nutrición clínica y Dietética Hospitalaria

Artículo Original

Nutr Clín Diet Hosp. 2022; 42(4):156-162
DOI: 10.12873/424marrodan

Concept of healthy body image in Spanish women

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Recibido: 11/diciembre/2022. Aceptado: 19/diciembre/2022.

ABSTRACT

Introduction: For the prevention and treatment of eating disorders and obesity, the population should have an adequate perception of a healthy body image, and that may be influenced by nutritional status.

Objective: The aim of this study was to evaluate the perception of healthy body image among Spanish women according to their nutritional status diagnosed by body mass index (BMI).

Material and Methods: This work was carried out on 7,008 Spanish women, between 18 and 75 years old. To diagnose the nutritional condition, weight and height were measured to calculate the BMI and categorize according to the Worl Health Organization (WHO) cut-off points. In addition, each participant completed a silhouette questionnaire in which she/he indicated that considered to be the healthiest. Mean and Standar deviation were calculated to describe the profile of anthropometric parameters and ANOVA was carried out to compare variation with age. A Chi-Square test was used to analyze the possible association between the nutritional category of BMI and the nutritional category considered "healthy" based on the silhouette identified in the test. The relationship between the ideal of a healthy figure and the autonomous community of residence was also analyzed. Statistical analysis was performed with the IBM SPSS.21.0 program.

Results: The results showed a significant association between nutritional status and healthy body image perceived. The identification percentage of a silhouette representative of "normal weight" as a healthy body image ranged from 94% (in normal weight women), 92% (in overweight women), dropping to 88% (in obese class 1) and 83% (in obese class 2 and 3). No woman chose a silhouette corresponding to an obese BMI as a reference for a healthy image. As for the silhouette identifying overweight, it was chosen as healthy in a variable proportion between 2% (Madrid) and 15% (Balearic Islands).

Conclusions: There is a significant relationship between nutritional status and body image considered healthy. The higher the BMI of women, the greater the tendency to choose a representative image of overweight as the ideal of health.

KEYWORDS

BMI, body image, health, obesity, overweight.

ABBREVIATIONS

BMI: Body Mass Index.

EPINUT: Epidemiología Nutricional.

SEDCA: Sociedad Española de Ciencias de la Alimentación.

WHO: World Health Organization.

INTRODUCTION

The World Health Organization (WHO) defines obesity as an abnormal or excessive accumulation of fat that can be detrimental to health[1]. It is a condition that is associated with noncommunicable diseases, particularly cardiovascular

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and metabolic diseases[2-5], although it has also been a risk factor for morbidity and mortality due to Covid-19[6]. According to the WHO Regional Report 2022, at least 60% of adults in Europe are overweight[7]. In Spain specifically, the prevalence of obesity has tripled since the 70s of the last century and according to data from the latest European Health Survey in Spain, it now affects 21.6% of the adult population[8]. Data from the latest study of the Spanish Obesity Society[9], carried out after the pandemic, show that 53.8% of Spaniards are overweight.

The aim of reducing the high rates of obesity that exist in the vast majority of developed and emerging populations is hindered by the lack of information regarding factors such as self-perception and mental health status, fundamental aspects for the prevention and treatment of overweight[10-11]. The perception that people have of what a healthy body is plays an important role in their self-esteem and in the decisions that the individual makes regarding health. Not all people have the same concept of what a healthy body should look like, as this depends on many individual, family or sociocultural variables[12-15].

In this regard, it should be noted that for better results in the treatment of obesity, it is necessary that the overweight individual adequately perceives his or her physical status and associates it adequately with a healthy image. The analysis of body image perception has been used as a diagnostic tool in the prediction of under- and over-nutrition, as well as to identify eating disorders[16-17]. These behavioral pathologies, with restriction or excess of intake, are often associated with an excessive preoccupation with presenting an attractive image that does not always coincide with what would be a healthy image. Certain studies such as that of Brierly *et al*[18] have highlighted gender differences, in that women tend to identify a lower body mass index (BMI) as healthy than men, as they tend to equate the concept of thinness, health and attractiveness. In any case, this is the prevailing idea in Western cultures, as in other cultures healthy can be identified with more robust bodies as evidenced in a study among Moroccan women[19].

