

# Perceptions about body weight and weight reduction in Spain

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## Abstract

*Objective:* To assess the more prevalent beliefs about body weight and the factors involved in weight changes in the Spanish adult population.

*Design:* A national survey was carried out according to an established protocol on Spanish subjects selected by a multistage procedure following a random route model, which was quota-controlled for several sociodemographic variables. This study was undertaken by the Spanish arm of a pan-European survey and was performed with a validated questionnaire. It contained questions to evaluate some aspects concerning the relationship between obesity, physical activity and health. We also estimated the proportion of self-reported overweight and obesity.

*Setting:* Spain.

*Subjects:* The sample included 1000 subjects aged 15 years or older.

*Results:* Eleven per cent of the sample were obese (body mass index, BMI > 30 kg m<sup>-2</sup>) and an additional 32% were overweight (BMI > 25 and < 30 kg m<sup>-2</sup>). Obesity prevalence was higher among older individuals, those with lower education and socioeconomic levels, and among housewives and retired or unemployed people. Most Spanish people believed that fat intake (51%) and the amount of food consumption (44%) were the major factors involved in weight gain, while physical activity was less mentioned (12%). The method most frequently used to lose weight was diet (9%). Individuals from central and southern regions paid more attention to genetics (20–27%) and physical activity (12–20%) as determinants of weight gain than people living in the north or northwest regions (15–17% and 8–9%, respectively). Normal weight people participated more often in some physical activity during their leisure time.

*Conclusions:* The Spanish population is not familiar with factors influencing weight gain. Health promotion strategies should emphasize the role of physical activity, especially among older individuals, retired or unemployed subjects, those from lower educational or socioeconomic levels and among people living in the north or northwest of Spain.

**Keywords**  
Body weight  
Spain  
BMI  
Physical activity  
Mediterranean  
Perceptions  
Beliefs

Obesity is a common and costly nutritional problem in many countries<sup>1</sup>. The obesity 'epidemic' has been associated with several factors such as increasingly sedentary lifestyles combined with easy availability of high-fat foods<sup>2</sup>. Being overweight or obese are risk factors for serious diseases that can lead to premature death, and cause considerable psychosocial suffering<sup>3–5</sup>. Poor dietary patterns play a role in many leading causes of death and disease in Spain; despite this, Spaniards are perceived as benefiting from a 'healthy Mediterranean' diet providing fruit, vegetables, fish and olive oil in higher amounts than other 'western' diets<sup>6–8</sup>.

A BMI greater than 28 kg m<sup>-2</sup> is associated with an increased risk of morbidity that is three to four times higher than that of the general normal weight

population. The Healthy People 2000 objectives related to obesity are to reduce the number of overweight people to a prevalence of no more than 20% of the adult population and to reduce dietary fat intake to an average of 30% of the total energy intake as well as to increase physical activity<sup>1</sup>. In the Spanish adult population, the pooling of previous studies from different regions has led to an overall prevalence of obesity of 13.4% (BMI > 30 kg m<sup>-2</sup>)<sup>9</sup>. This estimate represents an upward trend in comparison with previous reports<sup>6,10</sup>. Prevalence of obesity is higher among women and less educated subjects<sup>9,10</sup>. Numbers of overweight or obese people are increasing worldwide, possibly as a result of urbanization, migration, new dietary habits and recent affluence<sup>2</sup>. The current

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social environment requires very limited energy expenditure to earn a living since most jobs are essentially sedentary. Those individuals who also are less active during leisure time are exposed to a high risk of developing obesity. In addition, Spanish trends in food consumption show increases in the intake of meat, dairy products, fish and fruit, but decreases in consumption of olive oil, sugar and carbohydrate-rich foods<sup>11–15</sup>. These changes are associated with economic development, but there are reasons for concern because the traditional Mediterranean diet is now being gradually abandoned in Spain<sup>11–15</sup>. Levels of physical activity have been shown to have an inverse relationship with the prevalence of obesity<sup>16</sup>. This fact is important in encouraging behavioural changes and their maintenance by promoting nutritional education and physical activity programmes, as well as developing support systems for individuals who try to modify their lifestyles<sup>17</sup>. From a public health point of view, it is important to know how people perceive energy expenditure (physical activity) compared with energy intake (total input of food: fat, sugar or alcohol) as a relevant factor in terms of one's ability to gain weight.

