

# Self-Perceived Health among Migrant and Native Populations in Madrid: A Gender Perspective

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## Abstract

This paper describes the level of self-perceived health (SPH) in immigrant and native populations resident in Madrid and the demographic and socioeconomic factors associated with negative self-perceived health status, from a gender perspective. A population-based home survey (2005 Madrid Health Survey) was carried out. Subjects were selected by random sampling of bi-stage clusters. The study was limited to 5704 adults (16 to 64 years). SPH was considered the dependent variable. The independent variables included migration status, social class, age, sex, marital status, level of education, area of residence, work precariousness, family burden and perception of environmental quality. The association was assessed by odds ratios and their 95% confidence intervals obtained by multivariate logistic regression models disaggregated by gender and migration status. Results showed that poor/fair health status was perceived more by natives and by women. The variables associated with fair/poor SPH in immigrant men were the influence of working conditions perceived as negative and perception of the quality of the environment as poor, and in immigrant women, older age, low educational level and the influence of working conditions perceived as negative. Gender inequalities in self-perceived health exist, and different factors are associated with immigrant and native populations. The results of the study support the need for a health intervention that would diminish gender inequalities in health, which are more accentuated in immigrants.

## Key words

self-perceived health; immigration; gender; health surveys; social class; level of education; work precariousness

## Introduction and background

The migratory phenomenon is becoming increasingly important in Spain. In January 2008, 19.7% of the residents of the city of Madrid (3,213,271 inhabitants) were immigrants, coming mainly from Latin America and Eastern Europe (Instituto Nacional de Estadística [INE], 2008). In Madrid, foreign migration is a relatively new phenomenon (42.3% of the migrants have arrived over

the past five years [INE, 2007]) that is having a profound impact on society, not only from a demographic point of view (26.8% of births are to foreign mothers [INE, 2008b]), but also in many social (culture, economy, education) and health-related aspects.

In spite of the relatively high level of schooling of a substantial number of immigrants (Parra *et al.*, 2006),

the vast majority of foreign workers are employed in unskilled jobs in the lowest paid sectors of the economy.

The combination of unstable life conditions in an immigrant's country of origin and the difficult process of adaptation, which in many occasions begins right from the start of the migratory process, places the immigrant in an especially vulnerable position to suffer from health problems (Díaz Olalla, 2003; Jansa & Garcia de Olalla, 2004). The effect of migration on health is a subject of debate, because recent migrants have been reported to enjoy better health than do the host country populations ('healthy migrant effect'), while other studies have found worse health among migrants. This 'healthy migrant effect' is attributed to the various selection processes that labour migrants undergo before arriving at their destination (Llacer *et al*, 2007; Abraido-Lanza *et al*, 1999).

There is strong evidence on existing inequalities between men and women. As a large number of migrants are women, understanding migrants' health requires a gender approach. This can be defined as an analytical construct based on the social organisation of the sexes, and has a changing character depending on the cultural and dynamic context of the moment. It thus goes further than considering sex only as an independent variable for analysis.

One of the most inadequately studied areas from a gender perspective is the health of migrant populations, possibly because economic migration is characterised by the selection of populations that are young and healthy, and the feminisation of migration is quite a recent phenomenon. It is thus important to understand how gender interacts with other determinants, to explain how, why and when such populations' health deteriorates and how to develop preventative mechanisms.

Most of the published work on health problems in immigrant populations in Spain has been on individuals using health services, either in hospitals or in primary care centres. They offer a distorted image of the health issues which affect them. We know little about the population that does not use these services, hence the interest of carrying out a population-based study.

Many indicators have been used to estimate the level of health of the population; the assessment of self-perceived health (SPH) is one of the most widely used. Perceived health is a strong predictor of mid-term mortality (between six and nine years) independent of clinical diagnoses and other risk factors (Alonso, 2000). The aim of the present study was to assess the level of SPH and its associated demographic and socioeconomic factors in immigrant and native populations resident in Madrid from a gender perspective.

## Methods

### Study population, sample and data collection

The population frame for this population-based home survey was the 2004 municipal census of the city of Madrid (3,162,304 inhabitants), excluding the institutionalised population. The sample was selected by random sampling of bi-stage clusters. The unit in the first stage was the census section and in the second stage the unit was the registered person in each district section. Subjects were stratified by municipal districts, and each of the 21 districts was then stratified by sex and age group (<16, 16-64 and 65+ years). The sample size was 8504 subjects (7341 adults and 1163 under 16 years of age). The present study was limited to the 5704 adults under 65 years. The absolute sampling error for the estimations referring to the adult population of 16 and older was determined to be  $\pm 0.7\%$ , assuming a design effect of 1.5 and with an alpha error of 5%.

To minimise non-response bias, personal letters were sent to participants. Data were collected between November 2004 and June 2005 through a personal home interview. A minimum of three documented visits at different times were done before replacing the subject. The interviewers and fieldwork supervisors received specific training. Those people who could not understand Spanish were replaced.

## Variables

### Self-perceived health status

Self-perceived health (dependent variable) was measured by the question 'In general, how would you describe your current health status?' (using an ordinal scale of 5 points, from 5 (excellent) to 0 (poor)).

### Migration status

The two variables considered were area of origin, categorised as native if the person was born in Spain, and immigrant if the country of origin was in one of the following areas: Latin America, Africa (including the Maghreb), Eastern Europe or Asia (excluding Japan), and length of stay in Spain (in years) in the case of migrants.

### Social class

The social class classification proposed by the Spanish Society of Epidemiology (Sociedad Española de Epidemiología [SEE], 1995), which is based on the National Classification of Occupations (NCO) of 1994 (Real Decreto, 1994), was used for this study. For the purpose of obtaining social class position the occupation of the person being interviewed was used. To the usual five categories, an extra category X was added for those individuals who were providing financial support for their families at the time of the interview but were retired/pensioners.

### Other sociodemographic variables

These variables were age, sex, marital status (married or cohabiting, single, separated/divorced, widowed), level of education completed (by the question 'What is the highest level of studies you have completed?' with categories no education, primary school, secondary school and college or university studies).

### Area of residence

The quality of the area of residence was based on district and classified as Group 1, Group 2 and Group 3, and determined by family income and percentage of individuals with more than secondary education (HSE) (Grupo Técnico de Trabajo del Ayuntamiento de Madrid, 2005). Group 1 are districts with household income less than 11,000 euro per year and fewer than 50% with greater than HSE; Group 2: household income between 11,000 and 14,000 euro per year and 50–60% with greater than HSE; Group 3: household income exceeding 14,000 euro per year and more than 60% with greater than HSE.

