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Systematic Review Article

QUALITY OF LIFE RELATED TO HEALTH AND OBESITY IN A PRIMARY CARE CENTER

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Abstract

Background: To evaluate the association between obesity and two aspects of health-related quality of life: self-perception of health and psychological well-being in patients enrolled in a health center.

Methods. Descriptive cross-sectional study on 167 patients between 20 and 70 years old, with a body mass index ³ 30. A clinical interview was carried out to obtain the socio-demographic and clinical variables of each patient and the administration of 2 questionnaires: 1) Nottingham Health Profile (PSN) and 2) Psychological General Well-Being (PGWB) index.

Results: Mean PSN scores indicated a moderate overall deterioration in perceived health in obese patients, the affected areas being "pain", "physical mobility" and "emotional reactions". The variables associated with a poorer score were female sex, age over 50 years, low educational level and the presence of psychiatric pathology or osteoarthritis. The mean total score on the PGWB indicates a small deterioration in psychological well-being. Female gender, anxiety, and a low educational level were also associated with worse scores.

Conclusions: In our population, a profile of obese patients with poor quality of life is identified (women over 50 years of age with a low level of education and the presence of psychiatric pathology or osteoarthritis) on whom the advisability of taking priority action is raised.

Keywords: Obesity. Quality of life. Health survey. Chronic diseases Perceived health. Psychological well-being.

Introduction

Obesity is the most prevalent metabolic disease in industrialized countries. Its importance lies both morbidity that is associated with mortality and involved 1. Its treatment is difficult with a relapse rate that in some series reaches 90% [2].

Until the last decade, research in the field of obesity was focused almost exclusively on two aspects: on the one hand, the association between overweight and morbidity and mortality and, on the other, its treatment [3]. However, in recent years and as has happened with other chronic disorders, the study of health-related quality of life (HRQOL) or perceived health has aroused great interest [4] as an important complement for the comprehensive assessment of obese patients. There are studies [3,5] that show that the HRQoL of obese patients deteriorates in several aspects: physical capacity, psychological well-being, social functioning, etc.

Two types of questionnaires are basically used to assess HRQL: generic (they allow their application in different pathologies) and specific (designed for a specific disorder) [6] . Both types of instruments have been developed mainly in the US and the UK. However, in recent years, some of them have been adapted from English to Spanish and subsequently validated [7-11]. Although the HRQOL of the obese patient has been extensively studied outside our country [12-14] in our country are very few similar jobs [15].

The objective of this study is, firstly, to evaluate the association between obesity and two aspects of HRQL: general self-perception of health and psychological well-being through measurement scales in patients assigned to a primary care center and, secondly , try to identify the variables that are associated with a deterioration of that one.

Subjects and method

A descriptive, cross-sectional study was designed on a random sample of all obese patients registered at the Doctor Mendiguchía Carriche health center in Leganés (Madrid) in June 1996. Prior to the selection of the sample, an exhaustive review of the user stories over 14 years of age, in order to detect patients who, even meeting the diagnostic criteria for obesity - body mass index (BMI) ³ 30 -, were not registered. The calculation of the sample size was performed to estimate the mean of the total score of the PGWB index, with a precision of 3 points and a confidence level of 95%. A standard deviation of 18 observed in the literature review [7] was assumed. The estimated size was 177 subjects. This sample was doubled, anticipating significant losses for various reasons: it was a study carried out on the population assigned to a health center, the type of pathology to be studied and possible errors in the database. It was not possible to determine before sampling which patients did not meet the inclusion criteria as not all the pathologies that could cause their exclusion from the study were registered in the database. Therefore, once the sample was obtained and after review of the medical records, the patients who met the following inclusion criteria were definitively selected: BMI³ 30, age between 20 and 70 years and absence of any other chronic disorder, with the only except for those that, because they are closely related to obesity itself (diabetes, hypertension,

