

Does the Prevalence of Obesity in the Different Regions of Spain Influence the Attitudes, Perception, and Barriers to Its Treatment?

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Keywords

Obesity · Weight loss · Obesity management · Socioeconomic status · Dietary treatment

Abstract

Introduction: The differences in the prevalence of obesity between the various regions of Spain, partly attributed to socioeconomic differences, may influence the approach to this disease. The aim of this study was to compare differences in attitudes, perception, and barriers to the treatment of obesity between people with obesity (PwO) and health care professionals (HCPs), between the different regions of Spain. **Methods:** Sub-analysis of the ACTION-IO Spain study, which included 1,500 PwO and 306 HCP, was performed to identify differences in PwQ and HCPs belonging to regions with high prevalence of obesity (>16%, $n = 9$ regions, high prevalence of obesity [HPO] group) and low prevalence of obesity (<16%, $n = 8$ regions, low prevalence of obesity [LPO] group) (self-reported data), according to the 2017 National Health Survey of Spain. Statistics: comparison of proportions (χ^2). **Results:** A total of 746 PwO belonged to HPO and 754 to LPO group. The PwO in HPO group were younger, had lower income, a lower

level of higher education, higher unemployment rate, and fewer comorbidities. Obesity was considered a chronic disease to a higher extent in HPO compared to LPO group (62 vs. 56%), but this difference was not statistically significant. The PwO in HPO group discussed less with the HCPs about their excess weight (57 vs. 70%), did not feel motivated to lose weight in a higher percentage (26 vs. 18%), and felt less emotionally supported (16 vs. 24%). In HPO group, the preference for unhealthy food (51 vs. 36%), and the costs of healthy eating, anti-obesity drugs and bariatric surgery were perceived barriers to losing weight. A higher proportion of PwO in HPO group considered that exercise (58 vs. 40%) was more effective for achieving weight loss. In contrast, LPO group considered diet more effective (48 vs. 32%). HCPs in HPO group felt more motivated to treat obesity (83 vs. 68%) and a higher proportion (14 vs. 5%) identified the economic burden as one of the main reasons why PwO do not start conversations to lose weight. **Conclusions:** There is less concern and conversation about excess weight in PwO in regions with a higher prevalence of obesity, with socioeconomic limitations being one of the main perceived barriers to treatment.

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Introduction

Obesity is a chronic disease with pandemic dimensions affecting both developed and developing countries and is currently one of the most difficult challenges to face in public health. According to the World Health Organization (WHO), the prevalence of obesity in many European countries has tripled since 1980, with 30–70% of adults in the European Union living with overweight, and 10–30% with obesity [1]. In Spain, the estimated prevalence of overweight in the adult population is 39.3% and that of obesity is 21.6% (22.8% in men and 20.5% in women) and increases with age [2]. If the current rate of growth continues, in 2035, 37% of the adult population will live with obesity and there will be more than 27 million people with excess weight in Spain [3], which will lead to an increase in current health spending of over 3 billion euros [4]. Taking into account the fact that Spain has a public health system, this economic cost will become unsustainable. Since 2005, the Ministry of Consumer Affairs has implemented strategies for improved nutrition, physical activity and the prevention of obesity (NAOS Strategy) with the objective to establish simple, didactic, and appropriate communication and information strategies in order to facilitate changes in lifestyle with regard to appropriate eating choices, physical activity, and general health [5]. However, despite sensitization and awareness actions and campaigns, the prevalence of obesity in Spain continues to grow [3].

Spain is composed of 17 regions that have full competencies in the administration of health care to their corresponding population but with similar working levels and coverage of resources. However, the prevalence of obesity is not homogeneous across regions and the difference between those with the greatest and lowest prevalence can reach 15 percentage points [3]. Obesity is a complex, chronic disease in which there are not only genetic, biological and psychological factors but also environmental and socioeconomic aspects contributing to its development [6, 7]. Although it is a fact that social and economic disparities exist between autonomous Spanish regions, these aspects have been poorly addressed in previous studies assessing obesity prevalence in Spain.

The Awareness, Care and Treatment In Obesity management (ACTION) studies [8–10] were designed to identify the perceptions, attitudes, behaviors, and potential barriers to obesity management for patients with obesity (PwO) and health care professionals (HCPs). The results have provided an awareness of the real problems and the difficulties encountered by both groups in the approach and control of obesity, showing some particularities between different countries [8–17]. The Spanish cohort of the ACTION-IO

(International Observation) study has been evaluated [17], the data also show discrepancies in perceptions and attitudes between PwO and HCPs, underlining the need for improving obesity education in both groups. The aim of this secondary analysis of Spanish data of ACTION-IO was to identify differences in PwO and HCPs belonging to two groups of regions classified by their prevalence of obesity regarding attitudes, perception of obesity, and their potential barriers to obesity management. This information will be extremely helpful to develop specific strategies to prevent and treat obesity, tailored to each region's needs.