### Work precariousness

Two variables were considered: employment status (through self-placement in one of the following categories: employed, unemployed, student, homemaker, retired,

other, not known/not sure) and type of employment (Amable *et al*, 2001), with the aim of classifying it into precarious and non-precarious employment. Three sub-variables were used for this purpose:

- type of employment contract stated by the interviewee – self-employed, civil servant, indefinite, temporary and without a contract (temporary or without a contract was considered precarious employment)
- job insecurity established by the question 'How concerned do you feel about the possibility of losing your job?', on an ordinal scale of 5 points, from Extremely to Not at all (Extremely or significantly or average was considered precarious employment)
- influence of working conditions from the question: 'How do you think your working conditions influence your daily life?' – Not influenced at all, Positively influenced and Negatively influenced (Negatively influenced was considered precarious employment). Individuals were classified as having precarious employment if they fulfilled at least one of the conditions.

### Family burden

This variable was measured by the number of individuals less than 12 years or over 75 years of age who lived with and were cared for by the individual being interviewed.

### Perception of environmental quality

This was measured by the question 'In general, the quality of the environment in your neighbourhood is...' on an ordinal scale of 5 points from Excellent to Very poor.

### Data analysis

All the variables were first described (number of cases, median and percentages) by gender and migration status, and the significance of their associations with the SPH was tested by means of the chi-square test, Fisher's Exact Test and one-way analysis of variance.

The magnitude of the association of SPH with the different variables was assessed by multiple logistic regression analysis, calculating the odds ratios and their

95% confidence intervals. For this purpose, the SPH variable was recoded in one of two categories; excellent, very good and good were given a value of 0, and fair and poor were given a value of 1.

The variables associated with SPH with bivariate levels of  $p \leq 0.20$  were also included in the analysis (Hosmer & Lemeshow, 1989). The correlation between independent variables were analysed so as to prevent colinearity; with the same purpose the variables 'social class' and 'level of education' were not jointly entered into the regression models. Backward procedure methods were used and best models were chosen through Log Likelihood Ratio Tests.

We carried out gender-disaggregated multivariate models and also disaggregated models for immigrants and natives (Artazcoz *et al.*, 2007; Borrell & Artazcoz, 2007; Kaufman & Cooper, 2001a, b; Kunkel & Atchley, 1996; Llacer *et al.*, 2007; Perez, 2007; Rohlf's *et al.*, 2000; Ruiz-Cantero *et al.*, 2007; Ruiz & Verbrugge, 1997).

The software programs SPSS v15.0 and Epidat 3.0 were used for data analysis.

## Results

**Table 1**, opposite, shows the population by migration status and gender for each variable considered. Information was obtained from 5704 subjects between 16 and 64 years of age, of whom 837 (14.4%) fulfilled the criteria of being immigrant. The other 4867 subjects were natives of Spain. The distribution by gender was similar in both migrant and native populations. As regards the other main variables, immigrants came mainly from South America, followed by Eastern Europe and Africa, with a roughly similar distribution by gender, except for Africa where men almost doubled the number of women. With respect to the length of stay in Spain, 21.1% of the men had stayed less than 2.5 years compared with 11.4% of women.

Poor/fair health status was perceived by 14.2% of the immigrants and 17.0% of natives. These percentages varied markedly by gender: 10.9% of migrant men (95% CI 7.7-14.0) and 17.2% of migrant women (95% CI 13.4-20.7). For natives the percentages were 14.5% (95% CI 12.9-15.9) for men and 19.2% for women (95% CI 17.6-20.6) (**Table 1**).

As regards social class, the percentage of immigrants classified in classes IV and V was 72%, while it was only 35.9% among natives. In both populations more men than women belonged to these classes (**Table 1**).

On average, migrants were slightly younger than natives. As expected, the distribution by age group showed remarkable differences between migrants and natives. No differences by gender were observed (**Table 1**).

There were significant differences, both between men and women and between native and immigrant populations, with respect to marital status, employment status and family burden variables.

With respect to job insecurity, influence of working conditions and perception of environment quality variables, there were no differences between men and women but significant differences between native and immigrants, in that the latter group were far more concerned about losing their jobs, but perceived less negative influence of working conditions on daily life, and the environment quality was perceived as better (**Table 1**).

The prevalence of fair/poor SPH in immigrant men and women according to sociodemographic variables is presented in **Table 2**, page 50. Among men, differences were present for most of the variables, but only two variables were associated with SPH at the conventional significance level: employment status and influence of working conditions. In women, the prevalence of fair/poor SPH was significantly associated with age, with educational level, with influence of working conditions and with perception of environment quality.

The prevalence of fair/poor SPH according to sociodemographic variables in native men and women is shown in **Table 3**, page 51. For both men and women the prevalence decreased significantly with level of social class and level of education completed, and increased with age and marital status other than single and married. For work-related variables, the prevalence of fair/poor SPH was higher among retired and unemployed men and among retired and homemaker in the case of women. Job insecurity was associated with fair/poor SPH only among men, showing a higher prevalence in those

