

DETERMINANTS OF WEIGHT AND HEALTH STATUS PERCEPTION AMONG PORTUGUESE ADULTS

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Abstract

The aims of this research were to evaluate BMI categories, discrepancies between measured and reported BMI, health status' perception and factors perceived as having the greatest importance in health, as well as to relate them with potential determinants among the Portuguese adult population. Data from the study "Portuguese Population's Food Habits and Lifestyles" were used (national representative sample of 3529 subjects). Although the prevalence of obesity seems to be decreasing, overweight is still observed in about half of the Portuguese adults; furthermore, its proportion may even be increasing in men. There was a positive association between age and BMI and the highest proportions of overweight were found in subjects with lower education levels. Values of measured BMI were higher than referred BMI. Older and less educated men underestimated more their BMI, as well as subjects with higher BMI. Portuguese adults showed a high health status perception and selected "food", "stress", "practicing exercise", "smoking" or "drinking alcohol" as factors with greater importance in health. These factors were also associated with higher health status' perception.

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Key-words:

Weight; Health; Determinants; Adults; Portuguese.

Resumo

Foi objectivo deste trabalho avaliar na população adulta portuguesa as categorias de IMC, discrepâncias entre o IMC reportado e medido, percepção do estado de saúde e factores referidos como tendo maior importância na saúde, bem como relacioná-los com os seus potenciais determinantes. Foram analisados dados do estudo "Alimentação e Estilos de Vida da População Portuguesa" (amostra de 3529 indivíduos representativa da população portuguesa). Apesar de a prevalência de obesidade parecer estar a diminuir, metade dos portugueses adultos apresentam excesso de peso; para além disso, a sua proporção poderá estar a aumentar nos homens. Verificou-se uma associação positiva entre a idade e o IMC, e as maiores proporções de excesso de peso foram encontradas nos indivíduos menos escolarizados. Os valores de IMC medidos foram superiores aos reportados. Os homens mais velhos e menos escolarizados subestimaram mais o seu IMC, tal como os indivíduos com maior IMC. A população adulta portuguesa mostrou uma elevada percepção do seu estado de saúde e seleccionou "a alimentação", "o stresse", "praticar actividade física", "fumar" e "o consumo de bebidas alcoólicas" como os factores com maior importância na saúde. Estes factores estavam também associados a uma percepção mais favorável do estado de saúde.

Palavras-chave:

Peso; Saúde; Determinantes; Adultos; Portugueses.

INTRODUCTION

The influence of lifestyles on the incidence and prevalence of non-transmissible chronic diseases, and their impact on public and individual health, justifies the importance of studying their distribution in the population and to identify the relationships between them. The prevalence of overweight/obesity is a major public health problem worldwide, situation which has motivated research aiming to understand its determinants, in order to

prevent and revert this pandemia. Health status perception is a general indicator of physical and psychological well-being and reflects different lifestyles' variables. The knowledge about the factors perceived to have major influence in health, and their relation with health status, are key factors to tailor public health interventions according to the population characteristics and to the success of these interventions.

The main aims of this research were: (1) to evaluate BMI categories' among the Portuguese adult population; (2) to compare BMI assessed by measured and self-reported weight and height in Portuguese adults; (3) to relate the discrepancies between measured and reported BMI with socio-demographic variables and measured BMI; (4) to evaluate the determinants of health status perception among the Portuguese adult population; (5) to evaluate the factors perceived by the Portuguese adult population as having the greatest importance in health; (6) to relate the selection of factors perceived by the Portuguese adult population as having the greatest importance in health with socio-demographic and health characteristics; and (7) to compare health status' perception among Portuguese adults who identify different factors as main influences in health.

