

Gender, health inequalities and welfare state regimes: a cross-national study of thirteen European countries

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Abstract

Background: This study is the first to examine the relationship between gender and self-assessed health (SAH), and the extent to which this varies by socio-economic position in different European welfare state regimes (Liberal, Corporatist, Social Democratic, Southern).

Methods: The Eurothine harmonised data set (based on representative cross-sectional national health surveys, conducted between 1998 and 2004) was used to analyse SAH differences by sex and socio-economic position (educational rank) in different welfare states. The sample sizes ranged from 7,124 (Germany) to 118,245 (Italy) and concerned the adult population (aged ≥ 16 years).

Results: Logistic regression analysis (adjusting for age) identified significant sex differences in SAH in nine European welfare states. In the UK (OR=0.88; 95%CI=0.78,0.99) and Finland (OR=0.85; 0.77,0.95), men were significantly more likely to report 'bad' or 'very bad' health. In Denmark, Sweden, Norway, Holland, Italy, Spain, and Portugal, a significantly higher proportion of women than men reported that their health was 'bad' or 'very bad'. The increased risk of poor SAH experienced by women from these countries ranged from a 23% increase in Denmark (OR=1.23; 95%CI=1.08,1.39) to more than a two-fold increase in Portugal (OR=2.01; 95%CI=1.87,2.15). For some countries (Italy, Portugal, Sweden), women's relatively worse SAH tended to be most prominent in the group with the highest level of education.

Discussion: Women in the Social Democratic and Southern welfare states were more likely to report worse SAH than men. In the Corporatist countries, there were no sex differences in SAH. There was no consistent welfare state regime patterning for sex differences in SAH by socio-economic position. These findings therefore constitute a challenge to regime theory and comparative social epidemiology to engage more with issues of gender.

Abstract = 277 words

INTRODUCTION

Gender differences in health are well documented both in terms of mortality and morbidity [1]. However, the extent to which gender differences in health vary by socio-economic position is less well-documented [2]. Furthermore, whilst welfare state arrangements and social policies are increasingly being acknowledged as important determinants of health and of inequalities in health [3-8], there is little research into how gender differences in health vary by welfare state, specifically there has been little gendered analysis with a focus on the implications for women [9-11].

As part of the EUROTHINE project, this study focused on gender and health inequality in thirteen European welfare states, representing four welfare state regimes: Finland, Sweden, Norway, Denmark, Holland, Ireland, England, Belgium, Germany, France, Italy, Portugal and Spain.

Gender inequalities in health

Over several decades, research on gender differences in mortality and morbidity has highlighted an important paradox. On the one hand, a wealth of evidence suggests that, in socio-economically developed nations, men have shorter life expectancies than women [1, 12]. This gender difference is largest for violent causes of death [13-16] and from early adulthood until middle-age [16-19], but remain fairly stable throughout the life course [20, 21]. On the other hand, women – in contrast to their lower mortality – actually report higher morbidity according to self-assessed indicators, including limiting long-term illness and SAH [22] [23]. Although some researchers have questioned the existence of this gender difference [24], most contemporary work suggests that the paradox is real, albeit smaller than previously thought [25-27].

Traditionally, this paradox has been explained as the result of sex differences in the distribution of biological, behavioural or psychological traits [28]. However, there remains some debate as to the best explanation for the paradox in actual mortality and SAH [22, 29] and it has been suggested that gender differences in mortality may differ between different socio-economic groups or across countries [30]. It is therefore possible that gender differences in SAH may also vary by country or indeed, welfare state type. In fact, evidence suggests that gender-equitable social organisation reduces gender inequalities in both SAH [31] and life expectancy [32].

Welfare states, health and health inequalities

Welfare states are important determinants of health and health inequalities as they mediate the extent, and impact, of socio-economic position on health. [3-8] Welfare state provision varies extensively across the Western world but typologies have been put forward to categorise them into three, four or even five distinctive types or welfare state regimes.[9] In terms of Europe, whilst particular country classification is often contested (e.g. UK, Holland, Italy) and the quality of typologies questioned,[9] a consensus is gradually emerging that there are four core welfare state regime types (see Ferrera 1996[33] and Bambra, 2007 [34]): Social Democratic (Denmark, Norway, Sweden and to a lesser extent Finland and Holland), Corporatist (Belgium, France, Germany), Liberal (England, Ireland) and Southern (Italy, Spain, Portugal). Studies which have examined how health varies by welfare state regime have invariably all concluded that population health is enhanced, and (absolute though not relative) [35] inequalities in health reduced, by the comparatively generous and universal welfare provision of the Social Democratic countries [3, 4, 6, 7].