**Table 1**  
Description of the population studied by migration status and gender

VARIABLES	Immigrant populations (N = 837)			Native populations (N = 4867)			p-value <sup>Ω</sup>
	Men N (%)	Women N (%)	Total N (%)	Men N (%)	Women N (%)	Total N (%)	
<b>Sex</b>							
Men			404 (48.3)			2275 (48.1)	0.430
Women			433 (51.7)			2592 (51.9)	
<b>Area of origin</b>							
Eastern Europe	43 (10.6)	53 (12.2)	96 (11.5)				
Africa	46 (11.4)	27 (6.2)	73 (8.7)				
Latin America	294 (72.8)	322 (74.4)	616 (73.6)				
Middle East	4 (1)	4 (0.9)	8 (1)				
Asia	14 (3.5)	19 (4.4)	33 (3.9)				
Other	3 (0.7)	8 (1.8)	11 (1.3)				
<b>Average length of stay in Spain in years (SD)/Med<sup>\$</sup></b>	7.27 (7.94)/5	8.13 (8.39)/5	7.71 (8.18)/5				
<b>Length of stay in Spain**</b>							
Less than 2.5 years	85 (21.1)	49 (11.4)	134 (16.1)				
Between 2.5 and 5 years	109 (27)	130 (30.3)	239 (28.7)				
5 years or more	209 (51.1)	250 (58.3)	459 (55.2)				
<b>Self-perceived health **</b>							
Excellent	24 (5.9)	37 (8.6)	61 (7.3)	161 (7.1)	137 (5.3)	298 (6.1)	0.024
Very good	139 (34.4)	109 (25.3)	248 (29.7)	627 (27.6)	699 (27)	1326 (27.3)	
Good	197 (48.8)	211 (49)	408 (48.9)	1152 (50.8)	1253 (48.5)	2405 (49.5)	
Fair	42 (10.4)	68 (15.8)	110 (13.2)	279 (12.3)	426 (16.5)	705 (14.5)	
Poor	2 (0.5)	6 (1.4)	8 (1)	50 (2.2)	70 (2.7)	120 (2.5)	
<b>Social class<sup>†**</sup></b>							
CLASS I-II	51 (12.8)	76 (17.7)	127 (15.3)	830 (36.9)	910 (35.4)	1740 (36.1)	0.000
Class III	49 (12.2)	51 (11.9)	100 (12)	543 (24.1)	725 (28.2)	1268 (26.3)	
Class IV	236 (59)	179 (41.6)	415 (50)	643 (28.6)	665 (25.9)	1308 (27.1)	
Class V	64 (16)	118 (27.4)	186 (22)	198 (8.8)	225 (8.8)	423 (8.8)	
Categ X	-	6 (1.4)	6 (0.7)	37 (1.6)	43 (1.7)	80 (1.7)	(continued...)

**Table 1**  
Description of the population studied by migration status and gender (continued...)

VARIABLES	Immigrant populations (N = 837)			Native populations (N = 4867)			p-value <sup>Ω</sup>
	Men N (%)	Women N (%)	Total N (%)	Men N (%)	Women N (%)	Total N (%)	
<b>Average age in years (s.d.)/ median</b>	34.69 (10.19) 34	35.81 (10.22) 35	35.22 (10.24) 35	36.23 (9.61) 37	37.72 (8.40) 37	36.94 (9.03) 37	0.000
<b>Age groups</b>							
16-24	60 (14.9)	56 (12.99)	116 (13.9)	353 (15.5)	347 (13.4)	700 (14.4)	0.000
25-44	266 (65.8)	287 (66.3)	553 (66.1)	1032 (45.4)	1142 (44.1)	2174 (44.7)	
45-64	78 (19.3)	90 (20.8)	168 (20.1)	890 (39.1)	1103 (42.6)	1993 (40.9)	
<b>Level of education completed</b>							
Unable to read or write	-	2 (0.5)	2 (0.2)	6 (0.3)	6 (0.2)	12 (0.2)	0.000
No education	4 (1)	9 (2.1)	13 (1.6)	17 (0.7)	28 (1.1)	45 (0.9)	
Primary incomplete	12 (3)	16 (3.7)	28 (3.4)	49 (2.2)	81 (3.1)	130 (2.7)	
Primary	54 (13.5)	67 (15.5)	121 (14.6)	207 (9.1)	283 (10.9)	490 (10.1)	
Secondary	246 (61.6)	238 (55.1)	484 (58.3)	1202 (53)	1355 (52.3)	2557 (52.7)	
College or university	84 (21.1)	99 (23)	183 (22.1)	787 (34.7)	837 (32.3)	1624 (33.4)	
<b>Marital status**</b>							
Married/ with a partner	250 (62.2)	261 (60.6)	551 (61.3)	1277 (56.2)	1515 (58.7)	2792 (57.5)	0.000
Single	139 (34.6)	125 (29)	264 (31.7)	943 (41.5)	853 (33)	1796 (37)	
Separated	7 (1.7)	26 (6)	33 (4)	27 (1.2)	73 (2.8)	100 (2.1)	
Divorced	5 (1.2)	15 (3.5)	20 (2.4)	17 (0.7)	51 (2.2)	68 (1.4)	
Widowed	1 (0.2)	4 (0.9)	5 (0.6)	7 (0.3)	90 (3.5)	97 (2)	
<b>Employment** status</b>							
Employed	342 (84.7)	326 (75.3)	668 (79.8)	1685 (74.1)	1422 (54.9)	3107 (63.9)	0.000
Unemployed	30 (7.4)	22 (5.1)	52 (6.2)	108 (4.7)	114 (4.4)	222 (4.6)	
Student	25 (6.2)	17 (3.9)	42 (5)	253 (11.1)	268 (10.3)	521 (10.7)	
Homemaker	-	61 (14.1)	61 (7.3)	3 (0.1)	660 (25.5)	663 (13.6)	
Retired	-	3 (0.7)	3 (0.4)	158 (6.9)	89 (3.4)	247 (5.1)	
Other	7 (1.7)	4 (0.9)	11 (1.3)	68 (3)	37 (1.4)	105 (2.2)	
<b>Type of employment contract**</b>							
Self-employed	31 (9.4)	27 (8.6)	58 (8.9)	234 (14)	113 (33.8)	347 (11.3)	0.000
Civil servant	-	3 (0.5)	3 (0.5)	98 (5.9)	128 (9.1)	226 (7.3)	
Undefined contract	113 (33.8)	132 (41.9)	245 (37.8)	1111 (66.6)	899 (63.4)	2005 (65.1)	
Temporary	96 (28.7)	66 (21)	162 (25)	152 (9.1)	144 (10.2)	296 (9.6)	
Unknown/without a contract	94 (28.1)	87 (27.6)	181 (27.9)	73 (4.4)	131 (89.3)	204 (6.6)	(continued...)