Between July and December 1996, the patients included were contacted by telephone or, when this was not possible, by means of a personalized letter, with the reasons for the study being explained and requesting their collaboration. Patients who agreed to participate were summoned in the middle for a personal interview by a resident physician 3 rd year of Family and Community Medicine, which were collected in the first place, the following variables: sex, age, weight and height (to calculate the updated BMI), age of onset of obesity, cohabitation situation, socioeconomic status [16]valued in two sections: educational level and employment status (refusing to collect information on income level due to the difficulty in obtaining reliable data), previous attempts to lose weight, nighttime eating, concomitant obesity-related pathologies (hypertension, diabetes and osteoarthritis) and psychological history (presence of anxiety and / or depression after the onset of obesity and ingestion of psychotropic drugs in the month prior to the study). Subsequently, the following questionnaires were administered: 1) the Spanish version of the Nottingham Health Profile (PSN) [9]It consists of 38 items and is a generic measurement instrument that reflects the level of suffering in six dimensions of the state of health (energy, pain, emotional reactions, sleep, social isolation and physical mobility). The scores for each dimension are the percentages of affirmative responses, their range being from 0 (no suffering) to 100 (maximum level of suffering), for each dimension; 2) the Spanish version of the Psychological General Well-Being (PGWB) index [7], which is an instrument that reflects feelings of well-being or illness. It consists of 22 items grouped into six dimensions (anxiety, depression, positive mood, vitality, self-control, general health). Each item scores from 1 to 6 (from lowest to highest well-being) so the overall score range ranges from 22 (maximum discomfort) to 132 (maximum well-being), although for a better understanding of the results, it can be transferred to scale 0-100. The partial scores range from 3 to 18 when the dimension consists of 3 items (depression, self-control and general health), from 4 to 20 if there are 4 (positive mood and vitality) and from 5 to 30 in the dimension that consists of 5 items (anxiety). Both questionnaires were self-administered except in patients who could not read or had visual difficulties.

The patients who did not agree to participate in the study were asked the reason for their refusal. In this group, the known variables (age and sex) were analyzed and compared with those of the patients included in the study.

Statistic analysis

The SSPS program for Windows was used for data analysis. A descriptive analysis of the sociodemographic and clinical variables was performed using the mean and standard deviation as well as the calculation of proportions. For the comparison of the PSN results, the values obtained in the general population of Barcelona over 40 years of age have been used [9] . In the case of the PGWB index, it was not possible to find a reference population in our environment, so the healthy Swedish population found in the bibliographic review [17] has been used . The comparison was performed separately by gender since it is known that in both questionnaires there are significant differences between men and women [18] . The Effect size of the association between obesity and the scores of the questionnaires as the quotient of the difference between the mean of the obese and healthy population divided by the mean of the standard deviations of both populations [14] , considering a small, moderate and large at values greater than 0.20, 0.50 and 0.80 respectively [19] . Nonparametric tests (Wilcoxon-Mann-Whitney or Kruskal-Wallis) were used for the comparative analysis of the mean PSN scores, given the absence of normality. Regarding the PGWB indexParametric (Student's t or analysis of variance) or non-parametric tests were used in each case, depending on the presence or absence of normality. For the comparison of quantitative variables with the scores of the questionnaires, the Spearman correlation coefficient was applied. The level of significance used has been 0.05.

Results

Of the 12,500 adult users registered in the center's registry in June 1996, 835 were obese. Of the initial sample of 350 obtained, 52 patients (15%) did not meet the inclusion criteria. 54 patients (15%) could not be contacted. Of the rest, 63 (18%) did not agree to participate - 38% of them claiming work reasons - and another 14 (4%) were excluded because they no longer met the weight criterion. The mean age of those who did not participate in the study was 50 ± 13 years. Among them, there were 70 men (38%) and 113 women (62%). In both variables statistically significant differences were found between the included and not included subjects, the latter being younger ($p < 0.001$) and with a higher proportion of males ($p < 0.0007$)

Table 1: Sociodemographic and clinical characteristics of the study population

to	N (%)
Age	
£ 40 41-50 51-60 ³ 61	18 (10.8) 34 (20.4) 60 (35.9) 55 (32.9)
Sex	
Male Female	36 (21.6) 131 (78.4)
BMI	34.82 ± 4.02 *
Starting age	29.9 ± 13.8 *
Coexistence	
Live alone coexist	8 (4.2) 159 (95.2)
Level of studies	
Without studies Primary Secondary University Baccalaureate	42 (25.1) 98 (58.7) 22 (13.2) 4 (2.4) 1 (0.6)
Employment situation	
Employee Retired Unemployed Housewife	44 (26.3) 16 (9.6) 5 (3) 101 (60.5)
Nocturnal intake	
yes no	7 (4.2) 160 (95.2)
Previous attempts to lose weight	
yes no	110 (65.9) 57 (34.1)
Psychological history	
Anxiety (yes / no) Depression (yes / no) Ingestion of psychotropic drugs (yes / no)	28 (17) / 139 (83) 18 (11) / 149 (89) 33 (20) / 134 (80)
Concomitant pathologies	
HT (yes / no) Osteoarthritis (yes / no) Diabetes (yes / no)	82 (49) / 85 (51) 59 (35) / 108 (65) 20 (12) / 147 (88)
* mean ± standard deviation; n: sample size.	

