

Social inequalities in health related behaviours in Barcelona

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Abstract

Objective—This study describes social class inequalities in health related behaviours (tobacco and alcohol consumption, physical activity) among a sample of general population over 14 years old in Barcelona.

Design—Cross sectional study (Barcelona Health Interview Survey).

Setting—Barcelona city (Spain).

Participants—A representative stratified sample of the non-institutionalised population resident in Barcelona was obtained. This study refers to the 4171 respondents aged over 14.

Data—Social class was obtained from a Spanish adaptation of the British Registrar General classification. In addition, sociodemographic variables such as family structure and employment status were used. As health related behaviours tobacco consumption, alcohol consumption, usual physical activity and leisure time physical activity were analysed. Age adjusted percentages were compared by social class. Multivariate analysis was performed using logistic regression models.

Main results—Women in the upper social classes were more likely to smoke, the adjusted odds ratio (OR) for social class V in reference to social class I was 0.36 (95% confidence intervals (95%CI): 0.19, 0.67), while the opposite occurred among men although it was not statistically significant in multivariate analysis. Smoking cessation was more likely among men in the higher classes (OR for class V 0.41, 95%CI: 0.18, 0.90). Excessive alcohol consumption among men showed no differences between classes, while among women it was greater in the upper classes. Engaging in usual physical activity classified as “light or none” in men decreased with lowering social class (OR class IVa: 0.55 and OR class IVb: 0.47). Women of social classes IV and V were less likely to have two or more health risk behaviours (OR for class V 0.33, 95% CI: 0.18, 0.62).

Conclusion—Health damaging behaviours are differentially distributed among social classes in Barcelona. Health policies should take into account these inequalities.

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consumption may be regarded less as personal habits than as cultural norms, determined by social pressures; or persons of low social classes may not have the time or energy to engage in leisure time physical activity.¹ It is now widely accepted that health status and its determinants, including lifestyle and health related behaviours, are differentially distributed among social classes.²

The determinants of health behaviour are in general poorly understood. In some cases, like eating patterns or leisure time physical activity, access and availability might play a direct part, as eating “healthy” and practising sports are relatively expensive options. In this regard, it is also well known that lower class persons tend to perform less physical activity in their leisure time and more in their jobs.^{2,3}

In some other behaviours the picture can be even more complex, especially when we are dealing with legal addictive substances such as tobacco and alcohol. The case of smoking is remarkable, as it seems to have followed a diffusion model in most developed countries after the second world war,⁴ a pattern that is strongly related to socioeconomic factors. In this regard, the current prevalence of smokers in the USA and northern European countries is higher in the lower social classes. However, the pattern seems to be different in southern European countries, especially among women, where the higher classes smoke more.^{5,6} In a previous study in Barcelona we reported a decrease in smoking among upper classes men between 1983 and 1992, paralleled by an increase in smoking among lower class women.⁷ Alcohol consumption is related to the historical position of alcohol within the local economy and social events. Nevertheless, some differences according to social class, with more heavy drinkers in disadvantaged classes, have been shown.^{1,2}

Compared with other European countries, southern European countries present intermediate levels of wealth between those of north and central Europe and those of east Europe. In southern European countries the study of inequalities is relatively recent, and there are few studies available.⁸⁻¹⁰ The pattern of social inequalities in health in Spain, as in other countries of southern Europe, presents certain differential characteristics compared with central and northern European countries.^{10,11}

Barcelona, like most large cities, presents important social inequalities in health. So far, however, most studies have been based on mortality statistics, drawing attention to the higher mortality and shorter life expectancy in

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Health related behaviours are often thought of as “voluntary”, but this is a rather superficial view. For example, smoking and alcohol

Table 1 Sample distribution by sociodemographic variables. Men and women aged over 14 years. Barcelona, 1992