**Table 1**  
Description of the population studied by migration status and gender (continued...)

VARIABLES	Immigrant populations (N = 837)			Native populations (N = 4867)			p-value <sup>Ω</sup>
	CATEGORIES	Men N (%)	Women N (%)	Total N (%)	Men N (%)	Women N (%)	
<b>Job insecurity</b>	Extreme	40 (11.8)	34 (10.7)	74 (11.3)	82 (4.9)	76 (5.4)	158 (5.1)
	Significant	67 (19.8)	41 (12.9)	108 (16.4)	182 (10.9)	131 (9.3)	313 (10.2)
	Average	75 (22.1)	77 (24.2)	152 (23.1)	255 (15.3)	209 (14.9)	464 (15.1)
	Slight	72 (21.2)	73 (23)	145 (22.1)	456 (27.3)	380 (27)	836 (27.2)
	Not at all	85 (25.1)	93 (29.2)	178 (27.1)	694 (41.6)	609 (43.3)	1303 (42.4)
<b>Influence of working conditions</b>	Do not influence	132 (41.4)	148 (48.4)	280 (44.8)	572 (35.6)	442 (32.9)	1014 (34.4)
	Negatively influence	38 (11.9)	33 (10.8)	71 (11.4)	281 (17.5)	229 (17.1)	510 (17.3)
	Positively influence	149 (46.7)	125 (40.8)	274 (43.8)	753 (46.9)	672 (50)	1425 (48.3)
<b>Family burden**</b>	Yes	23 (5.7)	204 (47.1)	227 (27.1)	129 (5.7)	593 (22.2)	722 (14.8)
	No	381 (94.3)	229 (52.9)	610 (72.9)	2146 (94.3)	1999 (77.1)	4145 (85.2)
<b>Perception of environment quality</b>	Excellent	36 (9)	33 (7.7)	69 (8.4)	127 (5.7)	116 (4.5)	243 (5.1)
	Good	250 (62.7)	252 (59)	502 (60.8)	1288 (57.6)	1422 (55.6)	2710 (56.6)
	Fair	101 (25.3)	129 (30.2)	230 (27.8)	703 (31.5)	860 (33.6)	1563 (32.6)
	Poor	10 (2.5)	10 (2.3)	20 (2.4)	95 (4.3)	123 (4.8)	218 (4.6)
	Very poor	2 (0.5)	3 (0.7)	3 (0.7)	22 (1)	35 (1.4)	57 (1.2)
<b>Area of residence &amp;</b>	Group 1	177 (43.8)	169 (39)	346 (41.3)	852 (37.5)	988 (38.1)	1840 (37.8)
	Group 2	157 (38.9)	168 (38.8)	325 (38.8)	870 (38.2)	993 (38.3)	1863 (38.3)
	Group 3	70 (17.3)	96 (22.2)	166 (19.8)	553 (24.2)	611 (23.6)	1163 (23.9)

Notes.

<sup>Ω</sup> Comparison between immigrant and native total population

†I-II: managers and university graduates; III: administrative and management support, self-employed and armed forces; IV: skilled manual workers; V: unskilled manual workers; X: retired / pensioner or housewife who has no occupation according to the National Classification of occupation but is a backer of the household.

& Group 1: districts where household income less than 11,000 euro per year and less than 50% with greater than high school education (HSE); Group 2: household income between 11,000 and 14,000 euro per year and between 50 and 60% with greater than HSE; Group 3: household income exceeding 14,000 euro per year and more than 60% with greater than HSE.

\$Median

\*\* Significant differences (p < 0.05) between men and women

**Table 2**  
**Prevalence of fair/poor self-perceived health in immigrant men and women according to socio-demographic variables**

		Men % (N)	<i>p</i>	Women % (N)	<i>p</i> -value
<b>Area of origin</b>	Eastern Europe	7.0 (3)	0.10	13.5 (8)	0.11
	Africa	13.0 (6)		29.6 (10)	
	Latin America	11.9 (35)		17.8 (63)	
	Other	-		6.5 (2)	
<b>Length of stay in Spain</b>	Less than 2.5 years	10.6 (9)	0.99	14.3 (7)	0.59
	2.5–5 years	11.0 (12)		15.5 (20)	
	5 years or more	10.5 (22)		8.9 (47)	
<b>Social class<sup>‡</sup></b>	Class I/II/III	7.0 (7)	0.16	14.2 (18)	0.30
	Class IV/V/X	12.0 (35)		18.3 (55)	
<b>Age groups</b>	16–24	8.3 (5)	0.53	8.9 (5)	0.01
	25–44	10.5 (28)		5.8 (45)	
	45–64	14.1 (11)		26.7 (24)	
<b>Level of education completed</b>	None/primary	14.3 (10)	0.22	24.5 (23)	0.01
	Secondary	11.4 (28)		16.9 (40)	
	College or university	6.0 (5)		11.1 (11)	
<b>Marital status</b>	Single	11.5 (16)	0.79	15.3 (19)	0.50
	Married, separated, divorced, widowed	10.6 (28)		18.0 (55)	
<b>Employment status</b>	Employed/student	9.8 (36)	0.04	16.4 (56)	0.43
	All other situations**	21.6 (8)		20.0 (18)	
<b>Type of employment contract</b>	Self-employed	6.5 (2)	0.18	11.1 (3)	0.90
	Civil servant	-		33.3 (1)	
	Undefined contract	6.2 (7)		16.8 (22)	
	Temporary	11.5 (11)		15.4 (10)	
	Unknown duration/without a contract	14.9 (14)		19.5 (17)	
<b>Job insecurity</b>	Extreme	20.0 (8)	0.32	27.3 (9)	0.28
	Significant	9.0 (6)		22.0 (9)	
	Average	9.3 (7)		15.6 (12)	
	Slight	9.7 (7)		11.1 (8)	
	Not at all	8.2 (7)		17.2 (16)	
<b>Influence of working conditions</b>	Do not influence	9.1 (12)	0.00	15.0 (22)	0.03
	Negatively influence	26.3 (10)		33.3 (11)	
	Positively influence	7.4 (11)		16.1 (20)	

(continued...)

**Table 2**  
**Prevalence of fair/poor self-perceived health in immigrant men and women according to socio-demographic variables (continued...)**

		Men % (N)	p	Women % (N)	p-value
Family burden	Yes	4.3 (1)	0.49	17.2 (35)	1
	No	11.3 (43)		17.2 (39)	
Perception of environment quality	Very good/good	8.4 (24)	0.12	14.4 (41)	0.03
	Fair/poor/very poor	17.7 (20)		22.7 (32)	
Area of residence <sup>&amp;</sup>	Group 1	11.3 (20)	0.95	17.9 (30)	0.55
	Group 2	10.8 (17)		18.6 (31)	
	Group 3	10.0 (7)		13.5 (13)	

*Notes*

*\*\*Unemployed, homemaker, retired, other*

*¥I-II: managers and university graduates; III: administrative and management support, self-employed and armed forces; IV: skilled manual workers; V: unskilled manual workers; X: Retired /pensioner or housewife who has no occupation according to the National Classification of occupation but is a backer of the household.*

