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**WELFARE STATE REGIME LIFE COURSES:
THE DEVELOPMENT OF WESTERN EUROPEAN
WELFARE STATE REGIMES AND AGE-RELATED
PATTERNS OF EDUCATIONAL INEQUALITIES
IN SELF-REPORTED HEALTH**

Clare Bamba, Gopalakrishnan Netuveli,
and Terje A. Eikemo

This article uses data from three waves of the European Social Survey (2002, 2004, 2006) to compare educational inequalities in self-reported health (good vs. bad) and limiting longstanding illness in six age groups based on decade of birth (1930s–1980s) in 17 countries, categorized into four welfare state regimes (Anglo-Saxon, Bismarckian, Scandinavian, Southern). The authors hypothesized that health inequalities in these age groups would vary because of their different welfare state experiences—welfare state regime life courses—both temporally, in terms of different phases of welfare state development (inequalities smaller among older people), and spatially, in terms of welfare state regime type (inequalities smaller among older Scandinavians). The findings are that inequalities in health tended to increase, not decrease, with age. Similarly, inequalities in health were not smallest in the Scandinavian regime or among the older Scandinavian cohorts. In keeping with the rest of the literature, the Bismarckian and Southern regimes had smaller educational inequalities in health. Longitudinal analysis that integrates wider public health factors or makes smaller comparisons may be a more productive way of analyzing cross-national variations in health inequalities and their relationship to welfare state life courses.

Recently, there has been a surge in comparative social epidemiology and public health policy research, and a sizeable amount of this has examined the relationship among different types of welfare states (welfare state regimes) and population

health (1). Initially, attention was placed on differences by welfare state regime in terms of overall population health (e.g., infant mortality rates, life expectancy at birth, or self-reported health) (2–6). These studies consistently found that population health is enhanced by the Scandinavian welfare state regime, which offers universalism, comparatively generous replacement rates, and extensive welfare services (7). For example, Navarro and colleagues (4) found that countries that have had long periods of government by redistributive political parties (most notably the Scandinavian countries) have experienced lower infant mortality rates. These findings were reinforced by Chung and Muntaner’s multilevel longitudinal analysis of welfare state regimes (8), which showed that about 20 percent of the difference in infant mortality rates among countries, and 10 percent of the difference in low birth weight, could be explained by the type of welfare state, with the Scandinavian welfare states outperforming the others. Similarly, a multilevel study of morbidity by welfare state regime found that the Scandinavian welfare states fared better, with lower rates of limiting longstanding illness and poor self-reported health (6).

More recently, and especially since publication of the results of the Tackling Health Inequalities in Europe project (www.eurothine.org), empirical attention has shifted to examining differences by welfare state regime in terms of socioeconomic inequalities in health (9–14). There was a clear expectation, not least because of their comparatively strong performance in terms of overall population health, that market-generated health inequalities would be smaller in the more generous and egalitarian Scandinavian welfare states. However, with the exception of one study (9), recent comparative research on health inequalities by welfare state regime has found that inequalities in self-reported health are smallest in the Bismarckian welfare states, not the Scandinavian ones (11, 12, 14). Similarly, for mortality, no evidence of systematically smaller inequalities was found in the Scandinavian welfare states—indeed, the inequalities were smallest in the Southern regime countries (10). This has been a contentious finding, given the egalitarian ethos and redistributive policies of the Scandinavian countries (especially when contrasted to the status-maintaining approach of the Bismarckian welfare states) (7). Subsequently, there has been much debate on this topic, and various explanations have been put forward for the counterintuitive findings, ranging from artifact (15), to health behaviors (10), to relative deprivation (16, 17) (for an overview, see 18). These explanations, however, are rather unconvincing, and one possible issue that may have explanatory power, or at least contextual relevance, is whether the findings are consistent in terms of age-related welfare state experience—what we refer to in this article as *welfare state regime life course*. This is important not just in terms of establishing whether the earlier findings are consistent when examined by age group, but also because it provides a possible way of gaining insight into how patterns of health inequalities across Europe are related to the development of welfare states and welfare state regimes.

Welfare states are by no means static entities; in fact, they have experienced numerous changes since their initial establishment in the early postwar period (19). In the social policy literature it is possible to identify at least four phases in the development of the majority of postwar Western welfare states: first, pre-welfare state; second, the “golden age” of the Fordist welfare state; third, crisis and restructuring; and fourth, the emergence of post-Fordist workfare states (20). Welfare state experiences will therefore differ by people’s age, both within and between countries. For example, the welfare state experienced by older people in the Scandinavian countries will differ considerably from that experienced by younger people in the Anglo-Saxon countries.

Similarly, following life course epidemiology, health status reflects not just an individual’s current position but also his or her accumulation of (welfare state) experiences over time (21). The life course perspective highlights the importance of critical periods and pathways of causation that allow us to understand the effect of the lived experience of different welfare state regimes on health inequalities (22). Yet, even though an understanding of the differential impact by socioeconomic status of welfare state regimes on life course trajectories can illuminate the role of public policies, there is a paucity of studies that use life course perspectives on welfare state regimes and health inequalities. This is due, to some extent, to a lack of suitable data. A way out of this impasse is provided by the fact that life course in Western societies is partly age-structured (23). To a certain extent, the life course is thus (age) standardized by common welfare state institutions (24). For certain aspects of the life course, such as education, this age structuring is more substantial than for others. Examining health inequalities by age group therefore enables us to consider the effects of welfare state regime life courses: it provides an opportunity to look at patterns of health inequalities within the development of European welfare states.