Sociodemographic variables	Men Number (%)	Women Number (%)
<i>Social class</i>		
I—Managerial, senior technical staff, free professionals.	257 (13.2)	167 (7.5)
II—Intermediate occupations and manager in commerce.	274 (14.1)	319 (14.3)
III—Skilled non manual workers.	457 (23.5)	506 (22.7)
IVa—Skilled manual workers.	522 (26.9)	649 (29.1)
IVb—Partly skilled manual workers.	205 (10.6)	199 (8.9)
V—Unskilled manual workers.	64 (3.3)	189 (8.5)
Missing data	164 (8.4)	200 (8.9)
<i>Age group</i>		
15–24	372 (19.2)	378 (17.0)
25–44	656 (33.8)	671 (30.1)
45–64	554 (28.5)	701 (31.4)
≥65	359 (18.5)	479 (21.5)
<i>Family structure</i>		
Live alone or alone with children	163 (8.4)	417 (18.7)
Couple, or couple and others	1202 (61.9)	1251 (56.1)
Parents or parents and others	478 (24.6)	390 (17.5)
Persons over 60 with children, or children and grandchildren	7 (0.3)	33 (1.5)
Others	92 (4.8)	137 (6.2)
<i>Employment status</i>		
Worker	1070 (55.0)	621 (27.8)
Housewife	—	902 (40.4)
Unemployed	152 (7.8)	125 (5.6)
Student	233 (12.0)	249 (11.2)
Retired	433 (22.3)	311 (14.0)
Others	52 (2.7)	20 (0.9)
Missing data	2 (0.1)	2 (0.1)
Total	1942 (100)	2229 (100)

wards with lower socioeconomic levels,^{12–14} inequalities that have widened with time.¹⁵ This study describes social class inequalities in health related behaviours (tobacco and alcohol consumption, physical activity) in the over 14 year population in the city of Barcelona.

Methods

The data analysed in this study were collected in 1992 in the Barcelona Health Interview Survey, a periodic cross sectional population survey carried out in the city of Barcelona (1 650 000 inhabitants), in the north east of Spain. A representative stratified sample of the non-institutionalised population resident in Barcelona according to the population census of 1991 was obtained. The census tracks of the city were grouped into five strata, based on sociodemographic variables obtained from the 1986 census (variables based on age and sex distribution, educational level, occupational level, employment status and migration). The sample size in each stratum depended on the variability of sociodemographic variables in it. The sampling unit in each stratum was the individual and in each stratum a random sample of people was obtained. Total sample size was established as 5004 persons, with an alpha error of 5% and a maximum global error of 1.6% (this global error is one half the width of the desired sample confidence interval).¹⁶ The information was collected through a face to face interview carried out at home, between February 1992 and January 1993. Non-responses were 9%. This study refers to the 4171 respondents aged over 14.

The questionnaire of the Barcelona Health Interview Survey was adapted from previous health interview surveys.¹⁶ The tobacco questions were based on WHO recommendations.¹⁷ The question on alcohol consumption was asked in the same way as it had been in the 1987 Health Interview Survey of the Basque

Country (Spain).¹⁸ Physical activity items were taken from those used in the Welsh Heart Health Survey in 1985.¹⁹

Social class was obtained from a Spanish adaptation of the 1980 British Registrar General classification.²⁰ Class I includes managerial and senior technical staff and free professionals; class II includes intermediate occupations and managers in commerce; class III, skilled non-manual workers; class IV, skilled (IVa) and partly skilled (IVb) manual workers; and class V, unskilled manual workers. Social class was derived from current or last occupation. People reporting none were assigned the social class of the head of the household (22% of men and 44% of women).

The Spanish classification of social class was created by comparing the occupations in both Britain and Spain. In most cases occupations fell into the same social class, because it was assumed that the social position was the same. However, there were some cases assigned to a different social class. For example, writers and journalists in Spain were put in social class I. Non-manual occupations were assigned to social class III and manual to social class IV (whereas in the British classification both manual and non-manual skilled occupations are part of social class III).²⁰ The Spanish classification has been widely used in Spain and has been recommended by the Spanish Epidemiological Society.²¹ Social class determined with this classification has shown a high correlation with educational level.²² Besides, family structure and employment status were used as other sociodemographic variables.^{23 24} Table 1 summarises characteristics of the population over 14 years of age, interviewed during the health survey, according to sociodemographic variables by men and women.