Materials and Methods

Study Design and Participants

The methodology for the ACTION-IO study has been reported previously [9]. In summary, it was a cross-sectional, non-interventional, descriptive study that collected data via an on-line survey of PwO and HCPs conducted in 11 countries. Spanish participants completed the survey between July 27, 2018, and September 6, 2018. The survey was based on those used in the ACTION US [8] and ACTION Canada [10] studies. The full text of the questionnaires has been previously published [9].

Informed Consent

Written informed consent to participate was not directly obtained but inferred by completion of the questionnaire.

Ethics

In Spain, the study questionnaires were approved by the Research Ethical Committee of the University of Navarra (Pamplona, Spain). The study complied with all laws and regulations regarding management of personal information as required by the European General Data Protection Regulation. The study was conducted in accordance with the Guidelines for Good Pharmacoepidemiology Practices [18] and the Declaration of Helsinki [19] and is registered with ClinicalTrials.gov, number NCT03584191.

Eligible PwO were aged 18 years or older, with a current body mass index (BMI), based on self-reported height and weight, of at least 30 kg/m². Exclusion criteria included pregnancy, participation in intense fitness or body building programs, or significant, unintentional weight loss during the past 6 months. Eligible HCPs were medical practitioners who had been in practice for 2 years or more, with at least 50% of their time involved in direct patient care and who had seen 100 or more patients during the past month, at least ten of whom had a BMI of at least 30 kg/m². Screening questions were used to determine eligibility based on these demographic targets. Respondents who passed the screening process, had a BMI of at least 30 kg/m², and who met the other study eligibility criteria, were permitted to complete the full survey. A total sample size of 1,500 for PwO and 306 for HCPs of Spanish individuals were considered in this study. Results from the whole Spanish cohort have already been published [17].

For the present study, the obesity prevalence at different Spanish regions was ranked according to the registry of the Ministry of Health (*encuesta Nacional de Salud de España – ENSE 2017*) [20].

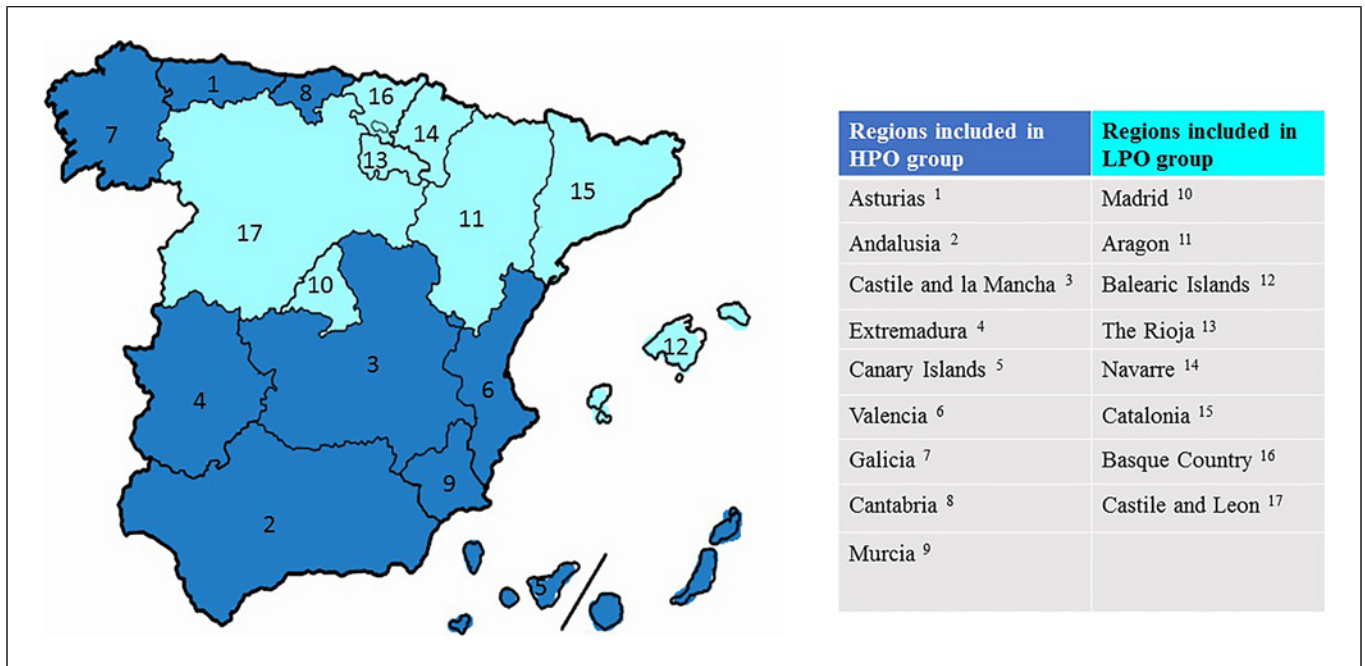


Fig. 1. Representation of the different regions in Spain according to obesity prevalence. PwO, people with obesity; HPO, high prevalence of obesity; LPO, low prevalence of obesity.

