

ESS Round 11 Question Module Design Template¹

Module Title: Social inequalities in health and their determinants

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Contents

SECTION A: Theoretical background	4
<i>Theoretical/conceptual approach</i>	6
SECTION B. Brief description of all the concepts to be measured in the module and their expected relationships, either verbally or diagrammatically.....	17
COMPLEX CONCEPT NAME: Self-reported conditions	18
<i>References for self-reported conditions</i>	20
SUB CONCEPT NAME: Muscular pain	20
SUB CONCEPT NAME: Back pain.....	21
SUB CONCEPT NAME: Heart problems	22
SUB CONCEPT NAME: Allergy.....	23
SUB CONCEPT NAME: Breathing problems.....	25
SUB CONCEPT NAME: Stomach	26
SUB CONCEPT NAME: Skin conditions.....	27
SUB CONCEPT NAME: Diabetes	28
SUB CONCEPT NAME: Headache	29
SUB CONCEPT NAME: Cancer.....	30
COMPLEX CONCEPT NAME: Body Mass Index (BMI)	32
SUB CONCEPT NAME: Height.....	34
SUB CONCEPT NAME: Weight	35
<i>References for Body Mass Index (BMI)</i>	36
COMPLEX CONCEPT NAME: Childhood conditions	36
SUB CONCEPT NAME: Friction in family while growing up.....	37
SUB CONCEPT NAME: Economic hardship in family while growing up	38
COMPLEX CONCEPT NAME: Working conditions	39
SUB CONCEPT NAME: Ergonomic hazards.....	41
SUB CONCEPT NAME: Material hazards	42
SUB CONCEPT NAME: Job control.....	42
<i>References for Working conditions</i>	44
COMPLEX CONCEPT NAME: Alcohol consumption	48
SUB CONCEPT NAME: Frequency of alcohol consumption.....	50
SUB CONCEPT NAME: Quantity of alcohol consumption	51
SUB CONCEPT NAME: Binge drinking.....	52
<i>References for Alcohol consumption</i>	53
COMPLEX CONCEPT NAME: Fruit and vegetable consumption.....	54
SUB CONCEPT NAME: Fruit consumption	55
SUB CONCEPT NAME: Vegetable consumption	56
<i>References for Fruit and vegetable consumption</i>	57
COMPLEX CONCEPT NAME: Health care utilization	59
SUB CONCEPT NAME: Access to healthcare.....	60
SUB CONCEPT NAME: Use of alternative health care	61
SUB CONCEPT NAME: Consultation of general practitioner.....	63
SUB CONCEPT NAME: Consultation of medical specialist	64
COMPLEX CONCEPT NAME: Dimensions of mental wellbeing	66

<i>SUB CONCEPT NAME: Depressive Feelings</i>	66
<i>SUB CONCEPT NAME: Sleep Quality</i>	67
<i>References for Dimensions of mental wellbeing</i>	68
SIMPLE CONCEPT NAME: Smoking	71
<i>References for Smoking</i>	72
SIMPLE CONCEPT NAME: Activity and Participation Limitations	73
<i>References for Activity and Participation Limitations</i>	73
SIMPLE CONCEPT NAME: Quality of housing	74
<i>References for Quality of Housing</i>	75
SIMPLE CONCEPT NAME: Provision of unpaid care.....	76
<i>References for Provision of unpaid care</i>	77
SIMPLE CONCEPT NAME: Physical activity.....	79
<i>References for Physical activity</i>	80
SIMPLE CONCEPT NAME: Sense of control	81
<i>References for sense of control:</i>	82

SECTION A: Theoretical background

Describe the theoretical background of the module, its aims and objectives

The previous rotating ESS module on health and their social determinants (hereafter referred to as the Health Module), which was included in the seventh round of the ESS (2014), represented a major step forward for cross-national comparisons of social inequalities in health. The module has solved methodological challenges within sociological health research, provided new explanations of the prevalence and social distribution of poor/good health, and formed the basis for new theoretical perspectives. The module has also been widely used not only academically, but also in national and international policy-settings.

Since the first Health Module was implemented, we have seen several worrying developments of relevance for health and its social distribution.

First and most importantly, the **coronavirus disease (COVID-19)**, which has been characterized as a pandemic by the World Health Organization (WHO), is attacking societies at their core. Measures to control COVID-19 have already put to test not only the European healthcare system, but also its economy, welfare systems, and societal trust. Moreover, scenario-based studies are predicting that the most effective COVID-19 strategy to limit the number of infections and deaths would need to be a combination of cyclic lockdown and relaxation measures over the next 18 months (Chowdhury et al. 2020). The prolonged control measures will constitute an unprecedented challenge with very severe socio-economic consequences likely to persist long beyond the acute health crises we are currently facing (European Commission 2020b). This pandemic has meant that public health and health inequalities are now a top research, political and public policy priority across Europe (European Commission 2020a). It is therefore essential to collect data to monitor and compare how the burden of these negative consequences is distributed in European countries with differing policy regimes, and to what extent European policymakers are able to protect the health and wellbeing of the most vulnerable groups. A repeated Health Module provides a unique opportunity to examine the medium-term effect of COVID-19 on social determinants of health, and e.g., track developments in mental and physical health by socio-economic status and/or gender.

Second, we have observed increasing **inequalities in income and wealth** in many European countries (OECD. Publishing 2015). A repeated Health Module would e.g., allow us to examine the health consequences of increasing poverty rates. Poverty reduces financial access to activities and products that are important for the maintenance and promotion of health, such as a healthy diet, exercise, and social contacts (Morris et al. 2000). Poverty also reduces access to health care services, particularly when out-of-pocket payments are required. Moreover, poverty often leads to psychosocial stress, which increases the likelihood of risk-taking behaviors such as smoking and excessive alcohol consumption (Lynch, Kaplan, and Salonen 1997). Larger differences between 'the haves' and 'the have-nots' could therefore lead to an acceleration of health deterioration among vulnerable groups, which, if not timely addressed, might be further exacerbated by the COVID-19 crisis.

Third, **precarious labor market attachments** have grown noticeably in several European countries. Examples include temporary employment, part time and on-call work, zero-hour contracts, agency work, and 'bogus' self-employment (International Labour Office (ILO) 2016; Rodgers and Rodgers 1989; Kalleberg 2009). Whether, and to what extent, the increase in such insecure employment relationships is followed by more self-reported health problems (e.g., mental wellbeing, back/neck pain, blood pressure, etc.) is an important knowledge gap. Again, the ongoing pandemic may have exacerbated some of the problems associated with precarious employment and poor working conditions. Temporary contract workers are for example more likely to be placed at higher COVID-19 exposure risk through their employment and will likely be more hardly hit by the expected economic recession since people in temporary positions are more easily laid off. Furthermore, the availability and generosity of sickness benefit schemes is probably a very important mediator, calling for cross-national comparative research.

Fourth, the impact of **educational expansion**, i.e., higher average educational qualifications in younger cohorts, continues to be felt throughout Europe (Eurostat 2020b). Although rising levels of education clearly has many positive features, there are some unanticipated consequences as well, such as more labor market

exclusion among people with few formal educational qualifications (Heisig, Gesthuizen, and Solga 2019) (Bäckman et al. 2015). These individuals could be trapped in vicious circles leading to an ever more marginalized social and economic position, with possible negative effects on health. Yet, European countries differs non-negligibly in how successful they are in incorporating low educated on the labor market, again calling for comparative studies. There are fears, though, that the economic consequences of the pandemic may lead to a 'lost generation' of young people with low education who have a particularly high risk of prolonged unemployment (and possibly permanent labor market withdrawal), accompanied by well-established negative health effects (Clare Bamba and Eikemo 2009).

Fifth, recent evidence suggests **worrying trends in several non-communicable diseases (NCDs)** with e.g., prevalence of diabetes and obesity increasing noticeably since 2014 (Mortensen, Falk, and Schmidt 2017; WHO Regional Office for Europe 2018; Wilkins et al. 2017). NCDs have major economic consequences that affect individuals, healthcare systems and societies in Europe. NCDs lead to a higher overall burden of disease in advanced capitalist societies, and to a major economic burden (i.e., healthcare costs and productivity losses). On a more positive note, downward trends have been observed for other health outcomes and behavioral risk factors such as high blood pressure, smoking, and alcohol consumption (WHO-GHO 2020; OECD 2020). Nevertheless, large variation exists between European countries, with trajectories moving at different speeds and in some cases even in opposing directions (Timmis et al. 2020). In addition, despite close monitoring of some NCDs and behavioral risk factors by e.g., national surveys, WHO Europe, and the European Commission, far less attention has been paid to monitoring trends in socio-economic inequalities in NCDs, and to inequalities based on a more comprehensive set of social determinants. The second round of the Health Module would address these shortcomings by providing the first possibility to examine time trends in socio-economic and social inequalities in NCDs in a large number of European countries. By expanding this knowledge-base, analyses of ESS data will, first, enhance our understanding of the causal mechanisms that underlie social inequalities in health, and second, localize policy packages and interventions that might be able to reduce health inequalities in differing country contexts.

Other important societal trends can also serve as a backdrop for empirical investigations using a follow-up module. Populist and **far-right political parties** have entered coalition governments in several European countries in recent years, resulting in policy measures pushed forward to reduce access to welfare benefits and health services. These measures have hit vulnerable groups, such as migrants, homeless and women, particularly hard. The COVID-19 crises run the risk of reinforcing these pre-existing nationalist dynamics (Bieber 2020). There is also evidence suggesting that **trust in the healthcare system** is on a downward spiral in Europe, with an accompanying growth in mis- and disinformation via fake or poor-quality websites and social media communities, and active spoiler groups such as the anti-vax movement (van Der Schee et al. 2007; Ozawa and Sripad 2013). Moreover, how the COVID-19 crises will further shape trust in the healthcare system might prove to be pivotal for the future of healthcare services. WHO-Europe is particularly invested in introducing a more nuanced understanding of trust in healthcare institutions through the second Health Module. The wider context – the political, the economic and the social preferences and concerns of Europeans – covered by the ESS survey would provide more substantiated explanations concerning trust patterns in Europe which will be of interest to policy-makers more generally, and not just the health community. According to WHO-Europe, this would allow for the development of policy responses at a level and in a manner of direct relevance to citizens. Another important area of investigation is the effect of COVID-19 on **female labor force participation**. Although the Great Recession actually was followed by increasing employment level among women (Eurostat 2020a), the COVID-19 crisis, and the following post-crisis period, might see a substantial reduction in female labor force participation due to, first, the severe economic impact on sectors in which they are overrepresented (e.g. retail and tourism), and second, their primary caregiver role for children and elderly people (ILO 2020).