As indicated, research focused on body image perception has been mainly related to body dissatisfaction and the identification of eating disorders and is therefore relatively abundant in adolescents[20-25]. In adult population, they are scarcer, although they have also been used to relate beliefs about obesity as a controllable factor, body image distortion and dietary restrictions[26]. Also, image perception studies have been used as a method to validate self-referenced versus anthropometric data for application in epidemiological studies[27-28]. It has been found that factors such as age or sex can influence the perception of individuals regarding their image[29], but the influence of nutritional status on the perception of one's own figure and the idea of what represents a healthy image has been less explored. Therefore, the aim of the present study is to analyze whether nutritional status (expressed through BMI) influences the perception of healthy self-image in Spanish adult women.

MATERIALS AND METHODS

The present investigation used a sample recruited during a joint project between Arkopharma Pharmaceutical Laboratories, the EPINUT Research Group of the Complutense University of Madrid and the Spanish Society of Dietetics and Food Sciences (SEDCA). The initial project included data from adult Spaniards from 46 provinces of the country, which were collected in dietary consultations carried out in pharmacies in all Spanish provinces[29]. This study analyzes a female serie of 7,008 women aged ranged 18 to 75 years. The project was carried out with the approval of the Ethics Committee of the Hospital Universitario de San Carlos de Madrid, under the guidelines of the Spanish Organic Law 15/1999 on Personal Data Protection and with the informed consent of the participants, as indicated in the Helsinki Guidelines, issued by the World Medical Association[30]. For this study, we used the anonymized database.

Data collection was performed by 133 certified dietitians, who were previously trained in the application of anthropometric methods for the measurement of weight (kg) and height (cm), values used to calculate the body mass index (BMI= weight/height²). Calibrated and approved equipment (SECA measuring rod and Digital Scale) was used. All measurements were taken following the protocol of the International Society for the Advancement of Cineanthropometry[31]. In addition, each participant was given a questionnaire to respond the silhouette test developed by the EPINUT Research Group, in which pacients identified the silhouette considered the healthiest[32]. Six age groups were established to describe the variability of the anthropometric dimensions. World Health Organization criteria[33] was used for classification of nutritional status (underweight BMI < 18.5 kg/m2; normal weight BMI ≥ 18.5 to 24.9 kg/m2; overweight BMI ≥ 25 to 29.9 kg/m2, obesity class 1 BMI ≥ 30-34.9 kg/ m^2, obesity class 2 ≥ 35 kg/ m2 - 39,9 9 kg/m2 and obesity class 3 BMI ≥ 40 kg/m2). The provinces of residence were grouped by Autonomous Communities, in order to contrast the cultural geographic effect on the concept of healthy body image.

The normality of the quantitative variables was checked (Kolmogorov-Smirnov test) and the statistical parameters mean and standard deviation were calculated to define the anthropometric profile based on height, weight and BMI. The prevalences of the nutritional categories according to BMI were obtained and the proportion of women who had chosen a silhouette classified as underweight, normal weight or overweight as a healthy figure was also established. The agreement between the nutritional condition established through the anthropometric BMI and the BMI corresponding to the silhouette chosen as the image of a healthy body was analyzed.

A Chi-square test, with a significance level of $p < 0.05$ was used to contrast proportions. All procedures were carried out with the IBM SPSS 24.0 program.