The mean prevalence of obesity including all regions in the *ENSE* survey was 16%. Although other studies based on direct adiposity measurements had shown different obesity prevalence, this survey was chosen as it was based on self-reported data, similar to our study. Therefore, the prevalence of obesity according to the *ENSE* survey divided Spanish regions in those with the highest (>16% $n = 9$, high prevalence of obesity [HPO] group) and lowest prevalence of obesity (<16% $n = 8$, low prevalence of obesity [LPO] group). Obesity was classified according to BMI-based WHO criteria: class I (BMI 30–34.9 kg/m²), II (BMI 35–39.9 kg/m²), and III (BMI ≥40 kg/m²) [21].

Statistical Analysis

Descriptive statistical techniques were used for demographic variables; categorical variables were expressed as percentage and quantitative data as mean (SD). Categorical variables were compared using the χ^2 test and quantitative variables using the Kruskal-Wallis test. The analysis of de-identified data was performed by the KJT Group using SPSS (IBM, version 23.0), Stata (StataCorp LLC, version IC 14.2). Variables were considered statistically significantly different between groups when p value <0.05 at 95% confidence level.

Results

Participants

The ACTION-IO survey was completed by 1,500 PwO and 306 HCPs in Spain. The response rate was 24% for PwO and 6% for HCPs, with final eligibility rates of 11% and 55%

for each group, respectively. A total of 746 PwO belonged to communities with high obesity prevalence (>16%, HPO group) and 754 belonged to communities with lower prevalence (<16%, LPO group) (Fig. 1).

Patients with Obesity

Demographics

Groups were similar regarding gender and marital status. However, PwO in HPO group were slightly younger, had proportionally lower economic incomes, possessed lesser postgraduate studies, and suffered from a higher unemployment rate when compared to LPO group. On the other hand, LPO group suffered from a higher comorbidity burden (Table 1). No other significant differences were observed between groups regarding mean BMI, obesity class, perception of current weight, amount of weight loss, weight patterns, or absence or presence of previous bariatric surgery.

Attitudes toward Obesity

No differences were observed in negative attitudes toward obesity, perception of the impact of obesity on present and future health or the extent to which society or the health care system met needs related to obesity. However, a slightly higher percentage of PwO in HPO group considered obesity as a chronic disease compared to LPO group without reaching statistical significance (62 vs. 56%).

Table 1. Demographic characteristics of patients

	HPO group, <i>n</i> = 746	LPO group, <i>n</i> = 754	<i>p</i> value
Gender (%M/F/others)	46/52/2	51/48.4/0.6	<i>p</i> = 0.13
Age, years	50.3	53.4	<i>p</i> < 0.05
Marital status, %			<i>p</i> = 0.164
Married	58.2	54.7	
Not married	21.1	22.6	
BMI, kg/m ² , %	33.3	33.4	<i>p</i> = 0.578
Obesity class I, %	69.7	67.5	
Obesity class II, %	18.4	19.0	
Obesity class III, %	11.7	13.3	
Income, %			<i>p</i> < 0.05
Under 9,499 EUD	19	10	
9,500–15,499 EUD	23	17	
75,000–99,999 EUD	1	5	
Education, %			<i>p</i> < 0.05
Master/postgraduate/PhD	6	11	
Employment, %			<i>p</i> < 0.05
Not employed, but looking for work	21	12	
Retired	21	32	<i>p</i> < 0.05
Comorbidities, %			
Hypertension	31	40	<i>p</i> < 0.05
Osteoarthritis	16	23	<i>p</i> < 0.05
Cancer	5	8	<i>p</i> < 0.05
Prediabetes	3	8	<i>p</i> < 0.05
Diabetes	9.3	9.1	<i>p</i> = 0.47

Data are median or percentage (%). HPO, high prevalence of obesity; LPO, low prevalence of obesity; BMI, body mass index. *p* < 0.05 (95% confidence level) was considered statistically significant. Percentages do not add to 100% due to option to select “all that apply.” Obesity classes were defined as having a self-reported BMI of, respectively, 30–34.9, 35–39.9, and ≥40 kg/m² for class I, II, and III.

Obesity Discussions with HCP

A lower proportion of PwO in HPO group discussed their excess weight with HCPs than those in LPO group (57% vs. 70%) and one of the top 5 reasons for not discussing weight – that they did not feel motivated to lose weight – was reported in a higher proportion in HPO group (26 vs. 18%). Moreover, those who did enter into discussion with the HCP felt less emotionally supported compared to LPO group (16 vs. 24%) (Fig. 2).