WELFARE STATE REGIMES

In his seminal work *The Three Worlds of Welfare Capitalism*, Esping-Andersen presented a three-fold classification of Western welfare states (liberal, conservative, social democratic) (7). His typology was based on the operationalization of three principles: decommodification (the extent to which an individual’s welfare is reliant on the market), social stratification (the role of welfare states in maintaining or breaking down social stratification), and the private-public mix (the relative roles of the state, the family, and the market in welfare provision). There have been numerous critiques of the *Three Worlds* typology: in terms of the range of countries and regimes, the absence of a consideration of gender, the methodology, and/or the focus on cash benefits (for an overview, see 1). As a result of this criticism, modified or alternative typologies have been proposed, most of which place emphasis on those characteristics of welfare states not extensively examined by Esping-Andersen and which tweak the number of regimes and/or specific country classifications (25). Although none of these

alternative categorizations has been generally accepted as the new standard typology of welfare regimes, Ferrera's typology (26) has been highlighted as one of the most empirically accurate. The Ferrera typology classifies countries on the basis of service coverage, poverty rates, and income replacement rates. It results in a fourfold typology of European welfare state regimes: Scandinavian (social democratic), Anglo-Saxon (liberal), Bismarckian (conservative), and Southern (see Box 1). In this article, as with our previous research on welfare state regimes and health outcomes (6, 12–14, 27), we use the Ferrera typology.

BOX 1
WELFARE STATE REGIMES

Scandinavian. The Scandinavian regime type (Denmark, Finland, Norway, Sweden) is characterized by universalism, comparatively generous social transfers, a commitment to full employment and income protection, and a strongly interventionist state. The state is used to promote social equality through a redistributive social security system. Unlike the other welfare state regimes, the Scandinavian regime type promotes an equality of the highest standards, not an equality of minimal needs, and it provides highly decommodifying programs.

Anglo-Saxon. In the welfare states of the Anglo-Saxon regime (United Kingdom, Ireland), state provision of welfare is minimal, social transfers are modest and often attract strict entitlement criteria, and recipients are usually means-tested and stigmatized. In this model, the dominance of the market is encouraged both passively, by guaranteeing only a minimum, and actively, by subsidizing private welfare schemes. The Anglo-Saxon welfare state regime thereby minimizes the decommodification effects of the welfare state, and a stark division exists between those—largely the poor—who rely on state aid and those who are able to afford private provision.

Bismarckian. The Bismarckian welfare state regime (Austria, Belgium, France, Germany, Luxembourg, Netherlands, Switzerland) is distinguished by its “status differentiating” welfare programs, in which benefits are often earnings-related, administered through the employer, and geared toward maintaining existing social patterns. The role of the family and the voluntary sector (especially the Church) is also emphasized, and the redistributive impact is minimal. However, the role of the market is marginalized.

Southern. In Ferrera's typology, the Southern European *welfare states* (Italy, Greece, Portugal, and Spain) comprise a distinctive, southern, *welfare state regime*. The southern *welfare states* are described as “rudimentary” because they are characterized by their fragmented system of welfare provision, which consists of diverse income maintenance schemes that range from the meager to the generous, and welfare services, particularly the health care system, that provide only limited and partial coverage. Reliance on the family and voluntary sector is also a prominent feature.

Source: Adapted from Eikemo and Bamba (29).

WELFARE STATE REGIME DEVELOPMENT

The historical development of postwar welfare provision across Western Europe, as noted above, can be divided into four distinctive periods: pre-welfare state, the golden age of the welfare state, crisis and restructuring, and the emergence of post-Fordist workfare states. To some extent, the timing of these periods of welfare state development varies by country and by welfare state regime. For example, the Southern regime countries (except Italy) experienced dictatorships until the mid-1970s, with highly regressive fiscal policies (4); nor is the timing of developments universal in other regimes—for example, Finland's welfare state developed later than that of the other Scandinavian countries. This historical overview is therefore only able to capture the broad thematic changes in the development of European welfare states.

Pre-Welfare State

For most of the 19th century, there was minimal state welfare within Europe beyond very basic “poor relief”—the provision of basic food rations and shelter (often provided through institutions such as the English workhouse system). Beyond these provisions, welfare came from family members or charity (particularly the Church). This began to change in the early 20th century with the introduction of rudimentary, highly selective (non-workers, which included most women, were typically excluded), state-organized welfare systems, which provided basic pensions, unemployment benefits, and sickness benefits funded through social insurance payments (e.g., the 1911 National Insurance Act in the United Kingdom and the Bismarckian welfare reforms of 1880s Germany).

Golden Age of Welfare

It was not until after World War II (1945) that what is now referred to as the Fordist welfare state was established. There are competing explanations as to why the welfare state emerged at this point, between modernization theory, the power resources model, and the requirements of capital thesis (for a detailed overview, see 20). To a greater or lesser extent (see Box 1), the golden age's Fordist welfare state was characterized by centralism, universalism, Keynesian demand-management, full (male) employment and high public expenditure, and the promotion of mass consumption through a redistributive welfare system and social wage (28). There was also a mainstream political consensus in favor of the welfare state. In the golden age of welfare state expansion (1940s to 1960s), Western Europe experienced significant improvements in public housing, health care, and the other main social determinants of health (29).