The mainstream comparative welfare state regime literature has only recently begun to seriously consider that the income redistribution, decommodification and other social effects of welfare state arrangements may vary by gender and that separate 'gendered' typologies of welfare states may therefore be required.[36] However, this debate has not yet filtered through to public health researchers and to date, no studies have examined how gender differences in health vary by welfare state regime.[9] Similarly, cross-national studies of inequalities in health have only recently begun to examine gender differences by welfare state type [10, 11].

It is worth noting that some studies have considered socio-economic status as the basis of health inequalities between women and men [37-40], but this literature has tended to neglect the role of welfare state typologies. This body of work suggests that socio-economic differences in SAH are found for both women and men [41, 42], although some authors have suggested that individual socio-economic differences are less marked for women's health [43, 44]. Other studies have reported significant interactions between women's health status and proxies of socio-economic status, such as employment, marital status, and housing tenure [45-50]. However, with few exceptions [51], these studies have not tended to consider how socio-economic position may

be differentially related to the reported health of women and men in different countries or welfare state regimes. In this context, this study is the first to examine the relationship between gender and SAH and the extent to which this varies by socio-economic position in different European welfare states and to what extent this can be explained by welfare state regime theory.

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METHODS

This study was conducted as part of the European Union funded 'Tackling Health Inequalities in Europe (EUROTHINE)' project. The EUROTHINE project collated and harmonised data from various representative national health surveys of adults (aged ≥ 16), carried out between 1998 and 2004. Sample sizes ranged from 7,124 (Germany) to 118,245 (Italy). Information on the individual country data sources are presented in Table 1. Further information is available from the Eurothine website (www.eurothine.org).

Self-assessed health (SAH) was measured using a five point Likert-type scale ranging from 'very good' health to 'very bad' health. To maximise the efficiency of the analysis SAH was dichotomised to compare 'bad and very bad health' with 'average to very good health'. Educational status was standardised across countries using the International Standard Classification of Education (ISCED), a four point ranked scale with the lowest rank indicating the most educated (University/Higher education) and highest rank the least educated (Primary education and below). For the purpose of the current analysis educational rank was used as a proxy for socio-economic position.

Two descriptive analyses were conducted. The first explored the relationship between SAH and sex in each country, adjusting for age in years. The second stratified the analysis according to the four educational ranks. Logistic regression analysis was used for both analyses to obtain odds ratios summarising the relationship

between SAH and sex (age adjusted). 'Males' were the reference group for sex and for the outcome of SAH 'average to very good health' was the reference.

Table 1: Information on data sources for each country (presented by welfare state regime)*

Country	Data source	Year(s) of survey
<i>Social Democratic</i>		
Denmark	Danish Health and Morbidity Survey	2000
Finland	Finbalt Health Monitor	1994, 1998, 2000, 2002, 2004
Holland	General social survey	2003-2004
Norway	Norwegian Survey of Living Conditions	2002
Sweden	Swedish Survey of Living Conditions	2000-2001
<i>Corporatist</i>		
Belgium	Health Interview Survey	1997-2001
France	French Health, Health Care and Insurance Survey	2004
Germany	German National Health Examination and Interview Survey	1998
<i>Liberal</i>		
England	Health Survey for England	2001
Ireland	Living in Ireland Panel Survey	1995-2002
<i>Southern</i>		
Italy	Health conditions and use of health services	1999-2000
Portugal	National Health Survey	2001
Spain	National Health Survey	2001

*Source: www.eurothine.org

RESULTS

The proportion of individuals indicating 'bad and very bad' health varied between participating countries (Tables 2-4). For the majority the occurrence of poor health was less than 10%, however, clear exceptions were Germany (17.5%) and Portugal (25.9%).

For all the countries, except Ireland, there was a significant relationship between sex and self-reported poor health ($p < 0.05$). England and Finland were the only countries to have a higher proportion of men reporting 'bad and very bad' health relative to women. The remaining countries had a higher prevalence of self-reported poor health in women (Tables 2-4). For all countries educational level was strongly related to self-reported poor health with the least educated group reporting the highest levels of 'bad and very bad' health.