Obesity Diagnosis, Treatment, and Management

There were no differences in the proportion of PwO diagnosed with obesity by a HCP. A higher percentage of PwO in HPO compared to LPO group found that losing a prespecified percentage of body weight was the most important goal to achieve as part of weight management

and did not view reduction or withdrawal of medications as a main driver to lose weight. PwO in HPO group considered that exercise was a more effective method than diet for weight reduction compared with those in LPO group (Fig. 3).

When analyzing barriers to losing weight, preference for unhealthy food and lack of physical activity were identified as main factors in a higher proportion in HPO group. Of note, in this group economic factors played a very important role and the cost of healthy food, anti-obesity medications and even the price of bariatric surgery were perceived as important barriers to lose weight (Fig. 4). In HPO group, more information was received from nonmedical sources such as books (23 vs. 16%) and television programs (10 vs. 5%) instead of from HCPs (41 vs. 51%).

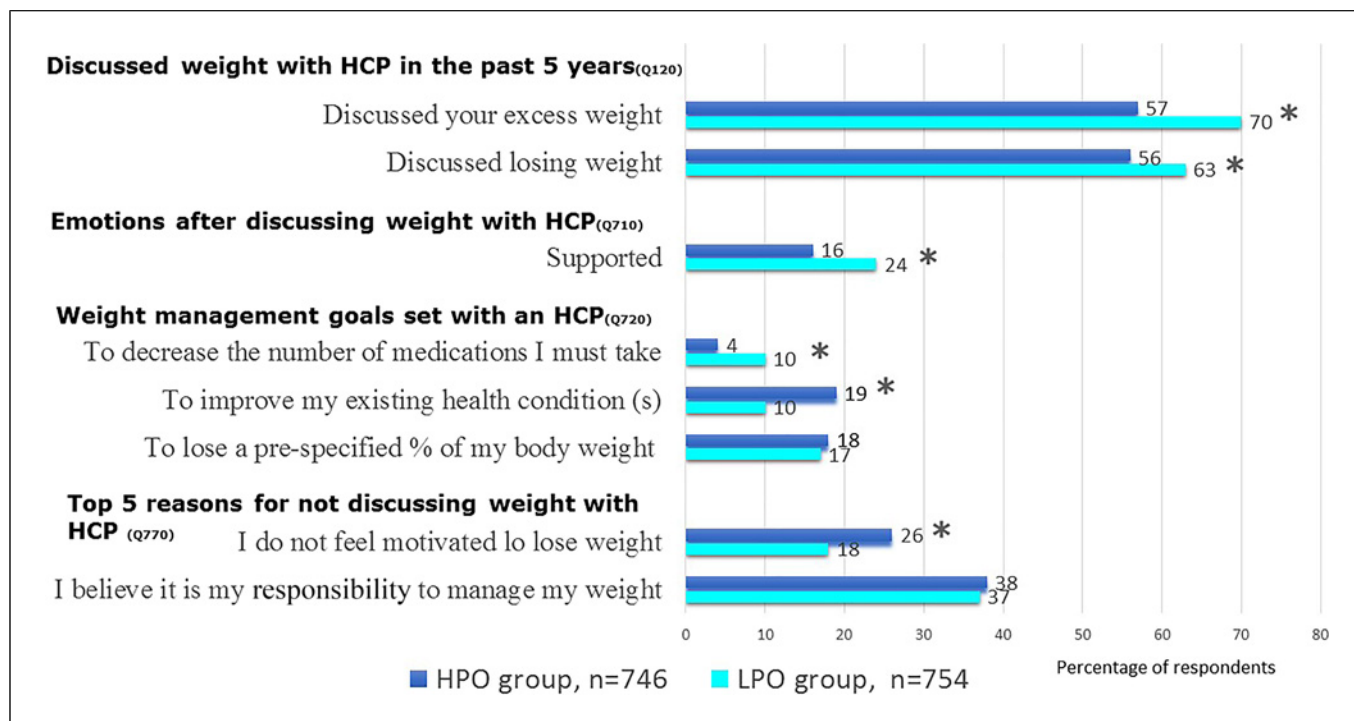


Fig. 2. PwO agreement with statements regarding discussions with HCP. PwO, people with obesity; HCP, healthcare professional; HPO, high prevalence of obesity; LPO, low prevalence of obesity. An asterisk (*) indicates $p < 0.05$ comparing HPO and LPO groups. In response to these questions: Q120: have you discussed your weight or talked about losing weight with a healthcare

provider (physician, nurse, etc.) in the past 5 years? Q710: thinking about your most recent discussion, how did you feel after discussing your weight with your HCP? Q720: what types of weight management goals have you set with your HCP? Q770: which of the following are/would be the top five reasons for which you might not discuss managing your weight with your HCP?

Health Care Professionals

There were no clinically relevant demographic differences between HCPs belonging to HPO and LPO group or in the characteristics of PwO attended.

