

WORKING P A P E R

Obesity and Health in Europeans Ages 50 and Above

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LABOR AND POPULATION

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Abstract

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Abstract

We use a unique cross-country data set covering nearly 22,000 elderly individuals (age 50+) from 10 European Countries. Cross-country differences in the prevalence of obesity in older Europeans are substantial and exceed sociodemographic differentials in obesity. Obesity is strongly associated with major health risk factors, yet cross-country differences exist in how obesity is related to depression, heart disease and high cholesterol levels. Large heterogeneity in obesity across European countries should be investigated further to identify areas for effective public policy.

Introduction

Over the last several decades, obesity has been increasing globally in virtually all population groups.¹⁻⁷ The growth in the population fraction with unhealthy body weight was particularly high in the US, although it has reached worrisome proportions in other developed and developing countries as well. About two-thirds of US adults aged 20 years and older is now either overweight or obese (defined as having a body mass index (BMI) of 25 kg/m² and above) and about 30% of US adults are obese (BMI \geq 30 kg/m²).² On the global scale, more than one billion adults are estimated to be overweight with at least 300 million of them qualifying as obese.⁸

Obesity is an established risk factor for many of the highly-prevalent, mortality-driving and costly chronic conditions, such as cardiovascular disease, diabetes and some types of cancer.^{6, 9-11} Through these and other health conditions, including work disability, obesity increases the financial burden of public transfer programs and private health plans. The costs are large. At the individual level, obesity is associated with health care expenditures that are on average about one-third above medical costs of otherwise similar individuals with normal weight.¹²⁻¹³ This exceeds the effects of smoking or problem drinking on health care costs.¹² At the aggregate level, obesity accounts for about 6-10% of national health care spending in the US and 2.0-3.5% in other Western countries.¹³⁻²⁰ The rising trends in obesity can explain 27% of the growth in real health care spending over 1987-2001.²¹

Obesity is a particular concern in older adults because its health effects are more likely to develop in middle age. Studies of obesity in younger populations may not capture all of the effects that obesity has on health and health care outcomes. Another

reason to focus an obesity study on older adults is that many of today's obese are in their 50's and 60's.² This population will be a long-time beneficiary of public transfer programs that already pay for almost half of medical expenditures attributable to overweight and obesity in the US.¹³ Older adults will be unlikely to have major changes in weight by the end of life except before death or/and in cases like developing cancer. As a consequence, these age groups are of particular interest from a policy perspective.

Despite the recent boom in obesity research, multinational comparisons of obesity and its patterns remain scarce, particularly for population groups like the elderly. The best-known cross-national estimates to date are generally limited to studies among children,²²⁻²⁵ and data from the World Health Organization MONICA (Multinational MONItoring of trends and determinants in CARdiovascular disease) project in 21 countries for 25-64-year old adults.²⁶⁻²⁸ One exception is a recent cross-national study that looked at obesity across individuals aged 15-75 using data from the European Community Household Panel.²⁹ Cross-national data on obesity in older adults became available for 10 European countries in the beginning of 2005, whereas parallel surveys for all population groups are yet to be collected. As a result, national differences in the prevalence of obesity and the factors that generate them remain largely unstudied.

In this paper we used data from the 2004 Survey of Health, Ageing and Retirement in Europe (SHARE) to document the prevalence of obesity and obesity-related health conditions in the population ages 50 and above in 10 European countries. In addition, we examined the association between obesity and several major health risk factors as well as self-reported health, and studied how it varied across SHARE countries. We also evaluated whether differences in the sociodemographic composition of the

countries could explain large heterogeneity in the prevalence of obesity among older Europeans.

Data and Methods

The perfect data for our study would be a recent, cross-national, representative survey with detailed health information, body weight and height data, sociodemographic characteristics and behavioral factors. A review of the existing nationally representative surveys of older respondents in Europe has identified the 2004 SHARE as the best available resource. The primary advantages of the SHARE data are cross-national variation across 10 European countries and the focus on individuals aged 50 and above – a population group at higher risk for developing chronic health problems and functional limitations than all adults.