RESULTS

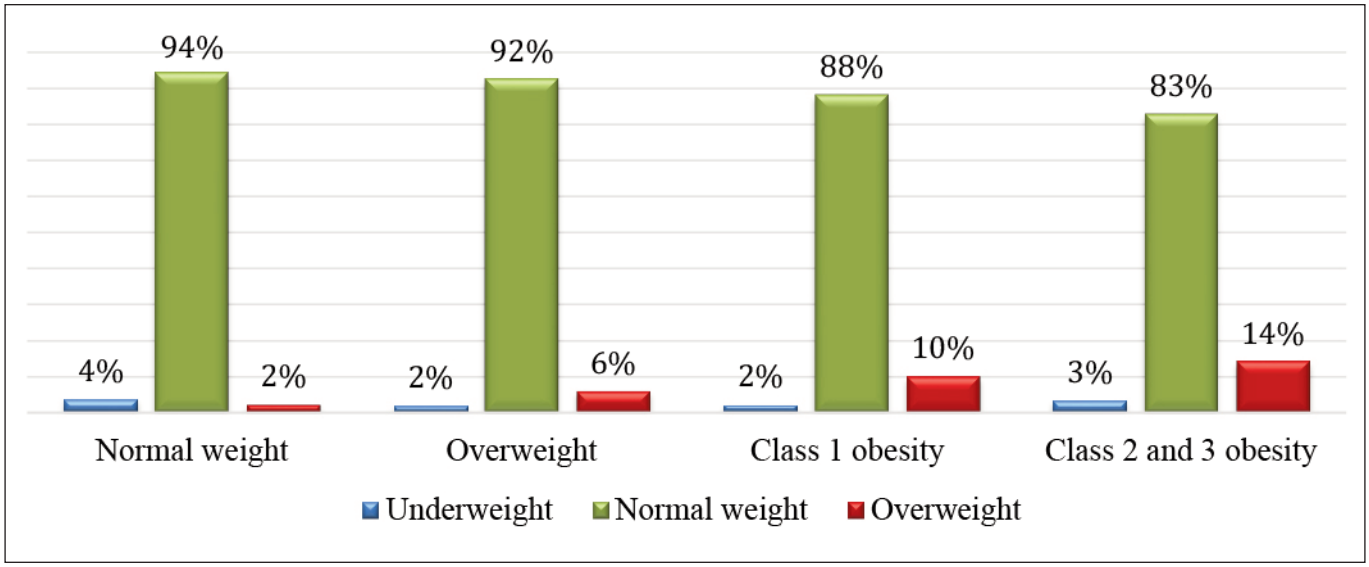
Table 1 shows the anthropometric profile of the sample. While height decreases with age, weight increases. As can be seen, the average BMI in all the age groups exceeds the cut-off point for overweight, an aspect derived from the fact that these are women patients of a nutrition clinic to which they came, in the great majority, to follow a weight loss treatment. In the sample as a whole, 22.7% were normal weight, 44% overweight, 22% obesity class 1, 7.5% obesity class 2 and 29% obesity class 3.

The obtained results highlighted a significant association between nutritional status and the perception of healthy body image. The identification percentage of a silhouette representative of "normal weight" as a healthy body image ranged from 94% (in normal weight women), 92% (in overweight women), dropping to 88% in obese class 1 women and 83% in obese class 2 and 3 women. An interesting result is that, as the BMI category to which the participants belong changes, their perception of a healthy silhouette varies, with an increasing percentage of individuals choosing the "overweight" category as healthy (Figure 1).