Attitudes towards Obesity

A lower proportion of HCP in HPO group found obesity as less important than many of the other diseases they treated (4% vs. 13%) and felt motivated in a higher proportion to treat PwO (83% vs. 68%). No other relevant significant differences were found between groups (Fig. 5).

Obesity Management

More HCPs in HPO group supported to a greater extent that increasing physical activity was one of the most effective methods for long-term weight management, ahead of diet (83 vs. 74%). HCPs in HPO group thought more strongly compared to those in LPO group that one of the main reasons patients had for not initiating conversations to lose weight was the lack of

financial means to support a weight loss effort (14 vs. 5%). HCPs in HPO group were less likely to discuss weight-loss medications and bariatric surgery with patients and were more concerned about the long-term safety of anti-obesity drugs (71 vs. 61%) and the extremely long waiting list of surgical options (80 vs. 64%). Almost one-third of HCPs in both groups did not follow any obesity management guidelines at all.

Discussion

The ACTION-IO study provides highly useful information about misalignments in perceptions and actions in obesity management, indicating that there are significant differences between countries [8–17] and as observed in our study also between different regions in the same country. Our data collected in Spain show that obesity management and treatments differ among regions with higher and lower obesity prevalence and behind these discrepancies there may lay socioeconomic inequalities.

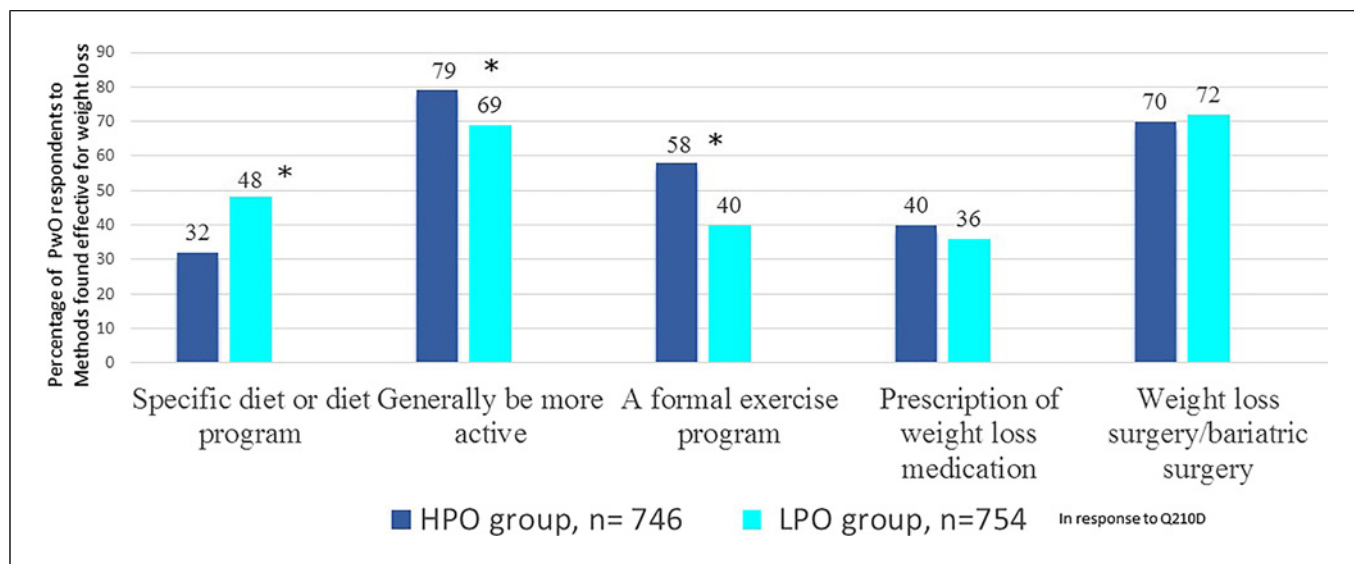


Fig. 3. Proportion of PwO that found effective methods to lose weight. PwO, people with obesity; HPO, high prevalence of obesity; LPO, low prevalence of obesity. * $p < 0.05$ between HPO and LPO groups. An asterisk (*) indicates $p < 0.05$ comparing HPO and LPO group. In response to question (Q210D), only asked among PwO who have tried each method – which of the following methods for managing your weight have you found to be effective for weight loss?

Also, a greater tolerance toward excess weight in regions with higher obesity rates may condition reduced levels of discussion of PwO with HCPs and a lower motivation of PwO to lose weight.