The variables studied were:

TOBACCO CONSUMPTION

People who smoked daily one or more cigarettes at the time of the survey were considered current smokers; those who had smoked one or more cigarettes a day in the past (six months ago or before) but did not smoke at the time of the survey were considered ex-smokers; and those who declared themselves non-smokers, or who smoked less than one a day were labelled non-smokers. The rate of smoking cessation was calculated as the number of ex-smokers over the total number of smokers and ex-smokers.

ALCOHOL CONSUMPTION

The amount of alcohol ingested daily, in grams, was determined by daily consumption during the previous week. The interviewees were classified as: non-drinkers, light drinkers (men who consumed less than 40 g per day and women who consumed less than 20 g), and heavy drinkers (men who consumed 40 g or more per day, and women who stated they had consumed 20 g or more per day). The limits of alcohol for a heavy drinker reflect levels at which the risk of overall mortality increases.²⁵

Table 2 Health related behaviours by social class. Age standardised percentages. Men and women aged over 14 years. Barcelona 1992

	Sex	Class I %* (95% CI)	Class II %* (95% CI)	Class III %* (95% CI)	Class IVa %* (95% CI)	Class IVb %* (95% CI)	Class V %* (95% CI)
Tobacco consumption							
Smoker	M	43.8 (35.4, 52.1)	36.3 (28.9, 43.5)	41.7 (35.7, 47.5)	47.3 (41.2, 53.2)	54.1 (43.6, 64.4)	48.0 (28.7, 67.3)
	F	29.8 (21.4, 38.1)	24.8 (19.7, 29.8)	24.1 (20.0, 28.1)	22.1 (18.0, 26.0)	25.8 (18.7, 32.8)	17.9 (9.3, 26.4)
Ex-smoker	M	27.0 (20.5, 33.3)	24.8 (18.7, 30.9)	22.1 (17.5, 26.6)	20.1 (16.3, 23.8)	18.1 (11.5, 24.7)	16.8 (6.7, 26.9)
	F	6.6 (1.8, 11.4)	8.2 (4.8, 11.5)	7.4 (5.0, 9.7)	5.0 (3.1, 6.7)	3.4 (0.8, 6.0)	3.0 (0.0, 6.2)
Non-smoker	M	29.2 (22.5, 35.9)	38.9 (31.3, 46.3)	36.2 (30.8, 41.7)	32.6 (27.6, 37.5)	27.8 (20.4, 35.1)	35.1 (18.5, 51.7)
	F	63.6 (48.7, 78.37)	66.8 (56.6, 77.0)	68.5 (60.5, 76.3)	73.0 (66.4, 79.4)	70.8 (59.0, 82.5)	79.1 (65.3, 92.8)
Smoking cessation							
	M	36.3 (27.5, 45.0)	39.6 (29.9, 49.2)	31.3 (24.8, 37.7)	28.3 (22.9, 33.7)	23.8 (15.1, 32.6)	21.1 (8.3, 33.9)
	F	24.5 (1.3, 47.5)	38.7 (14.5, 62.9)	29.4 (10.3, 48.5)	29.0 (14.1, 43.9)	12.3 (0.5, 24.1)	23.5 (0.0, 47.5)
Alcohol consumption							
Non-drinker	M	27.0 (20.5, 33.5)	29.1 (22.5, 35.6)	29.7 (24.6, 34.8)	30.2 (25.5, 34.8)	32.7 (24.3, 41.2)	41.8 (22.9, 60.5)
	F	45.6 (33.2, 57.9)	47.9 (39.2, 56.4)	45.3 (38.9, 51.5)	57.8 (51.8, 63.6)	64.1 (52.9, 75.2)	71.9 (57.7, 85.8)
Light drinkers	M	61.3 (51.6, 71.0)	59.6 (50.2, 68.8)	62.0 (54.8, 69.2)	57.1 (50.5, 63.7)	55.1 (44.6, 65.6)	45.2 (27.3, 63.1)
	F	44.0 (32.9, 55.1)	42.6 (35.2, 50.0)	49.5 (43.1, 55.9)	36.2 (31.4, 41.0)	31.4 (23.4, 39.3)	25.7 (17.3, 34.2)
Excessive alcohol consumption	M	11.7 (7.2, 16.0)	11.3 (7.1, 15.5)	8.2 (5.5, 10.9)	12.6 (9.5, 15.7)	12.1 (7.1, 17.0)	13.0 (4.2, 21.7)
	F	10.4 (4.4, 16.2)	8.9 (5.6, 12.2)	5.2 (3.2, 7.1)	6.0 (4.0, 7.8)	4.5 (1.5, 7.4)	2.4 (0.4, 4.3)
Usual physical activity							
Intense	M	4.1 (1.4, 6.8)	5.5 (2.6, 8.3)	5.1 (3.0, 7.1)	19.3 (15.4, 23.2)	15.6 (10.2, 20.9)	11.5 (0.0, 23.0)
	F	3.6 (0.1, 6.9)	6.3 (3.2, 9.2)	2.9 (1.3, 4.3)	4.4 (2.6, 6.0)	8.7 (4.5, 12.8)	8.6 (3.9, 13.2)
Moderate	M	41.0 (33.0, 49.0)	42.1 (34.2, 50.0)	49.8 (43.2, 56.3)	40.2 (34.7, 45.5)	47.5 (37.3, 57.6)	29.8 (16.0, 43.5)
	F	49.6 (37.2, 61.9)	52.6 (43.9, 61.3)	55.5 (48.5, 62.4)	53.6 (47.8, 59.3)	55.9 (45.4, 66.3)	57.2 (44.3, 70.1)
Light	M	12.7 (8.2, 17.2)	13.2 (8.7, 17.6)	9.6 (6.8, 12.4)	14.9 (11.5, 18.3)	17.3 (11.5, 23.0)	19.5 (8.1, 30.8)
	F	19.5 (10.9, 28.1)	20.3 (15.2, 25.3)	15.9 (12.1, 19.5)	22.5 (18.7, 26.2)	19.0 (12.8, 25.2)	18.5 (11.5, 25.4)
None	M	41.1 (33.1, 48.9)	39.1 (31.6, 46.6)	35.0 (29.5, 40.4)	25.1 (20.7, 29.3)	19.6 (13.1, 26.0)	39.1 (21.8, 56.4)
	F	27.3 (18.7, 35.8)	20.7 (15.1, 26.1)	25.5 (21.0, 30.0)	19.2 (15.8, 22.5)	15.9 (10.4, 21.4)	15.4 (9.4, 21.3)
Undertake no leisure time physical activity							
	M	74.4 (63.6, 85.1)	74.0 (63.6, 84.4)	77.1 (68.9, 85.3)	77.5 (69.8, 85.0)	81.6 (68.4, 94.7)	79.5 (55.5, 100.0)
	F	86.3 (69.6, 100.0)	79.5 (68.8, 90.2)	84.6 (76.0, 93.1)	83.6 (76.4, 90.7)	84.5 (71.7, 97.3)	86.1 (71.2, 100.0)