Thus, several important economic, demographic, public health and political developments have given urgency to the need for a second Health Module in 2022-2023. It should also be underscored that health inequalities – and the social determinants of health framework – have become more prominent on the WHO's agenda. Governments in several European countries, including the European Commission EU4Health Programme, have furthermore developed plans, although of varying detail and ambition, to combat social inequalities in health. To generate solid, pan-European empirical evidence, backed up by a sound theoretical framework, is therefore more urgent than ever before, and this is exactly what a second Health Module will provide. The repeated ESS Health module will complement the COVID-19 module because it will enable an

examination of *trends* by comparing levels of health determinants and health outcomes before and after the COVID-19 crisis. Furthermore, the COVID-19 module in round 10 will only be able to capture the short-term impacts of the pandemic. The COVID-19 will also have severe health impacts that will only fully manifest themselves in the longer run. For example, people who have recovered from COVID-19 may experience long-term health problems, e.g. due to lung damage. Also, given that ESS10 only includes two general questions on self-reported health and longstanding illness, the impact of COVID-19 on specific physical and mental health problems would remain unexamined. Additionally, the increased pressure on healthcare systems has already resulted in delayed diagnoses and treatment of other health issues, which may lead to an increase of e.g. non-communicable diseases over the next few years.

Governments across Europe have implemented both containment measures to limit the spread of the virus, and support measures to mitigate the economic and financial impact of the containment measures. The mental health impact of the virus and of the policy measures will depend on how long, and in what form, the chosen measures will be in place. Importantly, there is considerable cross-national variation related to (i) the spread of COVID-19, (ii) the containment measures, and (iii) the support measures, implying that comparative research most likely will reveal intriguing insights. The impact of COVID-19, containment measures, and support measures on physical and mental health will inevitably vary according to where people are placed in the socioeconomic 'hierarchy', and social inequalities in health are thus expected to increase in the years to come. As such, our module would provide a unique opportunity to directly link the impact of COVID-19 to a broad range of health outcomes across European countries, and to assess whether some countries have been able to limit the impact on social inequalities in health more than others. More specifically, a follow-up Health Module in ESS11 would enable the research community to explore the medium-term impacts and dynamics of the pandemic with regards to mental and physical health, health care access, trust in health care systems, as well as economic, labour market and other social determinants of health. Our module would therefore significantly complement the plans for ESS10 and enable analyses of differences and similarities across Europe in the more long-term impact of the crisis (especially on physical and mental health). This would be valuable information for European policymakers in terms of planning responses to any future virus pandemics.

Theoretical/conceptual approach

Social inequalities in health continue to be a key public health problem in European countries. Not only are social inequalities in morbidity and mortality reported in many European countries but they are in fact found to be substantial in all countries with available data (Mackenbach et al. 2017; McNamara et al. 2017). Comparative approaches to inequalities in health are important for at least two reasons. First, they are central to establishing the nature of health inequalities – are such inequalities a universal phenomenon or something specific for certain stages of development or historical periods? Second, and more importantly, systematic international comparisons form the basis for one of the key questions in health inequality research, namely whether or not it is possible to organize society, or welfare states, in a way that reduces or even eradicates health inequalities. The concept of welfare state regimes has therefore been increasingly used by political scientists and health sociologists to analyze cross-national differences in population health. These studies have invariably all concluded that population health is enhanced by the relatively generous and universal welfare provision of the Social Democratic Scandinavian countries (Beckfield et al. 2015). Yet there is large agreement that welfare states are not immovable objects but are continuously being recalibrated (Busemeyer et al. 2018). The new engagement of the European Commission to promote the modernization of the European Welfare States through social investment is but one of the driving forces - together with the Sustainable Development Goals - that will recalibrate the breadth and depth of social spending in Europe (von der Leyen 2019), changing also their impact on conditions of living. The various social policy responses to the COVID-19 pandemic also highlight the importance of European social security safety nets (C Bamba et al. 2020). Although it is widely acknowledged that welfare states are important determinants of health as they mediate the extent, and impact, of socio-economic position on health, there is an urgent need to match our knowledge on the changing nature of welfare states with comparable data on health determinants and more refined health outcomes for a large number of European countries. Earlier comparative studies have suffered from important weaknesses such as a limited number of country cases and serious comparability problems (e.g., data harmonization of poor quality). Longitudinal approaches and trend analyses are also lacking in the field due to data availability issues. A second round of the Health Module would enable us to examine stability

and change over time in how European welfare states, of varying size and quality, influence health and its social determinants.

The theoretical framework underpinning the second round of the Health Module will remain largely the same, with exception of the introduction of two new additional theoretical approaches that have been developed since the design of the first Health Module – one of which emerged as a result of our first module.

Population health arises from the complex interactions of individual, environmental, material and social relations (Dahlgren and Whitehead 1991) The level of health experienced or attainable by an individual, community or population is a direct result of the interaction and quality of the relationship between the various biological and social determinants of health (Marmot and Wilkinson 2005). Systematic differences in health exist between socio-economic groups (see Figure 1). These inequalities in health between socio-economic groups are not restricted to differences between the most privileged groups and the most disadvantaged; health inequalities exist across the entire social ladder, which is often referred to as ‘the gradient’ (Marmot et al. 2010). Socio-economic inequalities in health are universal within European countries and they extend along the whole societal hierarchy: *“the higher the social position, the better the health”* (Lundberg and Lahelma 2001) . Health inequalities are thus not *“natural”* or *“inevitable”*; they are socially distributed and socially determined.

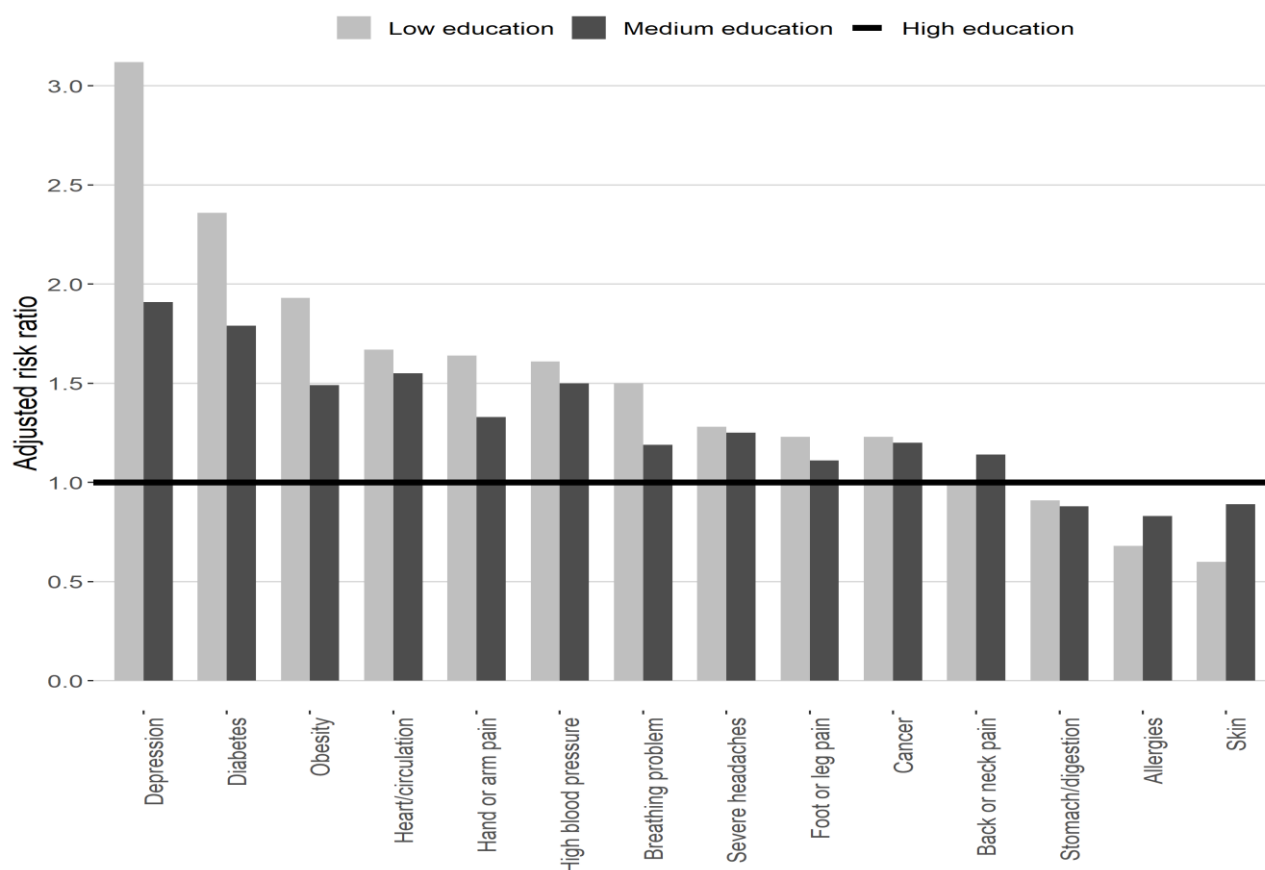


Figure 1: Educational Inequalities in Non-Communicable Diseases in Europe -ESS health module 2014

(McNamara et al. 2017)

The social determinants of health are the wider cultural, psychosocial, and material conditions in which people work and live (Marmot and Wilkinson 2005). These are what social epidemiologists refer to as the ‘causes of the causes’ (Marmot et al. 2010). The main social determinants of health are widely considered to be: access to essential goods and services (specifically water and sanitation, and food); housing and the living environment; ‘lifestyle’ factors; access to health care; unemployment and social security; working conditions; and transport (Dahlgren and Whitehead 1991). This is demonstrated in figure 2

The social determinants of health are considered to influence health inequalities through various explanatory pathways. Traditionally, three main theories which attempt to explain how social determinants interact with health and inequalities in health have been used within the literature: cultural-behavioural, material and psychosocial. More recently the theory of fundamental causes has started to become more influential, as has the institutional theory of health inequalities. Members of the QDT have tested the validity of the fundamental cause theory using the Health Module (which is the first time survey data has been able to do this), and the team has also contributed to the theoretical formulation of the new institutional theory of health inequalities, which was partly based on the empirical analysis of the first ESS Health Module.