PARTICIPANTS AND METHODS

Data from the study "Portuguese Population's Food Habits and Lifestyles" were used. This epidemiological cross-sectional study was designed and promoted by the Portuguese Society of Nutrition and Food Sciences with the support of Nestlé, within a protocol of scientific sponsorship between the two institutions. Its main aim is to evaluate the nutritional status, food intake, health-related variables and other lifestyles' dimensions of the portuguese population. The data used in this paper refers to the first phase of the study, which evaluated Portuguese adults. A national representative sample of 3529 subjects (52.2% females; ages between 18 and 93 years-old) was interviewed at home from February to April 2009. Due to incompleteness of some records, the number of subjects used in each analysis may vary but this is indicated in the corresponding table. The number of subjects in each group is not presented, because the sub-samples were weighted to assure national representativeness.

The general methodological aspects of the study "Portuguese Population's Food Habits and Lifestyles" are presented elsewhere¹. We present below the methodological aspects directly related to the results presented in this paper.

Participants were first asked about their current weight and height and subsequently these measurements were done according to standardized procedures. Fifty-five subjects refused to be weighted and/or to have their height measured. BMI was calculated, as well as the percentual discrepancies between measured and reported BMI ($[\text{measured} - \text{referred}] / [\text{measured} \times 100]$). BMI was categorized according to WHO². Health status was evaluated by the EQ-5D³. The EQ visual analogue scale rates the subject's own assessment of health status (0 = worst imaginable health; 100 = best imaginable health). Subjects were asked to select (from a list of nine) the two factors which had the greater importance in health⁴. Physical activity was evaluated by the International Physical Activity Questionnaire (IPAQ)⁵.

Descriptive statistical analyses consisted of the calculation of means and standard deviations (cardinal variables) or frequencies (ordinal and nominal variables). Means were compared using independent-samples t tests and univariate ANOVA. Mean ranks were compared using Mann-Whitney and Kruskal-Wallis tests. The association between variables was measured using Pearson's and Spearman's correlation coefficients. Binary logistic regression models were computed to estimate the odds of lower perception of own health status (EQ visual analogue scale under the median) among Portuguese adults according to their sex, age and education levels, civil status, professional occupation, region of residence, BMI category, physical activity level, smoking habits and problems identified in each of the EQ-5D dimensions (mobility, self-care, usual activities, pain/discomfort and anxiety/depression) (OR adjusted for all other variables). Binary logistic regression models were computed to estimate the odds of selecting each of the factors with greater importance in health according to sex, age, education level, civil status, professional occupation, region of residence, BMI category, physical activity level and smoking habits (OR adjusted for all other variables). Health status' perception was compared between subjects who did or

didn't identify each of the factors with influence in health. Statistical analysis was performed with SPSS version 14.0 (SPSS, Inc., Chicago, USA) for Windows. A *p-value* below 0.05 was considered to be statistically significant.

RESULTS

Table 1 shows the distribution of subjects by BMI categories according to sex, age and education level. Most women have BMI in the range corresponding to normal-weight, while 64.5% of men have BMI equal to or greater than 25. In all age groups there was a higher prevalence of overweight in men. There was a significant positive association between age and BMI in both women ($r = 0.399$, $p < 0.001$) and men ($r = 0.354$, $p < 0.001$). The prevalence of underweight was highest among women between 18 and 29 years (7.8%). The highest proportions of overweight were found in subjects with lower education levels.

Table 1 — BMI categories' (%) by sex, age and education level (n=3474)

SEX	UNDERWEIGHT (< 18.50)		NORMAL WEIGHT ($18.50-24.99$)		PRE-OBESITY ($25.00-29.99$)		OBESITY (≥ 30.00)	
	WOMEN	MEN	WOMEN	MEN	WOMEN	MEN	WOMEN	MEN
	2.6	0.3	59.2	35.2	27.8	53.3	10.4	11.2
AGE								
18-29 years	7.8	1.0	77.1	60.0	13.8	35.7	1.3	3.3
30-44 years	0.8	0.2	67.1	32.1	26.8	58.2	5.3	9.5
45-64 years	1.6	0.0	49.0	23.1	33.6	59.6	15.8	17.3
≥ 65 years	0.0	0.0	44.0	19.9	37.0	64.9	19.0	15.2
EDUCATION								
< 4th grade	0.0	0.0	31.0	19.0	45.2	68.3	23.8	12.7
4th grade	0.0	0.0	33.9	20.5	44.5	56.0	21.6	23.6
6th grade	0.0	0.1	39.8	16.3	36.1	62.5	24.0	21.1
9th grade	2.5	0.2	58.2	31.8	29.8	59.0	9.6	8.9
12th grade	3.2	1.1	77.9	48.9	16.7	42.8	2.2	7.3
Bachelor/ university	5.3	0.0	74.8	45.3	17.1	50.5	2.7	4.2