In a survey conducted in a random sample of adults from Australia<sup>18</sup>, only minor differences according to sociodemographic categories were found in beliefs about the effectiveness of different weight-loss strategies. However, 24% of the sample were trying to lose weight and older respondents were less likely to have exercised recently as a means of weight reduction.

Currently, there is little available information about beliefs and attitudes toward obesity and physical activity in the Spanish adult population and other European or Mediterranean countries. Our aim was to examine the more prevalent beliefs about body weight status and about the factors involved in weight changes in the Spanish adult population according to socio-demographic characteristics such as sex, age, socio-economic levels, education, region and occupation. We also determined the prevalence of self-reported overweight and obese people.

## Subjects and methods

A national survey was carried out according to an established protocol on 1000 Spanish subjects over 15 years of age selected by a multistage procedure following a random route model<sup>19</sup>. This study was undertaken by the Spanish partners in a pan-European survey about attitudes to obesity, physical activity and health; and was performed with a validated questionnaire<sup>20</sup>. Sampling procedures conformed to the standards of marketing research set out by ICC/ESOMAR. The interviews were carried out as part of Eurobus, an international group of market research organizations offering omnibus research in each

member state of Europe for the purposes of conducting intercountry surveys.

Six regional areas were considered: northeast (Lérida, Barcelona, Balears and Zaragoza), east (Valencia, Castellón and Alicante), south (Jaén, Sevilla, Málaga, Cádiz and Córdoba), central (Zamora, Segovia, Ciudad Real, Salamanca, Valladolid and Madrid), northwest (León, Orense, Asturias and Pontevedra) and north (Cantabria, Navarra, La Rioja, Álava and Vizcaya). The selected cities were chosen randomly, and within each city the selection of the sampling points was stratified and balanced, according to the population size within each city. Quotas were applied to sex, age and town size.

Within each sampling point, individuals were chosen by a random route procedure. When more than one person of the family met the quota requirements, only the first eligible subject who came to the door was selected. Sample size was calculated with the following assumptions: alpha error = 5% and precision to about 3%. With these criteria, the required sample size was 998 individuals. Once individuals who did not want to participate were excluded (12% of those selected), 1000 Spanish subjects over 15 years of age were involved. All subjects were asked about the two most important factors influencing their ability to gain weight. They were also asked about their weight, height, amount of physical activity taken in their leisure time and the methods used in losing weight. The questionnaire included questions concerning physical inactivity (sitting hours) and routine participation in leisure-time physical activity or sport. All interviews were completed between February and April 1997.

Each subject was personally contacted at his/her home by a professional interviewer specifically trained for this study, belonging to a firm (EMER GFK) specializing in social surveys. The average duration of each interview was 15 min. Social class was analysed according to occupation and was classified into four categories (1: middle-upper, 2: middle, 3: middle-lower, 4: lower). Education level was classified into three categories according to the model of the Statistics Bureau of the Regional Government of Madrid: primary level, secondary level and university level. Occupation was classified into four levels: workers, students, unemployed or retired individuals and housewives.

The results were shown as the percentages of the sample who chose each option in the questionnaire. The results are presented in different tables distributed by sex, age, region, socioeconomic level, education level and occupation. A universally accepted index to assess body composition is the BMI or Quetelet index<sup>21</sup>. It is easy to calculate and is sufficiently correlated with direct measures of body fatness to be a useful tool in defining obesity in population studies<sup>22,23</sup>. We calculated the mean of BMI and 95%

confidence intervals (CIs) for each category. The chi-square test for linear trend was used to assess the influence of age, education and socioeconomic level on the proportion of interviewed individuals selecting each option in the questionnaire. A Pearson chi-square test was used to determine the differences between men and women, among regions and across occupation categories. SPSS software was used for the statistical analysis.

**Results**

The prevalence of obesity (BMI >30 kg m<sup>-2</sup>) in our sample was high, 10.8% (Table 1). There was also a substantial proportion of participants in the overweight category (31.6%). The prevalence of obesity was higher among women, older subjects and less educated or less affluent participants. Higher rates of obesity were found in the central and south regions. Women were

also more likely to be in the underweight category than men, while a higher BMI (overweight category) in our sample was associated with being male, older, less educated, poor, retired/unemployed or being a housewife.