Crisis and Restructuring

The golden age of welfare state expansion effectively ended with the economic crisis of the 1970s (high inflation, slow economic growth, the end of full employment), during which there was a general loss of confidence in the ability of Fordist welfare state capitalism to adequately maintain profitability and safeguard capitalist reproduction (initially in the United Kingdom and then across continental Europe). Besides these internal constraints, there were also external challenges such as globalization (30). The political consensus of the early postwar years was also broken, and governments started to dismantle and restructure the welfare state. Reforms (which largely occurred in the 1980s and 1990s) were characterized by the privatization and marketization of welfare services, entitlement restrictions and increased qualifying conditions for benefits, and a shift toward targeting and means-testing; cuts or limited increases in the actual cash values of benefits; modified funding arrangements (with a shift away from business taxation); and an increased emphasis on an active rather than a passive welfare system (29).

Post-Fordist Workfare States

The restructuring of the welfare state has been analyzed by some commentators as a shift from the Fordist system of Keynesian welfare state capitalism, which could afford and required a high level of public welfare expenditure, to a post-Fordist system of Schumpeterian workfare state capitalism in which high welfare expenditure is incompatible with the continuing needs of capital accumulation (20). Post-Fordist workfare states are characterized by decentralization and welfare pluralism, the promotion of labor market flexibility, supply-side economics, the subordination of social policy to the demands of the market, and a desire to minimize social expenditure (20, 28). As in the Fordist welfare states, there are variants on the post-Fordist model reflecting welfare state regimes and their differing policy responses to common challenges (28, 31).

RESEARCH HYPOTHESES

During these different phases of development, the welfare states of Europe have acted as greater (during the golden age) or lesser (during the pre-welfare state and post-Fordist periods) mediators of the impact of social determinants on health and health inequalities. We therefore suggest that educational inequalities in self-reported health will vary by welfare state experience (welfare state life course) both temporally, in terms of the different phases of welfare state development, and spatially, in terms of welfare state regime type. Specifically, we examine two interrelated hypotheses:

1. Patterns of educational inequalities in health will vary by age within welfare state regimes, being smaller among older people.
2. Patterns of educational inequalities in health will vary by age among welfare state regimes, being smallest among the older Scandinavian cohorts.

METHODS

The data are from the European Social Survey (ESS), from which we used the merged version of three waves (2002, 2004, and 2006) for 17 Western European countries. Data and extensive documentation from the ESS are freely available for downloading at the Norwegian Social Science Data Services website (www.nsd.uib.no). We included 85,514 individuals divided into six age groups (people born in the 1930s, 1940s, 1950s, 1960s, 1970s and 1980s, representing different welfare state life courses; see Table 1), after listwise deletion of cases from all applied variables. (See Table 2 for sample sizes and response rates within each country for all three years.)

We used two indicators of morbidity available in the ESS: self-reported general health (SRH) and limiting longstanding illness (LLI). Self-reported general health was constructed from a variable asking: "How is your health in general?" Eligible responses were "very good," "good," "fair," "bad," and "very bad." We dichotomized the variable into "very good or good" health versus "less than good" health ("fair," "bad," and "very bad"). For limiting longstanding illness, people

Table 1

Welfare state life course				
Age range of sample during periods of welfare state development, years				
Decade of birth	Pre-welfare (1930s, 1940s)	Golden age (1950s, 1960, 1970s)	Reform (1980s, 1990s)	Post-Fordist (2000s)
1930s	0–19	11–49	41–69	61+
1940s	0–9	1–39	31–59	51+
1950s	—	0–29	21–49	41+
1960s	—	0–19	11–39	31+
1970s	—	0–9	1–29	21+
1980s	—	—	0–9	11+

Table 2
Country statistics (N = 85,514)

Welfare regime	Country	Sample size (response rate, %)			Included sample (% missing) ^a	Years of education, average yrs (S.D.)	
		2002	2004	2006		Men	Women
Scandinavian	Denmark	1,506 (67.7)	1,487 (64.3)	1,505 (50.8)	4,056 (7.8)	13.46 (3.90)	13.20 (3.99)
	Finland	2,000 (73.2)	2,022 (70.7)	1,896 (64.4)	5,347 (9.2)	12.32 (3.67)	12.88 (3.86)
	Norway	2,036 (65.0)	1,760 (66.2)	1,750 (64.4)	5,108 (7.5)	13.47 (3.43)	13.52 (3.59)
	Sweden	1,999 (69.5)	1,948 (65.9)	1,927 (65.5)	5,298 (9.4)	12.46 (3.30)	12.69 (3.36)
Anglo-Saxon	Ireland	2,046 (64.5)	2,286 (59.7)	1,800 (N.A.)	5,377 (10.1)	12.83 (3.36)	13.05 (3.24)
	U.K.	2,052 (55.5)	1,897 (54.6)	2,394 (52.1)	5,705 (9.0)	13.11 (3.39)	12.98 (3.19)
Bismarckian	Austria	2,257 (60.4)	2,256 (62.4)	2,405 (N.A.)	6,285 (7.6)	12.58 (2.98)	12.22 (2.77)
	Belgium	1,899 (59.2)	1,778 (61.2)	1,798 (61.2)	4,914 (9.4)	12.45 (3.70)	12.30 (3.62)
	France	1,503 (43.1)	1,806 (43.6)	1,986 (46.0)	4,778 (8.2)	12.25 (3.88)	12.26 (3.85)
	Germany	2,919 (55.7)	2,870 (51.0)	2,916 (52.9)	7,808 (8.7)	13.54 (3.36)	12.75 (3.13)
	Luxembourg	1,552 (43.9)	1,635 (50.1)	N.A. (N.A.)	2,911 (6.0)	12.22 (4.08)	11.83 (4.07)
	Netherlands	2,364 (67.9)	1,881 (65.1)	1,889 (59.8)	5,692 (6.2)	13.36 (3.83)	12.55 (3.61)
	Switzerland	2,040 (33.5)	2,141 (48.6)	1,804 (50.0)	5,494 (7.8)	11.67 (3.65)	11.35 (3.33)
	Greece	2,566 (80.0)	2,406 (78.8)	N.A. (N.A.)	4,532 (8.7)	10.90 (4.43)	9.7 (4.40)
Southern	Italy	1,207 (43.7)	1,529 (59.3)	N.A. (N.A.)	2,500 (6.4)	11.51 (4.34)	10.95 (4.44)
	Portugal	1,511 (68.8)	2,052 (71.2)	2,222 (72.7)	5,216 (9.1)	8.14 (4.47)	7.37 (4.72)
	Spain	1,729 (53.2)	1,663 (59.7)	1,876 (66.2)	4,494 (9.4)	11.66 (5.20)	11.33 (5.29)