*%: age standardised percentage.

USUAL PHYSICAL ACTIVITY

This variable was defined as the total physical activity usually undertaken and therefore includes activity on the job and outside it. It was obtained from a question in which the activity was catalogued as important or intense (physical activity requiring important physical effort), moderate (frequent walking), light (most of the day standing), or none (seated most of the day).

LEISURE TIME PHYSICAL ACTIVITY

Obtained from two questions that asked about the number of occasions on which the subject had performed various sports, for at least 20 minutes, of moderate intensity (bicycle riding, gymnastics, aerobics, jogging, tennis, swimming) and of high intensity (competition swimming, football, basketball, hockey, competition cycling, squash, martial arts). People who regularly and vigorously performed physical activity three or more times per week in leisure time were classified as having performed some leisure time physical activity, because it has been demonstrated that this amount of physical activity improves cardiovascular fitness.²⁶

In the data analysis each person had an assigned weight to adjust for the sample stratification. To compare the different variables among the different social classes, we used age adjusted percentages by the direct method and its 95% confidence intervals (95%CI).²⁷ The reference population was the whole survey sample (n=4171 aged over 14). Multivariate analysis was performed to study the association between social class and health behaviours adjusting for age, employment status and family structure^{23 24} through logistic regression models. Interaction between age and social class was tested in the models but it was not statistically significant. Goodness of fit was obtained using the Hosmer Lemeshow test.²⁸

Results

In women the prevalence of smokers was higher in social class I (29.8%) and decreased until social class V (18%). The adjusted odds ratio (OR) for social class V in reference to social class I was 0.36 (95%CI: 0.19, 0.67). The opposite occurred among men, where the classes IV and V smoked more (table 2). These results were also reflected in the multivariate analyses adjusted for age, employment status and family structure, even though among men the association lost statistical significance (table 3). Smoking cessation was greater among men in the higher classes, OR for classes IV and V were less than 1 and statistically significant; in women no clear trends were observed (table 3).

Among women light and excessive alcohol consumption were greater in classes I and II, with ORs becoming progressively smaller and further from 1. Among men light alcohol consumption was more important in upper classes (61% of class I and 45% of class V, OR=0.57, 95%CI:0.32, 1.00), while no differences were found in excessive alcohol consumption (tables 2 and 3).