Table 1. Antropometric profile of the sampe

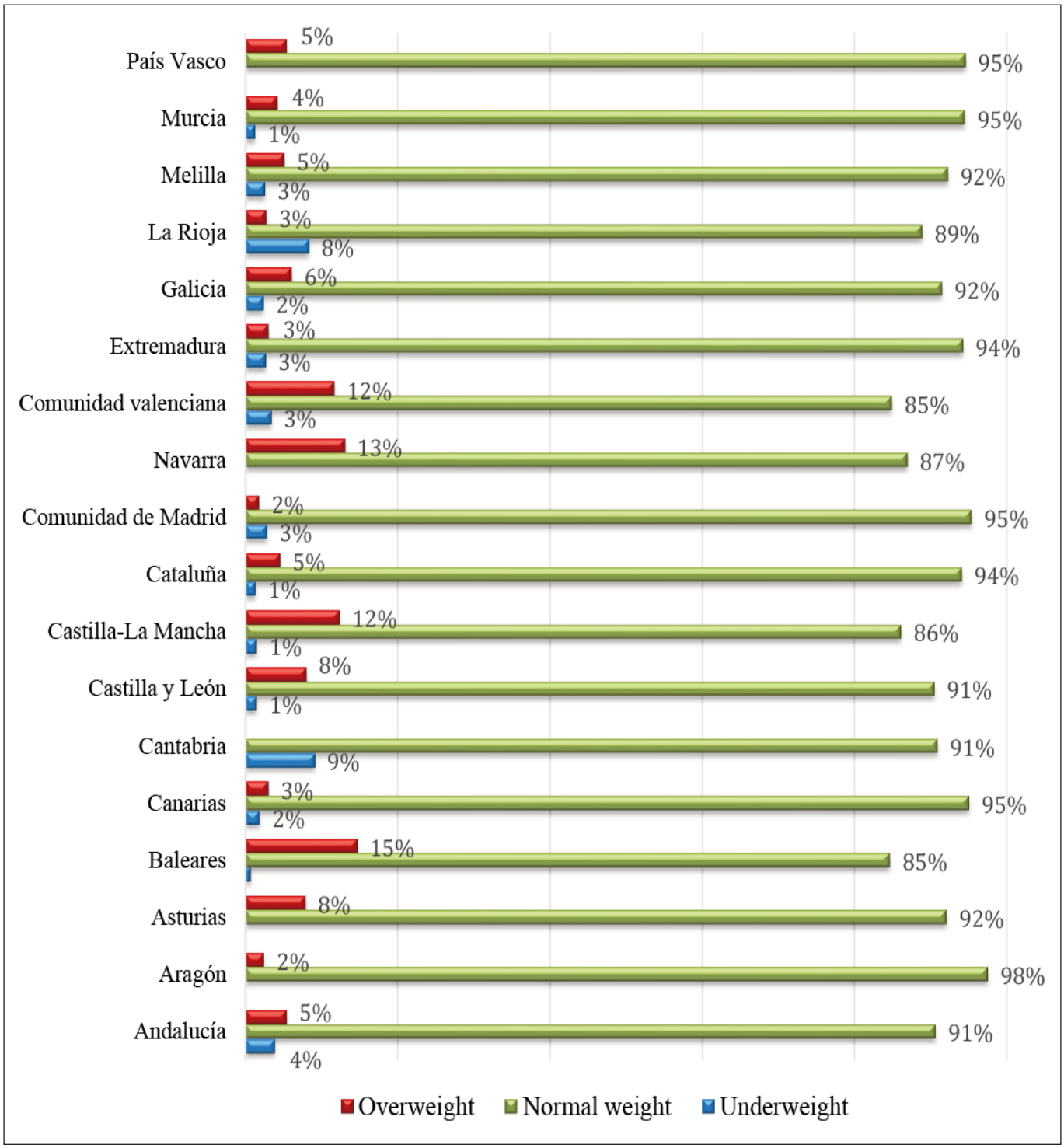
Age	N	Height (cm)	Weight (kg)	BMI (kg/m²)
		Mean ± SD	Mean ± SD	Mean ± SD
≤ 25		162,80 ± 6,83	70,70 ± 13,06	26,65 ± 4,51
26-35		162,48 ± 6,73	72,26 ± 13,63	27,32 ± 4,91
36-45		161,29 ± 6,38	73,49 ± 12,24	28,25 ± 4,48
46-55		159,66 ± 6,42	73,75 ± 12,46	28,26 ± 4,75
56-65		157,86 ± 6,33	75,46 ± 12,00	30,29 ± 4,73
66-75		156,90 ± 7,07	76,61 ± 12,14	31,21 ± 5,10
F		136,9	23,14	120,02
p		<0,001	<0,001	<0,001