Statistically significant differences in SAH by sex were observed for nine of the thirteen European countries (Table 5). In Denmark, Sweden, Norway, Holland, Italy, Spain, and Portugal, a significantly higher proportion of women reported that their health was 'bad' or 'very bad' compared to men. The increased risk of poor SAH experienced by women from these countries ranged from a 23% increase in Denmark ($OR=1.23$; $95\%CI=1.08,1.39$) to more than a two-fold increase in Portugal ($OR=2.01$; $95\%CI=1.87,2.15$). In the UK ($OR=0.88$; $95\%CI=0.78,0.99$) and Finland ($OR=0.85$; $0.77,0.95$) men were significantly more likely to report 'bad' or 'very bad' health. There were no significant sex differences in SAH for Belgium, France, Germany and Ireland.

The relationship between sex and SAH, stratified by educational rank, appeared to vary between the countries (Figure 1). For Italy, Portugal and Sweden, the increased risk of poor SAH in women appeared to be greatest in the most educated group. For Denmark, Spain, Holland and Norway there was no clear relationship between the increased risk of poor SAH in women and educational level. The reduced risk of poor SAH in women from England was only statistically significant (borderline) for the least educated (Table 5: $OR=0.84$; $95\%CI=0.71,0.99$) whereas for women from Finland the only significant association between sex and SAH was amongst the most educated (Table 4: $OR=0.86$; $95\%CI=0.78,0.95$).

Table 2: Distribution of population in each country stratified by education, and self-assessed health with p-values indicating differences by sex (Social Democratic welfare states)

	<i>Denmark (n=16,690)</i>		<i>Finland (n=20,371)</i>		<i>Holland (n=15,803)</i>		<i>Norway (n=6,820)</i>		<i>Sweden (n=11,484)</i>	
	Men (n=8,188)	Women (n=8,502)	Men (n=9,459)	Women (n=10,912)	Men (n=7,670)	Women (n=8,133)	Men (n=3,407)	Women (n=3,413)	Men (n=5,587)	Women (n=5,897)
Age (years):Range	16 – 103	16 – 105	16 – 64	16 – 64	16 – 85	16 – 85	16 – 94	16 – 102	16 – 84	16 – 84
Mean (sd)	45.2 (17.8)	46.8 (18.5)	40.8 (13.6)	40.3 (13.6)	46.2 (17.5)	46.8 (18.0)	45.0 (17.4)	46.2 (18.4)	45.6 (18.0)	47.0 (18.4)
	p=0.009		p=0.002		p=0.109		p=0.041		p<0.001	
Education rank-n (%):										
1 (higher education)	1487 (18.6)	1583 (19.1)	1596 (17.2)	2234 (20.8) 6231 (58.0)	1963 (25.8)	1636 (20.3)	826 (25.0) 1952 (59.0)	892 (26.9) 1794 (54.1)	1483 (26.6)	1652 (28.0)
2	4688 (58.5)	4263 (51.3)	5229 (56.2)	1069 (10.0) 1210 (11.3)	3105 (40.8)	2816 (34.9)	524 (15.9)	625 (18.8)	2643 (47.4)	2667 (45.3)
3	429 (5.4)	579 (7.0)	919 (9.9)		1589	2234	----	----	649 (11.6)	674 (11.4)
4 (primary or lower)	1408 (17.6)	1884 (22.7)	1560 (16.8)		(20.9) 956 (12.6)	(27.7) 1389 (17.2)			805 (14.4)	900 (15.3)
	p<0.001		p<0.001		p<0.001		p<0.001		p=0.092	
SAH- n (%):*										
Very good	2988 (36.5)	2878 (33.9)	3327 (35.3)	3838 (35.4) 3725 (34.3)	1367 (21.5)	1146 (16.5)	1187 (34.8)	1115 (32.7)	2088 (37.4)	1949 (33.1)
Good	3512 (42.9)	3584 (42.8)	2936 (31.2)	2557 (23.6) 633 (5.8)	1786 (28.1)	1760 (25.4)	1650 (48.4)	1570 (46.1)	2230 (39.9)	2310 (39.2)
Average	1237 (15.1)	1449 (17.1)	2408 (25.6)	102 (0.9)	2575 (40.5)	3093 (44.6)	408 (12.0) 138 (4.1)	474 (13.9) 208 (6.1)	950 (17.0) 240 (4.3)	1210 (20.5)
Bad	324 (4.0)	442 (5.2)	621 (6.6)		535 (8.4)	814 (11.7)	24 (0.7)	41 (1.2)	75 (1.3)	336 (5.7)
Very bad	120 (1.5)	142 (1.7)	130 (1.4)		101 (1.6)	123 (1.8)				90 (1.5)
	p<0.001		p<0.001		p<0.001		p<0.001		p<0.001	
SAH-n (%):*										
Bad/ very bad	444 (5.4)	584 (6.9)	751 (8.0)	735 (6.8)	636 (10.0)	937 (13.5)	162 (4.8)	249 (7.3)	315 (5.6)	426 (7.2)
	p<0.0005		p=0.001		p<0.0005		p<0.0005		p=0.001	
Education rank-n (%):\$										
1 (higher education)	40 (2.7)	45 (2.8)	70 (4.4)	87 (3.9)	111 (5.7)	113 (6.9)	14 (1.7)	27 (3.0)	38 (2.6)	70 (4.2)
2	233 (5.0)	223 (5.2)	346 (6.6)	364 (5.8)	229 (7.4)	264 (9.4)	99 (5.1)	106 (5.9)	161 (6.1)	182 (6.8)
3	19 (4.4)	49 (8.5)	71 (7.7)	90 (8.4)	142 (8.9)	252 (11.3)	44 (8.4)	111 (17.8)	28 (4.3)	39 (5.8)
4 (primary of lower)	146 (10.4)	259 (13.7)	251 (16.1)	180 (14.9)	147 (15.4)	297 (21.4)	----	----	87 (10.1)	135 (15.0)
	p<0.001		p<0.001		p<0.001		p<0.001		p<0.001	