The SHARE is a multidisciplinary cross-national survey that combines information on health, socio-economic status, social and family networks of Continental Europeans over the age of 50 and their spouses. The baseline 2004 SHARE study includes data on 11 countries that provide a balanced representation of the different European regions from Scandinavia (Denmark and Sweden) through Central Europe (Austria, France, Germany, Switzerland, Belgium, The Netherlands) to the Mediterranean (Spain, Italy and Greece). This study used data from SHARE Release 1 (April 28th, 2005), in which data from Belgium was not available yet.³⁰

Designed after the role models of the US Health and Retirement Study (HRS) and the English Longitudinal Study of Ageing (ELSA), the 2004 SHARE collected information on health (e.g., self-reported health, physical functioning, cognitive

functioning, health behaviors, health care utilization and expenditure), psychological conditions (e.g., psychological health, well-being, life satisfaction), socio-economic status (e.g., work activity, job characteristics, income, wealth and consumption, housing, education), and social support (e.g., social networks, volunteer activities).

The 2004 SHARE Release I sample included 22,777 respondents from 10 European countries. The survey was administered as computer assisted personal interviewing (CAPI) in the fall of 2004 among participants drawn from probability samples in all participating countries. The sampling plan followed a complex probabilistic multistage design to produce estimates representative of the non-institutionalized population aged 50 and above in each country. The study also interviewed spouses younger than 50. The response rate varied by country but on average was 57% for households and 86% for individuals within participating households.³⁰ A detailed description of the SHARE data and methodology were published elsewhere.³⁰⁻³¹ The data is available to registered users from the SHARE website (<http://www.share-project.org>).

We imposed several necessary sample restrictions. First, we excluded individuals younger than the age of 50 (759 observations or 3.3% of the original sample). The second exclusion (1663 observations or 7.3% of the original sample) was for the data with missing values on at least one measure used in our estimations. After all exclusions 21,114 individuals remained eligible for our analysis (9679 men and 11,435 women).

Measures

Obesity: The variable of primary interest was a measure of relative body weight. Individuals were classified into weight categories based on their BMI (weight in

kilograms divided by the square of height in meters) calculated from self-reported weight and height. We used the evidence-based clinical guidelines for the classification of overweight and obesity in adults, published by the National Heart, Lung and Blood Institute of the National Institutes of Health (NIH) to stratify the study respondents into four weight classes: underweight (BMI<18.5), normal weight (BMI: 18.5-24.9), overweight (BMI: 25.0-29.9), moderate obesity (BMI: 30.0-34.9), and severe obesity (BMI: >=35.0).³² The sample size for extreme obesity (BMI: >=40.0), another weight class in the NIH guidelines, was too small to enable meaningful estimation. We separated the obesity group into moderate and severe obesity because there are differential health effects by degree of obesity. Severe obesity is associated with more chronic health problems than moderate obesity, and the onset is at earlier ages.^{9-10,33} As a result, there are large differences across the obesity groups in health care utilization and costs.³⁴

Health conditions: We examined a vector of five chronic conditions that have well-established links with obesity in the literature. These were self-reported doctor-diagnosed chronic diseases as assessed from responses to the survey question “Has a doctor ever told you that you have any of these conditions...” such as 1) diabetes or high blood sugar (the type of diabetes was not assessed); 2) cardiovascular disease (a heart attack, including myocardial infarction or coronary thrombosis or any other heart problem, including congestive heart failure), 3) high blood pressure or hypertension, 4) high blood cholesterol, and 5) arthritis, including osteoarthritis or rheumatism. We also analyzed subjective assessments of general health using an indicator for fair or poor self-reported health. Health status was evaluated by asking, “Would you say your health is excellent, very good, good, fair, or poor?” Finally, we used the depression scale EURO-D

to evaluate how obesity is related to emotional health, validated in an earlier cross-European study.³⁵⁻³⁶

The EURO-D depression scale was based on categorical responses to whether in the month before the interview individuals experienced problems related to any of the 12 feelings, including sadness or depression, pessimism, suicidality, guilt, sleep trouble, interest, concentration, appetite, irritability, fatigue, enjoyment, and tearfulness. The threshold for depression was scoring 4 and above on the EURO-D depression scale.

Sociodemographic covariates: To isolate the effect of relative body weight on health, we included a set of sociodemographic covariates, such as age (five-year increment age groups of 50-54, 60-64, 65-69, 70-74, 75-79, 80+; 55-59 was the reference), the highest educational achievement (secondary education, tertiary education; primary or no education was the reference), and an indicator for marriage/registered partnership. To account for the effects of behavioral risk factors on health, we used tobacco-smoking status (current smoking, smoking in the past; never smoking was the reference). The model specifications in the pooled sample included a vector of country indicators.