Figure 1. Nutritional category of the silhouette chosen as healthy according to the actual nutritional category established on the basis of the BMI calculated by anthropometry



No woman chose a silhouette corresponding to an obese BMI as a reference for a healthy image. Figure 2 shows the proportion of women who chose as healthy a silhouette representative of normal weight, overweight or obesity, according to their place of residence. It is worth highlighting the case of the Balearic Islands, Navarra, Valencia, and Castilla-La Mancha, in which 15%, 13%, 12% and 12% of women, respectively, chose the silhouette corresponding to "overweight" as a body shape representative of a healthy phenotype.

Figure 2. Nutritional category of the silhouette chosen as healthy by autonomous community of residence



DISCUSSION

From the results obtained regarding the concordance between their own nutritional condition and the one identified as healthy, it can be said that most of the participating women are aware that they do not have a healthy BMI, since more than 85% of them choose the figure corresponding to normal weight as the representative figure of health.

Nevertheless the perception of a healthy silhouette varies significantly as a function of nutritional status (represented by individual BMI). Participants in this study with a higher BMI ten to choose a figure representing the "overweight" category as a healthy silhouette in a higher proportion. This reveals that they experience an altered perception, which could become an obstacle when making the decision to lose weight to improve their health. These observations are in line with those obtained in a sample from Ecuador. As noted by De la Cruz *et al*[34] obese individuals may underestimate their body weight to a greater extent, which is a critical problem for receiving treatment.

However, it is essential to keep in mind that nutritional status based on BMI does not define whether a person is healthy or not. BMI can function as a predictor of excess adiposity, but it does not accurately measure the percentage of body fat or its distribution, which is the variable that triggers most cardiovascular diseases, diabetes or cancer, among others[35-37]. Likewise, it should be noted that the proportion of healthy obese people, i.e. without metabolic alterations, ranges in the Spanish female population between 95.96% for those under 25 years of age and 4.40% in those over 65 years of age[38].

The results obtained after comparing autonomous communities show that the perception of which figure represents a healthy silhouette changes in different regions. Some communities choose the "overweight" category as a healthy one more often. Some research has revealed that frequent exposure to other people's obesity can change one's perception of what is considered healthy[39,40]. However, according to the latest National Health Surveys[41], the four aforementioned communities have female obesity rates (Castilla la Mancha: 11.3%; Navarra: 13%, Baleares: 14.2%; Valencia: 14.4%) below the national rate (15.5%). The differences in the perception of which figure represents a healthy silhouette can also be explained, in the case of Valencia and Baleares, by the fact that this regions of Spain are a popular tourist destination, so the inhabitants of this regions are exposed to a wider range of BMI, which may be changing their perception of a healthy silhouette.

This study has several limitations. First and foremost, it only considers the data of Spanish women attending nutrition clinics, so it only represents a part of the Spanish female population. On the other hand, the number of participants from different communities is not the same, which means that it is not an homogenous geographic and cultural representation.

CONCLUSIONS

The nutritional status of the participants, as assessed by BMI, had a significant effect on their perception of a healthy BMI. Between 6% and 14% of overweight women chose a silhouette with a BMI of obesity as their ideal healthy figure.

The autonomous community of residence seems to influence their choice of the healthiest silhouette. Women from the Balearic Islands, Navarra, Valencia and Castilla-La Mancha chose in greater proportion the "overweight" category as the healthiest, while those residing in Cantabria and La Rioja chose in greater proportion the "underweight" category as the healthiest.

ACKNOWLEDGMENTS

The authors would like to thank the teachers of 'Nutrition and Health' subjet of the Health Biology Master's at Complutense University of Madrid.

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