The role of physical activity in keeping a healthy weight appears not to be adequately understood by the Spanish adult population (Table 2). Only 11.7% of our sample mentioned it among the two factors having the greatest influence on weight, whereas this proportion was higher for the European average. Interestingly, among surveyed individuals between 15 and 34 years old, the proportion reporting physical activity as one of the two more important determinants of body weight was higher than in other age strata (*P* < 0.01 for linear trend test). It was also higher for students (*P* < 0.001), for individuals who achieved secondary or university levels of study (*P* < 0.05) and for those in middle-upper socioeconomic levels (*P* < 0.05 for linear trend test).

**Table 1** Means of BMI and percentage of interviewed individuals in each BMI category according to sex, age, education, socioeconomic level, size of household, region and occupation

	<i>P</i> <sup>c</sup>	BMI (kg m <sup>-2</sup> )	BMI categories (%)			
		Mean (95% CI)	Underweight (< 20 kg m <sup>-2</sup> )	Normal (20–24.99 kg m <sup>-2</sup> )	Overweight (25–29.99 kg m <sup>-2</sup> )	Obese (> 30 kg m <sup>-2</sup> )
<b>Sex<sup>a</sup></b>						
Male	0.01	25.27 (24.96–25.58)	5.6	47.6	36.3**	10.2
Female		24.61 (24.23–25.0)	17.5***	43.5	27.3	11.3
<b>Age (years)<sup>b</sup></b>						
15–34	0.001	23.02 (22.69–23.36)	19.2***	58.4***	18.0	4.3
35–54		25.55 (25.11–25.99)	6.4	43.5	39.8	10.3
>55		26.68 (26.25–27.12)	7.8	32.1	40.6***	18.8***
<b>Education<sup>b</sup></b>						
Primary	0.001	25.85 (25.53–26.17)	9.2	37.9	38.1***	14.5***
Secondary		23.19 (22.76–23.63)	17.3	59.9	18.2	4.3
University		23.55 (22.95–24.15)	14.3**	57.5***	23.8	3.6
<b>Socioeconomic level<sup>b</sup></b>						
Middle-upper	0.001	24.42 (23.88–24.97)	11.3	52.1**	28.9	7.1
Middle		23.99 (23.47–24.52)	14.2	55.0	23.0	7.3
Middle-lower		25.42 (25.07–25.77)	10.8	41.1	34.7	13.1
Lower		24.78 (23.88–25.67)	13.6	40.8	35.2*	10.3*
<b>Size of household<sup>b</sup></b>						
No children	0.069	25.11 (24.81–25.41)	11.2	44.3	32.6	11.6
1 child		24.37 (23.81–24.94)	13.4	48.8	30.7	6.7
2 children		24.56 (23.67–25.48)	15.2	46.9	25.5	12.5
3+ children		25.72 (24.08–27.37)	3.0	47.4	34.4	15.1
<b>Region<sup>a</sup></b>						
Northeast	0.013	24.31 (23.83–24.79)	15.6	42.5	35.5	6.0
East		25.18 (24.57–25.79)	7.4	46.8	33.5	12.2
South		25.69 (25.06–26.36)	10.3	45.9	28.0	15.8*
Central		25.01 (24.48–25.55)	10.6	48.1	28.3	12.4
Northwest		24.53 (23.77–25.29)	16.1	42.1	33.2	7.8
North		24.76 (24.00–25.52)	9.9	47.9	33.0	9.2
<b>Occupation<sup>a</sup></b>						
Worker	0.001	24.87 (24.53–25.21)	6.5	48.8	36.9***	7.4
Student		21.73 (21.22–22.25)	32.0***	56.3**	10.4	1.3
Retired/unemployed		25.62 (25.14–26.09)	9.7	40.9	34.6	14.8
Housewife		25.94 (25.31–26.57)	11.7	40.0	31.0	16.3***
<b>Total</b>			11.8	45.5	31.6	10.8

<sup>a</sup>Pearson's chi-square: categories mentioning a factor significantly more often are marked: \**P* < 0.05; \*\**P* < 0.01; \*\*\**P* < 0.001.

<sup>b</sup>Mantel Haenszel chi-square test for linear association: \**P* < 0.05; \*\**P* < 0.01; \*\*\**P* < 0.001.