Table 2 presents the mean BMI discrepancies by sex, age, education level and measured BMI category. Globally, values of measured BMI were significantly higher than referred BMI. However, the associations between referred and measured weight, height and BMI were very strong ($r > 0.97$ and $p < 0.001$ for all). The discrepancy between them was lower in women compared to men (1.19 vs. 1.47%). Significant correlations between the percentual discrepancy between measured and referred BMI and age and education level showed greater underestimation in older and less educated men, although being very weak ($|r| < 0.1$). BMI was significantly associated with its percentual underestimation.

Table 3 shows mean values on the EQ visual analogue scale, as well as the determinants of lower (below median) health status perception. Portuguese adults showed high health status perception, with a median of 80 on the EQ visual analogue scale. Only 7.0% of the Portuguese adult population rated their health status below the middle point of the scale. Older, underweight (vs. normal weight), widowed (vs. married), unemployed (vs. active) and living in any region except the North were found to have a lower perception of health status. The presence of problems in three of the five EQ-5D dimensions (mobility, pain/discomfort and anxiety/depression) was also associated with lower perception of health status.

Table 2 — Mean (sd) BMI discrepancies by sex, age, education level and measured BMI category (n=3474)

TOTAL	1.32 (3.44)	
SEX		
Women	1.19 (3.55)	p = 0.001
Men	1.47 (3.31)	
AGE		
18-29 years	1.14 (2.83)	Correlations between BMI discrepancies and age (years): Women: r = -0.031 (p = 0.252) Men: r = 0.071 (p = 0.014)
30-44 years	1.26 (3.34)	
45-64 years	1.61 (3.64)	
≥ 65 years	1.22 (3.95)	
EDUCATION		
< 4th grade	1.26 (4.57)	Correlations between BMI discrepancies and education level: Women: r = -0.044 (p = 0.111) Men: r = -0.087 (p = 0.003)
4th grade	1.90 (3.91)	
6th grade	1.70 (3.45)	
9th grade	1.31 (3.46)	
12th grade	1.11 (2.84)	
Bachelor/universitary	0.95 (3.19)	
BMI		
Underweight (< 18.50)	-0.03 (4.16)	Correlations between BMI discrepancies and measured BMI (kg/m²): Women: r = 0.162 (p < 0.001) Men: r = 0.238 (p < 0.001)
Normal weight (18.50-24.99)	0.83 (3.18)	
Pre-obesity (25.00-29.99)	1.51 (3.32)	
Obesity (≥ 30.00)	3.02 (4.18)	

BMI discrepancy = (measured BMI – referred BMI) / (measured BMI x 100)

Table 4 presents the proportion of subjects who selected each factor as having greater importance in health, as well as the determinants of this choice. Most of the sample considered “food” as one of the most important health determinants, followed by 27.9% who identified their health to be influenced by “stress”. Due to their importance for the design of health promotion interventions, we highlight the relationships between sex, age and BMI category and factors perceived as influent in health. Men selected more often “practicing exercise” and “smoking”, while women selected more often “the support from family and friends”. Younger subjects selected more often “stress”, “practicing exercise” and “drinking alcohol”, while older subjects selected more often “smoking”, “genetic factors” and “the support from family and friends”. Compared to normal weight subjects, overweight and/or obese subjects selected less “food” and “the environment”, and selected more “the weight”.