Therefore, a single strategy against obesity is not valid for all territories and tailored plans of action must be developed according to the specific regional needs. As observed in epidemiological studies, large geographic variations in the prevalence of obesity in Spain exist [3, 22]. The factors that might explain the regional differences in obesity, and specifically the tendency to a north-south gradient, are not fully known. This pattern, which also affects other cardiovascular risk factors [23], has been traditionally linked to the lower socioeconomic levels of the Canary Islands and Southern Spain. Currently, regions with a higher obesity prevalence mirror those with a higher poverty risk [24]. As reflected by our data, regions with higher obesity prevalence, which also have lower economic incomes, perceived the cost of healthy food as a barrier to lose weight. Although causality cannot be proven, it is a fact that in Spain there has been an abandonment of the Mediterranean diet with an increased consumption of less expensive processed and ultra-processed food [25]. These tendencies worsened during the COVID-19 pandemic lockdown [26]. In these regions therefore, specific nutritional interventions for low-income families are mandatory, along with programs

providing health literacy and strategies to eat healthily with a small budget, adapted to customs and local food preferences.

Physical activity and structured exercise programs were identified as the most effective strategies to reduce obesity in regions with higher obesity prevalence, both by patients and HCPs. According to the ENSE study, 35% of the population in Spain between 15 and 69 years of age does not reach the level of physical activity recommended by WHO [27]. Failure to achieve these recommendations is greater in women (37 vs. 34%), in less favored social classes (39 in low social class based on occupation vs. 30% in high social class based on occupation), and in lower educational levels. A change in community policies implicating those responsible for urban planning, sports, education, culture, transport, and housing will lead to an increase of the capacity to promote physical activity. Also, there is a need to train health professionals in physical activity whose access is restricted in our health system.

The cost of obesity medications in communities with higher obesity rates was also perceived as an important barrier to lose weight in PwO. In this sense, although pharmacological obesity treatment is included in all guidelines as an adjuvant therapy, only in a few countries world-wide is it reimbursed [28, 29]. In Spain, which is characterized by one of the strongest public health systems, none of the three drugs commercialized for obesity