*& Group 1: districts where household income less than 11,000 euro per year and less than 50% with greater than high school education (HSE); Group 2: household income between 11,000 and 14,000 euro per year and between 50 and 60% with greater than HSE; Group 3: household income exceeding 14,000 euro per year and more than 60% with greater than HSE.*

**Table 3**  
**Prevalence of fair/poor self-perceived health in native men and women according to socio-demographic variables**

		Men % (N)	p	Women % (N)	p
Social class <sup>¥</sup>	Class I/II/III	11.2 (157)	0.00	13.3 (211)	0.00
	Class IV/V	19.9 (170)		26.0 (221)	
	Categ X	23.5 (8)		29.3 (12)	
Age groups	16–24	5.4 (20)	0.00	7.2 (26)	0.00
	25–44	11.5 (132)		13.3 (156)	
	45–64	23.1 (184)		27.4 (264)	
Level of education completed	None/primary	31.7 (85)	0.00	39.7 (139)	0.00
	Secondary	15.0 (184)		176.0 (229)	
	College or university	8.3 (67)		92.0 (7.8)	
Marital status	Single	11.3 (115)	0.00	11.7 (105)	0.00
	Married	16.6 (207)		20.0 (280)	
	Separated, divorced, widowed	27.1 (13)		30.8 (60)	

(continued...)

**Table 3**  
**Prevalence of fair/poor self-perceived health in native men and women according to socio-demographic variables (continued)**

		Men % (N)	<i>p</i>	Women % (N)	<i>p</i>
<b>Employment status</b>	Employed	11.1 (189)	0.00	12.6 (176)	0.00
	Unemployed	29.4 (32)		18.6 (21)	
	Student	6.5 (18)		8.2 (23)	
	Homemaker	-		29.4 (172)	
	Retired	40.1 (59)		41.5 (34)	
	Other	55.9 (38)		51.3 (20)	
<b>Type of employment contract</b>	Self-employed	15.5 (37)	0.03	14.4 (16)	0.05
	Civil servant	4.5 (5)		9.4 (12)	
	Undefined contract	10.9 (120)		13.3 (114)	
	Temporary	9.9 (16)		6.4 (10)	
	Unknown duration/without a contract	13.3 (10)		16.5 (22)	
<b>Job insecurity</b>	Extreme	22.8 (21)	0.00	12.2 (10)	0.76
	Significant	17.7 (33)		12.4 (16)	
	Average	8.8 (24)		12.6 (27)	
	Slight	5.3 (24)		10.8 (41)	
	Not at all	12.7 (87)		13.8 (79)	
<b>Influence of working conditions</b>	Do not influence	10.8 (65)	0.00	12.6 (55)	0.00
	Negatively influence	19.9 (54)		19.9 (44)	
	Positively influence	8.1 (61)		9.8 (65)	
<b>Family burden</b>	Yes	14.6 (19)	1	18.0 (102)	0.95
	No	14.6 (318)		17.9 (102)	
<b>Perception of environment quality</b>	Very good/good	11.7 (170)	0.00	14.7 (219)	0.00
	Fair/poor/very poor	20.0 (164)		23.2 (224)	
<b>Area of residence<sup>&amp;</sup></b>	Group 1	18.1 (166)	0.00	21.2 (207)	0.00
	Group 2	13.9 (124)		18.2 (173)	
	Group 3	9.2 (46)		11.8 (67)	

with an extreme concern about losing their jobs. The prevalence was also higher among those who reported that their working conditions affected negatively their daily lives. Family burden did not affect the prevalence of fair/poor SPH in the native population. With respect to the environment, the prevalence increased when the quality was perceived as fair, poor or very poor.

*Table 4*, opposite, shows the results of the different logistic regression models carried out. Among immigrant

men, the only variable significantly associated with fair/poor SPH was the influence of working conditions perceived as negative (OR = 3.99 95% CI 1.66, 9.59) and, at the borderline of significance, the perception of the quality of the environment as poor (OR = 2.02 95% CI 0.93, 4.38).

In immigrant women, the variables significantly associated were older age (OR = 5.82 95% CI: 1.16, 29.19), having completed primary school only or having

**Table 4**  
**Logistic regression models for the significant factors with fair/poor self-perceived health by migration status and gender**  
 Immigrant population      Native population

Variables	Men		Women		Men		Women (Model 1)		Women (Model 2)*	
	OR	Confidence interval	OR	Confidence interval	OR	Confidence interval	OR	Confidence interval	OR	Confidence interval
<b>Area of origin</b>										
Eastern Europe	1		1							
Africa	2.35	(0.40, 13.83)	4.79	(0.93, 24.68)						
Latin America	1.55	(0.34, 7.05)	2.20	(0.93, 24.68)						
<b>Social class<sup>‡</sup></b>										
I,II,III									1	
IV,V									1.66	(1.18, 2.35)
Categ X										
<b>Age</b>										
16-24	1		1		1		1		1	
25-44	1.51	(0.32, 7.0)	2.38	(0.51, 10.96)	2.86	(0.98, 8.31)	1.42	(0.57, 3.52)	1.24	(0.50, 3.07)
45-64	2.01	(0.38, 10.56)	5.82	(1.16, 29.19)	6.58	(2.19, 19.72)	2.06	(0.80, 5.28)	2.32	(0.91, 5.90)
<b>Education level</b>										
Completed college or university	1		1		1		1		1	
Completed secondary school	1.78		(0.73, 4.35)		1.91	(1.29, 2.83)	1.72	(1.18, 2.51)		
Primary school/ no education	2.68		(1.02, 6.99)		2.70	(1.61, 4.53)	5.10	(3.01, 8.64)		
<b>Marital status</b>										
Single	1		1		1		1		1	
Married	0.84		(0.56, 1.28)		0.60	(0.18, 1.90)	2.33	(1.29, 4.20)	1.53	(1.00, 2.36)
Separated, divorced, widowed	3.99		(1.66, 9.59)		2.39	(1.66, 3.44)	1.89	(1.26, 2.83)	2.57	(1.44, 4.60)
<b>Influence of working conditions perceived as negative (precarious employment)</b>	3.99		(1.66, 9.59)		2.39	(1.66, 3.44)	1.89	(1.26, 2.83)	1.89	(1.26, 2.80)
<b>Perception of environment quality (Fair/poor/very poor)</b>	2.02		(0.93, 4.38)		1.69	(0.88, 3.24)	1.50	(1.07, 2.11)	1.58	(1.13, 2.20)

<sup>‡</sup>I-II: managers and university graduates; III: administrative and management support, self-employed and armed forces; IV: skilled manual workers; V: unskilled manual workers; X: Retired/pensioner or housewife who has no occupation according to the National Classification of occupation but is a backer of the household. \*In the Model 2 the variable Social Class was recodified in two categories: I/III/II and IV/V

no education (OR = 2.68 95% CI: 1.02, 6.99) and the influence of working conditions perceived as negative (OR = 2.85 95% CI: 1.21, 6.68).