We pooled the SHARE data across all countries and conducted all analyses separately for men and women. Descriptive estimates accounted for the complex sampling design using information on the survey weights as implemented in survey data estimation commands in STATA 8.2 (Stata Corporation, College Station, TX). We conducted statistical testing of differences between the country means and the sample average for all prevalence estimates. We used logistic regression in STATA to generate the odds ratio (ORs) and their 95% confidence intervals (CIs) for the association between

weight classes and health outcomes. We replicated all regression analyses in the pooled sample and separately by country. Finally, we tested whether the observed cross-country differences in obesity were generated by sociodemographic variation across countries comparing the non-adjusted ORs (based on the descriptive statistics) and adjusted ORs (based on the results from multivariate logistic regression) for obesity across countries and population groups.

Results

Obesity: The prevalence of overweight and obesity (**Table 1**) in Europeans over the age of 50 was high. On average, only a third of men (33.4%) qualified as having normal weight, whereas notably more women (44.2%) had normal weight in the 2004 SHARE. About 50% of men were overweight with another 13.3% obese and almost 3% severely obese. The percentage of overweight women was lower than that of men (36%) but similar for obesity (13.5%) and slightly higher for severe obesity (4.3%). The prevalence rate of underweight was very low for both men (0.5%) and women (2%). Among education groups (**Table 2**), men and women with primary or no education had the highest rate of moderate and severe obesity (19.2% and 20.4% respectively). Stratifying by smoking status, the lowest prevalence of obesity was found among current smokers (14.2% men; 12.1% women). There was little difference in the prevalence of overweight and obesity between the samples of 50-64-year olds and 65 and older.

The rates of unhealthy body weight varied substantially across European countries (**Table 1**). Spain had the highest prevalence of moderate and severe obesity among both men (20.2%) and women (25.5%) with almost twice much severe obesity among Spanish

women than the SHARE average (7.4% vs. 4.3%, $p < 0.01$). Men were the least likely to qualify as moderately or severely obese in Sweden (12.8%) and women in Switzerland (12.3%, less than half of the obesity rate in Spain). Switzerland, The Netherlands, the Nordic countries Denmark and Sweden had significantly higher rates of normal weight men than the average SHARE rate ($p < 0.01$). The Nordic countries, Switzerland and France had higher rates of normal weight women than the SHARE average. In contrast, the Southern-European countries Greece and Spain had percentages of normal weight men and women well below the sample average ($p < 0.01$).

We tested whether the observed cross-country differences in the prevalence of obesity were driven by sociodemographic differences in the composition of the countries. Adjusting for age, education, marital status and smoking (based on a logistic regression for obesity defined by $BMI \geq 30$) did not reduce the magnitudes much (results not presented). The largest change after the compositional adjustment was for obesity in Spain relative to Switzerland. The unadjusted OR for men was 1.71, which the adjustment for sociodemographic covariates reduced to 1.43 ($p < 0.01$). Similarly, the unadjusted OR for women in Spain relative to Switzerland was 2.57, which was reduced to 2.22 ($p < 0.01$) after adjusting for sociodemographics. The unadjusted OR for women with the least education relative to the highest educational level was 2.19, which after adjusting for other individual characteristics and the country of residence grew to 2.21 ($p = 0.73$). The OR for the comparison of the least educated and the most educated men was 1.99 in the non-adjusted statistics and 2.31 in the regression framework ($p < 0.01$).²

² We tested the null hypothesis that the odds ratio was the same before and after adjusting for sociodemographic covariates. This was done using a minimum distance test comparing the difference between the two estimates (Hausman J. Specification tests in econometrics. *Econometrica*. 1978;46:1251-71).

The cross-country differences in the prevalence of obesity-related chronic conditions were also substantial (**Table 3**)³. Spain, the country with the biggest obesity prevalence in older men and women, had the highest rate of diabetes as well (14.3% men; 13.5% women). In a similar fashion, Switzerland mirrored its low obesity rates in the least prevalence of diabetes in SHARE (7.2% men; 4.1% women). The link with the obesity patterns was however less apparent for other health conditions. For example, France had the biggest prevalence of reported doctor-diagnosed high cholesterol levels in both men and women (23.2% men; 25.8% women), albeit the prevalence of obesity was relatively low in this country. Other than obesity factors such as cross-country differences in smoking behavior, physical activity and diet were probably responsible for the observed discrepancies in the prevalence of obesity and some chronic conditions (e.g., heart disease, high cholesterol levels).