Table 3 — Determinants of lower health status perception (n=2811)

	HEALTH STATUS Mean	OR	OR adj
SEX		p=0.001	p=0.520
Female	74.8	1 (reference)	1 (reference)
Male	77.9	0.786 (p=0.001)	0.935 (p=0.520)
AGE		p<0.001	p<0.001
18-29 years	85.6	1 (reference)	1 (reference)
30-44 years	80.9	1.972 (p<0.001)	1.691 (p=0.002)
45-64 years	72.7	4.726 (p<0.001)	2.987 (p<0.001)
≥ 65 years	62.6	14.300 (p<0.001)	4.389 (p<0.001)
EDUCATION LEVEL		p<0.001	p=0.495
< 4th grade	59.1	14.024 (p<0.001)	1.863 (p=0.042)
4th grade completed	66.2	4.025 (p<0.001)	1.224 (p=0.255)
6th grade completed	73.4	2.369 (p<0.001)	1.143 (p=0.473)
9th grade completed	79.3	1.261 (p=0.044)	1.079 (p=0.580)
12th grade completed	81.9	0.823 (p=0.078)	1.098 (p=0.486)
Bachelor/universitary	80.0	1 (reference)	1 (reference)
CIVIL STATUS		p<0.001	p=0.028
Married	75.7	1 (reference)	1 (reference)
Single	83.7	0.393 (p<0.001)	0.895 (p=0.464)
Separated/divorced	73.1	1.455 (p=0.005)	1.323 (p=0.079)
Widowed	61.2	5.000 (p<0.001)	1.590 (p=0.019)
PROFESSIONAL OCCUPATION		p<0.001	p<0.001
Active	79.1	1 (reference)	1 (reference)
Student	87.3	0.353 (p<0.001)	0.981 (p=0.922)
Unemployed	74.4	1.923 (p<0.001)	2.570 (p<0.001)
Housewife/househusband	67.1	3.636 (p<0.001)	1.217 (p=0.402)
Retired	64.1	4.609 (p<0.001)	0.905 (p=0.607)
REGION OF RESIDENCE		p<0.001	p<0.001
Norte	82.9	1 (reference)	1 (reference)
Centro	72.6	3.091 (p<0.001)	4.364 (p<0.001)
LVT	72.1	2.559 (p<0.001)	3.657 (p<0.001)
Alentejo	74.0	1.940 (p<0.001)	1.792 (p=0.009)
Algarve	70.7	3.061 (p<0.001)	4.744 (p<0.001)
Madeira	71.2	3.050 (p<0.001)	4.177 (p<0.001)
Açores	76.7	1.862 (p=0.020)	2.157 (p=0.017)
BMI CATEGORY		p<0.001	p=0.042
Underweight (< 18.50)	75.0	1.371 (p=0.300)	2.201 (p=0.028)
Normal (18.50-24.99)	80.0	1 (reference)	1 (reference)
Pre-obesity (25.00-29.99)	73.9	1.878 (p<0.001)	1.208 (p=0.081)
Obesity (≥ 30.00)	68.7	3.571 (p<0.001)	1.304 (p=0.127)
PHYSICAL ACTIVITY LEVEL		p<0.001	p=0.155
High	79.0	1 (reference)	1 (reference)
Moderate	76.7	1.240 (p=0.013)	1.241 (p=0.053)
Low	72.2	2.071 (p<0.001)	1.149 (p=0.304)
SMOKING HABITS		p<0.001	p=0.370
Never smoked	76.1	1 (reference)	1 (reference)
Ex-smoker	72.8	1.338 (p=0.007)	0.999 (p=0.996)
Smoker	78.8	0.750 (p=0.001)	1.161 (p=0.178)
MOBILITY		p<0.001	p<0.001
No problems	79.0	1 (reference)	1 (reference)
Some/severe problems	55.1	23.755 (p<0.001)	5.027 (p<0.001)
SELF-CARE		p<0.001	p=0.340
No problems	77.2	1 (reference)	1 (reference)
Some/severe problems	52.6	19.874 (p<0.001)	1.603 (p=0.340)
USUAL ACTIVITIES		p<0.001	p=0.794
No problems	78.1	1 (reference)	1 (reference)
Some/severe problems	56.1	10.844 (p<0.001)	1.075 (p=0.794)
PAIN/DISCOMFORT		p<0.001	p<0.001
No problems	81.2	1 (reference)	1 (reference)
Some/severe problems	62.9	7.525 (p<0.001)	2.699 (p<0.001)
ANXIETY/DEPRESSION		p<0.001	p<0.001
No problems	79.6	1 (reference)	1 (reference)
Some/severe problems	65.9	4.297 (p<0.001)	2.520 (p<0.001)

