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The health of European populations: introduction to the special supplement on the 2014 European Social Survey (ESS) rotating module on the social determinants of health.

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Introduction

This supplement of the *European Journal of Public Health* presents results from the first analyses of a new source of data on the health of European populations: the *European Social Survey* (ESS) rotating module on the social determinants of health. The ESS health module represents a major step forward for cross-national comparisons of social inequalities in health, because it includes representative samples from 20 European nations and Israel, and a wide range of health (including non-communicable diseases - NCDs), healthcare utilization, and social and behavioural determinant measures. Unlike other sources of data on the health of European populations, such as the Survey of Health and Retirement (SHARE) or mortality data covering only one city or region, the ESS health data are nationally representative samples of the adult population in 21 countries. The ESS data thus allow for a more comprehensive assessment of health inequalities across Europe than was possible before.¹

The authors of the 16 articles that constitute this supplement use the new ESS data to address one of the most pressing questions about the distribution of health across European populations: how and why do social inequalities in self-reported health and NCDs vary across European welfare states? This question is one that motivates the Norface-funded *Health Inequalities in European Welfare States (HiNEWS)* project, with which the contributors to this *EJPH* supplement are affiliated. In the remainder of this introductory article, we describe the approach of the HiNEWS project. Next, we turn to highlight the most important findings from the articles in this special issue. Finally, we conclude with a discussion of the limitations of the ESS data and considerations for future directions.

The Health Inequalities in European Welfare States (HiNEWS) Approach

The HiNEWS project has developed a theoretical approach that focuses on institutional arrangements as macro-level causes of social inequalities in health². The first distinctive feature of this approach is its radical macroscopic turn toward social forces outside the individual – so-called “upstream” factors, or “causes of causes” – that result in cross-national variation in the patterning of health inequalities. We are aware that this goes against the grain of much current research on health inequalities, which focuses in large part on individual behaviours. Whilst the ESS health module includes a wide array of measures of health behaviors, our focus is not on the behaviors themselves, but rather the potential causes of inequalities in such behaviours at the social and institutional level.

The 16 articles that constitute this supplement to the *EJPH* share this general approach to inequalities in self-rated health and NCDs, where the aim of the analysis is to describe the cross-national variation in the socially structured experience of different health determinants and outcomes. In other words, the articles describe cross-national inequalities in health determinants and health inequalities. Our approach is strongly informed by Whitehead’s work on health inequalities, which can be defined as socially structured (e.g. by social class, gender, sexuality, and ethnicity) differences between people

in the experience of health and illness that are unnecessary, avoidable, unfair, and unjust³. We use the phrase ‘social inequality in health and health care’ to mean inequality between one socially-defined category of people versus another. We take an intersectional approach to social inequalities in health and health care, looking at socioeconomic status (occupation, education, income), gender, age, geographical location, migrant status - and their interactions. Attending to qualitatively distinct social positions in divergent institutional contexts is essential for the description of health inequalities, because our approach argues social positions have health effects insofar as they are institutionally embedded.

The articles in this supplement also share an analytical approach that facilitates the comparison of results across articles. Because they use the same dataset, the same measures of key variables, and the same estimation techniques, the articles produce estimates of health and healthcare inequalities that can be compared cross-nationally, and thus form the basis for a later step in the project, which will use these and other estimates as social facts to be explained. That later step in the project will use state-of-the-art welfare-state measures to explain the vast cross-national heterogeneity in health and healthcare inequalities described in the articles that follow.

Perhaps the most consequential analytical choices are the measurement of health and healthcare on one hand, and the measures of social inequality on the other. To measure health and healthcare at the individual level, all authors employ binary measures to quantify the presence/absence of: (1) access to healthcare, (2) risky behaviors related to smoking, alcohol use, lack of physical activity, and lack of fruit and vegetable consumption, (3) broader social determinants of health related to occupational factors and living conditions (4) specific non communicable diseases related to heart/circulatory problems, high blood pressure, back/neck pain, arm/hand pain, foot/leg pain, allergies, breathing problems, stomach/digestion problems, skin conditions, diabetes, severe headaches, cancer, obesity, and depression, (5) poor quality of life, and (6) good vs. less-than-good general self-rated health.