For native men, those in the age groups 25–44 and 45–64 were more likely to report their SPH as fair/poor than those in the youngest age group (OR = 2.86 95% CI: 0.98, 8.31 and OR = 6.58 95% CI: 2.19, 19.72 respectively). Those with secondary education or having primary school or no education reported their SPH as fair/poor more frequently (OR = 1.91 95%CI: 1.29, 2.83, and OR = 2.7 95%CI: 1.61, 4.53 respectively). Influence of working conditions perceived as negative (OR = 2.39 95%CI: 1.66, 3.44) and perception of the quality of the environment as poor (OR = 1.69 95% CI 1.22, 2.36) were also associated with poor SPH.

In the first model for native women, those with lower or no education reported their SPH as fair/poor more frequently (OR = 5.1 95%CI: 3.01, 8.64).

Separated, divorced and widowed women were more likely to report fair/poor SPH than singles (OR = 2.33; 95%CI = 1.29, 4.2). As in all the other groups, the influence of working conditions and the perception of environment quality were significantly associated with poor SPH (OR = 1.89 95%CI: 1.26, 2.83; and OR = 1.5 95% CI: 1.07, 2.11). In the second model, which included social class instead of level of education completed, women in social class categories IV/V showed an OR of 1.66 (95%CI 1.18, 2.35) compared to those in social class I/II/III.

## Discussion

SPH appears to be poorer in native and immigrant women than men. This finding is consistent with other published studies (Borrell *et al*, 2008; Kunst *et al*, 2005; Lopez, 2004; Regidor *et al*, 2006). A study carried out in Spain (Regidor *et al*, 2006) showed rates of 32.1% of women and 22.6% of men reporting a status of self-perceived health of 'less than good', values higher than those obtained in the present study. This may be explained by the fact that perception is closely related to level of education (at a higher level, perception is often better), and the population of Madrid has a greater percentage of individuals with higher levels of education than the national level (29.41% versus 22.01%; INE, 2005). Studies at European level also reflect these differences (Kunst *et al*, 2005). Another reason

for the lower rates found in the present study is the inclusion of subjects as young as 16 years of age, whose self-perceived health tends to be better; the previously mentioned studies included subjects no younger than 20 or 25 years of age.

It has been suggested that the differences in SPH between men and women may be related to the fact that it is generally easier for women to express their psychophysical states. However, this is difficult to sustain when there is evidence that women complain less about certain symptoms than do men, that they perceive less severity when faced with the same diagnosis as men, and that they wait longer to seek health care when showing severe signs and symptoms of illness (Emslie, 2005; Galdas *et al*, 2005; Nau *et al*, 2005; Woodend & Devins, 2005). Differences in social support between men and women could be another determinant of this gender difference, although the results from several studies are inconclusive (Gallicchio *et al*, 2007; Llacer *et al*, 2007). Differential morbidity could also explain these differences in the perception of health between men and women (Valls-Llobet *et al*, 2007).

In spite of the methodological limitation inherent in the comparison of the Odds Ratios obtained in the five logistic models (Inhorn & Whittle, 2001; Kunkel & Atchley, 1996), it has been shown that inclusion of the variable sex in multivariate models generates multiple terms of interaction. Carrying out gender-disaggregated multivariate models allows for greater understanding and interpretative richness, since it sets the stage to express the complexity of the gender construct, rather than controlling for it if the variable sex is incorporated in the models. Drawing on the works of Llacer *et al* (2007) and Kaufman (2001a, b), and by the same reasoning as gender, multivariate models were disaggregated for immigrants and natives.

The disaggregated analysis from a gender and ethnic perspective carried out in our study showed that the main variables associated with fair/poor SPH were precarious employment, perception of environment quality, educational level, marital status and social class.

Working conditions perceived as negative, as a measure of precarious employment, was associated with a fair/

poor SPH both in men and women and also in natives and immigrants. The association was higher in immigrants than in natives, and for both groups higher in men than in women. A study with Mexican workers (Pulido-Navarro & Noriega-Elio, 2003) demonstrated that when employment conditions are perceived as negative there is a greater risk of fatigue and psychosomatic disorders. The fact that precarious employment affects particularly the SPH of immigrant men may be related to the cultural construction of masculinity, which formulates the feeling of self-worth in men that is seen when men assume the duties of fulfilling expectations of supporting their families financially (often their families are still living in their country of origin). This was seen in a study (Walter *et al*, 2004) on temporary undocumented Latino workers in the United States, who demonstrated mental health problems, drug abuse, violent conduct and somatic disorders when faced with the stress of precarious employment. In any case, the way in which precarious work affects men and women, and whether there are differences, is an issue not yet sufficiently investigated. As Menendez and colleagues point out (2007), the negative effects could be greater for women than men.

The perceived quality of living environment was associated with SPH. A study in Finland (Korpela & Ylen, 2007) showed that visiting natural places produces positive feelings in self-perceived health. De Vries *et al* (2003) also showed the positive effect of living in green areas on perceived health. Possible reasons advanced include the repairing effect of green areas on stress and/or that spending more time outside home allows leisure activities and exercise that promote health. In a large city such as Madrid where the quality of environment is constantly deteriorating, this association is even more apparent, and it may have a deep impact on the health of individuals. Although the number of subjects was small, level of education was not significantly associated with SPH in immigrant men. This may reflect the lack of correspondence between educational level and occupational categories in immigrant populations (Parra *et al*, 2006). Hence we cannot expect that their level of education has the protective effect known so far.