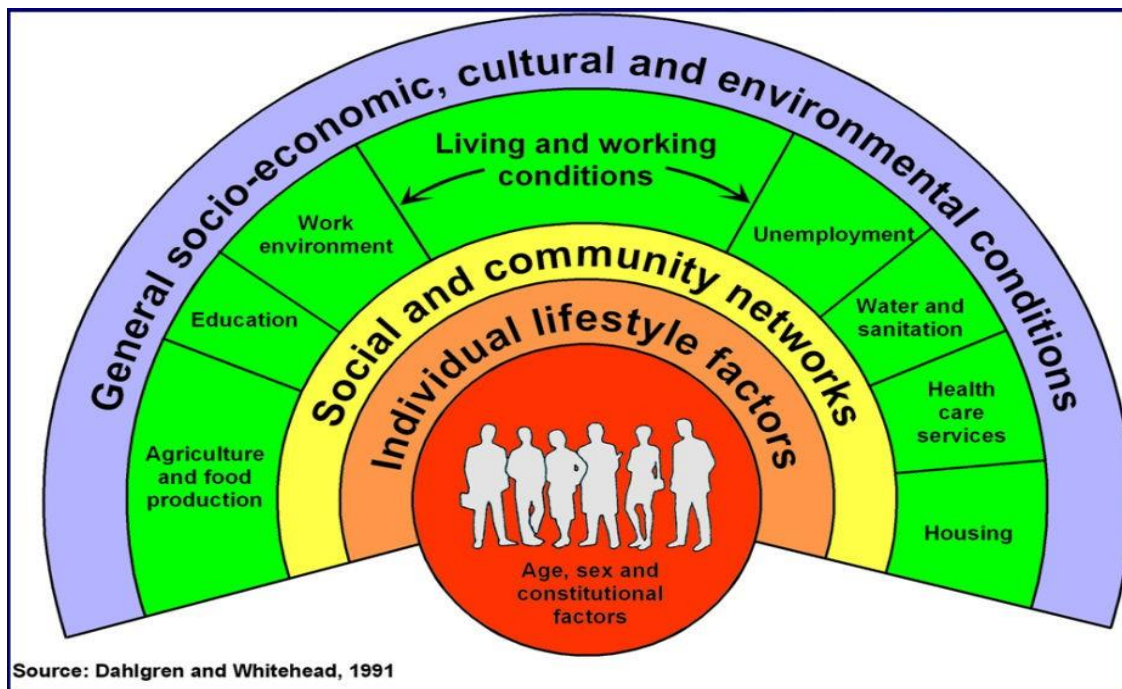


Figure 2: Dahlgren and Whitehead (1991) model of the determinants of health

Cultural-Behavioural

The cultural-behavioural approach asserts that the link between socio-economic status and health is a result of differences between socio-economic groups in terms of their health related behaviour: smoking rates, alcohol and drug consumption, dietary intake, physical activity levels, risky sexual behaviour, and health service usage. Such differences in health behaviour, it is argued, are themselves a consequence of disadvantage, and unhealthy behaviours may be more culturally acceptable amongst lower socio-economic groups. The 'hard' version of the cultural-behavioural approach asserts that the differences in health between socio-economic groups are wholly accounted for by differences in these unhealthy behaviours. The 'softer' version posits that behaviour is a contributory factor to the social gradient but not the entire explanation (Bartley 2016). Risky health behaviours are more concentrated amongst poorer socio-economic groups due to the concentration of individuals with less self-control, lower responsibility, poorer coping abilities, lower health knowledge, and a more short term outlook on life: an agency focused explanation which can be summed up as the 'feckless poor' argument. A more recent version of the behavioural model (the cultural-behavioural approach) takes into consideration the more structural role of culture and how different cultural norms can pattern the distribution of unhealthy behaviours. Unhealthy behaviours are more common in lower socio-economic groups where these behaviours represent the cultural norm and thus are more acceptable. The cultural-behavioural explanation does not take into account possible wider reasons for why unhealthy behaviours are more prevalent and/or more acceptable in lower socio-economic groups, namely the social determinants of health and other more structural factors such as the experience of deprivation and feelings of powerlessness. Simplistic behavioural explanations therefore merely lend authority to policies which

stigmatize already disadvantaged individuals and communities (Joyce and Bambra 2010). Cultural health capital is also relevant in this perspective as the further up a social hierarchy a person is located, the less exposure to health-affecting stressors (Cockerham, Hamby, and Oates 2017). People with high socio-economic status will also have access to more social and psychological resources in the event of experiencing such stressors. This amounts to 'cumulative advantage' processes over the life course on aspects of relevance for health.

Materialist

The materialist explanation focuses on income, and the neo-materialist approach on what income enables, in the relationship between socio-economic status and health. Important dimensions of what income enables include access to goods and services and the limitation of exposures to physical, and psychosocial, risk factors. By way of illustration, a decent income enables access to health care, transport, an adequate diet, quality housing and opportunities for social participation; all of which are health promoting. Material wealth also enables people to limit their exposures to known risk factors for disease such as physical hazards at work or adverse environmental exposures. Materialist approaches give primacy to structure in their explanation of health and health inequalities, looking beyond individual level factors (agency), in favor of the role of public policy and services such as schools, transport and welfare in the social patterning of inequality (Skalická et al. 2009; Papazoglou and Galariotis 2020). Cross-national comparisons demonstrate the importance of material factors on health and health inequalities (Bartley 2016). In general, countries with narrower income disparities between rich and poor have better health and wellbeing, evident for outcomes such as obesity, drug use, teenage conceptions, stress, and mental ill health (Papazoglou and Galariotis 2020). These countries also have better welfare services and so access to education, social housing, transport, health care provision and green spaces tend to be better and more fairly distributed across the population. This may partly account for how lower income inequality translates into better health outcomes. This evidence augments the theory that everyone does better in conditions where income inequalities are small. However, data from recent ESS studies do not suggest that relative health inequalities are smaller in more equal countries, and this represents a particular challenge for the materialist approach (Balaj et al. 2017).

Psychosocial

Psychosocial explanations focus on how social inequality makes people feel and the effects of the biological consequences of these feelings on health. Bartley (2017) describes how feelings of subordination or inferiority stimulate stress responses which can have long term consequences for physical and mental health especially when they are prolonged (chronic). The socio-economic gradient is therefore explained by the unequal social distribution of psychosocial risk factors. Psychosocial risk factors associated with the workplace include low levels of control over how work is undertaken, limited autonomy over work tasks, monotonous work and time pressures, low levels of support from co-workers and supervisors, an imbalance between efforts exerted and rewards received and organizational injustice (Hoven and Siegrist 2013). Bartley (2017) underscores how it is the way stress makes people feel that is important in relation to health outcomes rather than straightforward exposures to stressors. In this way the model combines both structure and agency. For example, it may not simply be income level or an adequate working environment alone that leads to good health but rather how good income and good quality work can make people feel, especially in relation to others. Here perceptions of social status and in particular perceptions of status in comparison to other people in society are significant constructs: what matters is how individuals value themselves. If these value judgements are negative, feelings of inferiority or subordination can invoke harmful stress responses.

Fundamental causes

The discussion of the influence of the social determinants above reflects the dominant model within cross-national health research, which stems from social-epidemiological research. This model is particularly useful because it does not consider health to be primarily a product of individual action, but rather stresses the complex social determinants behind the inequalities. However, it is not fully satisfactory as a sociological model because it does not consider that the social distribution of health is also a result of how individuals

actively form their own life chances and is not only the result of the social context in which individuals live. This is the core of the fundamental cause theory. Link and Phelan developed the theory of fundamental causes to explain the association between social status and mortality. They proposed that the enduring association results because social status embodies an array of resources, such as money, knowledge, prestige, power, and beneficial social connections that protect health no matter what mechanisms are relevant at any given time (Phelan, Link, and Tehranifar 2010; Link and Phelan 1995). According to the authors, a fundamental social cause of health inequalities has four essential features. First, it influences multiple disease outcomes, meaning that it is not limited to only one or a few diseases or health problems. Second, it affects these disease outcomes through multiple risk factors. Third, it involves access to resources that can be used to avoid risks or to minimize the consequences of disease once it occurs. Finally, the association between a fundamental cause and health is reproduced over time via the replacement of intervening mechanisms. It is the persisting association between socio-economic status (SES) and health in the face of dramatic changes in the mechanisms linking SES and health that led Link and Phelan to call SES a “fundamental” cause of health inequalities.

Overall, through the ESS Health Module it has been possible to test and refine both the main theories (cultural-behavioral, material and psychosocial) (Balaj et al. 2017; Mackenbach et al. 2019; Gkiouleka, Avrami, et al. 2018; Šmitas and Gustainienė 2017) and the Fundamental cause theory (Rydland (forthcoming)). The richness of social determinants and health measures available in the 7th Round of the ESS has also inspired additional approaches to explain how the interaction of social determinants of health distributes health within and across societies.

Institutional theory

Recent research has turned towards the welfare state as a major explanatory factor in the search for causes of health inequality that explain the persistence and variability of health inequality across countries (Beckfield et al. 2015). This theory creates an organizing framework for this new scholarship by combining aspects of the materialist and psychosocial explanations with the recognition that the social determinants of health are themselves shaped by macro-level institutional and structural determinants: politics, the economy, the state, the organisation of work, and the labour market (Schrecker and Bambra 2015). Health inequalities are thus considered as politically determined by institutional (in)action (Beckfield et al. 2015). A wide range of research has demonstrated that even within the constraints of unequal societies, the behavioural, material and psychosocial determinants of health inequalities are themselves amenable to public policy interventions. Not all high income countries have the same levels of health inequality, and the institutional approach argues that political choices and resulting public policies are responsible for these differences (Beckfield and Bambra 2016). In doing so this theory identifies several mechanisms – redistribution, compression, mediation and imbrication – that connect the welfare state to health inequalities by producing and modifying the effects of the social determinants of health. Through applying this theoretical lens in our repeated Health module, it will be possible to better understand why we see different distributions of social determinants – and health inequalities – within European societies embedded in different welfare state traditions. The institutional approach has also highlighted the importance of how social and economic inequality intersects with race, gender and other aspects of social disadvantage (Gkiouleka, Huijts, et al. 2018).

An additional element of the institutional theory is whereby Bourdieu’s theory of capital is used to contextualize the experience of health across different welfare states (Balaj and Eikemo (forthcoming)). Bourdieu’s theoretical framework is particularly well suited to examine health inequalities, as capitals are equivalent to material and non-material resources relevant to individuals in the social space. When translated in the social space relative to health outcomes, these resources can be conceptualized as the resources necessary to safeguard or improve health, i.e., the social determinants of health. The main hypothesis deriving from Bourdieu’s theory is that individuals engage in constant social struggle to acquire, maintain and improve their composition and volume of social determinants of health. Integrating Bourdieu’s theory of capitals presents a new direction relative to much of the existing health inequality research, which focuses on the unidirectional causality between agency and structure (instead of understanding their relations as mutually interdependent). Social determinants of health emerge at the intersection of social practices and structures, which reflect the distribution of power and health in society. These new emerging theoretical approaches – in combination with the ‘original’ ones – can generate more comprehensive evidence, but only if we are able to map changes to the distribution of social determinants of health vis a vis institutional changes that affect various forms of

capital, and how this varies across differing sociopolitical contexts.

Health inequalities due to COVID-19: the relevance of the social determinants approach

The continued importance and relevance of the social determinants of health are evident, for example, in the COVID-19 pandemic where there are stark inequalities in mortality and morbidity. There is clear evidence already of social inequalities in COVID-19 infection and mortality rates from Spain, the USA and the UK; three countries hit hard during the first phase of the pandemic. For example, intermediate data published by the Catalonian government in Spain in April 2020 suggest that the rate of COVID-19 infection is six- or seven-fold higher in the most deprived areas of the region compared to the least deprived (Catalan Agency for Health Quality and Assessment 2020). Similarly, in preliminary analysis from USA, it has been reported area-level socio-spatial gradients in confirmed cases in Illinois and New York City, with dramatically increased mortality risk observed among residents of the most disadvantaged counties (Chen and Krieger 2020). Official, national data in England and Wales found that COVID-19 related deaths were twice as high in the most deprived neighbourhoods (55 per 100,000 population) than in the most affluent neighbourhoods (25 per 100,000 population) (Office for National Statistics 2020).