The mean age was 54 ± 10 years. 60% of the patients (n = 98) had mild obesity (BMI <35) and 9% (n = 15) had a BMI> 40 (morbid obesity). Regardless of marital status, less than 5% of patients lived alone. 84% of the subjects studied had a primary or lower educational level. Regarding the employment situation, important differences were observed between the two sexes. Thus, 77% of obese patients were housewives and only 17% of them did paid work. On the contrary, 58% of the men had a job, 8%

referring to being unemployed. The nocturnal intake occurred in less than 5% of the cases.

In tables 2 and 3The mean scores and standard deviations of the different dimensions of the PSN and PGWB index questionnaires respectively are shown, by sex, both in the obese population and in the reference populations, and the calculated effect size. The mean PSN scores reflect an association between the presence of obesity and a different perceived deterioration in health in the two sexes. Thus, while obese women score significantly worse than the reference population in 3 areas: "pain", "physical mobility" and "emotional reactions", in the case of men differences are only found in the area "physical mobility". The global mean score of the PGWB index indicates a small effect of obesity on psychological well-being in both sexes.

Table 2: Mean scores and standard deviations of the measurement scales of obese male patients and the reference male population and effect size.

to	Half of)		to
to	Obese patients (n = 31)	General population *	Effect size
Nottingham Health Profile			
Energy	11.1 (26.4)	8.5 (21.6)	0.10
Pain	9.3 (14.4)	9.1 (20.8)	0.01
Emotional reactions	16.3 (23.3)	16.1 (19.5)	0.00
Sleep	10 (21.6)	17.6 (25.4)	-0.32
Social isolation	6.6 (16.5)	5.7 (13.0)	0.06
Physical mobility	16.3 (20.6)	10.6 (17.4)	0.30
PGWB index			
Anxiety	26.8 (4.3)	23.8 (4.5)	0.66
Depression	13.1 (0.7)	16.5 (2.2)	-2.31
Positive mood	17.3 (3.5)	17.4 (3.7)	0.01
Self-control	15.5 (3.0)	15.9 (2.2)	-0.14
General health TOTAL	13 (1.7)	16.7 (1.7)	-1.92
Vitality	20.4 (3.7)	18.6 (2.8)	0.52
	106.3 (13.2)	109, 2 (13.7)	-0.21

* For the PSN n = 579 [9] and for PGWB index n = 64 [17]
SD: standard deviation

Table 3: Mean scores and standard deviations of the measurement scales in obese patients and the reference female population and effect size.

to	Half of)		to
to	Obese patients (n = 131)	General population *	Effect size
Nottingham Health Profile			
Energy	20.8 (31.3)	19.0 (31.9)	0.11
Pain	36.1 (31.1)	21.5 (28.4)	0.49
Emotional reactions	32.9 (23.0)	25.0 (24.6)	0.66
Sleep	25 (28.4)	28.2 (31.4)	0.10
Social isolation	8.3 (16.0)	8.6 (16.5)	-0.03
Physical mobility	28.4 (22.3)	18.8 (21.9)	0.43
PGWB index			
Anxiety	22.9 (4.8)	23.1 (4.5)	0.03
Depression	13.1 (1.3)	15.5 (2.8)	-1.16
Positive mood	14.6 (3.8)	15.4 (3.9)	-0.20
Self-control	14.8 (2.7)	14.6 (3.3)	0.06
General health TOTAL	13.3 (2.0)	15.0 (3.5)	-0.60
Vitality	17.1 (4.2)	15.6 (4.3)	0.34
	96, 1 (13.8)	99, 5 (19.2)	-0.20

* For the PSN n = 579 [9] and for PGWB index n = 64 [17]
SD: standard deviation.

The relationship between the PSN and PGWB index scores and the degree of obesity is reflected in Table 4 . In the case of the PSN, when separating the BMI values by ranges (<35, between 35 and 40 and> 40), no significant differences were found

between them, except in the dimension "physical mobility" and the total score. It should be noted, however, the important difference found in the dimensions "pain" and "energy" despite not exceeding the threshold of statistical significance. Regarding the PGWB index, only "vitality" appears negatively related to the degree of obesity.