\$ Proportion of each educational rank who reported bad/very bad health (Chi-square test for trend used to calculate p value)

* SAH = Self-assessed health

Table 3: Distribution of population in each country stratified by education, and self-assessed health with p-values indicating differences by sex (Corporatist and Liberal welfare states)

	<i>CORPORATIST</i>						<i>LIBERAL</i>			
	Belgium (n=18,481)		France (n=17,828)		Germany (n=7,124)		England (n=15,767)		Ireland (n=15,051)	
	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women
	(n=8,959)	(n=9,522)	(n=8,761)	(n=9,067)	(n=3,450)	(n=3,674)	(n=7,032)	(n=8,735)	(n=7,455)	(n=7,596)
Age (years):										
Range	16 – 98	16 – 99	16 – 98	16 – 103	17 – 79	17 – 79	16 – 98	16 – 100	16 – 93	16 – 95
Mean (sd)	46.0 (18.0)	47.7 (18.9)	44.0 (18.0)	45.3 (18.3)	45.1 (15.7)	46.3 (16.1)	47.6 (18.3)	48.1 (18.9)	43.2 (18.5)	44.3 (18.5)
	p<0.001		p<0.001		p=0.003		p=0.310		p=0.001	
Education rank-n. (%):										
1 (higher education)	2551 (29.6)	2624 (28.6)	2278 (26.7)	2487 (28.0)	610 (18.2) 1340 (39.9)	351 (9.8) 1647 (46.2)	2124 (31.5)	1895 (23.3)	1092 (14.7)	1056 (13.9)
2	2755 (31.9)	2590 (28.2)	1544 (18.1)	1746 (19.6)	1314 (39.1)	1463 (41.0)	2386 (35.1)	3156 (38.9)	1981 (26.6)	2489 (32.9)
3	1783 (20.7)	1905 (20.7)	3466 (40.7)	2930 (32.9)	97 (2.9)	105 (2.9)	511 (7.6) 1747 (25.9)	353 (4.4) 2716 (33.5)	1916 (25.8)	1658 (21.9)
4 (primary or lower)	1544 (17.9)	2067 (22.5)	1233 (14.5)	1736 (19.5)					2448 (32.9)	2371 (31.3)
	p<0.001		p<0.001		p<0.001		p<0.001		p<0.001	
SAH- n (%):*										
Very good	2170 (26.3)	1940 (21.9)	1536 (23.9)	1254 (18.3)	121 (3.6) 625 (18.5)	88 (2.5) 545 (15.2)	2409 (34.3)	2791 (32.0)	3428 (46.1)	3468 (45.8)
Good	4225 (51.2)	4372 (49.4)	3502 (54.4)	3698 (54.0)	2084 (61.6)	2281 (63.6)	2825 (40.2)	3652 (41.8)	2684 (36.1)	2638 (34.8)
Average	1515 (18.4)	2109 (23.8)	1185 (18.4)	1621 (23.7)	500 (14.8) 51 (1.5)	596 (16.6) 75 (2.1)	1272 (18.1)	1695 (19.4)	1087 (14.6)	1233 (16.3)
Bad	296 (3.6)	349 (3.9)	179 (2.8)	239 (3.5)			398 (5.7)	450 (5.2)	179 (2.4)	194 (2.6)
Very bad	47 (0.6)	78 (0.9)	33 (0.5)	34 (0.5)			122 (1.7)	146 (1.7)	62 (0.8)	47 (0.6)
	p<0.001		p<0.001		p<0.001		p<0.001		p=0.025	
SAH-n (%):*										
Bad/ very bad	343 (4.2) p=0.035	427 (4.8)	212 (3.3) p=0.033	273 (4.0)	551 (16.3) p=0.008	671 (18.7)	520 (7.4) p=0.160	596 (6.8)	241 (3.2) p=0.835	241 (3.2)
Education rank-n (%):\$										
1 (higher education)	37 (14.5)	38 (1.4)	24 (1.1)	19 (0.8)	81 (13.3)	38 (10.8)	74 (3.5)	49 (2.6)	14 (1.3)	10 (0.9)
2	59 (2.1)	80 (3.1)	15 (1.0)	25 (1.4)	140 (10.4)	209 (12.7)	99 (4.1)	104 (3.3)	22 (1.1)	38 (1.5)
3	82 (4.6)	86 (4.5)	72 (2.1)	75 (2.6)	310 (23.6)	395 (27.0)	58 (11.4)	21 (5.9)	25 (1.3)	28 (1.7)
4 (primary of lower)	145 (9.4)	203 (9.8)	97 (7.9)	149 (8.6)	18 (18.6)	23 (21.9)	272 (15.6)	378 (13.9)	179 (7.3)	162 (6.8)
	p<0.001	p<0.001	p<0.001	p<0.001	p<0.001	p<0.001	p<0.001	p<0.001	p<0.001	p<0.001