The COVID-19 pandemic is occurring against a backdrop of social and economic inequalities in existing non-communicable diseases (NCDs) as well as inequalities in the social determinants of health. Inequalities in COVID-19 infection and mortality rates are therefore seen to be arising as a result of a syndemic of COVID-19, inequalities in chronic diseases, and the social determinants of health (C Bambra et al. 2020). People with low socio-economic status have a greater number of co-existing chronic health conditions, which are more severe and they experience the conditions from a younger age. These inequalities in chronic conditions arise as a result of inequalities in exposure to the social determinants of health (McNamara et al. 2017). The social determinants of health also work to make people from marginalised communities more vulnerable to infection from COVID-19 – even when they have no underlying health conditions. Decades of research into the psychosocial determinants of health have found that the chronic stresses of material and psychological deprivation is associated with immunosuppression (Segerstrom and Miller 2004). In addition to these long-term exposures, current inequalities in working conditions may also be impacting on the unequal distribution of the COVID-19 disease burden. For example, lower paid workers are much more likely to be designated as key workers and thereby are still required to go to work and reliant on public transport for doing so. This all increases their exposure to the virus. COVID-19 is therefore being experienced as a syndemic - a co-occurring, synergistic pandemic, which interacts with existing chronic health and social conditions (Figure 3).

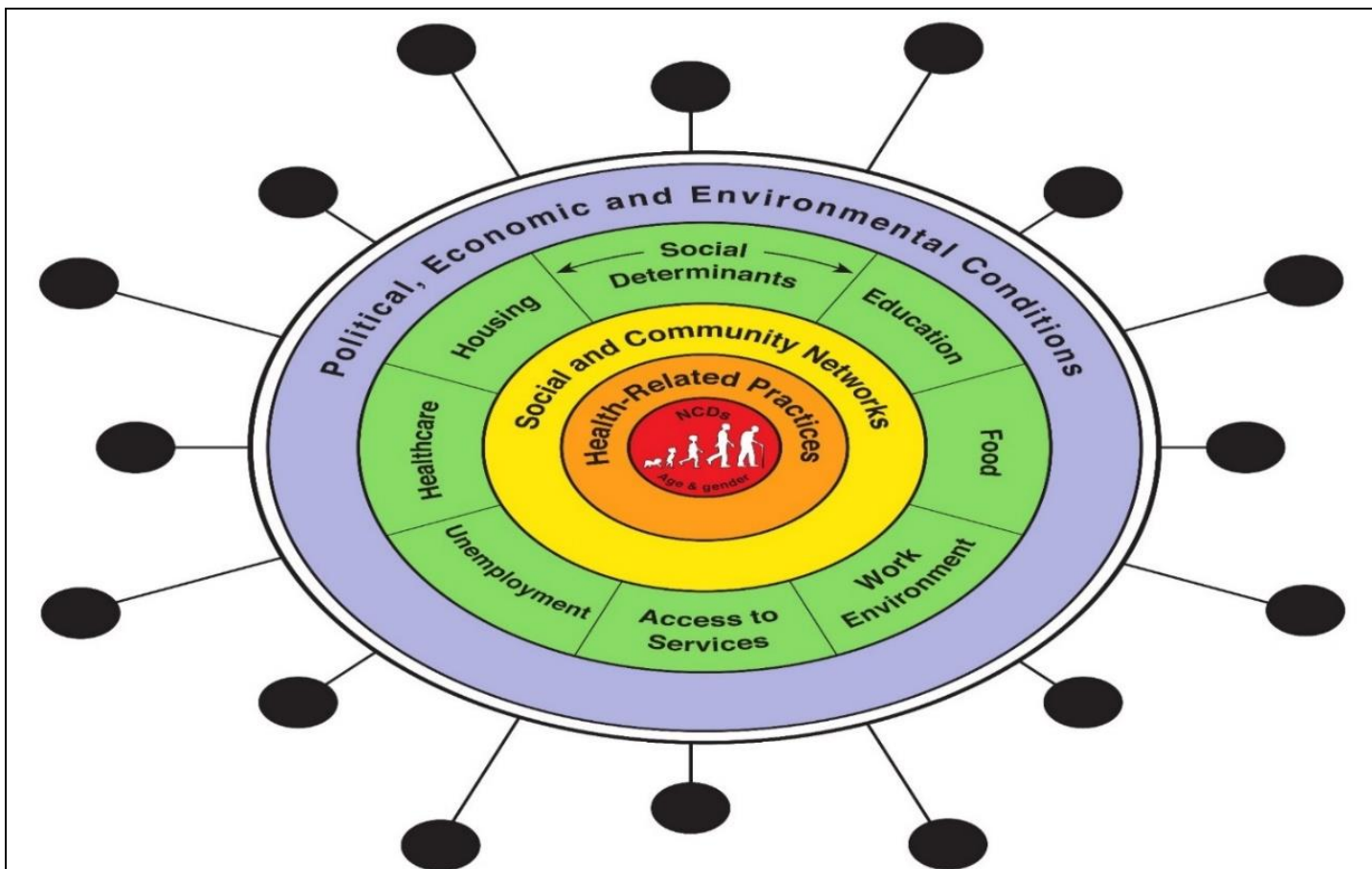


Figure 3: The Syndemic of Covid-19, Non-Communicable Diseases (NCDs) and the Social Determinants of Health (Bambra et al, 2020)

The Health Module has expanded the health inequalities field through both empirical findings and theoretical development. Empirically, the first Health Module has allowed researchers to take an intersectional stance and provide ample evidence of health inequalities for various health measures based on socio-economic status (employment, occupation, education, income), gender, age, geographical location, migrant status as well as their interaction (Beckfield et al. 2017). Moreover, the ESS core questionnaire has been used in conjunction with the Health Module to examine health outcomes other than self-reported health (SRH) and activity limitation (AL), which are present in the core questionnaire. In fact, the depression scale and (multi)morbidity outcomes have been more widely used than the core questionnaire health measures (SRH/AL).

A series of studies using the ESS Health Module data suggest that higher levels of socio-economic position can protect individuals from overall disease as well as from depressive symptoms partly through jobs that involve less material and ergonomic hazards and through the adoption of a healthier lifestyle. Particularly for depressive symptoms, education seems to offer an effective answer to childhood socio-economic disadvantage that is associated with deteriorated mental health in adult life. These findings highlight the positive association between education and individual health and ask for further research regarding the pathways that mediate this relationship, as well as regarding the policies that can secure inclusive educational contexts across countries.

The studies found have also integrated macro-level factors to a significant extent, with healthcare policy elements (i.e., care availability, out of pocket payments, gatekeeping policies, healthcare expenditure, quality of care) being the most common. Macro-economic indicators studied include gross domestic product (GDP), Gini coefficient, unemployment rates, and risk of poverty. However, social protection was less commonly used, although welfare states have been integrated in a couple of studies. These ESS studies suggest that the range of inequalities in physical and mental health between disadvantaged (i.e. women, ethnic minorities and working-class individuals) and privileged groups is subject to the national context. Some of the studies show that the availability and generosity of social protection in welfare states do not necessarily imply

smaller health inequalities, even though population health is most often better in comprehensive welfare states. These findings open space for future research, which will engage with questions about the macro-level factors that reduce social inequalities in health. They also highlight that inequality "correcting" policies need to be finely tuned and targeted in order to serve their purpose.

Theoretically, the health module constituted a breaking point from the dominant research approach in the field, which focused in large part on proximate determinants of health, i.e., individual behaviors. For the first time it was possible to embed measures of health behaviors within the so-called 'upstream' factors of importance for cross-national variation in the patterning of health inequalities (Balaj et al. 2017; Mackenbach et al. 2019; Gkiouleka, Avrami, et al. 2018; Šmitas and Gustainienė 2017) and to test more recent theories such as the Fundamental Cause theory and the Institutional theory (Rydland et al. 2020); Balaj and Eikemo 2022). These promising theoretical approaches would highly benefit from the repeated cross-sectional data.

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SECTION B. Brief description of all the concepts to be measured in the module and their expected relationships, either verbally or diagrammatically.

Top level concept: Self-reported conditions (C)
Top level concept: Body mass index (C)
Top level concept: Childhood conditions (C)
Top level concept: Working conditions (C)
Top level concept: Alcohol consumption (C)
Top level concept: Fruit and vegetable consumption (C)
Top level concept: Health care utilization (C)
Top level concept: Dimensions of mental wellbeing (C)
Top level concept: Smoking (S)
Top level concept: Activity and Participation Limitations (S)
Top level concept: Quality of Housing (S)
Top level concept: Provision of unpaid care (S)
Top level concept: Physical activity (S)
Top level concept: Sense of control (S)

-Self-reported conditions are a more precise way of capturing people's physical health than e.g. self-rated health
-Additionally, high BMI is an indicator of a broad range of health problems
-Self-reported conditions and BMI are both influenced by the other concepts, all of which are also expected to mutually influence each other: childhood conditions, physical working conditions, alcohol consumption, smoking, physical activity, fruit and vegetable consumption, and health care utilization.

COMPLEX CONCEPT NAME: Self-reported conditions

Describe the concept in detail, outlining the various sub concepts it comprises

The proposed conditions to measure here are:

Back pain, heart problems, allergies, breathing problems, stomach problems, skin conditions, diabetes, cancer and severe headaches.

Studies have found socioeconomic inequalities in morbidity. Higher prevalences are reported among people from low socioeconomic status (SES) for a large range of diseases. High blood pressure, musculoskeletal disorders or diabetes among others are more prevalent among people from low SES (Melchior 2006, Roper 2001). High blood pressure has been recently shown to largely contribute to differences in mortality between eight social groups in the US (Danaei 2010). Moreover, the severity (as well as the prevalence) of the disease differs by SES. Among people with diabetes, low SES appears to increase the risk of morbidity and mortality (Roper, et al. 2001, Bachmann, et al. 2003).

We ask for a selected number of diseases whether people had experienced this disease in the last 12 months and whether people are limited in their usual activities because of this disease. These conditions are not always very prevalent, but they would be suitable for pooled European analyses. In the EURO- GBD-SE project (<http://www.euro-gbd-se.eu/>), comparable mortality rates have been collected for 36 causes of death in all parts of Europe (which can be stratified into social position, sex, and age), which will enable a precise estimation of expected prevalence for the below suggested conditions.