Less than 5% of men and women in class I declared that they usually performed intense physical activity in contrast with 11.5% of men and 8.6% of women in class V (table 2), an association that persisted in the multivariate analysis, the ORs for the lower classes being greater than 2 (table 3). People of social classes I and II were more likely to engage in usual physical activity classified as "light or none" than lower social classes (table 3). For leisure time physical activity the situation is reversed, particularly in men, as a greater proportion of the lower classes did not engage in physical activity three or more times per week (74% of men in class I and 79% in class V). In the

Table 3 Multivariate associations between health related behaviours and social class. Men and women aged over 14 years. Barcelona 1992

	Sex	Class I OR	Class II OR (95% CI)	Class III OR (95% CI)	Class IVa OR (95% CI)	Class IVb OR (95% CI)	Class V OR (95% CI)
<i>Tobacco consumption</i>							
Smoker ⁽¹⁾	M	1	0.71 (0.49, 1.01)	0.93 (0.67, 1.28)	1.15 (0.83, 1.57)	1.44 (0.97, 2.13)	1.31 (0.74, 2.32)
	F	1	0.74 (0.47, 1.16)	0.67 (0.44, 1.02)	0.60 (0.40, 0.92)	0.79 (0.48, 1.32)	0.36 (0.19, 0.67)
<i>Smoking cessation⁽²⁾</i>							
	M	1	1.15 (0.71, 1.85)	0.71 (0.45, 1.09)	0.57 (0.37, 0.87)	0.43 (0.24, 0.75)	0.41 (0.18, 0.90)
	F	1	2.16 (0.90, 5.16)	2.05 (0.89, 4.74)	1.63 (0.69, 3.86)	0.86 (0.28, 2.62)	1.41 (0.38, 5.13)
<i>Alcohol consumption</i>							
Non-drinker ⁽³⁾	M	1	1.14 (0.77, 1.68)	1.13 (0.80, 1.61)	1.18 (0.83, 1.66)	1.32 (0.86, 2.01)	1.68 (0.93, 3.04)
	F	1	1.04 (0.70, 1.54)	1.03 (0.71, 1.48)	1.66 (1.16, 2.38)	2.27 (1.47, 3.51)	2.92 (1.84, 4.62)
Light drinker ⁽⁴⁾	M	1	0.91 (0.64, 1.30)	1.02 (0.74, 1.40)	0.81 (0.60, 1.12)	0.77 (0.52, 1.14)	0.57 (0.32, 1.00)
	F	1	0.95 (0.64, 1.40)	1.19 (0.83, 1.71)	0.71 (0.49, 1.01)	0.55 (0.35, 0.86)	0.45 (0.28, 0.72)
Excessive alcohol consumption ⁽⁵⁾	M	1	0.94 (0.54, 1.63)	0.71 (0.42, 1.20)	1.16 (0.71, 1.87)	1.04 (0.57, 1.89)	1.24 (0.54, 2.82)
	F	1	0.91 (0.46, 1.77)	0.46 (0.23, 0.91)	0.52 (0.27, 0.99)	0.37 (0.15, 0.88)	0.25 (0.09, 0.67)
<i>Usual physical activity</i>							
Intense ⁽⁶⁾	M	1	1.39 (0.60, 3.22)	1.37 (0.63, 2.95)	6.84 (3.42, 13.67)	5.56 (2.60, 11.89)	2.52 (0.79, 8.03)
	F	1	1.51 (0.58, 3.87)	0.75 (0.28, 1.98)	1.46 (0.58, 3.62)	3.02 (1.15, 7.94)	2.70 (1.00, 7.30)
Light-none ⁽⁷⁾	M	1	0.91 (0.64, 1.28)	0.66 (0.48, 0.91)	0.55 (0.40, 0.75)	0.47 (0.32, 0.70)	1.25 (0.71, 2.20)
	F	1	0.79 (0.54, 1.17)	0.90 (0.63, 1.30)	0.93 (0.65, 1.32)	0.68 (0.44, 1.05)	0.65 (0.41, 1.01)
<i>Undertake no leisure time physical activity⁽⁸⁾</i>							
	M	1	0.97 (0.64, 1.45)	1.11 (0.76, 1.60)	1.11 (0.76, 1.59)	1.40 (0.88, 2.22)	1.25 (0.61, 2.57)
	F	1	0.59 (0.35, 0.97)	0.89 (0.55, 1.43)	0.80 (0.50, 1.28)	0.89 (0.49, 1.58)	1.08 (0.57, 2.05)
<i>Two or more health behaviours⁽⁹⁾</i>							
	M	1	0.74 (0.51, 1.08)	0.93 (0.67, 1.29)	1.26 (0.91, 1.73)	1.50 (1.01, 2.22)	1.46 (0.82, 2.58)
	F	1	0.81 (0.52, 1.27)	0.70 (0.46, 1.06)	0.71 (0.46, 1.07)	0.88 (0.53, 1.46)	0.33 (0.18, 0.62)