\$ Proportion of each educational rank who reported bad/very bad health (Chi-square test for trend used to calculate p value)

* SAH = Self-assessed health

Table 4: Distribution of population in each country stratified by education, and self-assessed health with p-values indicating differences by sex (Southern welfare states)

	<i>Italy (n=118,245)</i>		<i>Portugal (n=40,917)</i>		<i>Spain (n=20,748)</i>	
	Men (n=56,951)	Women (n=61,294)	Men (n=19,336)	Women (n=21,581)	Men (n=10,049)	Women (n=10,699)
Age (years):						
Range	16 – 103	16 – 105	16 – 103	16 – 101	(16 – 75+)**	(16 – 75+)**
Mean (sd)	46.0 (18.3)	48.2 (19.3)	46.7 (19.1)	49.3 (19.4)	(40 – 44)***	(40 – 44)***
	p<0.001		p<0.001		p<0.001	
Education rank-n (%):						
1 (higher education)	3, 828 (6.7)	3751 (6.1)	1499 (7.8)	2075 (9.6)	1432 (14.3)	1301 (12.2)
2	17796 (31.3)	17809 (29.1)	2255 (11.7)	2224 (10.3)	2202 (22.0)	1884 (17.7)
3	18919 (33.2)	16230 (26.5)	2372 (12.3)	1883 (8.7)	2988 (29.8)	3050 (28.6)
4 (primary or lower)	16408 (28.8)	23504 (38.4)	13190 (68.3)	15389 (71.3)	3401 (33.9)	4441 (41.6)
	p<0.001		p<0.001		p<0.001	
SAH- n(%):*						
Very good	8415 (14.8)	6121 (10.0)	317 (3.6)	305 (2.1)	1690 (16.9)	1432 (13.4)
Good	25689 (45.1)	24321 (39.7)	3010 (34.6)	3642 (24.7)	5913 (59.0)	5510 (51.6)
Average	18990 (33.3)	24743 (40.4)	3638 (41.8)	6447 (43.8)	1826 (18.2)	2827 (26.5)
Bad	2992 (5.3)	5016 (8.2)	1423 (16.3)	3393 (23.0)	476 (4.8)	679 (6.4)
Very bad	865 (1.5)	1093 (1.8)	324 (3.7)	939 (6.4)	111 (1.1)	224 (2.1)
	p<0.001		p<0.001		p<0.001	
SAH-n (%):*						
Bad/ very bad	3857 (6.8)	6109 (10.0)	1747 (20.1)	4332 (29.4)	587 (5.9)	903 (8.5)
	p<0.0005		p<0.0005		p<0.0005	
Education rank-no. (%):						
1 (higher education)	88 (2.3)	93 (2.5)	16 (1.1)	54 (2.6)	37 (2.6)	37 (2.8)
2	447 (2.5)	496 (2.8)	22 (1.0)	41 (1.8)	53 (2.4)	69 (3.7)
3	737 (3.9)	757 (4.7)	61 (2.6)	114 (6.1)	108 (3.6)	134 (4.4)
4 (primary of lower)	2585 (15.8)	4763 (20.3)	1648 (12.5)	4123 (26.8)	388 (11.4)	662 (14.9)
	p<0.001	p<0.001	p<0.001	p<0.001	p<0.001	p<0.001