The inequality measures are based on comparisons of rates of health and illness that are experienced by more-advantaged social groups vs. less-advantaged social groups. Each article that reports inequality by educational attainment uses the same measure, viz. the International Standard Classification of Educational Degrees (ISCED-3) three-category scheme that distinguishes primary, secondary, and tertiary degrees. Each article that reports inequality by age uses the same five-year age groups. Each article that reports inequality by sex uses the same ESS item that asks the interviewer to identify the respondent’s sex; thus our measure is best interpreted as a measure of gender. Migrant status is identified by self-report country-of-origin information, and is coded as new (≤ 10 years in host country), first generation (> 10 years in host country), and second generation (respondent is child of migrant parents). Occupational class is identified based on the International Standard Classification of Occupations (ISCO-88) combined with the Erikson-Goldthorpe-Portocarero class scheme⁴.

Each article thus presents age-standardized relative rates and rate differences generated from binary logistic regression models estimated using, wherever possible, identical analytical samples. Most articles also present both relative and absolute measures of social inequality in health or healthcare. Wherever possible, inequalities are

quantified as differences in predicted probabilities (also known as marginal effects), to avoid the well-known problems of comparing odds ratios across models^{5, 6}.

Highlights

In this section we highlight the most important results from the perspectives of the dominant biomedical, behavioral, psychosocial, and materialist perspectives on social inequality in health.

The first theme across several articles is the documentation of cross-national variability in the magnitude and patterning of health inequalities. For instance, the second article, by Huijts et al.⁷, shows that chronic conditions are prevalent in European countries, at rates that vary from 45% of the population to 92% of the population, even after age adjustment. Moreover, gender differences in the experience of NCDs are themselves highly variable across national contexts, lending *prima facie* support to the “constrained choices” approach developed to explain cross-national variation in gender-based health inequality⁸. The third article, by Thomson et al.⁹, shifts from gender to geography and reveals high heterogeneity in the distribution of NCDs across the sub-regions of European countries. A key result from this paper goes against the “Nordic paradox” of large health inequalities in universalistic welfare states, finding instead the lowest levels of absolute and relative inequalities in NCDs in Denmark, Norway and Sweden. As important, the extent of place-based inequalities itself varies substantially across European nations, and is especially large in Germany, a federation of states with substantial autonomy in the design of social and healthcare policy. The fourth article, by McNamara et al.¹⁰, is the first to document, for several NCDs and representative samples of European populations, significant cross-national heterogeneity in education-based inequalities in the experience of NCDs. For the same set of NCDs, along with self-rated health, the fifth article, by McNamara et al.¹¹, documents significant regional heterogeneity in occupation-based inequalities. This work finds different patterns of inequalities between Northern, North-Western, Southern, Eastern and Western European regions for different health outcomes. For example, inequalities in some NCDs were found to be the largest in the Northern region, suggesting further evidence of a Nordic paradox. However, results do not align completely with previous work which finds smaller health inequalities in Southern Europe. In comparing educational and occupational inequalities across countries and regions, the observed magnitude and variation of inequalities was found to be dependent on the social marker applied. The sixth article, by Toch-Marquardt¹², demonstrates that the magnitude of occupational health inequalities varies not only by the gender of the respondent, but also by the source of survey data. These variations should be taken into account in comparative analysis of inequalities in health. The seventh article, by La Parra et al.¹³, is one of the first to examine migrant health across Europe and finds strong support for a “healthy migrant effect.” However, this health advantage was found to deteriorate rapidly among new migrants, calling into question the effectiveness of past social inclusion policies in Western Europe. The eighth article by Reibling et al.¹⁴, finds that while depressive feelings have decreased overall between 2006 and 2014, patterns of health inequalities have changed in diverse ways with respect to different social groups. For example, while mental health

differences between the employed and the unemployed/precariously employed were found to have remained stable between 2006 and 2014, differences between the employed and the inactive were found to have risen.

The second theme across articles relates to the extent to which health determinants both vary across populations and in their contribution to health inequalities. Health determinants examined across the articles included in this supplement relate to health behaviors, healthcare, and broader social determinants. In terms of health behaviors, the ninth article, by Huijts et al.¹⁵, demonstrates that although there are strong relationships between health behaviors and measures of physical and mental health in representative samples of several European nations, the patterns of exposure to these behavioral risks vary substantially cross-nationally, as do their effects. This article thus casts doubt on the argument that the “health penalty” of unhealthy behavior is a biological constant, and instead shows how such penalties are institutionally patterned (for more on cross-national variation in “prevalences and penalties,” see¹⁶). Thus, the mediating role of health behaviors in translating socioeconomic status inequality into health inequality is a structural variable, not a biological constant. Likewise, the tenth article, by Huijts et al.¹⁷, examines engagement in risky behavior – measured as excessive alcohol consumption, smoking, and avoiding fruits and vegetables – and finds that better-educated people adhere to a healthier lifestyle than less-educated people, with the exception of alcohol consumption. Once again the results cast serious doubt on the argument that risky health behavior is a constant and universal mediator between socioeconomic status inequality and health inequalities. Instead, the results show substantial cross-national variation in not only the prevalence of risky behavior, but also in the extent to which educational groups differ in their risky health behavior.