Note: N.A., not available.

^aSome cases are excluded from the analysis because they lie outside the chosen age-cohorts. These are not included in the "missing" indication.

were asked whether they were hampered in daily activities in any way by any longstanding illness or disability, infirmity, or mental health problem. Eligible responses were “yes a lot,” “yes to some extent,” and “no.” We dichotomized this variable into “yes” (regardless of whether to some extent or a lot) and “no.” Table 3 shows the sample size and prevalence of ill health for each age cohort within each welfare regime.

Education is a widely used indicator of socioeconomic position within the social sciences. It avoids interpretation problems, because it is less volatile than income and occupation (which are more influenced by health-related social mobility later in life) and social mobility. The association between socioeconomic position and poor health is well established, and education has additional specific influences through increasing knowledge and skills that may affect cognitive function, make individuals more receptive to health education messages, and/or make them more able to communicate with and access health services (32). In meritocratic societies, education is a fundamental indicator of people’s position in society, because it is an important contributor to later occupation and income (33, 34).

The measure of education was based on a variable describing full-time education in years. However, as Table 2 shows, average years of education varies among European countries and is especially low in the Southern countries. In comparative studies, it is thus important to take into account the extent of variation of reported years of education in different countries. We did this by applying a *total impact* measure of education. First, for each country separately, we standardized the continuous variables of educational attainment such that the national average was equal to 0 and the standard deviation equal to 1 year of education (0.2% of the respondents with 26 to 40 years of education were excluded from the analysis). This was done separately for each age cohort within each country, for men and women separately. Second, we inverted this variable by multiplying it by -1 , such that higher values correspond to lower educational levels. Next, the standardized variable was introduced as an independent variable in a logistic regression analysis, controlled for age and ESS-round, with health variables as the dependent variable. Finally, odds ratios (ORs) were computed as the antilogarithm of the estimated logistic regression coefficients. The OR should be interpreted as the health difference between people with average years of education and those with years of education one standard deviation below the national average. ORs of poor self-rated health and limiting longstanding illness are presented for men and women in six age groups within each of the four welfare state regimes.

A weight was applied in all analyses to correct for design effects due to sampling design in countries where not all individuals in the population have an identical selection probability. All analyses were done for men and women separately.

Table 3

Sample size (N) and prevalence of poor self-rated health (SRH) and limiting long-standing illness (LLI) in four welfare regimes and six age cohorts for men and women separately (N = 85,514)