\$ Proportion of each educational rank who reported bad/very bad health (Chi-square test for trend used to calculate p value)

* SAH = Self-assessed health; ** Range based on age categories; *** Median category of age by sex

Table 5: Odds Ratios and 95% CI for the association of sex with the risk of reporting bad or very bad self assessed health as compared to regular, good or very good self-assessed health*

	<i>Total</i>	
	OR	95%CI
SOCIAL DEMOCRATIC		
Denmark	1.23	1.08,1.39
Finland	0.85	0.77,0.95
Holland	1.44	1.29,1.60
Norway	1.51	1.23,1.87
Sweden	1.23	1.06,1.44
CORPORATIST		
Belgium	1.09	0.94,1.27
France	1.15	0.95,1.38
Germany	1.13	1.00,1.29
LIBERAL		
England	0.88	0.78,0.99
Ireland	0.93	0.77,1.12
SOUTHERN		
Italy	1.33	1.27,1.39
Portugal	2.01	1.87,2.15
Spain	1.37	1.23,1.53

*Odds ratios are age adjusted, males are the reference category for all comparisons.

DISCUSSION

The results suggest that the relationship between gender and SAH, and the extent to which it varies by socio-economic position, does in fact differ across European welfare states: in the majority of cases, women reported worse health than men, and in some countries (Italy, Sweden, Portugal), these differences were most pronounced amongst the most highly educated. Some of the results (e.g. for Portugal and Italy) can be explained by drawing on welfare state regime theory [33, 34, 52-57]. Other country findings though (e.g. UK or Finland), are more challenging to welfare state regime theory. Furthermore, the finding that sex differences in SAH are most prominent in the most educated groups in some countries requires further discussion.

Confirming welfare state regime theory

The four-fold typology of welfare states is very evident in our results: women who are moderately more likely to report 'bad' or 'very bad' SAH are those in the Social Democratic countries of Denmark, Holland, Norway and Sweden; women in the Southern regime countries of Portugal and Italy (and to a lesser extent Spain) are highly likely to report worse SAH, whilst those countries in which there appear to be no gender differences in SAH are the Corporatist countries of Belgium, France and Germany.

The only exceptions to this are Finland, England and Ireland. In welfare state regime theory, Finland is something of a hybrid case, with some typologies placing it in the Social Democratic regime [33] whilst others in the Corporatist [53] welfare state regime. This is perhaps a reflection of the shorter history of the welfare state in Finland (which was not developed until the 1970s) compared to the other Nordic welfare states. England and Ireland are almost always placed together in the Liberal regime type.

Welfare state regime theory is therefore able to provide some insight into how the countries analysed have grouped in terms of gender differences in SAH. However, whilst the high levels of 'bad' or 'very bad' SAH amongst women in the Southern regime countries reinforces research into gender and welfare states regimes, which has long highlighted the lack of support for women and their low economic and political participation in these countries [58], the results for the other regime types is less easy to explain through reference to this literature.