Moderate and severe obesity were significantly associated with poor or fair self-reported health, diabetes, high cholesterol levels, hypertension, arthritis, and heart disease in both men and women (**Table 4**). Compared with older men with normal weight, men with a BMI of 30-34.9 had an OR of 1.60 (95% CI, 1.38-1.86) for reporting fair or poor health, 2.74 (95% CI, 2.23-3.37) for diagnosed diabetes, 1.54 (95% CI, 1.31-1.83) for high cholesterol levels, 2.82 (95% CI, 2.44-3.27) for hypertension, 1.56 (95% CI, 1.28-1.89) for arthritis, and 1.57 (95% CI, 1.30-1.89) for heart disease. The detrimental health effects of severe obesity in men were even more substantial, particularly for poor or fair health (OR=2.49; 95% CI, 1.89-3.29), hypertension (OR=4.09; 95% CI, 3.12-5.35), and diabetes (OR=4.27; 95% CI, 3.08-5.90). Severe obesity was also negatively related to depression in men (OR=1.47; 95% CI, 1.06-2.02), whereas there was no effect for

³ See [37] for a SHARE-based analysis of the prevalence of health conditions and socio-economic status.

moderate obesity or overall obesity (BMI \geq 30), and even a protective positive effect for overweight men.

Moderate and severe obesity in women was associated with higher ORs than in men for having diabetes, arthritis, heart disease, and reporting fair or poor health. For example, compared to women with normal weight, obese women had on average an OR of 2.27 (95% CI, 1.67-3.09) for reporting fair or poor health if they had a BMI in the 30-34.9 range, and an OR of 4.15 (95% CI, 1.67-3.09) if they had a BMI of 35 and above. Similar to the findings for men, severe obesity in women was associated with the biggest health risk in terms of an OR for diabetes. It was associated with an almost six times higher chance of diabetes in women with a BMI of 35 and above compared to normal weight women (OR=5.97; 95% CI, 4.63-7.71). The results for depression in women did not parallel those for men. We found that moderate obesity was associated with an OR of 1.37 (95% CI, 1.20-1.55) for depression in older women, whereas severe obesity had an OR of 1.97 (95% CI, 1.62-2.41).

Discussion

Our study shows large heterogeneity in the prevalence of obesity among Europeans aged 50 and above. The compositional differences of the countries with rather distinct sociodemographic characteristics do not explain the observed variation in obesity. Differences related to the culture of diet, physical activity and other lifestyle behaviors, as well as genetics, may be responsible for the substantial variation in the prevalence of obesity and obesity-related chronic health conditions in Europe. These

differences should be investigated, as they are likely to suggest some areas where public health policy could be effective.

Obesity is strongly associated with major health risk factors, particularly diabetes and hypertension, and the effect is robust in all European countries in SHARE. Yet, cross-country differences exist in how obesity is related to depression, heart disease, and high cholesterol levels (**Table 5**). We found a significant link between obesity and heart disease among men in four out of the ten countries examined, with no apparent explanation of the differences related to the sample size of the countries or other obvious reasons. The association between obesity and high cholesterol levels was not significant in the countries like France that have traditionally cholesterol-rich diet and high estimates of excessive cholesterol levels. Arthritis in men was another condition that had weak links with obesity in the by-country analysis. Obesity was found to have no relation with depression for men in any of the countries examined, but it affected women in selected countries (with no clear geographic or cultural pattern), and had no effect on depression in others. Reasons for such differential effects of obesity across countries deserve further research.

The current study has three potential limitations that may be overcome by future data collection. First, we only have self-reported height and weight. Several studies show that body weight, at least in the US, is often underreported by individuals with excessive body weight (with an increasing proportion among the more obese). Moreover, respondents tend to overestimate height, particularly in older population groups.³⁸⁻⁴⁰ If the tendency to systematically under- or over-report varies across countries, this could hamper our cross-country comparison. To test this hypothesis, we would also need

objective measurements in the SHARE countries. Second, in the analysis of the association between obesity and chronic health conditions, undiagnosed chronic diseases could not be counted. Given the potential differences in health care systems across the SHARE countries, this may imply that the prevalence of specific health conditions is underestimated more in some countries than in others. Third, we had relatively small samples and low response rates in some countries, particularly Switzerland. Finally, the survey does not cover the institutionalized population.