Table 4 — Determinants of factors perceived as influent in health (n = 2855)

	Food		Stress		Practicing exercise		Smoking		The weight		The environment		Genetic factors		Drinking alcohol		The support from family and friends	
	OR adj	P	OR adj	P	OR adj	P	OR adj	P	OR adj	P	OR adj	P	OR adj	P	OR adj	P	OR adj	P
SEX (vs. Female)																		
Male	1.057	0.526	0.896	0.255	1.289	0.017	1.345	0.007	0.840	0.136	0.432	0.950	0.716	1.208	0.213	0.492	< 0.001	5.9%
AGE (vs. 18-29 years)																		
30-44 years	1.057	0.948	1.150	0.361	0.883	0.447	1.070	0.718	1.028	0.699	0.072	1.690	0.041	0.357	< 0.001	1.103	0.005	0.780
45-64 years	1.082	0.616	0.658	0.012	0.581	0.003	1.590	0.018	1.165	0.484	0.009	2.336	0.001	0.466	0.004	1.707	0.125	0.125
≥ 65 years	1.022	0.920	0.498	0.006	0.523	0.032	1.890	0.027	0.988	0.965	0.068	2.663	0.005	0.395	0.011	3.995	0.002	0.002
EDUCATION LEVEL (vs. Bachelor/university)																		
< 4th grade	0.773	0.214	0.489	0.013	0.168	< 0.001	0.670	0.165	0.761	0.323	0.030	0.684	0.231	1.773	0.118	0.742	0.507	0.507
4th grade	1.208	0.209	0.677	0.025	0.353	< 0.001	0.760	0.157	0.816	0.307	0.080	0.549	0.013	1.688	0.042	1.508	0.207	0.207
6th grade	0.866	0.374	0.943	0.738	0.271	< 0.001	0.909	0.637	1.321	0.177	0.169	0.911	0.708	1.515	0.138	3.313	< 0.001	< 0.001
9th grade	0.903	0.394	0.904	0.428	0.645	0.001	1.241	0.131	0.872	0.419	0.836	0.850	0.403	1.202	0.389	1.417	0.239	0.239
12th grade	1.003	0.978	0.885	0.324	0.479	< 0.001	0.912	0.530	1.216	0.226	0.378	1.188	0.358	0.912	0.676	1.592	0.101	0.101
CIVIL STATUS (vs. Married)																		
Single	0.993	0.960	0.879	0.353	1.433	0.016	1.399	0.038	0.855	0.386	0.889	0.535	0.979	0.820	0.398	1.172	0.566	0.566
Separated/divorced	0.919	0.544	1.271	0.097	1.097	0.606	1.057	0.751	1.030	0.872	1.071	0.718	0.873	1.176	0.515	0.768	0.405	0.405
Widowed	0.670	0.006	0.441	< 0.001	0.838	0.468	1.122	0.563	0.949	0.777	1.204	0.356	0.881	0.580	0.241	1.532	0.095	0.095
PROFESSIONAL OCCUPATION (vs. Active)																		
Student	0.936	0.681	0.802	0.193	1.231	0.225	1.307	0.165	1.333	0.203	0.566	0.857	0.606	0.930	0.783	1.250	0.534	0.534
Unemployed	0.725	0.039	0.497	< 0.001	1.139	0.479	0.979	0.914	1.601	0.017	1.898	0.001	1.130	0.625	1.448	1.447	0.223	0.223
Housewife/househusband	0.922	0.669	1.420	0.094	1.924	0.009	0.357	0.005	1.097	0.703	1.390	1.425	0.192	0.583	0.158	0.750	0.406	0.406
Retired	0.926	0.631	1.075	0.702	1.035	0.883	0.783	0.256	1.504	0.042	0.957	0.845	0.682	1.181	0.533	0.547	0.069	0.069
REGION OF RESIDENCE (vs. Norte)																		