Challenging welfare state regime theory

Research into population health differences across welfare states have tended to find that health is better in the Social Democratic countries [3-8, 57, 58]. Furthermore, these welfare states are widely seen as the most progressive in terms of gender equality [36, 54, 55, 58-61]. So the expectation would therefore be that gender differences in SAH would be comparatively smaller in the Social Democratic countries. However, this was not the case in our study. One possible explanation is that the mechanisms at play in terms of gender and health cannot be overcome by the traditional Social Democratic welfare interventions of income redistribution and extensive public service provision alone [8]. Indeed, some feminist critiques have suggested that such policies have actually ended up transferring women's economic dependency from the family to the state – from private to public patriarchy [62, 63]. Interlinked with this is the burden of the dual roles experienced by women in Social Democratic states. A high proportion of women work, and whilst public policy is progressive in terms of child care and paternity leave, women are still responsible for the majority of domestic work and family care [62, 63]. Similarly the suggestion has been made that the dual-earner model leads to indirect discrimination against women as all women, even those very vocationally focused, are treated as potential mothers leading to women being put onto parallel “mommy career tracks”.[64] This may partly explain the high sexual segregation at work, and the gender pay gap in the Scandinavian countries which is between men and women, as opposed to between mother and others as is the case in other Western countries.[64] Perhaps another factor behind the results is the higher proportion of lone mothers in Social Democratic states [65] who experience worse health than couple mothers. [65] Of course, the English and Finnish results, suggest that these relationships may not be consistent across all countries with high labour market participation by women. Further analysis using other measures of health (such as mortality data) would help explore the consistency of this finding.

No significant gender differences in SAH were found in the Corporatist countries (Belgium, France and Germany), or in Ireland. The Corporatist welfare states are often considered to offer a contradictory set of policies and provisions in relation to women and the family. [36, 54, 55, 58-61] On the one hand, they provide some of the best provisions for women (e.g. well compensated and extensive maternity leave), whilst on the other hand they have much lower levels of labour market participation by women. [36, 58-61] The lack of

gender difference in SAH could therefore reflect the fact that fewer women in the Corporatist countries experience dual roles. Similarly, there are lower levels of lone motherhood in the Corporatist countries (and Ireland). Conversely, though the cases of Italy, Portugal, and albeit to a lesser extent Spain, caution that restrictive traditional gender roles for women can have an extremely adverse effect on gender differences in health.

Welfare state regimes and gender inequality in health

In terms of gender differences in SAH stratified by educational rank, it is of note that there appears to be a stronger relationship in the most educated group for a number of European countries. For example, in the Southern regime countries of Italy and Portugal (but not Spain), the increased risk of poor SAH in women appeared to be greatest amongst the most highly educated. This may be a result of tensions between the traditional roles of women as wife and mother, and the new pressures for women, particularly the most educated, to work. Indeed, there are large education-related differences in labour force participation among Southern European women: participation is generally higher among women of higher education [66] whereas lower-educated women, generally assume more traditional role patterns [66] and conform to the Mediterranean 'male breadwinner model'. [68] Traditional cultural norms and corresponding state provision (minimal or no childcare support etc, in part due to the later development of the welfare state) in the Southern regime countries therefore do not support these dual roles. [68] The higher prevalence of smoking amongst more educated women in the Southern regime countries may also be a contributory factor. [69]

This was also the case in Social Democratic Sweden. However in Finland, women in the highest group reported better SAH than men. In the other Social Democratic countries (Denmark, Holland and Norway), there was no clear relationship between the increased risk of poor SAH in women and educational rank. In England the reduced risk of poor SAH amongst women was only amongst the least educated. Although it is possible to explain the higher rates of poor SAH amongst more educated women in terms of the pressures of these women's dual roles, the results are inconsistent and are therefore difficult to explain in a coherent way without further research.

Policy implications

Our results suggest that the nature of gender differences in health vary by country and to some extent by welfare state type. Therefore, achieving gender equity in health will require different policy responses in each European welfare state.

The results for the Social Democratic welfare states suggest that welfarist policies cannot adequately overcome gender based inequities in health without accompanying changes at the cultural and societal levels. To start, we suggest implementing policies which target gender socialisation and traditional gender roles. A good example of such policies would be the recommendations of the Swedish Education Ministry's Delegation for Gender Equality in Preschool [69]. The results for Italy and Portugal reinforce this suggestion, as the tension between traditional and modern roles experienced by women in these countries is detrimental to SAH.

The lack of gender differences in SAH in the Corporatist countries and our suggestion that this may be due to the existence of more dual couples and less dual roles for women implies that public policy interventions need to compensate more adequately for the lack of support experienced by lone mothers and by working women in general. Current state provision, even in the Social Democratic countries, has not yet adequately compensated for the detrimental health effects of lone parenthood [65] and the dual earner model may have unintended consequences for women such as sexual segregation at work.[64] This may require more extensive socialised child care, as well as enhanced flexibility around working hours. There are some indications in our analysis that in a variety of countries, the increased risk of poor SAH in women appeared to be greatest in the highest educational rank. This may also necessitate policy interventions to support women with dual roles.