Expected relationship with other complex and simple concepts

All simple concepts are expected to be correlated with socioeconomic position: less prevalent outcomes among lower socioeconomic groups. These items are intended to discover what is captured by self-rated health, to capture prevalence, and to be a more precise measure (outcome) than self-rated general health. Therefore, we expect the specific diagnoses to be correlated with the two core ESS variables (self-rated general health – C7 and limiting long standing illness – C8), which will also be very important for the module.

Some specific health outcomes are also used as determinants (of health and mortality). These items are intended to discover what is captured by self-rated health, to capture prevalence, and to be a more precise measure (outcome) than self-rated general health. The two core ESS variables (self-rated general health and limiting long standing illness) will also be very important for the module.

In a literature review, the largest socioeconomic differences were observed for stroke (heart problems), diabetes, and arthritis (back pain); while no differences or even inverse differences were observed for cancer, kidney diseases (stomach pain), skin diseases and allergy.

Question wording:

D28 CARD 46 Which of the health problems on this card have you had or experienced in the last 12 months, that is since [MONTH, YEAR]? Just tell me which letters apply to you.²

INTERVIEWER: Refer to the same month as the interview but of the previous year. For example, if the interview takes place in September 2014, use [September 2013].

PROBE: Which others?

CODE ALL THAT APPLY

Z	01	ASK D29
F	02	
T	03	
K	04	

² The actual health problems should not appear in the questionnaire given to interviewers. Interviewers should only see the letters and corresponding numeric code.

	H	05	
	Y	06	
	Q	07	
	E	08	
	L	09	
	B	10	
	M	11	
(None of these)	-	55	GO TO D30
(Don't know)	-	88	

ASK IF CODE 01- 11 AT D28

D29 STILL CARD 46 And which of the health problems that you had or experienced in the last 12 months hampered³ you in your daily activities in any way? Again, just tell me which letters apply to you. **PROBE:** Which others?

CODE ALL THAT APPLY

	Z	01
	F	02
	T	03
	K	04
	H	05
	Y	06
	Q	07
	E	08
	L	09
	B	10
	M	11
(None of these)		55
(Don't know)		88

CARD 46

Heart or circulation problem	Z
High blood pressure	F
Breathing problems such as asthma attacks, wheezing or whistling breathing ⁴	T
Allergies	K
Back or neck pain	H
Muscular or joint pain in hand or arm	Y
Muscular or joint pain in foot or leg	Q
Problems related to your stomach or digestion	E
Problems related to a skin condition	L
Severe headaches ⁵	B
Diabetes	M

³ Hampered – limiting or restricting you in your daily activities.

⁴ Wheezing is a high-pitched whistling sound made while breathing. Countries can use one or two terms to convey wheezing or whistling breathing, making sure to include the term that is understood by the majority of the population.

⁵ Headaches – severe headaches are meant but not just migraines. Do not translate 'headaches' literally as 'migraines'.

References for self-reported conditions

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SUB CONCEPT NAME: Muscular pain

Describe the first sub concept in detail outlining any further sub concepts or specifying that it can be measured directly

Problems with arms or hands, legs or feet, back or neck (include arthritis or rheumatism) It is hard to estimate the prevalence mainly because we have chosen to incorporate three originally different variables into one. Still, it is possible to obtain an estimated prevalence based on these separate outcomes. In a Cypriot survey (Statistical Service of the Republic of Cyprus, 2012) with more than 40 000 respondents 4,2 percent of all males and 4,0 percent of females reported problems with back or neck with 4,2% . These estimates were somewhat smaller for problems with legs or feet with (1,1 percent among males and 1,2%, among females) and problems with arms or hands with (0,9 percent among males and 1,2 percent among females). These conditions seem to be far more present in Central-Eastern European countries. In Slovenia (SORS Labour Force Survey), each of these 3 conditions has a much higher prevalence (Lah & Svetin, 2012). The question was “ever been diagnosed with”. Problems with back or neck has a prevalence of 21 percent among men and 22 percent among women. Problems with legs or feet has a prevalence of 9,1 percent among men and 7,4 percent among women. Problems with arms and hands has a prevalence of 5,0 percent among men and 6,6 percent among women. Cyprus and Slovenia are likely to represent outcomes that are close to the minimum and maximum of what we can expect because we already know from previous ESS studies that Cyprus scores very good on general health, while Slovenia is often observed in the other end. We would therefore estimate roughly that the prevalence of this variable would vary between 5 and 30 percent depending on the observed country. We should note that back/neck pain is by far the most prevalent outcome. It could therefore be a better idea to incorporate only back or neck from the suggested variable to get a more accurate outcome and because we know that most of the cases would stem from back or neck pain anyway. If we ask for “currently experiencing or ever been told”, the prevalence will probably be higher.

Expected relationship with other sub concepts

We expect muscular pain to be associated with poor working conditions, and it may be associated with poor life style behaviours, and having a lower socioeconomic status. It may also be related to poor mental health, other chronic conditions and the health variables from the core module. However, these expectations could not be based on previous studies.

Question wording:

Please refer to wording under the complex concept ‘Self-Reported Conditions’.

References for Muscular pain

Lah, L., & Svetin, I. (2012). *Persons with Health Problems in the Labour Market, Slovenia, 2nd quarter 2011 - final data*. Statistical Office of the Republic of Slovenia (SORS). Available at: https://www.stat.si/eng/novica_prikazi.aspx?id=4596

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SUB CONCEPT NAME: Back pain

Describe the first sub concept in detail outlining any further sub concepts or specifying that it can be measured directly

We want to examine to what extent back pain is socially distributed (by class and education) in European populations. We are aiming to capture back pain which is serious enough to have had a substantial influence on people's everyday life and/or work. We want to focus on back pain, as opposed to hand/arm, foot/leg, because it is by far the most prevalent condition among these and has also been demonstrated to be distributed unequally between social groups in total populations. This concept can be measured directly and does not need further sub concepts.

In a Cypriot survey with more than 40 000 respondents, 4.2 percent of all males and 4.0 percent of females reported problems with back or neck. These estimates were somewhat smaller for problems with legs or feet with (1.1 percent among males and 1.2%, among females) and problems with arms or hands with (0.9 percent among males and 1.2 percent among females (Statistical Service of the Republic of Cyprus, 2012). These conditions seem to be far more present in Central-Eastern European countries. In Slovenia (SORS Labour Force Survey), each of these 3 conditions has a much higher prevalence (Lah & Svetin, 2012). The question was "ever been diagnosed with". 'Problems with back or neck' has a prevalence of 21 percent among men and 22 percent among women. 'Problems with legs or feet' has a prevalence of 9.1 percent among men and 7.4 percent among women. 'Problems with arms and hands' has a prevalence of 5.0 percent among men and 6.6 percent among women.

Cyprus and Slovenia are likely to represent outcomes that are close to the minimum and maximum of what we can expect because we already know from previous ESS studies that Cyprus scores very good on general health, while Slovenia is often observed in the other end. We would therefore estimate roughly that the prevalence of this variable would vary between 5 and 30 percent depending on the observed country.

Expected relationship with other sub concepts

Back pain is the most common cause of long-term sickness absence among manual workers, after acute medical conditions (see Bambra, 2011) (see Clare Bambra – Work, Worklessness and the Political Economy of Health, 2011). Back pain is also among the most prevalent morbidities in the total population. Several studies have reported a strong social gradient of back pain. For example, a German study found that adults with a low educational level had almost a 4-fold risk of reporting disabling back pain compared to subjects with a high educational level (Schmidt, Moock, Fahland, Feng & Kohlmann, 2011). The study concludes that while back pain cannot generally be regarded as a symptom of a low social status, social inequality is of major importance regarding the prediction of severe back problems. It should be noted that this is not a consistent finding in the literature. For example, a study from the UK did not reveal any social gradient of back pain among people aged 75 or above (Docking et al., 2011), but this study did not cover the total population.

The concept can be measured directly and is expected to be correlated with socioeconomic position (back pain being more prevalent among lower socioeconomic groups). We also expect back pain to be associated with physical working conditions and low work control (see Bambra, 2011) (see Clare Bambra – Work, Worklessness and the Political Economy of Health, 2011). It has also been demonstrated an

association with high BMI (Heuch, Hagen, Heuch, Nygaard & Swart, 2010; Karppinen, 2010).

We also expect the variable to be correlated with self-reported health variables from the core module.

Question wording:

Please refer to wording under the complex concept 'Self-Reported Conditions'.

References for Back pain

Bambra, C. (2011). *Work, worklessness, and the political economy of health*. Oxford: Oxford University Press.

Docking, R. E., Fleming, J., Brayne, C., Zhao, J., Macfarlane, G. J., & Jones, G. T. (2011). Epidemiology of back pain in older adults: prevalence and risk factors for back pain onset. *Rheumatology*, 50(9), 1645-1653.

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SUB CONCEPT NAME: Heart problems

Describe the first sub concept in detail outlining any further sub concepts or specifying that it can be measured directly

By heart problems we aim at capturing serious heart conditions in the form of high blood pressure, circulation problems or stroke with longstanding consequences. This concept can be measured directly and does not need further sub concepts.

Expected relationship with other sub concepts

With support from the literature we may expect heart problems to be associated with low socioeconomic status (Marmot, Bosma, Hemingway, Brunner & Stansfeld, 1997), lack of physical activity (Eaton et al., 1995), low job control (Marmot et al, 1997), smoking, diabetes, fruit and vegetable consumption and BMI (www.EURO-GBD-SE.eu). We also expect the variable to be correlated with self-reported health variables from the core module.

Self-reported heart, or circulation problems, such as high blood pressure (including stroke with longstanding consequences) has a prevalence of 20.4 percent among men and 17.7 percent among women in the same Slovenian survey (SORS Labour Force Survey). The question was "ever been

diagnosed with". In the US, high blood pressure prevalence is about 10 percent in the age group 18-39, 30 percent in the age group 40-59, and above 60 percent in the age group 60+ (Yoon, Ostchega & Louis, 2010). According to the WHO, deaths attributable to high blood pressure is as high as 35 percent in Europe and Central Asia (Lawes, Hoorn & Rodgers, 2008). Further, the WHO has estimated that high income countries have a prevalence of high blood pressure of about 30 percent among women and 40 percent among men (WHO, 2014). We know that self-reports slightly underestimate the real estimates. Still, it seems reasonable to expect a prevalence of 20 percent (slightly less among women) or more on average in European countries.

Question wording:

Please refer to wording under the complex concept 'Self-Reported Conditions'.

References for Heart problems

Eaton, C. B., Medalie, J. H., Flocke, S. A., Zyzanski, S. J., Yaari, S., & Goldbourt, U. (1995). Self-reported physical activity predicts long-term coronary heart disease and all-cause mortalities: twenty-one-year follow-up of the Israeli Ischemic Heart Disease Study. *Archives of family medicine*, 4(4), 323.

EURO-GBD-SE home page. Available at: <http://www.euro-gbd-se.eu/>

Lawes, C. M., Hoorn, S. V., & Rodgers, A. (2008). Global burden of blood-pressure-related disease, 2001. *The Lancet*, 371(9623), 1513-1518.