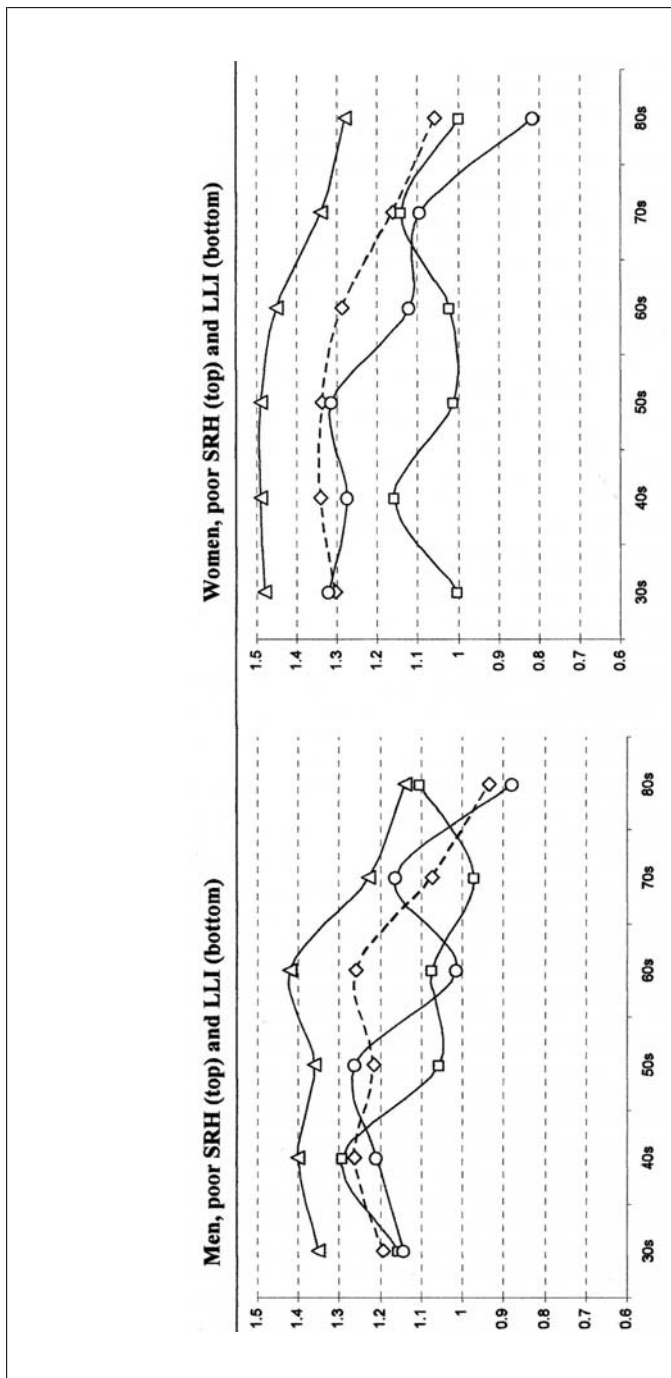
Age group, decade of birth	Welfare regime	Men			Women		
		N	SRH	LLI	N	SRH	LLI
1930s	Scandinavian	1,118	41.1	38.6	1,155	51.0	41.3
	Anglo-Saxon	620	31.9	34.5	612	37.4	33.3
	Southern	1,103	57.9	29.6	1,287	72.6	41.7
	Bismarckian	1,983	41.8	36.1	2,060	51.4	40.2
1940s	Scandinavian	1,854	34.7	32.5	1,838	38.8	35.5
	Anglo-Saxon	899	31.0	29.1	992	28.1	28.5
	Southern	1,111	43.0	16.5	1,429	59.2	26.8
	Bismarckian	2,936	35.3	28.7	3,007	39.1	30.4
1950s	Scandinavian	1,894	24.9	23.0	1,865	26.5	29.8
	Anglo-Saxon	903	20.2	20.4	1,118	20.6	18.9
	Southern	1,296	33.5	11.8	1,671	43.3	15.4
	Bismarckian	3,618	26.8	21.4	3,929	29.7	23.9
1960s	Scandinavian	2,021	17.5	18.9	1,966	17.1	21.6
	Anglo-Saxon	1,006	15.2	14.2	1,262	15.1	13.1
	Southern	1,373	20.7	7.3	1,874	31.1	10.4
	Bismarckian	3,822	19.6	14.9	4,787	21.5	15.8
1970s	Scandinavian	1,716	13.7	14.2	1,648	12.2	15.8
	Anglo-Saxon	845	12.3	9.7	992	12.5	10.8
	Southern	2,764	14.8	4.6	1,652	22.0	6.0
	Bismarckian	1,931	14.2	10.4	3,019	18.1	12.1
1980s	Scandinavian	1,411	12.0	13.3	1,323	13.9	17.0
	Anglo-Saxon	876	13.1	8.3	955	8.7	6.2
	Southern	1,287	11.9	3.8	1,204	13.9	4.5
	Bismarckian	3,057	11.8	9.5	2,900	15.7	10.1

RESULTS

Figure 1 presents odds ratios (y axes) for reporting poor self-assessed health and limiting longstanding illness according to educational attainment in four welfare state regimes. Odds ratios are given for men and women separately within six different age groups (x axes). Exact ORs are given in Appendix Tables I and II (pp. 416–417). The results are presented in line with our two research hypotheses.

Our first research hypothesis, that patterns of educational inequalities in health will vary by age within welfare state regimes, being smaller among older people, does not seem to be supported by the results shown in Figure 1. The ORs seem to decrease in all regimes by age (from left to right), and they are smallest among the youngest age cohort (those born in the 1980s). However, to further clarify these findings, we have also estimated correlation coefficients (by correlating ORs with one unit increase of age groups) for all regimes (see Table 4). Negative associations are evident in all regimes for men and women for both health indicators, although far from all are significant. The summary measure of Table 4 shows that the associations of ORs and age are strongest in the Southern regime ($r = -0.72$), intermediate in the Bismarckian ($r = -0.48$) and Scandinavian ($r = -0.45$), and weakest in the Anglo-Saxon ($r = -0.23$). We should add, however, that some of the observed lines in Figure 1 (e.g., for ORs of LLI in Scandinavian and Anglo-Saxon regimes) seem to be curvilinear, increasing from the left and then decreasing again (even more) to the right. In any case, the overall picture seems to be that health inequalities increase by age group.

The second research hypothesis, that patterns of educational inequalities in health will vary by age between welfare state regimes, being smallest among the older Scandinavian cohort, is correct in the first part. There is some patterning of educational inequalities by welfare state regime: inequalities in SRH and LLI tend to be smallest in either the Southern or Bismarckian regimes (with the exception of the 1940s cohorts) and highest in the Scandinavian (with the exception of LLI for the 1940s male cohort and the 1930s and 1940s female cohort). The second part of the hypothesis, that ORs will be smallest among the older Scandinavian cohort, is not supported by our results; on the contrary, health inequalities are relatively large within this group, both for men ($OR_{LLI} = 1.30$, $OR_{SRH} = 1.35$) and women ($OR_{LLI} = 1.19$, $OR_{SRH} = 1.48$). The group with the smallest inequalities in SRH is the youngest (1980s) Southern regime cohort (men, $OR = 1.04$; women, $OR = 0.97$), and for LLI they are smallest among the 1980s female cohort in the Southern regime ($OR = 0.90$) and the 1980s male cohort in the Bismarckian regime ($OR = 1.00$). The ORs among older Scandinavians are therefore not consistently lower than those for younger Scandinavian age groups, nor are they lower than in other European age groups.



