, Irala-Estévez J, Martínez González MA, Lahortiga F, Cervera S. Prevalencia de trastornos de la conducta alimentaria en las adolescentes navarras. Med Clin (Barc) 2000;114:481-6.
7. Ruiz PM, Comet P. Consideraciones metodológicas acerca de la prevalencia de los trastornos de la conducta alimentaria. Med Clin (Barc) 2000;115:278-9.
8. Willi J, Grossmann S. Epidemiology of anorexia nervosa in a defined region of Switzerland. Am J Psychiatry 1993;140:564-7.
9. Toro J, Castro J, García M, Pérez P, Cuesta L. Eating attitudes, sociodemographic factors and body shape evaluation in adolescence. Br J Med Psychol 1989;62:61-70.
10. Moraleda S, González N, Casado JM, Carmona J, Gómez R, Aguilera M. Trastornos del comportamiento alimentario en una población de estudiantes de enseñanza media. Aten Primaria 2001;28:463-7.
11. Garner DM, Garfinkel PE. The Eating Attitudes Test: an index of the symptoms of anorexia nervosa. Psychol Med 1979;9:273-9.
12. Castro J, Toro J, Salamero M, Guimera E. The Eating Attitudes Test: validation of the Spanish version. Eval Psicol/Psychol Assess 1991;7:175-90.
13. Toro J. La epidemiología de los trastornos de la conducta alimentaria. Med Clin (Barc) 2000;114:543-6.
14. Moos RH, Moos B, Trickett, E. The Social Climate Scales: an overview. Palo Alto: Consulting Psychological Press, 1974.
15. Seisdedos N, De la Cruz MV, Cordero A. Adaptación de la escala FES. Madrid: TEA Ed., 1989.
16. Kendell RE, Hall DI, Halley A, Babigan HM. The epidemiology of anorexia nervosa. Psychological Medicine 1973;3:200-3.
17. Theander S. Anorexia nervosa. A psychiatric investigation of 94 females cases. Acta Psychiatr Scand 1970;214(Suppl):1-194.
18. Szmukler GI, Mc Cance C, Mc Crone L, et al. Anorexia nervosa: a psychiatric case register study from Aberdeen. Psychol Med 1986;16:49-58.
19. Pérez-Gaspar M, Gual P, Irala-Estévez J, Martínez González MA, Lahortiga F, Cervera S. Prevalencia de trastornos de la conducta alimentaria en las adolescentes navarras. Med Clin (Barc) 2000;114:481-6.
20. Instituto Nacional de la Salud. Protocolo de trastornos del comportamiento alimentario. Madrid: Instituto Nacional de la Salud, 1995; p. 11-2.

COMMENTARY

Prevention of Risk Factors for Eating Disorders in Adolescents: a Challenge for Primary Care

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Those of us who work with adolescents in primary care know that eating disorders (ED) often begin with innocuous dietary habits that are no different from those of many other adolescents. In addition, we often find that the families of these teenagers—like the families of other teenagers—have problems dealing with conflict and are overly protective and intrusive. This limits privacy and interferes with both the parents' and their children's desire for autonomy. Many patients with anorexia nerviosa are immature, excessively dependent and socially isolated. The fact that anorexia nerviosa often appears during puberty led psychoanalysts to define it as a developmental problem of identity, and to consider it a defense against emerging adult sexuality. Behavioral psychology professionals have conceived the disorder as an avoidance response to food and the adult body, induced by sexual conflicts and an impaired ability to cope with adult responsibilities. Cognitive psychologists suggest that irrational beliefs and cognitive distortions are the reasons behind these patients' behavioral alterations, and have noted that anxiety is the main factor in the development of bulimia.

For many researchers, ED are linked to a specific sociocultural context whose essential conflicts and generalized psychological tensions become so acute that they generate a high level of anxiety and mobilize psychological defenses—factors that trigger the development of an eating disorder. The symptoms are magnifications of behaviors and attitudes that are normal in such a context. Moreover, some behaviors and attitudes, such as the desire to lose weight, are highly valued socioculturally.

According to their current biopsychosocial conceptualization, eating disorders are caused by multiple biological, psychological and sociocultural factors that operate at different times as predisposing, precipitating and perpetuating elements. A study at the Nursing Research Unit of the Virgen del Rocío University Hospital in Seville (Southern Spain) and published in this issue of *ATENCIÓN PRIMARIA*

Key points

- According to their current biopsychosocial conceptualization, eating disorders are caused by multiple biological, psychological and sociocultural factors that operate at different times as predisposing, precipitating and perpetuating elements.
- Preventive programs should be developed by primary care services.
- The strategy is to integrate interventions to identify risk factors into more general health education activities.
- Attitudes can be changed with community-level programs and the population at risk for eating disorders can thus be significantly decreased.

seeks to identify some of the risk factors in a population of adolescents aged 12 to 15 years in their first and second year of secondary school, and in their parents. The study was descriptive and cross-sectional in design, and therefore should be considered a prevalence study. Prospective studies will be needed to estimate the incidence, and although such studies are more expensive, they are more valuable in terms of the epidemiological date they yield—see, for example, the study by researchers at the University of Navarra.^{1,2}

The Seville study was carried out in a single stage with questionnaires. Two-stage studies, with structured, diagnostic interviews in addition to questionnaires, are better in methodological terms.