A key result from articles examining determinants related to healthcare is that even though health care coverage is universal in many European welfare states, the distribution of access varies by social group. For example, the eleventh article in the supplement, by Fjaer et al.¹⁸, undertakes a cross-national examination of inequalities in general practitioner and health care specialist use. This work finds that people from higher socioeconomic groups are more frequent users of health care specialists, even for the same level of need as lower status groups. The authors draw on fundamental cause theory¹⁹ and hypothesize that this is because higher socioeconomic groups have more flexible resources that can help them access specialized care to a greater extent than lower socioeconomic groups. The twelfth article, by Fjaer et al.²⁰, finds that unmet need, a subjective measure of access to health care, is greater among females, older populations, those living in rural areas, and among those with financial strain. A final healthcare related study by Verbakel et al.²¹, examines what is known as the “hidden health care system” and finds that, against the background of a rising demand for informal care in European societies, caregiving was most prevalent among women, 50-59 year olds, non-employed - especially those doing housework - and religious persons. Further, caregivers, especially female and intensive caregivers, were found to report lower mental well-being than non-caregivers.

A key result from articles which examine broader social determinants of health is that the contribution these determinants make to health and health inequalities depends to a large extent on the social group, country and health outcome under consideration. For

instance, the fourteenth article, by Bøe et al.²², finds that while financial difficulties in childhood are influential predictors of mental health in young adults, the magnitude of associated risk varies by country and patterns of risk factors contributing to adult depression are different for older populations. The fifteenth study by McNamara et al.²³ finds that adjusting for poor housing and neighborhood quality reduces inequalities in NCDs, to different degrees for different health conditions. While reductions were relatively small for some NCDs, for others reductions were more considerable. Controlling for both housing and neighborhood conditions for example, reduced inequalities by 16-24% for severe headaches and 14-30% for breathing problems. The sixteenth article by Balaj et al.²⁴ cross-nationally compares the contribution of behavioral, occupational and living conditions in explaining educational inequalities in self-rated health. Occupational determinants and living conditions were found to explain the largest share of educational inequalities in most of the countries, and relative inequalities were either substantially reduced or became insignificant when a combination of determinants was considered. The observation that behavioral factors were less important in explaining health inequalities in most countries, compared to occupational factors and living conditions, underlines that the prevalence of risky health behavior alone is insufficient to explain why higher educational groups report better health than lower educational groups.

The third main theme crosscutting several of the articles in the supplement is that the *effects* of NCDs are distributed unevenly across social groups, and those inequalities themselves are unevenly distributed across national populations. The article titled “Subjective perceptions of unmet need for health care in Europe among social groups” finds that unmet need is higher among those with poorer health status. The final paper in the supplement, by Ringdal and Ringdal²⁵, documents this cross-national variation using the experience of cancer as a case. The key insight here is that even an illness as serious as cancer varies strongly in its effects on quality of life, with people in some countries suffering much worse than others. Notably, the broad, three-category welfare-state classification does not seem to explain the cross-national variation that exists in the extent to which cancer undermines quality of life. We note that several of the articles highlighted in the above sections also support a “variable-penalty” approach to NCDs, since the cross-sectional data in the ESS do not allow for a rigorous assessment of causal direction.

Strength and Limitations of the European Social Survey Health Data

A strength of the ESS data is its nationally representative sampling design. With representative samples of the adult populations of all the major Western European countries and also some Central and Eastern European countries, the ESS enables analysts to draw inferences to national adult populations. Such representativeness permits evaluation of the generalizability of results of non-nationally-representative datasets, e.g. clinical samples, cohort studies, age-group-specific datasets like the SHARE, and urban or regional mortality registers.