Marmot, M. G., Bosma, H., Hemingway, H., Brunner, E., & Stansfeld, S. (1997). Contribution of job control and other risk factors to social variations in coronary heart disease incidence. *The Lancet*, 350(9073), 235-239.

World Health Organization (WHO) (2014). Global Health Observatory (GHO): *Raised blood pressure: Situation and trends*. Available at: http://www.who.int/gho/ncd/risk_factors/blood_pressure_prevalence_text/en/

Yoon, S. S., Ostchega, Y., & Louis, T. (2010). Recent trends in the prevalence of high blood pressure and its treatment and control, 1999-2008. *NCHS data brief*, (48), 1-8.

SUB CONCEPT NAME: Allergy

Describe the first sub concept in detail outlining any further sub concepts or specifying that it can be measured directly

This sub concept aims to capture whether the respondent has had any kind of allergies. These include rhinitis, eye inflammation, allergic asthma, and food allergies. This variable can be measured directly and no further sub concept is needed. This concept was chosen because it is among the most frequent self-reported conditions, which is strongly related to many known risk factors for health that are also included in the module. It may also be related to socioeconomic position, however, with more frequent cases among the higher groups. This reversed social gradient further is worth examining. Also it will be interesting to see whether the reversed social gradient is a universal phenomenon. The allergy sub-concept can be measured directly and no further sub concept is necessary.

According to a Belgian study, allergic rhinitis has a high prevalence in Western Europe and is frequently undiagnosed (Bauchau & Durham, 2004). There are few large-scale, standardised studies of the prevalence of allergic rhinitis in Europe. For the adult population, the European Community Respiratory Health Survey (ECRHS) found that the overall prevalence of allergic rhinitis was 21 percent (Janson et al., 2001).

The diagnosis rate for allergic rhinitis has only been measured in studies that have been limited in terms of the studied populations and/or had restricted geographical coverage. The proportion of undiagnosed subjects was relatively high, ranging from 25–60, suggesting that it might be better to ask “currently experiencing or ever been told” than “ever been diagnosed with”. This is further supported by the Belgian study mentioned above, where 19 percent of the subjects were aware of having allergic rhinitis (which is close to the 21 percent estimated in the ECRHS), while only 13 percent had a physician-based diagnosis. Making a conservative estimate, we could probably expect a prevalence of about 10 percent using a “diagnosis approach” and close to 20 percent using a “ever experiences/been told” strategy.

Expected relationship with other sub concepts

Allergy is one of the very few conditions that appears to be more prevalent in the higher socio-economic groups (Mackenbach, 2006), so we do not expect, in contrary to most other self-reported conditions, that there is a correlation between allergy and lower socioeconomic position. However, we know that tobacco smoking is common in patients with allergic rhinitis, so an association with smoking is likely (Bousquet et al., 2009).

We may also expect a correlation with diabetes. A Canadian study showed that, adjusted for household size, number of bedrooms, immigrant status, income adequacy, educational level, smoking status, alcohol drinking status, regular exercise, and age, that there was a positive association between allergy and diabetes with an odds ratio of 1.25 (Dales, Chen, Lin & Karsh, 2005). We also know that obesity is associated with a greater prevalence of asthma in children (Yao et al., 2011). Thus, an association with high BMI may be likely as well. It is hard to speculate whether intake of fruit and vegetables is associated with allergies, but we have evidence showing that a Mediterranean diet is associated with reduced asthma in Mexican school children (De Batlle, Garcia-Aymerich, Barraza-Villarreal, Antó & Romieu, 2008). It may also be associated with physical working conditions / toxic working environments (see Bambra, 2011) (see Clare Bambra – Work, Worklessness and the Political Economy of Health, 2011).

Given the extensiveness of correlations between other known risk factors for ill health, it may seem surprising that allergy itself is not correlated with lower socioeconomic status. We also expect the variable to be correlated with the self-reported health measures in the core module.

Question wording:

Please refer to wording under the complex concept ‘Self-Reported Conditions’.

References for allergy

- Bambra, C. (2011). *Work, worklessness, and the political economy of health*. Oxford: Oxford University Press.
- Bauchau, V., & Durham, S. R. (2004). Prevalence and rate of diagnosis of allergic rhinitis in Europe. *European Respiratory Journal*, 24(5), 758-764.
- Bousquet, P. J., Cropet, C., Klossek, J. M., Allaf, B., Neukirch, F., & Bousquet, J. (2009). Effect of smoking on symptoms of allergic rhinitis. *Annals of Allergy, Asthma & Immunology*, 103(3), 195-200.
- Dales, R., Chen, Y., Lin, M., & Karsh, J. (2005). The association between allergy and diabetes in the Canadian population: implications for the Th1-Th2 hypothesis. *European journal of epidemiology*, 20(8), 713-717.
- De Batlle, J., Garcia-Aymerich, J., Barraza-Villarreal, A., Antó, J. M., & Romieu, I. (2008). Mediterranean diet is associated with reduced asthma and rhinitis in Mexican children. *Allergy*, 63(10), 1310-1316.

Janson, Anto, J., Burney, P. O., Chinn, S., De Marco, R., Heinrich, J., et al., (2001). The European Community Respiratory Health Survey: what are the main results so far? *European Respiratory Journal*, 18(3), 598-611.

Mackenbach, J. P. (2006). *Health inequalities: Europe in profile*. An independent expert report commissioned by the UK presidency of the EU. Rotterdam: Dept. of Public Health, Erasmus MC, 41. Available at: http://www.who.int/social_determinants/resources/european_inequalities.pdf

Yao, T. C., Ou, L. S., Yeh, K. W., Lee, W. I., Chen, L. C., & Huang, J. L. (2011). Associations of age, gender, and BMI with prevalence of allergic diseases in children: PATCH study. *Journal of Asthma*, 48(5), 503-510.

SUB CONCEPT NAME: Breathing problems

Describe the first sub concept in detail outlining any further sub concepts or specifying that it can be measured directly

By asking respondents about breathing problems we aim to capture chronic diseases, such as asthma and chronic obstructive pulmonary disease (COPD), which have a substantial effect on people’s everyday life. According to the OECD, asthma is a disease of the bronchial tubes characterised by “wheezing” during breathing, shortness of breath or coughing” (OECD, 2012: 46). Asthma is the single most common chronic disease among children, and also affects many adults. It is a significant public health problem. Approximately 200 000 to 300 000 people die each year in Europe because of COPD, and among respiratory diseases, it is the leading cause of lost work days (European Lung Foundation, 2012). We want to include asthma or chronic bronchitis, but not allergic reactions such as allergic asthma. This can be measured directly and no further sub concept is necessary.

Most estimates of the prevalence of asthma and chronic obstructive pulmonary disease (COPD) are derived from European Health Interview Survey questions, conducted in many EU member states between 2006 and 2010. Typically, respondents were asked: “Do you have or have you ever had any of the following diseases or conditions? 1) Asthma (allergic asthma included) (yes/no). 2) Chronic bronchitis, chronic obstructive pulmonary disease, emphysema (yes/no). If yes: Was this disease/condition diagnosed by a medical doctor? (yes/no). Have you had this disease/ condition in the past 12 months? (yes/no).” The WHS asks During the last 12 months, have you experienced any of the following: Attacks of wheezing or whistling breathing? Attack of wheezing that came on after you stopped exercising or some other physical activity? A feeling of tightness in your chest? Have you woken up with a feeling of tightness in your chest in the morning or any other time? Have you had an attack of shortness of breath that came on without obvious cause when you were not exercising or doing some physical activity?

The Slovenian labour survey has estimated a prevalence of 8.7 percent among men and 7.4 percent among women concerning chest or breathing problems. The question was “ever been diagnosed with”. Prevalence estimates of chronic obstructive pulmonary disease (COPD) by diagnostic approach show that the prevalence typically varies between 4 and 10 percent (WHO, 2007). It is as high as 11 percent in Italy (12.5 percent among women and 11.8 percent in Italy), but much lower in Denmark (3.7 percent overall) and Norway (4.1 percent in average). As calculated using appropriate epidemiological methods, the prevalence of COPD is generally higher than is recognized by health authorities or administrative databases. It is estimated to range from 4 percent to up to 20 percent in adults over 40 years of age. We expect, as a conservative estimate, an average prevalence of 7 percent among men and 5 percent among women.

Expected relationship with other sub concepts

We expect breathing problems to be associated with socioeconomic status and smoking. Persons with low levels of education are more than twice as likely to report COPD as those with high levels (OECD, ‘education at glance’, 2012). Persons from low socio-economic groups also report higher rates of smoking, which is the major risk factor for COPD (ibid.). We also expect the variable to be correlated with self-reported health variables from the core module.

Question wording:

Please refer to wording under the complex concept 'Self-Reported Conditions'.

References for Breathing problems

European Lung Foundation (2012). COPD Burden in Europe, available at:
<http://www.europeanlung.org/en/lung-disease-and-information/lung-diseases/copd>

OECD (2012). *Health at a Glance: Europe 2012*, OECD Publishing. Available at:
<http://www.oecd.org/health/healthataglanceeurope.htm>

World Health Organization (WHO) (2007). *Global surveillance, prevention and control of chronic respiratory diseases: a comprehensive approach*. J. Bousquet & N. Khaltaev (eds). Geneva: WHO. Available at:
http://www.who.int/respiratory/publications/global_surveillance/en/

SUB CONCEPT NAME: Stomach**Describe the first sub concept in detail outlining any further sub concepts or specifying that it can be measured directly**

The main reason for asking about stomach pain is the combination of a relatively high prevalence in the population (based on evidence from Slovenia only) combined with the fact that self-reported prevalence has not been (according to our knowledge) previously examined in the adult population, overall or by socioeconomic position.

Studies of stomach pain is often performed among school children (as a proxy of stress), or in combination with other health outcomes, such as headache and back pain.

We do not want to capture periodical and light stomach pain (which is commonly experienced), but rather more serious stomach pain which may have had a substantial effect on the every-day life of the respondent. This can be measured directly and no further sub concept is necessary.

It is very difficult to obtain prevalence estimates of stomach problems, which is comparable to our purposes. However, 6.5 percent of the adult population has 'stomach diseases' (diagnosed ulcers) (Schiller, Lucas, Ward & Peregoy, 2012). It is hard to translate this number into European estimates, but we do have numbers from the Slovenian labor force survey, which is actually relatively similar to those observed in the US: these are 5.4 percent among men and 4.9 percent among women. Again, these estimates are based on a question which is broadly similar to ours (stomach, liver, kidney or digestive problems), but they have asked for diagnoses and not "ever experienced/ever been told". Thus, it is likely that we will obtain estimates that are larger than, but not substantially larger than, 5 percent, both for men and for women.