Centro	1.101	0.397	0.998	0.985	0.871	0.329	0.688	0.014	0.607	0.002	2.928	< 0.001	1.917	0.332	< 0.001	1.076	0.780	0.780
IVT	0.712	< 0.001	1.218	0.064	0.891	0.329	1.186	0.147	1.032	0.799	1.757	< 0.001	0.539	0.830	0.240	1.853	0.003	0.003
Aleutjeo	0.883	0.505	1.831	0.002	1.040	0.871	0.607	0.068	0.758	0.287	1.413	0.219	0.361	0.486	0.051	1.879	0.070	0.070
Algarve	0.703	0.132	0.820	0.472	1.340	0.285	0.797	0.468	1.019	0.952	1.633	0.154	0.661	0.765	0.511	2.755	0.011	0.011
Madeira	0.394	0.001	1.275	0.384	0.956	0.892	1.452	0.217	1.122	0.723	2.178	0.030	1.220	0.610	0.986	2.030	0.150	0.150
Acores	0.762	0.322	2.130	0.008	1.377	0.335	1.522	0.189	0.551	0.153	1.114	0.823	0.680	1.120	0.777	2.232	0.098	0.098
BMI CATEGORY (vs. Normal 18.50-24.99)																		
Underweight (< 18.50)	1.313	0.404	1.140	0.683	0.734	0.386	0.865	0.717	2.040	0.050	0.512	1.185	0.757	0.596	0.436	1.780	0.300	0.300
Pre-obesity (25.00-29.99)	0.634	< 0.001	0.894	0.268	0.901	0.359	1.037	0.755	1.406	0.006	0.991	0.942	1.202	1.134	0.440	1.084	0.683	0.683
Obesity (≥ 30.00)	0.441	< 0.001	1.021	0.895	0.977	0.908	1.149	0.429	2.412	< 0.001	0.544	0.007	0.820	1.748	0.013	1.826	0.016	0.016
PHYSICAL ACTIVITY LEVEL (vs. High)																		
Low	1.131	0.272	1.629	< 0.001	0.703	0.016	1.266	0.098	1.208	0.199	0.681	0.016	0.808	0.964	0.855	0.789	0.318	0.318
Moderate	1.560	< 0.001	1.323	0.008	0.953	0.669	1.178	0.163	0.890	0.367	0.624	< 0.001	0.812	0.993	0.967	0.940	0.753	0.753
SMOKING HABITS (vs. Never smoked)																		
Ex-smoker	0.862	0.201	1.037	0.782	0.919	0.577	1.880	< 0.001	0.929	0.624	1.257	0.136	0.867	1.130	0.530	0.470	0.010	0.010
Smoker	0.631	< 0.001	1.562	< 0.001	0.776	0.027	3.074	< 0.001	0.652	0.002	0.689	0.013	0.660	0.741	0.085	0.842	0.421	0.421

Table 5 compares health status perception between subjects who referred or not each of the factors perceived as influent in health. Health status' perception was significantly different between subjects who referred or not each of the health determinants, except "drinking alcohol". Participants who indicated "food", "stress", "practicing exercise" or "smoking" as main influences in health reported higher health status' perception. On the contrary, those who referred "the weight", "the environment", "genetic factors" or "support from family and friends" reported lower health status' perception. Considering all the nine factors in the ANOVA model, the ones with significant influence in health status' perception were "food", "stress", "practicing exercise", "smoking" and "drinking alcohol". Participantes who indicated these factors reported higher health status' perception.