Obesity is preventable. Previous research has shown that sustained lifestyle changes in physical activity and diet can be effective in preventing weight gain, reducing obesity and related health risk factors.^{6,32,41} Obesity is a significant problem in older Europeans that already affects every eighth Swiss, every sixth German men, and every fourth women in Spain. Nevertheless, the obesity problem has yet to generate sufficient social and policy attention to enable changes in the European countries, including those that are of particular need for reform. Along with urgent policy initiatives to address health care needs of their aging populations, identifying programs that are likely to have the largest potential in maintaining healthy weight and reducing obesity should be national priorities in European countries as well.

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Table 1
Prevalence of Weight Classes by Country
Adults Ages 50 or Older
SHARE 2004

	Sample size	Underweight BMI <18.5	Normal weight BMI 18.5-24.9	Overweight BMI 25-29.9	Moderately obese BMI 30-34.9	Severely obese BMI 35+
Men						
Austria	798	0.3	29.8*	51.9	14.5	3.4
Germany	1353	0.4	31.7	50.9	14.0	2.9
Sweden	1371	0.6	39.5**	47.1	10.4**	2.4
The Netherlands	1326	0.3	38.1**	48.5	11.0*	2.1
Spain	937	0.6	29.2**	49.9	16.2*	4.0
Italy	1108	0.6	34.0	50.1	12.4	2.8
France	736	0.7	36.1	48.2	12.2	2.8
Denmark	739	0.6	39.9**	45.3*	11.9	2.2
Greece	880	0.1*	28.6**	54.3*	14.7	2.3
Switzerland	431	0.4	39.9**	46.6	11.1	1.9
<i>Total</i>	<i>9679</i>	<i>0.5</i>	<i>33.4</i>	<i>49.8</i>	<i>13.3</i>	<i>2.9</i>
Women						
Austria	1071	1.5	43.4	35.3	15.9*	3.8
Germany	1547	1.2*	43.8	37.7	13.2	4.2
Sweden	1530	2.2	49.5**	33.8	11.6*	2.8**
The Netherlands	1460	1.4	45.9	36.1	12.3	4.3
Spain	1235	0.4**	32.4**	41.6**	18.1**	7.4**
Italy	1347	2.3	44.3	36.4	13.7	3.4
France	897	3.6**	51.5**	29.9**	11.1*	3.9
Denmark	835	4.2**	51.5**	30.9**	10.8*	2.4**
Greece	1044	0.9**	35.1**	41.9**	16.9**	5.1
Switzerland	469	3.3	55.3**	29.2**	9.3**	2.8
<i>Total</i>	<i>11435</i>	<i>1.9</i>	<i>44.2</i>	<i>36.0</i>	<i>13.5</i>	<i>4.3</i>

Note: * significant from the SHARE average at p<0.05; ** significant from the SHARE average at p<0.01.
Data are presented as percentages. Means adjusted for sample weights

Table 2
Sociodemographic Characteristics by Weight Class
Adults Ages 50 or Older
SHARE 2004

	Sample size	Underweight BMI <18.5	Normal weight BMI 18.5-24.9	Overweight BMI 25-29.9	Moderately obese BMI 30-34.9	Severely obese BMI 35+
Men						
Age, years						
50-64	5201	0.2	32.4	50.9	13.4	3.1
≥65	4478	0.9	34.6	48.5	13.3	2.7
Highest education						
Primary or less	4388	0.7	31.1	49.0	15.5	3.7
Secondary	3153	0.6	32.9	50.9	12.9	2.7
Tertiary	2138	0.0	39.1	49.7	9.5	1.6
Marital status						
Married/partnered	7898	0.4	32.7	50.5	13.8	2.7
Single/divorced	1781	0.9	35.6	47.8	11.8	3.7
Smoking status						
Current smoker	2314	0.7	37.8	47.3	11.1	3.1
Past smoker	3918	0.5	29.3	51.9	15.0	3.3
Never smoker	3447	0.4	35.0	49.2	12.9	2.4
Women						
Age, years						
50-64	6120	1.5	45.4	35.1	13.1	4.8
≥65	5315	2.3	43.1	36.9	13.9	3.8
Highest education						
Primary or less	6549	1.8	39.9	37.8	15.5	4.9
Secondary	3150	1.9	45.9	35.8	12.7	3.8
Tertiary	1736	2.5	59.0	28.8	6.7	2.9
Marital status						
Married/partnered	7318	1.4	43.5	37.3	13.6	4.1
Single/divorced	4117	2.5	44.9	34.6	13.4	4.6
Smoking status						
Current smoker	1844	4.1	51.9	31.9	9.5	2.6
Past smoker	2007	2.2	44.8	34.9	13.2	4.9
Never smoker	7584	1.5	42.7	37.0	14.3	4.5