OR: odds ratio adjusted for age, employment status and family structure. ⁽¹⁾Dependent variable: 1 smoker, 0 occasional smoker, non-smoker. ⁽²⁾Dependent variable: 1 ex-smoker, 0: smoker. ⁽³⁾Dependent variable: 1 non-drinker, 0 drinker. ⁽⁴⁾Dependent variable: 1 light drinker, 0 other. ⁽⁵⁾Dependent variable: 1 heavy drinker (over 40 g/day in men, over 20 g/day in women), 0 other drinkers and non-drinkers. ⁽⁶⁾Dependent variable: 1 intense physical activity, 0 other cases. ⁽⁷⁾Dependent variable: 1 light-none physical activity, 0 other cases. ⁽⁸⁾Dependent variable: 1 no leisure time physical activity, 0 yes. ⁽⁹⁾Dependent variable: 1 two or more health behaviours, 0 none or one.

Table 4 Percentage of people who present a number of health damaging behaviours (smokers, heavy drinkers or people who performed no leisure time physical activity) by social class. Age standardised percentages. Men and women aged over 14 years. Barcelona 1992

Number of behaviours	Sex	Class I %* (95% CI)	Class II %* (95% CI)	Class III %* (95% CI)	Class IVa %* (95% CI)	Class IVb %* (95% CI)	Class V %* (95% CI)
None	M	14.1 (9.5, 18.7)	15.0 (10.2, 19.7)	13.1 (9.8, 16.4)	12.6 (9.4, 15.7)	9.4 (5.2, 13.6)	13.1 (1.8, 24.4)
	F	9.1 (4.0, 14.1)	13.8 (9.3, 18.3)	10.2 (7.3, 13.0)	12.7 (9.9, 15.5)	11.3 (6.6, 16.1)	7.8 (2.7, 12.9)
One	M	48.6 (39.8, 57.2)	52.5 (43.8, 61.2)	51.0 (44.3, 57.6)	44.8 (39.0, 50.5)	43.0 (33.5, 52.5)	42.2 (25.5, 58.8)
	F	63.2 (48.5, 77.8)	61.3 (51.7, 71.0)	67.3 (59.5, 75.0)	65.0 (58.7, 71.1)	63.0 (51.9, 74.0)	78.2 (64.3, 92.2)
Two or more	M	37.3 (29.6, 44.9)	32.4 (25.4, 39.3)	35.9 (30.3, 41.3)	42.6 (36.9, 48.3)	47.5 (37.6, 57.3)	44.6 (26.0, 63.1)
	F	27.6 (19.1, 36.1)	24.8 (19.5, 30.0)	22.5 (18.5, 26.4)	22.3 (18.3, 26.2)	25.6 (18.5, 32.6)	13.9 (6.7, 20.9)