<sup>c</sup>Student's *t*-test or one-way ANOVA for the comparison of the means of BMI.

**Table 2** Results (%) of asking participants the question 'Which two factors, for you personally, have the greatest influence on the weight you gain?' Two options were given

	<i>n</i>	Fat	Food	Genetics	Sugar	Physical activity	Alcohol	Do not tend to put on weight
<b>Sex<sup>a</sup></b>								
Male	482	50.7	42.7	17.6	15.2	12.6	11.5**	20.4*
Female	518	50.8	45.8	20.9	21.7**	10.9	6.6	15.3
<b>Age (years)<sup>b</sup></b>								
15–34	387	47.5	41.6	19.1*	19.4	15.1**	1.4	21.0
35–54	286	53.9	46.7	24.5	14.7	11.1	7.9	14.6
>55	328	51.9	45.4	15.0	21.0	8.3	8.2	16.8
<b>Education level<sup>b</sup></b>								
Primary	641	53.0*	46.8*	15.9	20.5*	9.2	9.3	15.2
Secondary	241	48.3	40.1	27.8	15.3	16.5	8.0	20.3
University	118	43.6	39.1	20.3**	14.6	15.8*	9.0	26.7**
<b>Socioeconomic level<sup>b</sup></b>								
Middle-upper	216	44.4	50.4	21.6	17.4	16.6	6.4	19.3
Middle	138	54.2	36.7	17.9	28.4*	8.4	7.1	17.1
Middle-lower	203	52.0	44.1	15.5	22.3	10.4	9.7	17.3
Lower	214	54.6	44.8	20.7	13.4	10.1	9.9	13.1
<b>Size of household<sup>b</sup></b>								
No children	685	49.9	46.7	16.2	20.1*	11.3	9.6	18.3
1 child	198	53.5	37.9	29.7	16.7	12.7	7.5	13.9
2 children	89	49.3	41.0	19.3	13.5	11.0	8.1	23.1
3+ children	28	57.7	42.2	21.3*	11.8	17.5	5.9	16.3
<b>Region<sup>a</sup></b>								
Northeast	120	59.4*	37.1	20.0	19.0	11.8	10.7	19.4
East	108	39.8	49.2	20.0	11.0	12.0	11.3	23.8
South	177	45.7	46.7	27.1**	15.3	13.3	11.3	16.7
Central	178	50.6	41.4	20.9	17.8	20.3*	7.5	18.5
Northwest	558	50.5	45.1	16.9	19.5	9.1	9.0	17.9
North	88	62.9*	40.0	15.2	20.8	8.3	6.7	17.7
<b>Occupation<sup>a</sup></b>								
Worker	360	54.1	44.0	18.3	16.5	10.6	12.2*	17.8
Student	126	42.8	37.7	20.7	18.6	23.9***	10.1	24.3*
Retired/unemployed	302	47.0	46.0	19.5	19.5	7.3	7.2	19.9
Housewife	213	55.1*	46.3	19.8	20.8	12.8	5.3	10.9
Total	1000	50.8	44.3	19.3	18.6	11.7	9.0	17.8
EU average		39.0	44.0	18.0	22.0	17.0	11.0	18.0

<sup>a</sup>Pearson's chi-square: categories mentioning a factor significantly more often are marked: \* $P < 0.05$ ; \*\* $P < 0.01$ ; \*\*\* $P < 0.001$ .

<sup>b</sup>Mantel Haenszel chi-square test for linear association: \* $P < 0.05$ ; \*\* $P < 0.01$ ; \*\*\* $P < 0.001$ .

The distribution by sex, age, education level, socioeconomic level, region and occupation of other factors considered to influence body weight are shown in Table 2. From this survey, it can be established that the majority of Spanish people believed that fat intake (50.8%) and amount of food consumed (44.3%) were the most important factors influencing weight gain. In our sample, women were more likely than men to consider sugar as a critical factor in gaining weight, while men reported more often alcohol intake ( $P < 0.01$ ) as an influential factor on body weight. Men were also more likely to consider that they do not tend to put on weight ( $P < 0.05$ ). Fat, food intake and sugar were mentioned more frequently by people with primary education ( $P < 0.05$  for linear association), and fat and food intake also by subjects from lower socioeconomic levels. The Spanish population with a university education and higher socioeconomic levels considered more often genetics as one of the two main factors. Individuals from central and

southern areas of the country paid more attention to genetics (21–27%) and physical activity (13–20%) as determinants of weight gain than people living in the north or northwest regions (15–17% and 8–9%, respectively).