Table 4: Mean scores of the health status measurement scales according to the degree of obesity .

to	BMI		
to	<35 (n = 98)	35-40 (n = 54)	> 40 (n = 15)
PSN			
Energy	26.4	34.4	41.6
Pain	14.6	21.6	35.5
Emotional reactions	28.1	29	39.2
Sleep	20.8	20.7	32
Social isolation	6.1	9.2	16
Physical mobility	22	30	35 [th]
TOTAL	twenty-one	25.5	34.8 [to]
PGWB index			
Anxiety	23.8	24	22.8
Depression	13.1	13.1	13
Positive mood	15.5	15	14.3
Self-control	15	14.8	14.8
General Health	13.2	13.2	13.8
Vitality	18.4	17	16.2 [a]
TOTAL	99.2	97.5	95.2
[a] p <0.05			

The bivariate analysis between the rest of variables and perceived health indicates that women, patients over 50 years of age, those with psychiatric pathology or osteoarthritis, and subjects with a low level of education presented, in various dimensions, significantly worse PSN scores than men, those under 50 years of age, those without comorbidity and those with a high level of education (Table 5). Significant differences were also observed in some dimensions depending on the employment situation (worse for housewives and the unemployed), nighttime eating and having made previous attempts to lose weight (worse in the presence of both situations). No significant or minor differences were found in the PSN scores depending on the presence of hypertension, diabetes, age of onset of obesity, or living alone.

Table 5: Mean scores of the Nottingham Health Profile according to sex, age, psychological history, osteoarthritis and educational level.

to	PSN dimensions and total score (0-100)						
	AND	D	RE	S	ACE	MF	total
Sex							
Men	11.1 [to]	9.3 [c]	16.3 [c]	10 [b]	6.6	16.3 [b]	12.5 [c]
Women	20.8	36.1	32.9	25	8.3	28.4	26.8
Age							
£ 40	12.9	9 [c]	12.9 [b]	10	4.4	13.1 [c]	11.5 [c]
41-50	11.7	22.7	32	18.8	4.1	15.8	19.2
51-60	23.3	37.2	33.1	23.3	11.3	32.9	28.2
³ 61	20	4.5	29	25.8	8	28.4	25.8
Anxiety							
Yes	26.1	48.2 [b]	48.8 [c]	35 [th]	9.2	32.1	35 [b]
no	17.2	26.7	25.4	19.1	7.7	24.5	21.4
Depression							
Yes	31.4	50 [b]	49.3 [c]	37.7 [b]	11.1	35.4 [to]	37.8 [c]
no	17.2	28	26.9	19.8	7.6	24.6	22
Psychopharmaceuticals							
Yes	24.2	43.5 [to]	40.4	31.5 [to]	10.9	35.9 [b]	32.4 [b]
no	17	27.3	26.8	19.6	7	22.9	21.6
Osteoarthritis							
Yes	33.3 [c]	50 [c]	39.9 [c]	33.2 [c]	12.5 [b]	40 [c]	36.3 [c]
no	10.8	19.6	23.6	15.5	5.5	18	16.8

Educational level *							
Low	21.9 [b]	33.2 [b]	31.5 [b]	23.2	9.2 [to]	28.1 [b]	25.9 [c]
High	2.4	15.7	18.5	14	1.4	13.8	12.6

E: energy; D: pain; RE: emotional reactions; S: dream; AS: social isolation;
MF: physical mobility; [a] p <0.05; [b] p <0.01; [c] p <0.001
* Low: primary or lower; Height: secondary or higher

In Table 6 observed in females, the existence of psychiatric disorders and osteoarthritis are significantly associated in the bivariate analysis to a worse score of the PGWB index. However, no differences were found as a function of age or the rest of the variables studied, with the exception of the employment situation where significant differences can be seen in the "vitality" dimension, with workers and retirees scoring more than the unemployed and housewives. (p <0.04).

Table 6: Mean scores of the PGWB index according to sex, psychological history, osteoarthritis and educational level.

to	PGWB Index Dimensions and Total Score						
to	AN	D	EA	AC	SG	V	total
Sex							
Men	26.8 [c]	13.1	17.3	15.5	13	20.4 [c]	106.3 [c]
Women	22.9	13.1	14.6 [c]	14.8	13.3	17.1	96.1
Anxiety							
Yes	20 [c]	12.7	13.4 [b]	14	13.5	14.9 [c]	88.7 [c]
no	24.5	13.2	15.6	15.1	13.2	18.4	100.2
Depression							
Yes	20.6 [b]	13	13.1 [to]	13.3 [to]	13.5	14.3 [c]	88 [b]
no	24.2	13.1	15.4	15.2	13.2	18.2	99.5
Psychopharmaceuticals							
Yes	21 [c]	13.2	13.7 [to]	14.1	13.1	15.6 [c]	90.3 [c]
no	24.5	12.6	15.5	15.1	13.3	18.3	100.3
Osteoarthritis	to	to	to	to	aa	aa	to
Yes	22.3 [b]	13.3	14.3 [to]	15	13.6	16.6 [to]	95.3
no	24.6	12.9	15.7	14.9	13.1	18.4	99.9
Educational level *							
Low	25.4	13.5 [to]	16	15.4	13	18.3	101.9
High	23.5	13	15	14.9	13.3	17.7	97.6