Marital status was significantly associated with SPH only among native women. Single women had the best health, followed by married women and then separated

and divorced. A review by Baider & Bengel (2001) showed that to be married is a protective factor for men, given that marriage provides them with more social structure and more control. In women it was not marital status but satisfactory coping with marital conflicts that became a predictor of good quality of life related to health. Married women may have a conflict between the productive and reproductive roles, something that does not happen if you are single (Artazcoz *et al*, 2007). In addition, separated and divorced women may experience a lack of social support and/or a loss in social class status compared to their previous situation, and this seriously affects their perceived health.

Although lower social class has generally been linked to poorer levels of self-perceived health (Borrell *et al*, 2004b; Departamento de Sanidad del Gobierno Vasco, 2007), mainly in men (Borrell *et al*, 2004a), in our study it was associated only in native women.

The majority of studies which have shown an association between poor health and being a carer (García-Calvente *et al*, 2004) have been carried out in adult women caring for elderly populations. Family burden was not associated with self-perceived health in any of the four sub-groups analysed in our study. This agrees with the results of a study carried out in Barcelona (Borrell *et al*, 2004a) in a population of analogous age range and similar conceptualisation of the family burden variable. Caring for children, which was the main family burden in our study (given the age range of the women), does not involve the same burden as caring for adults, as demonstrated in Women's Health Australian (WHA) (Lee & Powers, 2002).

In immigrants, the difference in SPH between men and women was bigger than in natives. This might be associated with a larger gap in the social class in immigrants (16% of men in class V - unqualified workers - compared with 27.4% of women) than in natives (8.8% in class V for both sexes). The aforementioned study of self-perceived health in ten European countries (Kunst *et al*, 2005) shows greater discrepancies in countries which have greater differences in the levels of education between men and women. Another element which may explain the difference between immigrant men and women may be the fact that these women have been

living in Spain for a significantly longer period than men, and therefore were able to assimilate the socio-cultural model of native women (Voss & Tuin, 2008).

In conclusion, different factors appear to be associated with gender inequalities in SPH in our study, and these factors are different for natives and immigrants. In immigrants, negative working conditions were more significant for men. In natives, the factors associated with SPH in men and women were similar, even though the level of education or social class was more influential in women; a differential factor was marital status, which seemed to affect only women.

It is essential to continue researching this reality for the purpose of obtaining more solid evidence which may allow for health interventions. These interventions may diminish inequalities in health between men and women.

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### References

- Abraido-Lanza AF, Dohrenwend BP, Ng-Mak DS & Turner JB (1999) The Latino mortality paradox: a test of the 'salmon bias' and healthy migrant hypotheses. *American Journal of Public Health* **89** 1543-8.
- Alonso J (2000) [The measurement of health related-quality of life in clinical research and practice.] *Gaceta Sanitaria* **14** 163-7.
- Amable M, Benach J & Gónzales S (2001) La precariedad laboral y su impacto sobre la salud: conceptos y resultados preliminares de un estudio multi-métodos. *Archivos de Prevención Riesgos Laborales* **4** 169-84.
- Artazcoz L, Borrell C, Cortes I, Escriba-Aguir V & Cascant L (2007) Occupational epidemiology and work related inequalities in health: a gender perspective for two complementary approaches to work and health research. *Journal of Epidemiology and Community Health* (suppl. 2), ii39-45.
- Baider L & Bengel J (2001) Cancer and the spouse: gender-related differences in dealing with health care and illness. *Critical Reviews in Oncology/Hematology* **40** 115-23.
- Borrell C & Artazcoz L (Eds) (2007) *Investigación en género y salud*. Barcelona: Sociedad Española de Epidemiología.
- Borrell C, Muntaner C, Benach J & Artazcoz L (2004a) Social class and self-reported health status among men and women: what is the role of work organisation, household material standards and household labour? *Social Science and Medicine* **58** 1869-87.
- Borrell C, Muntaner C, Sola J *et al* (2008) Immigration and self-reported health status by social class and gender: the importance of material deprivation, work organisation and household labour. *Journal of Epidemiology and Community Health* **62** e7.
- Borrell C, Rohlfs I, Artazcoz L & Muntaner C (2004b) [Inequalities in health related to social class in women. What is the effect of the measure used?] *Gaceta Sanitaria* **18** (suppl. 2) 75-82.
- Departamento de Sanidad del Gobierno Vasco (2007) *Encuesta de Salud del País Vasco 2007. Resultados*. [www.osanet.euskadi.net/r85-20321/es/contenidos/informacion/encuesta\\_salud\\_2007/es\\_es07/encuesta\\_salud\\_2007.html#resultados](http://www.osanet.euskadi.net/r85-20321/es/contenidos/informacion/encuesta_salud_2007/es_es07/encuesta_salud_2007.html#resultados).
- De Vries S, Verheij RA & Groenewegen PP (2003) Natural environments - healthy environments? An exploratory analysis of the relationship between greenspace and health. *Environment and Planning A* **35** 1717-31.
- Díaz Olalla JM (2003) Situación actual de la inmigración: desigualdades en salud. In: A Alonso, H Huerga & J Morera (Eds) *Guía de atención al inmigrante*. Madrid: Editorial Ergon.
- Emslie C (2005) Women, men and coronary heart disease: a review of the qualitative literature. *Journal of Advanced Nursing* **51** 382-95.
- Esteban ML (2006) El estudio de la Salud y el Género: las ventajas de un enfoque antropológico y feminista. *Salud Colectiva* **2** 9-2.
- Galdas PM, Cheater F & Marshall P (2005) Men and health help-seeking behaviour: literature review. *Journal of Advanced Nursing* **49** 616-23.
- Gallicchio L, Hoffman SC & Helzlsouer KJ (2007) The relationship between gender, social support, and health-related quality of life in a community-based study in Washington County, Maryland. *Quality of Life Research* **16** 777-86.
- García-Clavente M del M, Mateo-Rodríguez I & Maroto-Navarro G (2004) [Impact of caregiving on women's health and quality of life.] *Gaceta Sanitaria* **18** (suppl. 2) 83-92.
- García-Sánchez I (2004) [Gender differences in HIV/AIDS.] *Gaceta Sanitaria* **18** (suppl. 2) 47-54.
- Grupo Técnico de Trabajo del Ayuntamiento de Madrid (2005) *Encuesta de Salud de la Ciudad de Madrid 2004-2005 (ESCM, 05)*. Madrid: Author.
- Grupo de Trabajo de la Sociedad Española de Epidemiología (1995) *La medición de la clase social en Ciencias de la Salud*. Barcelona: SG Editores.