*%: age standardised percentage.

multivariate analysis the association was not statistically significant (OR for class V: 1.25, 95% CI: 0.61, 2.57). In women there was no clear trend (tables 2 and 3).

Table 4 depicts the number of reported health risk behaviours according to social class. Women of higher classes were engaged in two or more health risk behaviours more frequently and it was statistically significant in multivariate analysis (OR for class V: 0.33, 95%CI: 0.18, 0.62) (table 3). In men the situation is reversed, although it was not statistically significant in multivariate analysis (tables 3 and 4).

Discussion

This is one of the first studies on social inequalities in health related behaviours in a southern European city. Overall, it has shown that the patterns of tobacco consumption according to social class are different for men and women. In this regard, a higher prevalence of smokers was found among women of higher class. The opposite is true in men although not statistically significant. Smoking cessation was

greater among men in the higher classes. Men and women of social class I and II were more likely to report light alcohol consumption. Excessive alcohol consumption among men showed no significant differences between classes; while among women the consumption was higher in the highest social classes. The lower class population, especially men, stated that they performed more usual physical activity and less leisure time physical activity (this was not statistically significant in multivariate analysis).

TOBACCO CONSUMPTION

In Spain tobacco is easily available and cheap, and its consumption has a high social acceptance.²⁹ The highly addictive nature of tobacco products makes it very difficult to untangle the precise role of its social influences. For instance, it is clear that social pressure plays a key part in smoking adoption³⁰; nevertheless when these influences disappear or are recognised, a powerful addiction has been established. At this new stage, social influences may still play an important

part, reinforcing the behaviour and some of its cognitive determinants.³¹ The modern epidemic of smoking consumption, can be seen as an example of the diffusion in a given society of an “innovation”³² that would grow first among men, reaching its peak after 30–40 years. After this peak there would be a decrease, related to public awareness of the consequences of tobacco use, which would start to be visible after that time, especially regarding cancer. The epidemic among women would come later,^{33 34} and would not eventually reach the same peak, because of the “vicarious” effects of tobacco use seen in men.⁴ Therefore, the epidemic of smoking would reflect the importance of social influences, especially of social position, as those groups who were the first to smoke—because of the “social” prestige of the innovation—are a few decades afterwards the first to quit, because of awareness of its consequences. This hypothesis is supported by many studies in European³⁵ and other developed countries like the United States, Australia and Canada that report a higher prevalence of smokers among lower social classes and among those with lower education levels.^{1 5 36 37} In contrast, in southern European countries, including Spain, the differences between social classes are not so marked among men; while women in higher classes smoke the most^{6 9 35 38 39} although smoking among women of lower classes has been increasing in recent years.⁷ In addition, it is noteworthy that smoking cessation rate (percentage of ex-smokers in relation to the total number of smokers and ex-smokers) is higher in groups with highest levels of education and in upper social classes in developed countries.^{40 41} Our findings are consistent with this pattern, as we found higher rates of smoking cessation among upper social classes mainly in men.