Table 5 — Health status' perception and factors perceived as influent in health (n=2835)

	Independent-samples t test			ANOVA		
	YES	NO	p	YES	NO	p
	EQ-VAS Mean (sd)	EQ-VAS Mean (sd)		EQ-VAS EMM	EQ-VAS EMM	
Food	77.8 (17.3)	74.1 (18.1)	< 0.001	85.7	80.0	< 0.001
Stress	78.2 (16.6)	75.4 (18.1)	< 0.001	86.2	79.5	< 0.001
Practicing exercise	83.1 (14.6)	74.4 (18.0)	< 0.001	88.5	77.2	< 0.001
Smoking	77.9 (17.5)	75.8 (17.8)	0.009	85.5	80.3	< 0.001
The weight	74.1 (17.5)	76.6 (17.8)	0.005	83.4	82.4	0.318
The environment	72.7 (17.4)	76.8 (17.7)	< 0.001	82.7	83.1	0.737
Drinking alcohol	76.9 (15.5)	76.1 (17.9)	0.486	84.9	80.9	0.002
Genetic factors	72.1 (16.0)	76.7 (17.9)	< 0.001	82.7	83.1	0.734
The support from family and friends	72.4 (17.6)	76.4 (17.7)	0.003	81.7	84.1	0.112

EMM = Estimated marginal mean

DISCUSSION

To our knowledge this is the first study to assess the health status perception of a representative sample of Portuguese adults. Although the cross-sectional nature of this study doesn't allow us to conclude on the direction of causality, the knowledge on the association between the studied variables is certainly valuable to maximize the results of public health interventions. The fact that data from a nationally representative sample were analysed regarding such a broad set of variables contributes to the importance of the findings.

When compared with previous results⁶, the prevalence of obesity between 2003-05 and 2009 in the portuguese adult population reduced from 14.2 to 10.8%. This reduction was observed both for women (13.4 to 10.4%) and men (15.0 to 11.2%). Although the prevalence of obesity seems to be decreasing, overweight is still observed in about half of the Portuguese adults. Furthermore, its proportion may even be increasing in men: while in women the global prevalence of overweight decreased from 47.8 to 38.2%, in men it increased from 60.2 to 64.5%. The higher proportions of overweight in older and less educated subjects found in this work also was found in 2003-05⁶.

The underestimation of BMI has been found in other studies, namely in a sample of Portuguese adults⁷ and in a review by Gorber et al.⁸. However, Ramos et al.⁷ report greater discrepancy between measured and estimated BMI in women, while our findings indicate the opposite. Regarding the association between BMI discrepancy and age or BMI, our results are in line with those of Ramos et al.⁷; although Gorber et al.⁸ don't quantitatively combine the results from the works reviewed, their data show the same trend regarding BMI. Finally, although both studies found an association between education and BMI only for males, our results indicate a greater BMI underestimation in less educated men, while Ramos et al.⁷ report the opposite.

Portuguese adults showed a high health status perception and selected “food”, “stress”, “practicing exercise”, “smoking” or “drinking alcohol” as factors with greater importance in health. These factors were also associated with higher health status’ perception. Overall, “food” was the factor more often selected as one of the most important health determinants. It is interesting to notice that overweight subjects tended to select less often “food” than normal weight subjects.

When these results are compared to those from a previous nationally representative sample^{4,9}, it is worth noticing that “practicing exercise”, “stress” and “genetic factors” are those which are increasingly referred as having greater importance in health. On the other hand, the importance of “drinking alcohol”, “the environment” and “smoking” seems to be decreasing.

The knowledge on factors perceived as major health determinants is useful to design effective health promotion interventions. Our results contribute to understand the determinants of health status’ perception, which may assist the use of motivational strategies in those interventions, specially in groups with lower perception of health status. Future research should explore the causes of lower health status perception being associated with demographic characteristics, as well as the reasons underlying the perception of which factors are more influent in health.

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