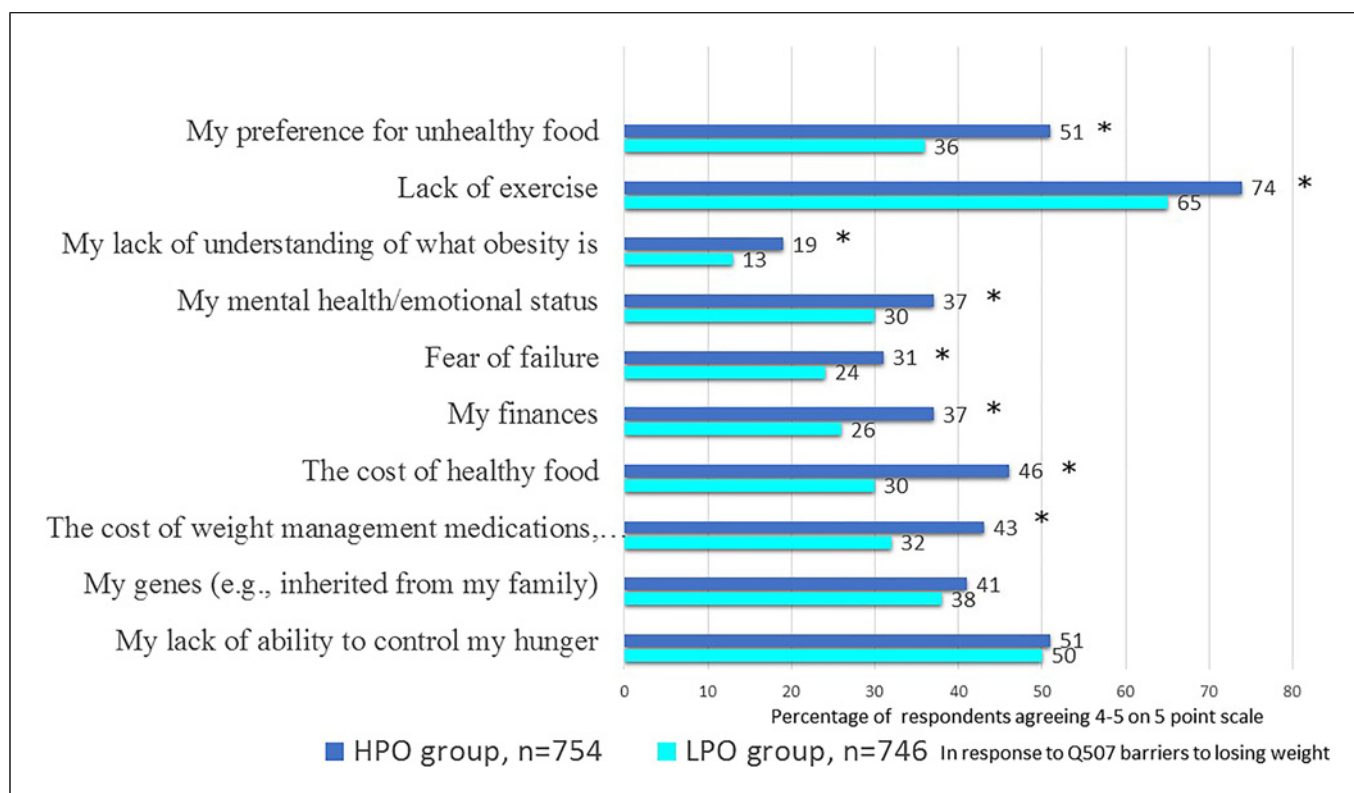


Fig. 4. PwO agreement 4–5 on 5-point scale with statements regarding barriers to lose weight. PwO, people with obesity; HPO, high prevalence of obesity; LPO, low prevalence of obesity. An asterisk (*) indicates $p < 0.05$ comparing HPO and LPO groups. In response to Q507 – how much do you agree that each of the following is a barrier to you losing weight?

treatment are financially supported, contrasting with full payment of other chronic disease treatments. Of note, a higher proportion of HCPs in communities with higher obesity prevalence were concerned about the long-term safety of weight-loss medications and were less likely to prescribe them, which contrasts with available scientific evidence endorsing their security and benefits [30]. Moreover, almost one-third of HCPs did not follow any obesity guidelines at all and information was received from nonscientific sources in almost half of them. In this sense, a study performed in primary care in the UK showed that weight-loss advice from general practitioners rarely included effective methods and was mostly based on the “eat less, do more” approach, distinct from evidence-based recommendations [31]. It therefore follows that an investment in HCP training in obesity is an urgent need that should be carried out by scientific societies.

Bariatric surgery is the most effective treatment in case of severe obesity in order to lose weight, maintain weight loss in the long-term, and to improve most of

obesity-related comorbidities [32, 33]. However, surgery cost was also perceived as a barrier in regions with higher obesity prevalence. The health system in Spain has universal coverage and is the third leading European country by number of surgeons who state that they perform some type of bariatric surgery [34]. Nevertheless, it is a fact that waiting lists for bariatric surgery are not uniform across regions, ranging from 6 months to 4.6 years [35] and the COVID-19 pandemic has worsened this scenario [36]. The creation of a national registry would be an initiative to shed light on the inequalities of accessing bariatric surgery across regions. Of note, HCPs from communities with higher obesity prevalence perceived bariatric surgery as associated with an extremely long waiting list and were less likely to discuss this option with patients. The fact that most PwO belonged to obesity class I (BMI 30–34.9 kg/m²) and II (BMI 35–39.9 kg/m²) and only 11.7% to class III obesity (BMI ≥40 kg/m²) in HPO and 13.3% in LPO might have also conditioned lower discussion of bariatric surgery as a treatment option.