ALCOHOL CONSUMPTION

Spain is among the top 10 countries of the world in the production of alcoholic beverages, particularly wine. Consumption of wine in small amounts has long been part of everyday meals and is socially accepted. In addition, initiation to alcoholic drinks usually takes place within the family, in the context of social events and family celebrations.⁴² Alcoholic beverages are cheap and widely available, which facilitates an increased consumption, although binge drinking (drinking fast for the sole purpose of getting drunk) is less common than in northern European countries.⁴³ The most common pattern of consumption for the adult population is daily drinking, with the youngest population increasing their consumption at weekends.^{44 45} The type of beverage consumed is mainly wine, although the pattern is changing to beer.^{46 47}

In this study, men of upper classes were lighter drinkers, while among women, the higher classes declared greater consumption (both light and heavy drinkers). In a study done in the UK it was found that the prevalence of heavy drinkers among men is

higher among manual workers, while the higher classes had more light and non-drinkers. In the case of women it was always the higher classes who drank more.² This pattern has also been reported for Spain by social class in men⁹ and by educational level in men and women.⁴⁸ However, other studies have found no association between alcohol consumption and social class⁴⁹ or have found an association showing that people of higher social class drink more.⁵⁰ One study in the north of Europe has detected a change in the excessive alcohol consumption by social class: in the 1960s or 1970s non-manual workers drank more, a pattern that reversed during the 1980s.⁵¹ To explain this pattern, a model of diffusion of new habits by social class or educational level has been used. New habits, in this case alcohol consumption, are initiated by upper social classes or by the more educated as it was in relation to tobacco consumption.³² Hupkens *et al* have described that people with higher education levels consume the new beverage type more often and in greater numbers compared with people of lower educational level. This pattern is maintained in both northern and southern European countries. These differences in the consumption of new alcoholic beverages indicate a diffusion of new habits initiated by the more educated people. Furthermore, differences in consumption between men and women are smaller among those with higher education levels than among those with lower, which could be explained because of the consumption of new beverages in higher education levels.⁵²

PHYSICAL ACTIVITY

Leisure time physical activity is not one of the most important activities that Spanish people do in their spare time, although they consider that physical activity is important for good health and recreation and it is an easy activity.⁵³ Nevertheless, a decrease has been recently observed in the proportion of people who are inactive in leisure time.⁹

The pattern of physical activity found among men in Barcelona, where people in higher classes undertake more leisure time physical activity (although not statistically significant), but less usual physical activity, has been previously described.^{3 54-56} In the UK it has been reported, using data from two health surveys, that higher classes perform more leisure time physical activity.^{1 2} Salonen *et al* describe how, in two Finnish cohorts participating in a health related project in North Karelia, education level was positively related with leisure time physical activity, and negatively with occupational physical activity.⁵⁷ Ford *et al* give similar results using data from a telephone survey carried out in Pittsburgh to determine physical activity in higher and lower socioeconomic status populations.⁵⁸

In fact, usual physical activity is mainly related to occupational physical activity among workers, and to activities of daily living among people that do not have a paid employment (for example, houseworkers). Hence it is reasonable

to expect that persons in lower social classes perform more intense physical activity as this is implicit in their occupations.⁵⁹ Even so, it should be pointed out that the proportions of people performing intense physical activity are relatively low in all social classes, because in industrialised societies jobs require less and less physical activity. As a result, physical activity is becoming more and more part of leisure time.⁶⁰

LIMITATIONS AND CONCLUSION

The possible limitations of information as declared in a health interview survey should be mentioned. The validity of declarations about alcohol consumption is unknown, although there are some reports suggesting that consumption is usually under-declared.⁴³⁻⁶¹ In fact the potential biases affecting this study would arise if the declarations were differential depending on social class, something that has not been studied in this country. We do not, however, have any evidence that supports this hypothesis.

Social class was derived from current or last occupation of the interviewed, although 44% of women and 22% of men were classified with the occupation of the head of the household (housewives, unemployed, students, etc). In this regard it should be mentioned that the results were very similar when all people had assigned the social class of the head of the household.

It is also necessary to mention that the sample size was insufficient to find statistically significant associations in some cases (for example leisure time physical activity in men), but standardised percentages and OR indicate the main trends.

This study found that the group whose health related behaviours imply greatest risk is lower class men. Women in more disadvantaged social situations smoke less and drink less alcohol. These results suggest that health policies should take into account these patterns.

Conflicts of interest: none.

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