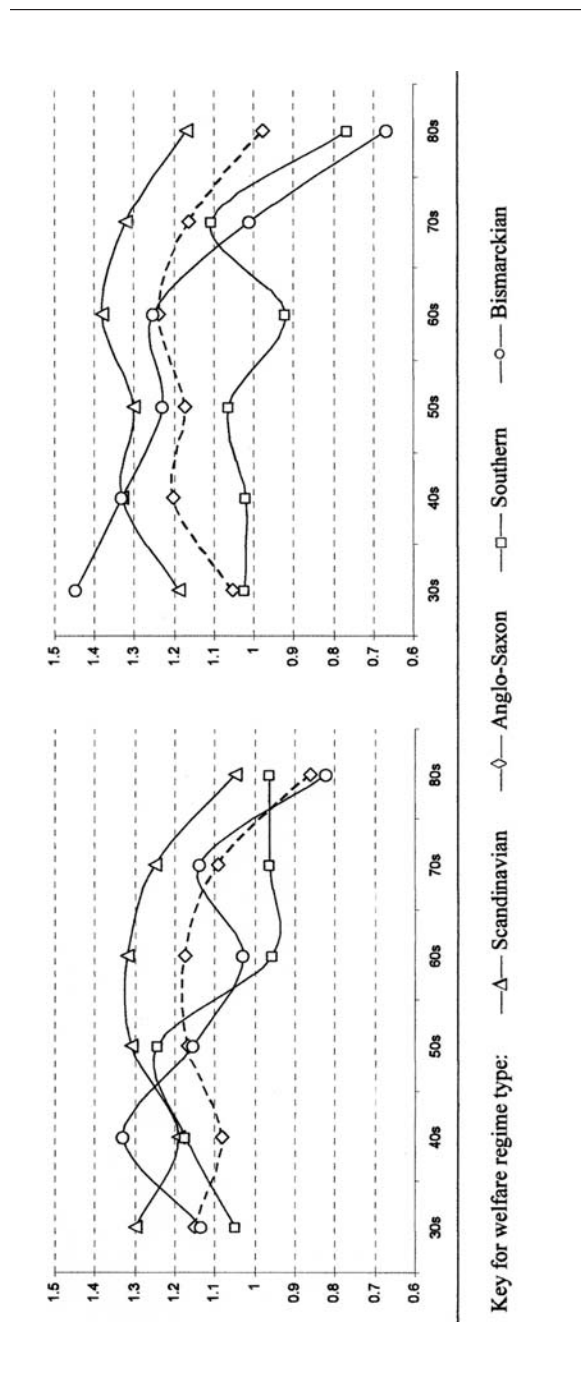


Figure 1. Odds ratios (y axes) and age groups (x axes) for men and women reporting poor self-rated health (SRH) and limiting longstanding illness (LLI) according to education, in Scandinavian, Anglo-Saxon, Southern, and Bismarckian welfare regimes.

Table 4

Correlations between odds ratios of poor self-rated health (SRH) and limiting longstanding illness (LLI) and (one unit increase of) age groups, for men and women separately

Welfare regime	Correlation coefficients (Pearson's <i>r</i>)				Summary by regime
	Poor SRH		LLI		
	Men	Women	Men	Women	
Scandinavian	-0.74*	-0.89**	-0.55	-0.33	-0.45**
Anglo-Saxon	-0.52	-0.29	-0.39	-0.29	-0.23
Southern	-0.58	-0.92***	-0.49	-0.92***	-0.72***
Bismarckian	-0.51	-0.57	-0.73*	-0.17	-0.48**

Note: Age cohorts are given values from 1 (born in the 1930s) to 6 (born in the 1980s) in the correlation analyses.

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.10$

DISCUSSION

The results do not entirely support our two research hypotheses. For the first hypothesis, although patterns of educational inequalities in health did vary a little by age within welfare state regimes, they were not smaller among older people. The extent of age-related differences in the magnitude of health inequalities varied by welfare state regime, as, for example, age was more associated with patterns of health inequalities in the Southern regime than in the others. There were particularly notable decreases in inequalities in health among the younger groups in the Southern countries—perhaps reflecting the beneficial effects of the shift away from dictatorship (4). Overall, however, health inequalities tended to increase with age—not decrease as predicted by our hypothesis. This is counterintuitive from a welfare state development perspective, as the older cohorts experienced stronger and more redistributive welfare state contexts (with the exception of those in Southern regime countries). However, the finding is in keeping with those of a recent longitudinal study of self-rated health, which found that social inequalities in health widened with age in all four welfare states under study (United States, Britain, Germany, and Denmark) (19). That study also noted that educational health inequalities were not apparent until people were over 25 years of age, which is similar to our finding that health inequalities are smallest among the youngest age group (born in the 1980s). This may be because

ill health is a rarer event in all social classes at younger ages. Furthermore, the higher levels of decommodification provided by the older welfare states would have affected income inequalities through redistribution, but this may not affect inequalities in health in the same way—as Dahl and coauthors (16) comment, it is more difficult to redistribute health than income. Finally, the older groups experienced the better welfare state provision in earlier periods of their lives, whereas now (when health outcomes are being measured), perhaps when these older people are most in need, they experience the reformed, less generous, welfare state provision.