A further strength of the ESS health module specifically is the coverage of a range of health behaviors and health statuses through a more comprehensive list of questionnaire items than is available in other nationally-representative samples. This is an important

feature because it allows analysts to combine rich, individual-level health data with state-of-the-art measures of socioeconomic position. Moreover, the ESS has included a wide array of questions about attitudes and behavior outside the health domain, which opens a number of new opportunities for the investigation of social-epidemiological hypotheses. For instance, the ESS allows a far more comprehensive assessment of inequality in the social determinants of health, and cross-national differences in their health effects, than has been possible to date.

The ESS also has limitations, including a reliance on self-report data (as in most behavioral and attitudinal surveys). That is, the ESS does not include medical professionals' biometric measures; nor does it include physician diagnoses. Second, the samples are not designed for subnational geographic analysis. Third, the sample sizes, all in the 1,000-2,000 range, do not allow for the analysis of health inequalities that may apply to small-sized minority groups. Fourth, the response rates vary significantly across countries. Fifth, the ESS is designed as a cross-sectional study of national adult populations, and cannot be used to investigate within-person changes over time¹.

Discussion

The papers in this supplement set the foundation for an explanation of cross-national and cross-regional variation in health and healthcare inequalities in Europe. In many cases, the most surprising results are those that cast doubt on arguments that risky behavior is the main driver of associations between socioeconomic status and health inequality. We interpret these results as an invitation to further analysis of how institutional arrangements – politics and policies that organize the distribution of resources – might matter for health and healthcare inequalities above and beyond the usual individual biological and behavioral factors.

Such analysis would address a major shortcoming of all the papers included here: they do not measure directly the relationship between the individual and the welfare state, in either its symbolic or its material aspects. That is, the analyses reported here do not use ESS items on the respondents' evaluation of the proper roles of the welfare state, or their own perceptions of exclusion or inclusion. Nor do the analyses include measures of respondents' use of social policy instruments (apart from healthcare itself). Moreover, while the analyses reported in the articles highlight substantial cross-national and cross-regional variation that *may* be associated with institutional arrangements of welfare states, future work will need to include in models fine-grained measures of social policy design, like those employed by Dahl and Van der Wel²⁶ for social expenditures, and Ferrarini et al.²⁷ for institutional design. Finally, while the analyses here do distinguish between diseases with different etiologic periods, and also include measurement of respondent recall of childhood conditions, the life-course information available in a cross-sectional survey like the ESS is necessarily quite limited.

How would macro-level political-economic factors like social expenditure and the design of social insurance systems be expected to account for the cross-national variation in health/healthcare inequalities identified in this EJPH supplement? Our institutional theory² identifies several processes that may explain the connections. The first process is

redistribution, common in welfare states, accomplished via fiscal policies that transfer resources among legislatively defined categories of people. The second process is *compression*, or change in the distribution of a social determinant of health. For instance, minimum-wage policies set floors for the wage distribution, and fiscal policies set ceilings. The third process is *mediation*, whereby policies determine whether and to what extent the social determinants of health are necessary for health. For instance, healthcare as a citizenship right should reduce the extent to which household income and education matter for access to healthcare. The fourth process, *imbrication*, or overlap, represents the institutional complementarity of policies across domains. For instance, conservative welfare states like France and Germany deliver a high level of social insurance to some but not all groups, which are themselves defined by family and occupational types. Institutions likely also play a role in health *selection*, which probably varies to a largely unknown degree across welfare states.

As research in this new field of cross-national comparative work on health inequality moves forward, then, it confronts several substantial but surmountable obstacles. The first is the proper measurement of the possible institutional exposures that distribute population health. Fortunately, several candidate datasets are available, including the Comparative Welfare State Dataset²⁸ (Huber et al. 2004), the Social Citizenship Indicators Program²⁹, the Social Policy Indicators³⁰, and the Quality of Government program³¹. The second is to consider the possibility of institutional experiences and effects that vary across the life course, and yield sensitive-period, accumulative, and lagged effects, as in the effects of economic recessions^{32, 33}. These are just two of many lines of inquiry opened by cross-national investigations of health inequalities such as those appearing in this supplement to the *EJPH*.

Conclusion

This special supplement on the social determinants of health module of the European social survey offers a first wave of analysis of this new, novel, pan-European, comparable dataset. It has documented the extent of cross national variability in the magnitude of health inequalities in Europe, looking at the patterning of health behaviours, the social determinants of health as well as access to healthcare. The supplement suggests that conventional models of explaining the variation of health inequalities in Europe may be limited and future research should explore new avenues such as those offered by taking a more institutional approach.

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