Strengths and limitations

The EUROTHINE project provides the unique opportunity to compare gender differences in health across Europe using large, representative cross-sections of the adult population. Comparisons are made easier by the

use of standardised classifications of important variables (e.g. educational rank). However, national-level data cannot be used to make predictions at the level of the individual.

One limitation is the use of educational rank as a proxy for socio-economic position. This relationship is unlikely to be uniform across all European countries. Furthermore, and of particular importance for this study, women's educational background may not be a very accurate indicator of their socio-economic position. Indeed research into socio-economic inequalities in health amongst men and women have highlighted the sensitivity of the choice of indicator of socio-economic position. [2] A further issue concerns the possibility that within welfare regimes there could be direct, differential effects of different educational systems on gender inequalities in health.

Although SAH correlates well with other indicators of morbidity [71] and is considered to be a good indicator to compare health across countries [72], it should be acknowledged that there may well be differences in reporting across countries, cultures, ethnicity, socio-economic groups and, of course, by gender [73]. It is also likely that there are variations in SAH between age groups and different welfare state regimes will have policies that act differentially at various stages in the life cycle as well as by sex. For example, gender differences in health also differ by occupational characteristics[74] and younger women may be more likely to live with their parents, occupation could therefore be an important confounding factor.[75] Similarly, the institutionalisation of older people may vary by gender in different countries. Future research would benefit from examining SAH between different age groups (as well as the interaction between gender and other forms of social stratification such as ethnicity) to ascertain whether the patterns reported here vary by age as well as by welfare state regime and level of education.

Another possible limitation is our choice of welfare state regime typology. There are a multitude of competing welfare state regime typologies [9] and although there is no categorisation which has been generally accepted as the standard typology, the four-fold typology of Ferrera used in this paper [33] has been highlighted as one of the most empirically accurate [34], at least in terms of how social benefits are granted and organised. However, if the typologies of other authors were used it may have resulted in different results. For example, if the Navarro

et al political traditions typology [7] were utilised, the Christian Democratic group of countries (similar to Bismarckian regime) would include those with smaller gender inequalities (Germany, France) as well as those with higher gender inequalities (Italy). This needs to be taken into consideration when considering our results.

CONCLUSION

Current welfare regime theory clearly offers some explanatory insight into gender differences in health. However, until more work on the gendered nature of welfare states has been undertaken and is available for use by public health researchers, regime theory may not be as useful in examining gender and health as it has been in terms of overall population health [3-7]. One obvious route to pursue relates to relationships between gender inequalities in health and gendered public policy indicators and typologies, such as the Gender Equity Index [76].

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What is known on this subject

- International research has shown that different types of welfare states (welfare state regimes) are important determinants of health and health inequalities as they mediate the extent, and impact, of socio-economic position on health.
- To date though, no studies have examined how gender differences in health vary by welfare state regime. Similarly, there are few cross-national studies of inequalities in health which examine gender differences by welfare state type.

What this study adds

- The relationship between gender and self-assessed health varies by welfare state - in the majority of cases, women reported worse health than men.
- Women in the Social Democratic and Southern welfare states were more likely to report worse self-assessed health than men. In the Corporatist countries, there were no sex differences in self-assessed health. Findings were mixed for the Liberal regime countries.
- There was no consistent welfare state regime patterning for sex differences in self-assessed health by socio-economic position. Although, in some countries (Italy, Portugal, Sweden), women's relatively worse self-assessed health tended to be most prominent in the group with the highest level of education.

Policy Implications

- The policy implications of the study are that policies which target gender socialisation and traditional gender roles need to be implemented more extensively in all welfare state regimes.
- Traditional welfarist policies (e.g. income redistribution) cannot adequately overcome gender based inequities in health without accompanying changes at the cultural and societal levels. Policies which target gender socialisation and traditional gender roles such as the recommendations of the Swedish Education Ministry's Delegation for Gender Equality in Preschool, may be beneficial in this regard.
- Public policy interventions need to compensate more adequately for the lack of support experienced by working women. This may require more extensive socialised child care, as well as enhanced flexibility around working hours.

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