Most participants (77.7%) were not trying to lose weight (Table 3). This proportion was higher for males. Conversely, obese people more often tried to lose weight than overweight, normal and underweight individuals following a linear trend ( $P < 0.001$ ). Different methods were used for losing weight, according to the distribution by sociodemographic variables. Those who were trying to lose weight were mostly dieting (9.2%), with significant differences between women (12.3%) and men (5.8%,  $P < 0.001$ ), and across age strata, with more people dieting among older participants ( $P < 0.01$  for linear trend test). There were also some differences according to other sociodemographic categories (Table 3).

The second most frequently used method for losing

**Table 3** Methods used for losing weight (%) by sex, age, education, socioeconomic level, size of household, region, occupation and BMI

	Diet	Exercise	Diet and exercise	Medication	Not trying to lose weight
<b>Sex<sup>a</sup></b>					
Male	5.8	5.3	3.1	0.2	84.0***
Female	12.3***	5.9	3.7	0.5	71.7
<b>Age (years)<sup>b</sup></b>					
15–34	5.7	6.6	3.6	0.2	80.1
35–54	10.3	4.6	3.6	0.0	77.1
>55	12.2**	5.3	3.0	0.8	75.3
<b>Education<sup>b</sup></b>					
Primary	10.8**	4.9	2.7	0.3	78.0
Secondary	7.5	5.9	4.6	0.8	77.1
University	3.4	9.1	5.2	0.0	77.1
<b>Socioeconomic level<sup>b</sup></b>					
Middle-upper	8.8	5.4	3.8	0.0	76.6
Middle	4.6	9.1	4.7	0.0	75.8
Middle-lower	11.5	5.4	3.0	0.6	76.6
Lower	4.3	0.0	2.7	0.0	90.3
<b>Size of household<sup>b</sup></b>					
No children	10.0	5.7	3.9	0.5	76.4
1 child	8.1	5.3	1.5	0.0	79.0
2 children	6.4	5.0	5.0	0.0	81.8
3+ children	6.1	7.1	0.0	0.0	86.7
<b>Region<sup>a</sup></b>					
Northeast	6.9	5.1	2.8	0.0	83.0
East	13.5	5.0	3.8	1.3	72.2
South	12.4	8.6	4.1	0.0	73.4
Central	7.5	4.5	3.3	0.0	78.6
Northwest	6.4	4.1	4.2	1.4	76.3
North	8.4	5.8	2.2	0.0	81.8
<b>Occupation<sup>a</sup></b>					
Worker	5.8	4.5	3.5	0.0	82.3**
Student	5.0	6.9	3.1	0.0	81.2
Retired/unemployed	11.0	6.9	3.4	0.3	75.6
Housewife	14.5**	4.9	3.4	1.3	70.7
<b>BMI (kg m<sup>-2</sup>)<sup>b</sup></b>					
< 20	1.4	6.2***	2.0	0.0	90.4***
20–24.99	4.9	6.0	2.4	0.4	83.0
25–29.99	15.2	5.9	2.7	0.6	71.0
≥ 30	17.6***	3.3	8.1***	0.0	61.5
<b>Total</b>	<b>9.2</b>	<b>5.6</b>	<b>3.4</b>	<b>0.3</b>	<b>77.7</b>

<sup>a</sup>Pearson's chi-square: categories mentioning a factor significantly more often are marked: \* $P < 0.05$ ; \*\* $P < 0.01$ ; \*\*\* $P < 0.001$ .

<sup>b</sup>Mantel Haenszel chi-square test for linear association: \* $P < 0.05$ ; \*\* $P < 0.01$ ; \*\*\* $P < 0.001$ .

weight was exercise, with only 5.6% of the total sample choosing this option; people with a BMI  $< 20 \text{ kg m}^{-2}$  more frequently chose this option. An additional 3.4% were simultaneously dieting and exercising. Medication was seldom reported.