Note: Data are presented as percentages. Means adjusted for sample weights

Table 3
Prevalence of Obesity-Related Health Outcomes by Country
Adults Ages 50 or Older
SHARE 2004

	Poor/fair self-reported health	Diabetes	High cholesterol	Hypertension	Arthritis	Heart disease	Depression
Men							
Austria	27.7*	9.9	16.9	27.0*	7.9**	11.5	12.4**
Germany	37.2**	11.0	18.2	33.6*	9.1**	13.5	12.6**
Sweden	10.6**	9.8	16.4**	27.5*	5.9**	20.0**	12.8**
The Netherlands	25.2**	7.8**	16.4*	22.6**	5.4**	13.3	15.6
Spain	34.4	14.3**	22.9*	26.7**	18.8**	11.4	20.9*
Italy	32.3	12.6	17.3	36.6**	18.8**	11.4	23.4**
France	31.1	10.8	23.2**	26.9**	23.5**	16.9**	21.9**
Denmark	24.1**	8.4**	17.3	30.7	19.2**	9.6**	14.1*
Greece	25.3**	8.6**	19.4	32.1	9.6**	14.8	12.9**
Switzerland	13.8**	7.2**	15.7*	28.7	7.1**	8.5**	11.2**
<i>Total</i>	<i>31.8</i>	<i>11.3</i>	<i>19.4</i>	<i>30.9</i>	<i>14.9</i>	<i>13.5</i>	<i>17.8</i>
Women							
Austria	30.7**	8.0**	15.6**	34.3	13.4**	8.1	25.9**
Germany	42.3*	12.9**	18.7	38.3*	14.4**	10.2	27.4**
Sweden	15.5**	7.7**	16.4**	29.5**	13.7**	14.6**	27.4**
The Netherlands	29.2**	8.9*	13.3**	27.7**	13.7**	8.3	26.0**
Spain	48.1**	13.5**	25.1**	37.9	35.2**	10.6	46.4**
Italy	45.6**	11.1	19.7	36.2	36.6**	8.0	40.5**
France	35.2**	7.9**	25.8**	33.3	37.9**	10.6	42.6**
Denmark	25.3**	6.7**	13.7**	28.3**	32.5**	7.4*	21.6**
Greece	36.9	8.9	22.2	41.4**	25.1	10.0	34.8
Switzerland	17.7**	4.1**	9.9**	23.0**	14.7**	5.2**	22.9**
<i>Total</i>	<i>39.7</i>	<i>10.8</i>	<i>20.5</i>	<i>35.6</i>	<i>26.8</i>	<i>9.7</i>	<i>35.4</i>

Note: * significant from the SHARE average at p<0.05; ** significant from the SHARE average at p<0.01. Data are presented as percentages. Means adjusted for sample weights