Expected relationship with other sub concepts

Studies of children suggest some age-related links between social status and the experience of stomach pain (for example Kristjansdottir, 1996)). There is no evidence of the association between social determinants of health which specifically examines self-reported stomach pain. Stomach cancer and liver cancer, however, is known to be causally related to smoking, BMI, diabetes, and fruit- and vegetable consumption (Eikemo & Mackenbach, 2012) (EURO-GBD-SE project).

We also expect the variable to be correlated with self-reported health variables from the core module.

Question wording: Please refer to wording under the complex concept 'Self-Reported Conditions'.

References for Stomach

Eikemo, T., & Mackenbach, J.P. (eds.) (2012). *EURO-GBD-SE. The potential for reducing health inequalities in Europe. Final Report*. Rotterdam: Department of Public Health, Erasmus MC. Available at: <http://www.euro-qbd-se.eu/>

Kristjansdottir, G. (1996). Sociodemographic differences in the prevalence of self-reported stomach pain in school children. *European journal of pediatrics*, 155(11), 981-983.

Schiller, J.S., Lucas J.W., Ward, B.W., & Peregoy, J.A. (2012) *Summary health statistics for U.S. adults: National Health Interview Survey, 2010*. National Centre for Health Statistics. *Vital Health Stat* 10(252). Available at: http://www.cdc.gov/nchs/data/series/sr_10/sr10_252.pdf

SUB CONCEPT NAME: Skin conditions

Describe the first sub concept in detail outlining any further sub concepts or specifying that it can be measured directly

We have included skin conditions because they are among the most common health problems. Among Americans they collectively exceed the prevalence of conditions such as obesity, hypertension and cancer. At any one time, one-third of the U.S. population is experiencing at least one active skin condition. While most skin conditions are not life-threatening, many pose significant clinical burdens to populations and individuals as well as deficits to quality of life.

We want to measure skin conditions, which are not serious as such, but which may still affect the quality of everyday life of the respondent. This can be measured directly and no further sub concept is necessary.

The Slovenian labour force survey also included skin problems in their survey (ever been diagnosed with _), which demonstrated prevalence of 4.6 percent among men and 4.9 percent among women. The prevalence of skin diseases in adults with normal immune systems in the US is about 1 – 3 percent (Society for Investigative Dermatology and The American Academy of Dermatology Association, 2005). These are Slovenian estimates that were based on a question which asked for diagnoses, so it is likely that we will obtain larger prevalence estimates, but not substantially larger than 5 percent, both for men and for women.

Expected relationship with other sub concepts

Skin conditions correlate with physical (toxic) working environment (De Craeker, Roskams & Op de Beeck, 2008) and has been reported to be more frequent in manual classes groups (Bambra, 2011) (Clare Bambra, 2011). However, a large European study did not reveal any socioeconomic differences (Dalstra et al., 2005). We are unsure about the relation to socioeconomic position, but we may find a correlation in countries which have a larger proportion of people working with chemicals and in polluted areas. We also expect the variable to be correlated with self-reported health variables from the core module.

Question wording:

Please refer to wording under the complex concept 'Self-Reported Conditions'.

References for Skin conditions

Bambra, C. (2011). *Work, worklessness, and the political economy of health*. Oxford: Oxford University Press.

Dalstra, J. A., Kunst, A. E., Borrell, C., Breeze, E., Cambois, E., Costa, G., et al. (2005). Socioeconomic differences in the prevalence of common chronic diseases: an overview of eight European countries. *International journal of epidemiology*, 34(2), 316-326.

De Craeker, W., Roskams, N., & Op de Beeck, R. (2008): *Occupational skin diseases and dermal exposure in the European Union (EU-25): policy and practice overview / European Agency for Safety and Health at Work*. Luxembourg: Office for Official Publications of the European Communities. Available at: https://osha.europa.eu/en/publications/reports/TE7007049ENC_skin_diseases

Society for Investigative Dermatology (SID) and The American Academy of Dermatology Association (AADA) (2005). *The Burden of Skin Diseases 2004*. Available at: <http://www.sidnet.org/content.asp?contentid=32>
<http://www.sidnet.org/files/Burden%20of%20Skin%20Diseases%202004%20Final%20Sept%202005.pdf>

SUB CONCEPT NAME: Diabetes

Describe the first sub concept in detail outlining any further sub concepts or specifying that it can be measured directly

Diabetes is included among the self-reported health outcomes because it has become an important worldwide health problem due to its high prevalence and associated mortality rate. In Europe in 2000, 6.5 percent and 5.1% percent of all deaths among men and women, respectively, were due to diabetes.⁴ Moreover, the global burden of diabetes is expected to increase from 171.2 to 366.2 million cases between 2000 and 2030 (2.8–4.4% of total population) (Espelt, Kunst, Palència, Gnavi & Borrell 2011).

This sub concept can be measured directly and does not require further sub concepts. We suggest asking for diabetes and not diabetes mellitus. Diabetes type 1 is also a type of diabetes mellitus. Both the EHIS and the WHS ask for diabetes and not diabetes mellitus. Wild et al. estimate that the worldwide prevalence of diabetes was 2.8% in the year 2000 and will be about 4.4% in the year 2030 (Wild, Roglic, Green, Sicree & King, 2004). These data are in accordance with those of Roskam et al. who estimated the prevalence of diabetes mellitus (by socioeconomic group) for the entire European population. In the majority of countries studied, the prevalence of diabetes among people with an advantaged SEP was around 2–3 percent (range 1.5–5.4 percent in men, 0.6–4.1 percent in women), and was higher, around 5 percent (range 2.5–8.5% in men, 2.7–8.8 percent in women) among people with a disadvantaged SEP. In each country, persons with diabetes were identified by self-report based on responses to questions about diabetes. The survey items about diabetes aimed to determine whether the respondent currently had diabetes. In the original surveys this disease was called ‘diabetes’ (most countries), ‘diabetes mellitus’ or ‘high blood sugar (diabetes)’. For one country the responses were scored by a general practitioner (Espelt et al., 2008). In the Slovenian labor force survey, where it was asked about “ever been diagnosed with” the estimates were 7.6 percent among men and 3.3 percent among women. It is likely that we will obtain prevalence estimates of 5 – 10 percent, larger among men than among women.

Expected relationship with other sub concepts

According to the literature, we may expect diabetes to vary by socioeconomic position (Dalstra et al., 2005). Among social determinants, we expect diabetes to be correlated with BMI, heart problems, and physical inactivity.

We also expect the variable to be correlated with self-reported health variables from the core module.

Question wording:

Please refer to wording under the complex concept ‘Self-Reported Conditions’.

References for Diabetes

Dalstra, J. A., Kunst, A. E., Borrell, C., Breeze, E., Cambois, E., Costa, G., et al. (2005). Socioeconomic differences in the prevalence of common chronic diseases: an overview of eight European countries. *International journal of epidemiology*, 34(2), 316-326.

Espelt, A., Borrell, C., Roskam, A. J., Rodriguez-Sanz, M., Stirbu, I., Dalmau-Bueno, A., et al. (2008). Socioeconomic inequalities in diabetes mellitus across Europe at the beginning of the 21st century. *Diabetologia*, 51(11), 1971-1979.

Espelt, A., Kunst, A. E., Palència, L., Gnavi, R., & Borrell, C. (2011). Twenty years of socio-economic inequalities in type 2 diabetes mellitus prevalence in Spain, 1987–2006. *The European Journal of Public Health*, ckr158.

Wild, S., Roglic, G., Green, A., Sicree, R., & King, H. (2004). Global prevalence of diabetes estimates for the year 2000 and projections for 2030. *Diabetes care*, 27(5), 1047-1053.

SUB CONCEPT NAME: Headache

Describe the first sub concept in detail outlining any further sub concepts or specifying that it can be measured directly

Headaches are included among the self-reported health diagnoses because it is very frequent in the adult population, and because headache disorders are associated with personal and societal burdens of pain, disability, damaged quality of life and financial cost (WHO, 2012).

In this sub concept we aim to capture serious headaches such as migraine, which has had a substantial impact on people's quality of life. This can be measured directly and no further sub concept is necessary.

According to a European systematic review, more than 50 percent of adults indicate that they suffer from general headaches during the last year, but when asked specifically about tension-type headache, the prevalence was 60 percent (Stovner & Andree, 2010). *Migraine* occurs in 15% of adults, *chronic headache* in about 4% and *headaches due to possible medication overuse* in 1–2%. *Cluster headache* (characterised by immense pain) has a lifetime prevalence of 0.2–0.3%. Most headaches are more prevalent in women. The Slovenian Labour Force Survey only has a prevalence of 2.1 percent among men and 5.2 percent among women. However, this survey asked about diagnoses and not about experiences. This clearly illustrates how the phrasing of the question can result in dramatically different results. If we do not ask ESS respondents specifically about diagnoses, it appears that we can achieve a prevalence between 15 (migraine) and 50 percent (general headache), but closer to 15.

Expected relationship with other sub concepts

We expect headaches to be correlated with smoking and alcohol consumption (Aamodt, Stovner, Hagen, Bråthen & Zwart, 2006). According to the Norwegian HUNT study, there was a tendency of decreasing prevalence of migraine with increasing amounts of alcohol consumption compared with alcohol abstinence. Only with regard to symptoms indicating alcohol overuse, a positive association with frequent headache was found. The association between headache and smoking found in the present study raises questions about a causal relationship, e.g. that smoking causes headache or that it allays stress induced by headache. The observed negative association between migraine and alcohol consumption is probably explained by the headache precipitating properties of alcohol. We also expect an association with lower socioeconomic status (Hagen et al., 2002). We also expect the variable to be correlated with self-reported health variables from the core module.

Question wording:

Please refer to wording under the complex concept 'Self-Reported Conditions'.

References for Headache

Aamodt, A. H., Stovner, L. J., Hagen, K., Bråthen, G., & Zwart, J. (2006). Headache prevalence related to smoking and alcohol use. The Head-HUNT Study. *European journal of neurology*, 13(11), 1233-1238.

Hagen, K., Vatten, L., Stovner, L. J., Zwart, J. A., Krokstad, S., & Bovim, G. (2002). Low socio-economic status is associated with increased risk of frequent headache: a prospective study of 22 718 adults in Norway. *Cephalalgia*, 22(8), 672-679.

Stovner, L. J., & Andree, C. (2010). Prevalence of headache in Europe: a review for the Eurolight project. *The journal of headache and pain*, 11(4), 289-299.

World Health Organization (WHO) (2012). *Headache disorders. Fact sheet N°277* (October 2012). Available at: <http://www.who.int/mediacentre/factsheets/fs277/en/>

SUB CONCEPT NAME: Cancer

Describe the first sub concept in detail outlining any further sub concepts or specifying that it can be measured directly

Cancer is included in the module because it is the leading cause of death worldwide (WHO, 2014). We include all kinds of cancers, including malignant tumour, including leukaemia and lymphoma.