## Discussion

To our knowledge, over the past few decades no survey has been undertaken to assess the beliefs and attitudes to body weight and physical activity in the Spanish population despite being ascribed as Mediterranean diet consumers<sup>8</sup>. In this survey, we assessed the prevalent beliefs in Spain about these issues. The sample was selected to be nationally representative based on demographic characteristics (such as age, sex and town size). In addition, quotas were applied for

population size when examining the average results. All interviewers were professionally trained in both subject selection and questionnaire administration in order to reduce the likelihood of bias arising from the interviewer 'using his or her own judgement' in selecting subjects, which may be a potential problem with non-probability samples. As various topics are included in an omnibus questionnaire from different clients, the likelihood of only selecting 'interested subjects' was reduced with the recruitment methods used in the present survey. Omnibus surveys have an additional advantage in that they facilitate the interviewing of large samples of people within a short period of time<sup>19</sup>.

Subjects were asked to report their own height and weight in order to estimate the extent of underweight, normal weight, overweight and obese people

throughout Spain. Despite some limitations and biases of this approach<sup>21</sup>, this information may help to identify those groups of people in the population who are most at risk of being dangerously underweight or obese. Approximately half of all Spanish subjects had a BMI lying in the normal range (20–24.99 kg m<sup>-2</sup>). Almost one-third of Spanish subjects were overweight, one-tenth were obese and one-tenth were underweight. The percentages in the different BMI categories in Spain were similar to those in the other European Union member states<sup>1,2,21</sup>. With increasing education level and increasing socioeconomic status there was a decrease in the prevalence of obesity. This finding is similar to results from other surveys conducted in Spain<sup>9,10</sup>. In our survey, people of normal weight were more likely to participate in some kind of activity, compared with obese subjects who had the highest level of non-participation in sport activities. Furthermore, obese subjects in the European Union are more likely to be physically inactive for a longer time in their leisure time and are more likely not to participate in any physical activity<sup>20</sup>. Other analyses indicate that a change in non-sedentary activity level has an independent effect on change in BMI<sup>24</sup>.

This survey revealed that, for Spaniards, it is difficult to understand the role of physical activity in keeping the ideal weight. They perceived that fat (51%) and amount of food (44%) are the most important factors involved in weight gain. However, European people in general gave more importance to the amount of food consumption (44%) than to fat (39%). In Spain, the percentage of energy intake in the diet derived from fats rose from 30% in the 1960s to 44% in the second half of the 1980s, although the total intake of calories is decreasing<sup>9,25</sup>. Obesity has been related to: the high palatability of high-fat foods; high calorie intake due to increased energy density of a higher fat diet; low energy costs of converting the dietary fat in adipose tissue; and a low regulation of fat oxidation by fat intake<sup>26,27</sup>. The relationship between physical activity and being overweight has been repeatedly examined<sup>20,24</sup>. However, the percentage of Spaniards considering physical activity to be an influential factor on weight is lower than expected when compared with the European average.

These results suggest that several misconceptions about the best way to lose weight are prevalent among the Spanish population, which leads the authors to think that interventions for a healthy lifestyle are needed to improve patient compliance to both physical activity and dietary habits in the treatment and prevention of obesity<sup>17,28,29</sup>. There is some evidence that low-fat diets may enhance short-term weight loss, and that if continued and combined with regular exercise may help maintain the reduced body weight<sup>29</sup>. Increased physical activity not only increases

calorie expenditure, but also promotes dietary compliance<sup>22</sup>. Therefore, the particular benefit of physical activity in the prevention of weight gain needs to be emphasized among the general population.

The information on methods of weight loss revealed that while most Spaniards have never tried to lose weight, those that did lose weight tended to do so by diet. This was similar to the situation in other European countries, where exercise, and the combination of diet and exercise were used less often than diet alone. In our survey dieting was more frequently used among overweight/obese individuals as a means of losing weight.

In this context, early years are decisive for the primary formation of lifetime habits, so improvement in lifestyles from childhood would be an important strategy in stopping the epidemic of overweight and obese populations<sup>30</sup>. In a strategy to promote physical activity it should be stressed that physical activity means all types of activity (not just sport), which even if moderate in intensity are beneficial to health and obesity prevention<sup>31</sup>.

In summary, it is important to highlight that the Spanish population is not familiar with factors influencing weight gain. Health promotion strategies should emphasize the role of physical activity and should be targeted mainly to elderly individuals, retired or unemployed subjects, those who belong to lower educational and socioeconomic levels, and people living in the north or northwest of Spain.

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