AN: anxiety; D: depression; EA: positive mood; AC: self-control; SG: general health;
V: vitality; [a] p <0.05; [b] p <0.01; [c] p <0.001
* Low: primary or lower; Height: secondary or higher

Discussion

Unlike most of the published works on assessment of the quality of life in obese patients, both inside and outside our country, this study has been carried out on a population assigned to a primary care center, which may have the Advantage, in our opinion, of avoiding the selection bias that could occur when studying patients who attend endocrinology clinics or obesity units [12-15]. It is interesting to note, in this sense, that 34% of the patients studied had never made attempts to lose weight, so this work is an attempt to assess the impact that obesity has on the quality of life of obese people in general and not about a subset of them. It is possible that the fact of consulting a specialized center is related to having a worse self-perception of health or a lower psychological well-being.

The overall results obtained show that obese patients are associated with a moderate deterioration in perceived health compared to the general population in the case of women and minimal in that of men. However, this deterioration does not affect the different dimensions equally. Thus, while "physical mobility" in both sexes and "pain" and "emotional reactions" score significantly worse in females than in the reference population, no difference was found in "sleep" and "social isolation". If one takes into account that at an older age higher scores are obtained [18]and that the mean age of the reference population used is higher than that of the study, it can be assumed that in the present study there is an underestimation of the association between obesity and perceived health.

The fact that when disaggregating the PSN scores according to the degree of obesity, we find smaller differences than expected in view of the global results, could suggest that the negative effect of obesity itself on quality of life is small. The close relationship found between perceived health and the presence of psychiatric pathology and, above all, osteoarthritis (a pathology closely related in its pathogenesis to obesity), would point to these as the most responsible for the deterioration of the perceived health of

the obese patient. However, the small association found between the degree of obesity and the deterioration of perceived health may be due to the fact that the study lacks power to verify important differences since, on the one hand, in the group with BMI³ 40 there are only 15 patients and, on the other,

It is not easy to compare the perceived health results obtained with those of other published studies due to the use, in the latter [12-15], of different measurement scales. Despite this, and since the different questionnaires are divided into not very different dimensions, a general tendency to present pain and physical mobility as the most impaired perceived health areas in obese patients can be seen in all the studies. The results of our study corroborate this trend. The strong association between the degree of obesity and a decrease in self-perception of health revealed in other studies [13,15], may not be so evident in ours. In this sense, the PSN has been shown to be a relatively insensitive instrument for detecting deterioration in perceived health in "slightly ill" people [3].

In relation to other studies carried out in our country in which the PSN has been used as an instrument for assessing the association between perceived health and other chronic disorders and bearing in mind the limitation posed by the over representation of the female sex in the obese sample, It is striking that in the dimensions "pain", "emotional reactions" and "physical mobility", the obese people studied had similar or higher scores in some cases to patients with stable ischemic heart disease and chronic obstructive pulmonary disease, which would indicate that, in In terms of perceived health, obesity (considered, in many cases, a disease of little importance) could be equated to diseases of recognized disabling character [20,]21 Although the global score of the PGWB index exceeds the value 95 (lower limit to be considered as well-being) [22], the values obtained in both sexes are lower than those found in the healthy population [17].

The PGWB index values according to the BMI values by ranges are congruent with the global ones in the sense of not finding significant differences, with the exception of "vitality" and with a low level of significance. All of this would point (as with perceived health) that obesity, in isolation, has little impact on psychological well-being. The female sex, anxiety and having a low educational level are the factors that would most favor psychological discomfort. In order to generalize the results, it is necessary to take into account the limitations that have been indicated above regarding the non-inclusion of overweight people, which probably would have increased the power of the study.

There are no published studies that assess psychological well-being in obese individuals using the PGWB index. A review of the studies that use other [12-15] measurement scales shows that there is a certain disparity in the results that vary from a significant impact on psychological well-being to the almost total absence of deterioration. Our results, with the exceptions stated above, are closer to the latter. Other differential points of our study are the very small relationship found between worse well-being and degree of obesity and the null relationship of well-being with the time of evolution of the process [13]. When comparing the data from our study with other published ones that use the PGWB index to assess psychological well-being in other chronic pathologies, the scores of obese patients are halfway between disorders that do not alter psychological well-being (HTN) and those that do it in a notable way (gastrointestinal diseases) [23,24].

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