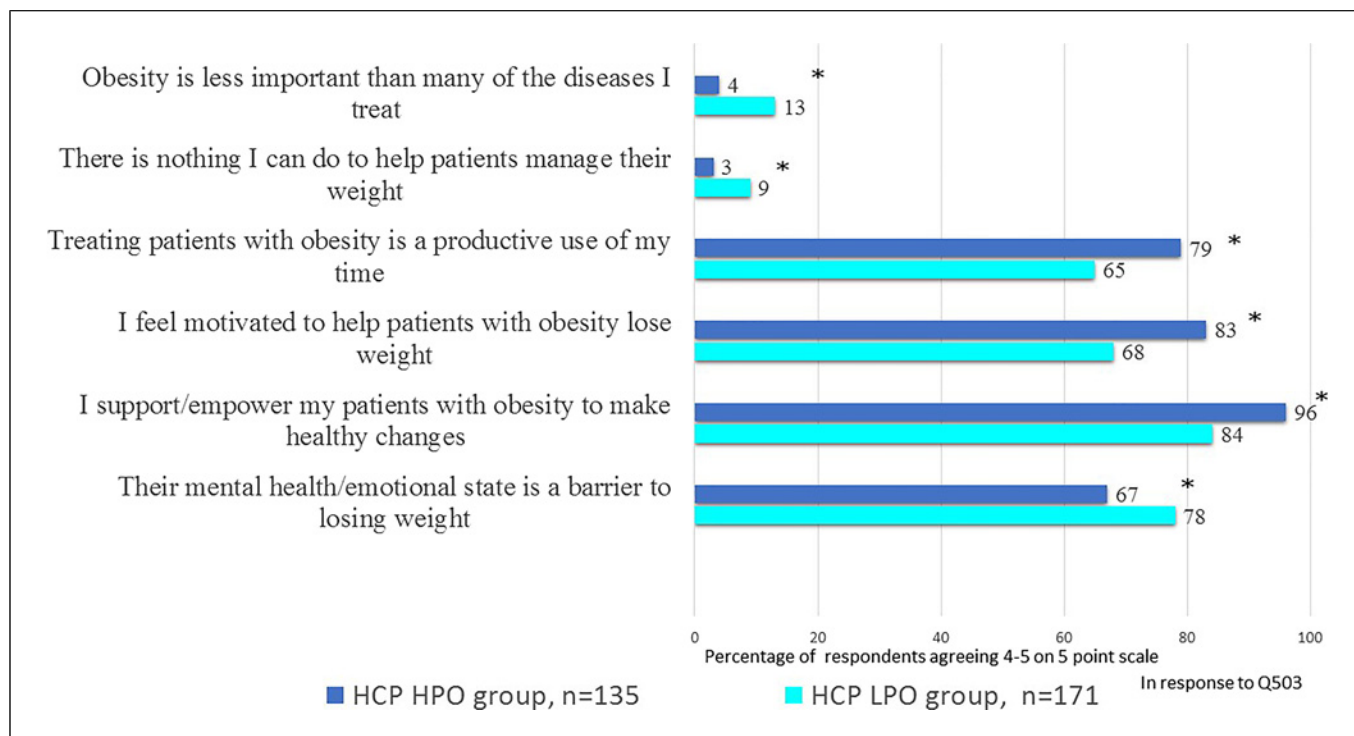


Fig. 5. HCP agreement 4–5 on 5-point scale with statements regarding attitudes toward obesity. HPO, High Prevalence of Obesity; LPO, Low prevalence of Obesity. An asterisk (*) indicates $p < 0.05$ comparing HCP in HPO and LPO groups. In response to Q503 – attitudes toward obesity and weight management.

In regions with higher obesity prevalence, a lower proportion of PwO discussed excess weight or losing weight with HCPs and one of the top 5 reasons for not doing so was a lack of motivation to lose weight in a higher proportion than in regions with lower obesity prevalence. This might be in part a result of the stigmatization suffered by excess weight and feelings of self-blame the PwO have for not being able to maintain healthy habits [37, 38]. On the contrary, most of the HCPs felt motivated to treat obesity and to empower their patients to make healthy changes. However, as observed in our study, PwO feels cognitive and emotional support to be deficient after discussing weight with HCPs [39]. Strategies are therefore needed to improve this aspect, given the key role played by HCPs on PwO motivation [40]. HCPs, on the other hand, have reported to be poorly trained on what advice they should give patients and how to give it [41]. Therefore, skills in communication, motivational interviews, and mental health support should be part of the education of obesity specialists and specific training should be given from scientific societies and health professional schools.

Our data showed that in communities with higher obesity prevalence the main sources of information in obesity management came from books, magazines, and television programs, rather than from HCPs. Taking into account that Spain has a universal health coverage and free unlimited access to HCPs, these data might reflect the incomplete recognition of obesity as a chronic disease. Spanish scientific societies are working on social networks and updated and certified websites with obesity-related contents in order to become indisputable reference in health issues.

Considering all these data, there are some differences between regions classified according with obesity prevalence. Although this study does not allow to draw conclusions about causality, factors such as reduced income, less postgraduate studies, and other socioeconomic features are more present in communities with higher obesity prevalence. This indicates a need to improve the access to financial, social, physical, cognitive, and other resources in these communities.

The strength of the study is represented by the protocol and questionnaire used, which has been previously validated and replicated in other countries. The limited

number of studied persons that prevented subgroup analysis, the classifications of regions according to ENSE 2017 obesity prevalence data, and the retrospective collection of data are considered as limitations of the study. It is important to remark that although the response rate was low it was comparable to the mean achieved globally in the ACTION studies, 20% for PwO and 17% for HCPs.

Conclusion

This study provides evidence about the differences in perceptions and barriers between regions in Spain classified according to obesity prevalence, suggesting that some socioeconomic characteristics are associated with obesity rate and that education directed to both PwO and HCPs is needed in order to control the obesity pandemic.

Acknowledgments

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Statement of Ethics

Written informed consent to participate was not directly obtained but inferred by completion of the questionnaire. A Local Ethics Committee/Independent Review Board approved the questionnaires in Spain (Research Ethical Committee of the University of Navarra (Pamplona, Spain)). The study complied

with all laws and regulations regarding management of personal information as required by the European General Data Protection Regulation. The study was conducted in accordance with the Guidelines for Good Pharmacoepidemiology Practices and the Declaration of Helsinki and is registered with ClinicalTrials.gov, number NCT03584191.

Conflict of Interest Statement

F.P. is an employee of Novo Nordisk. J.S., M.Á.R., and N.V. report personal fees for consultancy from Novo Nordisk and for travel expenses to attend Congresses, during the conduct of the study.

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Author Contributions

Conceptualization, methodology: J.S.; writing original draft preparation: N.V.; writing, review, and editing: N.V., F.P., J.S., and M.Á.R. All authors participated in interpretation of the data and drafting and revision of the manuscript. All authors have read and agreed to the published version of the manuscript.

Data Availability Statement

The datasets used and/or analyzed during the current study are not publicly available due to patient privacy concerns but are available from Novo Nordisk on reasonable request.

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