- Hosmer DW & Lemeshow SA (1989) *Applied Logistic Regression*. New York: Wiley.
- Inhorn MC & Whittle KL (2001) Feminism meets the 'new' epidemiologies: towards an appraisal of antifeminist biases in epidemiological research on women's health. *Social Science and Medicine* **53** 553-67.
- Instituto Nacional de Estadística (2008a) *Demografía y población*. Padrón Municipal. Explotación estadística del padrón 2008. [www.ine.es/jaxi/tabla.do?path=/t20/e245/p05/a2008/10/&file=00028005.px&type=pcaxis&L=0](http://www.ine.es/jaxi/tabla.do?path=/t20/e245/p05/a2008/10/&file=00028005.px&type=pcaxis&L=0).
- Instituto Nacional de Estadística (2007) *Encuesta Nacional de Inmigrantes. Resultados por comunidad autónoma. Año 2007*. [www.ine.es/jaxi/tabla.do?path=/t20/p319/a2007/p02/10/&file=04031.px&type=pcaxis&L=0](http://www.ine.es/jaxi/tabla.do?path=/t20/p319/a2007/p02/10/&file=04031.px&type=pcaxis&L=0).
- Instituto Nacional de Estadística (2006) *Indicadores sociales - Edición 2006*. [www.ine.es/daco/daco42/sociales06/sociales.htm](http://www.ine.es/daco/daco42/sociales06/sociales.htm).
- Instituto Nacional de Estadística (2008) *Movimiento natural de la población. Resultados provisionales 2008*. [www.ine.es/jaxi/tabla.do?path=/t20/e301/provi/10/&file=03002.px&type=pcaxis&L=0](http://www.ine.es/jaxi/tabla.do?path=/t20/e301/provi/10/&file=03002.px&type=pcaxis&L=0).
- Jansa JM & Garcia de OP (2004) [Health and immigration: new situations and challenges.] *Gaceta Sanitaria* **18** (suppl. 2) 207-13.
- Kaufman JS & Cooper RS (2001a) Commentary: considerations for use of racial/ethnic classification in etiologic research. *American Journal of Epidemiology* **154** 291-8.
- Kaufman JS & Cooper RS (2001b) Kaufman and Cooper respond to 'Race, Racism and Practice of Epidemiology2'. *American Journal of Epidemiology* **154** 305-6.
- Korpela KM & Ylen M (2007) Perceived health is associated with visiting natural favourite places in the vicinity. *Health and Place* **13** 138-51.
- Kunkel SR & Atchley RC (1996) Why gender matters: being female is not the same as not being male. *American Journal of Preventive Medicine* **12** 294-6.
- Kunst AE, Bos V, Lahelma E *et al* (2005) Trends in socioeconomic inequalities in self-assessed health in 10 European countries. *International Journal of Epidemiology* **34** 295-305.
- Lee C & Powers JR (2002) Number of social roles, health, and well-being in three generations of Australian women. *International Journal of Behavioural Medicine* **9** 195-215.
- Llacer A, Zunzunegui MV del AJ, Mazarrasa L & Bolumar F (2007) The contribution of a gender perspective to the understanding of migrants' health. *Journal of Epidemiology and Community Health* **61** (suppl. 2) ii4-10.
- Lopez R (2004) Income inequality and self-rated health in US metropolitan areas: a multi-level analysis. *Social Science and Medicine* **59** 2409-19.
- Menendez M, Benach J, Muntaner C, Amable M & O'Campo P (2007) Is precarious employment more damaging to women's health than men's? *Social Science and Medicine* **64** 776-81.
- Nau DP, Ellis JJ, Kline-Rogers EM *et al* (2005) Gender and perceived severity of cardiac disease: evidence that women are 'tougher'. *American Journal of Medicine* **118** 1256-61.
- Parra A, Fernandez BJ, Garcia LV, Ayestaran JR & Extremiana E (2006) [Labour market, occupational health and immigration.] *Anales del Sistema Sanitaria de Navarra* **29** (suppl. 1) 77-95.
- Pérez G (2007) La ley de igualdad efectiva de mujeres y hombres: un paso adelante. *Gaceta Sanitaria* **21** 367-70.
- Pulido-Navarro M & Noriega-Elio M (2003) [Objective and subjective working conditions and psychophysical disorders.] *Cadernos de Saúde Pública* **19** 269-77.
- Real Decreto 917/1994 sobre Clasificación Nacional de Ocupaciones (6 de mayo de 1994), Boletín Oficial del Estado, 126, 27 de mayo, 1994 (correcciones en Boletín Oficial del Estado del 17 de noviembre de 1994).
- Regidor E, Martinez D, Astasio P *et al* (2006) [Trends in socioeconomic inequalities and socioeconomic inequalities in self-perceived health in Spain.] *Gaceta Sanitaria* **20** 178-82.
- Rohlf I, Borrell C & Do CF (2000) [Gender inequalities and public health: awarenesses and ignorances.] *Gaceta Sanitaria* **14** 60-71.
- Rohlf I, del Mar GM, Gavalda L *et al* (2004) [Gender and ischemic heart disease.] *Gaceta Sanitaria* **18** (suppl. 2) 55-64.
- Ruiz MT & Verbrugge LM (1997) A two way view of gender bias in medicine. *Journal of Epidemiology and Community Health* **51** 106-9.
- Ruiz-Cantero MT, Vives-Cases C, Artazcoz L *et al* (2007) A framework to analyse gender bias in epidemiological research. *Journal of Epidemiology and Community Health* **61** (suppl. 2) ii46-53.
- Valls-Llobet C, Ojuel Solsona J, López Carrillo M & Fuentes Pujol M (2007) Manifestación y medicalización del malestar en las mujeres. In: *Observatorio de salud de la mujer del Ministerio de Sanidad y Consumo, El Programa de Formación de Formadores/as en Perspectiva de Género el Salud*. Madrid: Ministerio de Sanidad y Consumo.
- Voss U & Tuin I (2008) Relationship of sleep quality with coping and life styles in female Moroccan immigrants in Germany. *Women's Health Issues* **18** 210-6.
- Walter N, Bourgois P & Margarita LH (2004) Masculinity and undocumented labor migration: injured Latino day laborers in San Francisco. *Social Science and Medicine* **59** 1159-68.
- Woodend AK & Devins GM (2005) Gender of the care environment: influence on recovery in women with heart disease. *Canadian Journal of Cardiac Nursing* **15** 21-31.