Similarly, with our second hypothesis, although patterns of educational inequalities in health varied by age among welfare state regimes, they were not smallest for the Scandinavian regime or among the older Scandinavian cohorts. This hypothesis was developed by a desire to assess the consistency, across different age groups, of the finding that health inequalities are not lowest in the Scandinavian countries. In this respect, our findings are in keeping with the broader literature, as the Bismarckian and Southern regimes fairly consistently exhibited smaller educational inequalities in health across most age groups and among both men and women. Various studies of self-rated health and mortality have come to the same conclusion (10–12, 14). Our results, therefore, like those in earlier studies, are very challenging in terms of theorizing the relationship between welfare state inputs and health inequalities outputs. Speculative reasons for the relative underperformance of the Scandinavian model in the area of health inequalities (as opposed to overall population health) have been suggested elsewhere (18, 34–36). These include artifact (the results are not real but due to the measures used in the studies), health selection (the social consequences of ill health are greater in the Scandinavian countries), health behaviors (socioeconomic inequalities in smoking are much higher in the Scandinavian countries than in other welfare state regimes), health care services (tentative evidence suggests that inequalities in mortality as a result of diseases amenable to medical intervention are higher in the Scandinavian countries), or relative deprivation (the health effects of relative deprivation may be more extensive in the Scandinavian welfare states, because these regimes generate, but do not meet, high levels of expectation of upward social mobility and prosperity) (18, 34–37).

These explanations, coupled with our results, suggest that there is a need to integrate details about other, more conventionally analyzed, public health influences (such as smoking rates, health care provision) into the welfare state regime approach—termed elsewhere “public health regimes” (38, 39). The welfare state regime concept has many uses in untangling the complexities of comparing different countries and systems. However, it is perhaps rather limited for getting down to the minute details of how and why inequalities in health are generated (18). Thus there is a need to make more precise

comparisons among the different welfare state life courses of groups in particular welfare states (and welfare state regimes) (15). For example, a detailed case study could be made that compares the average welfare state life course experiences of different educational and age groups in the United Kingdom with those of the same groups in Sweden. Finally, there is a clear need for better—longitudinal—data to comprehensively assess our hypotheses.

Limitations of the Study

1. Longitudinal data suitable for studying the effects of welfare state regime life courses on health inequalities are now being collected (e.g., the Survey of Health, Ageing and Retirement in Europe, wave 3), but they are not yet available. We attempted to overcome this lack of data by examining health inequalities in different age cohorts, using cross-sectional cross-national data. We are justified in this approach by the age-structuring of the life course, especially pertaining to education (23). However, the study is subject to the usual limitations of this study design, and longitudinal data would be much preferred.

2. Although a growing number of studies have shown that the measure of self-assessed health is strongly correlated with more objective measures such as mortality (40, 41), we cannot exclude the possibility of a substantial, additional effect of cultural differences.

3. The European Social Survey presents an outstanding opportunity to investigate cross-national patterns of health inequality among age groups, as the survey asks the same questions in all countries. But we acknowledge that many issues may affect the comparability of multi-country studies, such as non-response (see Table 2), modes of data collection, translations, and conduct of the study. This applies especially to the first wave in Switzerland, which had a response rate of only 33.5 percent. If non-response is related to health and education, then this would produce biased inequality measures. Another methodological issue is that our sample comes from three sweeps of the ESS.

4. As noted earlier, the concept of welfare state regimes and their development is itself rather limiting, as it places very generalized and broad parameters around how welfare states evolve over time. The four phases and associated time periods used in our study are therefore very approximate, and there are clear differences both between and within regimes in terms of the time periods when welfare states developed. For example, Sweden did not do any restructuring until the 1990s recession, whereas the reform period in the United Kingdom started in the early 1980s. The Southern regime countries (with the exception

of Italy) also had a different developmental trajectory, with dictatorships that lasted until the 1970s. Similarly, there are within-regime differences, as Finland's welfare state developed much later than that of the other Scandinavian countries.

5. The choice of welfare state typology may well have influenced the results. There are various welfare state typologies in circulation, which configure the composition of the regimes in different ways. Most notably for this study, the Navarro and Shi typology (42) has a more concisely defined Southern (late democracy) welfare state regime, which excludes Italy. If a different welfare state typology were used, our results might have been different. However, the Ferrera typology (26) is well-tested in health research and has been assessed as the most empirically accurate.

6. We have used education as our measure of socioeconomic inequalities. This was done because education is seen as a less volatile measure than income or occupation (32). However, as many epidemiological studies have shown, the extent of health inequalities can sometimes depend on how they are measured (32). This has also been demonstrated in studies of health inequalities by welfare state regime that use income as the indicator of inequality, which produce slightly different country and welfare state regime patterning than the education measure (12, 14). We therefore acknowledge that a different indicator of socioeconomic status might change our results.

CONCLUSION

This is the first study to examine health inequalities by age and welfare state regime across Western Europe. Like many previous studies of health inequalities by welfare state regime, the findings are in contrast to theoretical expectations, as the Scandinavian countries did not have the smallest inequalities. This may be because the welfare state regime concept is too broad, or because it ignores the influence on health inequalities of other important public health factors (such as health care provision and smoking rates). Public health regimes may therefore be a more productive way forward in terms of analyzing cross-national variations in health inequalities. The article has also outlined a new concept—that of welfare state life courses—and this is something that can be further developed theoretically and examined in more detail empirically. This, perhaps, could best be done by looking in more detail at how institutional settings shape the life course and health outcomes in the welfare states of just one welfare state regime type, preferably using longitudinal data. To develop the concept and assess its value for public health research, more precise empirical comparisons are needed than can be offered by this exploratory ecological overview.