A number of Spanish studies³ have been published for the population of adolescents aged 12 years or more. Notable

among the one-stage studies are that of Toro et al in Barcelona⁴ and that of Ruiz-Lázaro et al in Teruel.⁵ Cross-sectional, two-stage studies of note include those by Ruiz-Lázaro et al in Zaragoza,⁶ Pérez-Gáspar et al in Navarra,⁷ and Rojo-Moreno et al in Valencia.⁸ However, there is a need for more prospective studies^{1,2} that examine the effects of exposure to risk factors in the population of children younger than 12 years old.

The usefulness of cross-sectional studies such as the one carried out in Seville lies in the early detection of a population in which risk factors are present. This makes preventive intervention possible—a measure that can be implemented mainly, but not exclusively, in the classroom.

Preventive programs need to be developed by primary care services. A complete primary prevention program should include, initially, consciousness-raising and information for persons at risk and their families, and for the general public. It should also aim to modify precursors of the illness (such as dieting for no justifiable reason), identify risk groups, and work to develop critical attitudes toward cultural stereotypes and commercial pressures that foment preoccupation with body image. Some of the goals of such programs for children and adolescents should be to favor self-esteem, a nonperfectionist self-image, the ability to enjoy life, interpersonal communication skills, social integration, and a critical attitude toward cultural models and messages from the mass media. Goals for interventions aimed at the family should include reducing overprotection, enhancing communication, affectivity-sexuality and values, and restricting exposure to mass media (particularly television). In addition, these programs should aim to train education professionals so they can identify risk factors.

The strategy is to integrate interventions to identify risk factors into more general health education activities. Specific illness-centered activities should be avoided in order to forestall the copy-cat behaviors these interventions can trigger.

My personal experience as coordinator of programs to promote mental health and community participation for adolescents, parents, educators and social and health professionals⁸⁻¹⁰ has convinced that it is important not to separate prevention of eating disorders from other health education activities related with food and nutrition, mental and emotional health, affectivity-sexuality, and person-

al and social development. A global view of prevention is important for programs aimed at adolescents.

A pioneering example of a practical experience with a controlled experimental study in Spain is the ZARIMA-Prevention study. This project found that attitudes can be modified with a community-level program: the population at risk for eating disorders was significantly decreased in the group of adolescents who participated in a community-level intervention.¹¹

References

1. Martínez-González MA, Gual P, Lahortiga F, Alonso Y, De Irala-Estévez J, Cervera S. Parental factors, mass media influences, and the onset of eating disorders in a prospective population-based cohort. *Pediatrics* 2003;111:315-20.
2. Gual P, Pérez-Gaspar M, Martínez-González MA, Lahortiga F, De Irala-Estévez J, Cervera-Enguix S. Self esteem, personality, and eating disorders: baseline assessment of a prospective population-based cohort. *Int J Eat Disord* 2002;31:261-73.
3. Ruiz-Lázaro PM. Epidemiología de los trastornos de la conducta alimentaria en España. *Actas Esp Psiquiatr* 2003;31:85-94.
4. Toro J, Castro J, García M, Pérez, Cuesta L. Eating attitudes, sociodemographic factors and body shape evaluation in adolescence. *Br J Med Psychol* 1989;9:37-42.
5. Ruiz-Lázaro PM, González E, Doñoro N, Roca M. Modelo estético corporal y actitudes alimentarias alteradas en adolescentes escolarizados rurales. *Rev Psiquiatr Infanto-Juv* 2001;2:7-13.
6. Ruiz PM, Alonso JP, Velilla JM, Lobo A, Martín A, Paumard C, et al. Estudio de prevalencia de trastornos de la conducta alimentaria en adolescentes de Zaragoza. *Rev Psiquiatr Infanto-Juv* 1998;3:148-62.
7. Pérez-Gaspar M, Gual P, De Irala-Estévez J, Martínez-González MA, Lahortiga F, Cervera S. Prevalencia de trastornos de la conducta alimentaria en las adolescentes navarras. *Med Clin (Barc)* 2000;114:481-6.
8. Ruiz-Lázaro PJ. Prevención primaria de los trastornos de la conducta alimentaria en la adolescencia: papel del profesional de atención primaria. *Aten Primaria* 2001;27:428-31.
9. Ruiz-Lázaro PJ, Puebla R, Cano J, Ruiz-Lázaro PM. Proyecto de educación para la salud «Promoviendo la adaptación saludable de nuestros adolescentes». *Aten Primaria* 2000;26:51-7.
10. Ruiz PJ, Bosques D, Cozar G, González B, Talaverano R, Prada N, et al. Participación comunitaria de adolescentes y jóvenes en torno a un centro de salud como forma de prevención. IV Congreso Virtual de Psiquiatría Interpsiquis 2003. Consultado en: <http://www.psiquiatria.com/articulos/tralimentacion/9738>
11. Ruiz-Lázaro PM. Bulimia y anorexia: guía para familias. Zaragoza: Certeza, 2002; p. 184-7.