Table 4

**Association between Weight Classes and Selected Health Conditions
Adults Ages 50 or Older
Pooled Sample SHARE 2004**

	Underweight BMI <18.5	Normal weight BMI 18.5-24.9	Overweight BMI 25-29.9	Moderately obese BMI 30-34.9	Severely obese BMI 35+
Men					
Poor or fair self-reported health	4.61 (2.21-9.62)	1.00	0.99 (0.89-1.11)	1.60 (1.38-1.86)	2.49 (1.89-3.29)
Diabetes	2.01 (0.83-4.90)	1.00	1.55 (1.32-1.84)	2.74 (2.23-3.37)	4.27 (3.08-5.90)
High cholesterol	0.53 (0.16-1.74)	1.00	1.42 (1.26-1.60)	1.54 (1.31-1.83)	1.93 (1.43-2.60)
Hypertension	0.57 (0.24-1.38)	1.00	1.72 (1.54-1.91)	2.82 (2.44-3.27)	4.09 (3.12-5.35)
Arthritis	1.17 (0.49-2.78)	1.00	1.21 (1.05-1.40)	1.56 (1.28-1.89)	1.80 (1.26-2.58)
Heart disease	0.84 (0.34-2.07)	1.00	1.12 (0.98-1.29)	1.57 (1.30-1.89)	1.56 (1.08-2.23)
Depression	4.22 (2.09-8.49)	1.00	0.88 (0.77-1.00)	1.08 (0.89-1.29)	1.47 (1.06-2.02)
Women					
Poor or fair self-reported health	2.27 (1.67-3.09)	1.00	1.28 (1.16-1.41)	2.21 (1.94-2.51)	4.15 (3.38-5.09)
Diabetes	0.61 (0.28-1.32)	1.00	1.93 (1.63-2.28)	3.56 (2.94-4.32)	5.97 (4.63-7.71)
High cholesterol	0.49 (0.30-0.83)	1.00	1.26 (1.13-1.41)	1.40 (1.21-1.62)	1.45 (1.15-1.82)
Hypertension	0.55 (0.37-0.81)	1.00	1.83 (1.66-2.00)	2.69 (2.38-3.05)	4.63 (3.79-5.66)
Arthritis	0.73 (0.50-1.07)	1.00	1.21 (1.09-1.35)	1.68 (1.46-1.93)	2.33 (1.88-2.88)
Heart disease	1.09 (0.68-1.77)	1.00	1.23 (1.05-1.43)	1.75 (1.44-2.12)	2.02 (1.49-2.74)
Depression	1.40 (1.03-1.91)	1.00	1.06 (0.97-1.17)	1.37 (1.20-1.55)	1.97 (1.62-2.41)

Note: Data are presented as fully adjusted odds ratio (OR) with 95% CI in parentheses from multivariate logistic regression (age, education, marital status, smoking status, and country dummies included)

Table 5

**Association of Health Conditions and Weight Classes in By Country Analysis: 5% Significant Effects
Adults Ages 50 or Older
SHARE 2004**

	Poor or fair self-reported health	Diabetes	High cholesterol	Hypertension	Arthritis	Heart disease	Depression
Men							
Austria	obese	obese	obese	overweight, obese	obese		overweight
Germany	obese	obese	obese	overweight/ obese	overweight/ obese		
Sweden	underweight	overweight/ obese	overweight/ obese	overweight/ obese			underweight
The Netherlands	obese	obese		overweight/ obese	overweight/ obese	underweight	
Spain	obese	obese		overweight/ obese		obese	underweight
Italy	obese	obese		overweight/ obese	overweight	obese	
France	obese	overweight/ obese		overweight/ obese			
Denmark	obese	overweight/ obese	obese	overweight/ obese		obese	
Greece		obese		overweight/ obese	obese		
Switzerland				overweight/ obese	overweight	obese	overweight
<i>Total men</i>	underweight/ obese	overweight/ obese	obese	overweight/ obese	overweight/ obese	overweight/ obese	underweight/ overweight
Women							
Austria	underweight/ obese	obese		overweight/ obese	overweight/ obese		underweight
Germany	overweight/ obese	overweight/ obese		overweight/ obese	obese	overweight/ obese	obese
Sweden	underweight, overweight, obese	overweight/ obese	obese	overweight/ obese	overweight/ obese	obese	underweight/ obese
The Netherlands	obese	obese	obese	overweight/ obese	overweight	obese	
Spain	obese	obese	obese	overweight/ obese		obese	obese
Italy	underweight, overweight, obese	overweight/ obese		overweight/ obese		obese	obese
France	obese	overweight/ obese	obese	overweight/ obese		overweight/ obese	
Denmark	obese	obese	obese	overweight/ obese	overweight	obese	overweight/ obese
Greece	overweight/ obese	overweight/ obese		overweight/ obese	overweight/ obese	obese	
Switzerland	underweight/ obese	obese		obese			obese
<i>Total women</i>	underweight, overweight, obese	overweight/ obese	overweight/ obese	underweight, overweight, obese	underweight, overweight, obese	overweight/ obese	underweight, obese