APPENDIX TABLE I

Odds ratios (95% confidence interval) of reporting poor self-rated health according to education within four welfare regimes and six age groups, for men and women separately (N = 85,514)

Age group, decade of birth	Welfare regime	Men	Women
1930s	Scandinavian	1.35 (1.19–1.53)	1.48 (1.30–1.68)
	Anglo-Saxon	1.40 (1.16–1.69)	1.19 (1.00–1.41)
	Southern	1.29 (1.14–1.46)	1.49 (1.32–1.68)
	Bismarckian	1.28 (1.16–1.40)	1.28 (1.17–1.40)
1940s	Scandinavian	1.40 (1.26–1.55)	1.49 (1.34–1.65)
	Anglo-Saxon	1.52 (1.29–1.78)	1.35 (1.16–1.57)
	Southern	1.37 (1.21–1.55)	1.42 (1.27–1.59)
	Bismarckian	1.28 (1.18–1.38)	1.22 (1.13–1.31)
1950s	Scandinavian	1.36 (1.22–1.51)	1.49 (1.34–1.67)
	Anglo-Saxon	1.25 (1.06–1.48)	1.17 (1.01–1.36)
	Southern	1.43 (1.26–1.62)	1.46 (1.31–1.62)
	Bismarckian	1.25 (1.16–1.35)	1.33 (1.23–1.43)
1960s	Scandinavian	1.42 (1.26–1.61)	1.45 (1.29–1.64)
	Anglo-Saxon	1.29 (1.07–1.55)	1.20 (1.02–1.40)
	Southern	1.16 (1.01–1.33)	1.24 (1.12–1.38)
	Bismarckian	1.32 (1.21–1.43)	1.33 (1.23–1.43)
1970s	Scandinavian	1.23 (1.07–1.41)	1.34 (1.16–1.54)
	Anglo-Saxon	1.20 (0.97–1.48)	1.39 (1.14–1.68)
	Southern	1.35 (1.16–1.57)	1.23 (1.10–1.39)
	Bismarckian	1.32 (1.18–1.47)	1.23 (1.12–1.35)
1980s	Scandinavian	1.14 (0.93–1.39)	1.28 (1.06–1.54)
	Anglo-Saxon	1.36 (1.10–1.69)	1.26 (1.00–1.58)
	Southern	1.04 (0.88–1.23)	0.97 (0.81–1.15)
	Bismarckian	1.05 (0.92–1.18)	1.05 (0.93–1.18)

Note: Bold indicates significant differences by education ($p < 0.05$).

APPENDIX TABLE II

Odds ratios (95% confidence interval) of reporting *limiting longstanding illness* according to education within four welfare regimes and six age groups, for men and women separately (N = 85,514)

Age group, decade of birth	Welfare regime	Men	Women
1930s	Scandinavian	1.30 (1.15–1.48)	1.19 (1.05–1.35)
	Anglo-Saxon	1.25 (1.05–1.49)	1.22 (1.02–1.46)
	Southern	1.31 (1.13–1.50)	1.65 (1.45–1.89)
	Bismarckian	1.19 (1.08–1.30)	1.16 (1.06–1.27)
1940s	Scandinavian	1.19 (1.08–1.32)	1.33 (1.20–1.47)
	Anglo-Saxon	1.37 (1.17–1.61)	1.18 (1.02–1.36)
	Southern	1.61 (1.33–1.95)	1.54 (1.33–1.77)
	Bismarckian	1.27 (1.16–1.38)	1.10 (1.01–1.19)
1950s	Scandinavian	1.31 (1.17–1.46)	1.30 (1.17–1.44)
	Anglo-Saxon	1.48 (1.24–1.76)	1.24 (1.06–1.45)
	Southern	1.39 (1.15–1.68)	1.43 (1.23–1.66)
	Bismarckian	1.30 (1.19–1.41)	1.25 (1.16–1.35)
1960s	Scandinavian	1.32 (1.17–1.48)	1.38 (1.24–1.54)
	Anglo-Saxon	1.15 (0.96–1.38)	1.09 (0.92–1.29)
	Southern	1.27 (1.03–1.58)	1.47 (1.25–1.73)
	Bismarckian	1.16 (1.06–1.27)	1.22 (1.12–1.32)
1970s	Scandinavian	1.25 (1.09–1.43)	1.32 (1.16–1.51)
	Anglo-Saxon	1.22 (0.96–1.54)	1.36 (1.11–1.67)
	Southern	1.47 (1.14–1.89)	1.24 (1.01–1.52)
	Bismarckian	1.15 (1.02–1.30)	1.20 (1.08–1.34)
1980s	Scandinavian	1.05 (0.86–1.29)	1.17 (0.98–1.40)
	Anglo-Saxon	1.23 (0.96–1.57)	1.01 (0.76–1.35)
	Southern	1.10 (0.82–1.46)	0.90 (0.67–1.21)
	Bismarckian	1.00 (0.87–1.15)	1.06 (0.93–1.22)

Note: Bold indicates significant differences by education ($p < 0.05$).

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