On average, worldwide, there is about a 10 percent chance of getting a cancer before age 65 (Parkin, Bray, Ferlay & Pisani, 2001). However, the risk of getting cancer varies between men and women and between world regions and even between European regions. In Eastern Europe this number is 16.2 percent among men and 12.4 percent among women. In Northern Europe these numbers amount to 10.9 percent among men and 13.0 percent among women. In Southern Europe the chance of getting any cancer before age 65 is 13.3 percent among men and 11.1 percent among women. Finally, in Western Europe this amounts to 14.9 percent among men and 13.2 percent among women. The estimates of partial prevalence in each country were derived by combining the annual number of new cases and the corresponding probability of survival by time. Therefore, this prevalence corresponds to current cases. Thus, by asking about current or previous experience of cancer, and provided that there are no serious underreporting, we should have a prevalence of at least 10 percent for both men and women. This number may seem high, but the estimates obtained from the global cancer burden above were for people aged maximum 64. The ESS covers higher ages as well. More recently, the lived experience of cancer survivors in terms of quality of life, health status, health care experience, social participation and integration in the labor market has received more attention. With over 12 million cancer survivors in Europe examining their physical, mental, and social health has become highly important for public health (Albrecht et al. 2017). Through ESS we will be able to fully capture such experience in terms of health and exposure to a wide range of social determinants.

Timing of cancer:

Cancer survivors face long term challenges to physical and mental health, social and labor re-integration, and healthy lifestyle. These challenges need to be addressed not only during treatment but extended throughout survivorship care (<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4503227/>). The number of cancer survivors is expected to rise, and the health and social needs of these group require a closer monitoring of their needs and tailored interventions. Cancer burden will shift more rapidly towards most vulnerable groups compared to the general population accumulating another disadvantage to groups already living in the margins of our societies. At the same time improvements in medical treatment and technology are resulting in an increasing number of cancer patients outliving 10 years past diagnosis and nevertheless most studies investigate their mental and physical health only up to 5 years after diagnosis (<https://psycnet.apa.org/doiLanding?doi=10.1037%2Fhea0000713>). Therefore, there are few comparative data sources where the long-term experience of cancer survivors may be compared with the general population. It is precisely this gap that this new item is aiming to address. For the first time it will be possible to comprehensively unpack the mental and physical health of short-term and long-term survivor compared to the general population. Describe their differences in social, material and occupational experiences.

Expected relationship with other sub concepts

According to the WHO, tobacco use, alcohol use, unhealthy diet and physical inactivity are the main cancer risk factors worldwide (WHO, 2014). Furthermore, high BMI and occupational risks are associated with cancer (International Agency for Research on Cancer & Cancer Research UK, 2012). Cancer prevalence and cancer mortality is not consistently higher among lower socioeconomic groups. These patterns for all cancers combined are the net result of strongly diverging patterns for specific forms of cancer (Mackenbach, 2006).

For some cancers, 'reverse' patterns (with higher death rates in the upper socio-economic groups) are seen in some countries. Examples include prostate cancer among men, and breast and lung cancer in women. For colorectal cancer, another important cause of death, inequalities in mortality tend to be small everywhere. The 'reverse' or absent gradients and large contributions to cancer mortality of breast, lung and colorectal cancer in women explain the lack of excess cancer mortality in lower socio-economic groups. In men, the excess cancer mortality in lower socio-economic groups is due to higher mortality from lung cancer, as well as from a number of other cancers including stomach cancer and oesophagus cancer. Based on lessons from studies of mortality, we do not expect to find socioeconomic inequalities in self-reported cancer in most countries, but we still do not know to what extent inequalities in self-reported cancer corresponds to inequalities in cancer mortality. We also expect the variable to be correlated with self-reported health variables from the core module.

Question wording:

ASK ALL

D30 CARD 47 Do you have or have you ever had any of the health problems listed on this card?
IF YES, is that currently or previously?

Yes, currently	1
Yes, previously	2
No, never	3
(Don't know)	8

CARD 47:

Cancer affecting any part of the body
Leukaemia
Malignant tumour
Malignant lymphoma
Melanoma, carcinoma, or other skin cancer

ASK IF CODE 2 AT D30

D31 CARD 48 May I ask you, for how long have you been cancer-free?
By 'cancer-free' we mean that there have been no signs of cancer in tests or scans.

Less than 5 years	1
5 to 10 years	2
More than 10 years	3
(Refusal)	7
(Don't know)	8

References for Cancer

International Agency for Research on Cancer & Cancer Research UK (IARC) (2012). *World Cancer Factsheet*. Cancer Research UK, London. Available at: <http://www.iarc.fr/en/media-centre/iarcnews/pdf/Global%20factsheet-2012.pdf>

Mackenbach, J. P. (2006). *Health inequalities: Europe in profile*. An independent expert report commissioned by the UK presidency of the EU. Rotterdam: Dept. of Public Health, Erasmus MC, 41. Available at: http://www.who.int/social_determinants/resources/european_inequalities.pdf

Parkin, D. M., Bray, F., Ferlay, J., & Pisani, P. (2001). Estimating the world cancer burden: Globocan 2000. *International journal of cancer*, 94(2), 153-156.

World Health Organization (WHO) (2014). *Cancer Fact sheet N°297* (updated February 2014). Available at: <http://www.who.int/mediacentre/factsheets/fs297/en/>

Ringdal, GI & Ringdal K. (2019). Cancer and depression: A comparison of cancer victims with the general population, findings from the European Social Survey 2014. *Scand J Public Health* 47(5):504-510. doi: 10.1177/1403494817727161. Epub 2017 Aug 21.

Ringdal, K & Ringdal, GI. (2017). Quality of life and living with cancer: findings from the European social survey (2014) special module on the social determinants of health. *European Journal of Public Health*, Vol. 27, Supplement 1: 115–119. doi: 10.1093/eurpub/ckw226.

Albreht, T., Andrés, J. B., Dalmas, M., De Lorenzo, F., Ferrari, C., Honing, C., ... & Yared, W. (2017). Survivorship and rehabilitation: policy recommendations for quality improvement in cancer survivorship and rehabilitation in EU Member States. *European Guide on Quality Improvement in Comprehensive Cancer Control*. Scientific Institute of Public Health, National Institute of Public Health, Brussels.

COMPLEX CONCEPT NAME: Body Mass Index (BMI)

Describe the concept in detail, outlining the various sub concepts it comprises

Questions on weight and height will be included to obtain BMI. Obesity is associated with an increased risk of disease (e.g. diabetes, heart disease) and premature mortality (Robertson et al, 2006). A much less investigated but also less prevalent health problem in modern Western countries is underweight, which also has implications for health outcomes. BMI cannot be measured directly. Height and weight must be included as further sub concepts.

The interviewers will not be required to calculate the respondent's BMI at the time of interview. A follow up question could be asked to those respondents who are unsure of their exact weight/height, to record their estimates (and reduce nonresponse). There may be within and between country variation in measurement units (kilos, stone, feet, metres, etc) – the questions allow for this.

Expected relationship with other complex and simple concepts

High BMI is associated with an increased risk of disease (e.g. diabetes, heart disease) and premature mortality (Robertson et al, 2006). BMI may also be correlated with lack of physical inactivity (Lindström, Isacson & Merlo, 2003) and low levels of fruit- and vegetable consumption (Geliebter & Aversa, 2003). Low BMI is also associated with low socioeconomic position (Lissner et al., 2000).

It is possible to speculate an association with stomach problems due to the causal relationship between mortality from kidney cancer / colo-rectum cancer and BMI (EURO-GBD-SE project). We also expect the variable to be correlated with self-reported health variables from the core module.

Psychosocial and psychological factors, such as self-esteem and sense of purpose, body image and body image distortion, and emotional status, seem to be associated with underweight among young women in the industrialised world. Underweight women are more likely to have poorer psychological health than normal weight women. In contrast, overweight and obese women are more likely to have poor health related behaviours and lack of internal locus of control compared with normal weight women (Ali & Lindström, 2006). We therefore expect underweight and overweight to be associated with poorer self-assessed health outcomes in the core-module (at least among women) as compared to normal weight people. It will be important to treat underweight people (and to be aware of varying cut-off points of underweight/normal weight in the literature) as a separate group, or to at least exclude underweight from analyses of normal weight versus overweight.

It is felt that item nonresponse at these items may be associated with lower socioeconomic status. However, data from Eurothine and the EURO-GBD project suggest that item nonresponse for self-reported BMI is actually not problematic, except in France (over 20% missing) and Spain (around 10% missing). A WHO survey also found self-reported BMI to have adequate response rates. Similarly, research shows that the bias in self-reported BMI is actually less problematic than expected. There are many potential sources of error (rounding, memory effects, real change, editing of the response due to its sensitivity, etc), but the error is not likely to be randomly distributed because it tends to be always “negative” (that is, in all studies, actual weight is higher than reported, suggesting that the error is systematic, not random).

Some studies of self-reported BMI showing similar findings (between 0.5 and 2 kg underestimation of weight, and about 1-1.5cm over estimation of height), e.g. Stommel and Schoenborn (2009) Villanueva (2001); Bes-Rastrollo et al (2011). A study by Alvarez-Torices et al (1993) highlights problems with using self-reported measures with older people. A study by Wang et al (2002) outlines some problems of using self-reported measures with younger populations. However, a meta-analysis (Bowman and DeLucia, 1993) concludes that self-reported weight is ‘sufficiently accurate for epidemiological groups’.

SUB CONCEPT NAME: Height

Describe the first sub concept in detail outlining any further sub concepts or specifying that it can be measured directly

Height can be measured directly. No further sub concepts are necessary.

Expected relationship with other sub concepts

We expect height to be positively related to weight.

Question wording:

ASK ALL

D11 What is your height without shoes?

INTERVIEWER: If the respondent answers “don’t know” say: “please give your best estimate”.

INTERVIEWER NOTE: 100 centimetres = ‘1 metre’ ‘00 cm’.

INTERVIEWER WRITE IN metres cm
 .

OR

INTERVIEWER WRITE IN feet inches

(Don't know) 888

SUB CONCEPT NAME: Weight

Describe the sub concept in detail outlining any further sub concepts or specifying that it can be measured directly

Weight can be measured directly. No further sub concepts are necessary.

Expected relationship with other sub concepts

We expect weight to be positively related to height

Question wording:

D12 What is your weight without shoes?

INTERVIEWER: If the respondent answers "don't know" say: "please give your best estimate".

INTERVIEWER WRITE IN kilograms (kg)
 .

OR

INTERVIEWER WRITE IN stones pounds (lbs)

(Don't know) 8888

NOTE ON ADMINISTRATION OF D11 AND D12: National teams to choose whether metric or imperial or both options appear at D11 and D12. If both metric and imperial are included, these should be presented in the order most logical in the country. An 'other' option should also be included if only metric or only imperial answers are provided for. Any 'other' responses should be post-coded by the survey agency into metric.

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COMPLEX CONCEPT NAME: Childhood conditions

Describe the concept in detail, outlining the various sub concepts it comprises

Inequalities in health are intertwined with social inequalities in a number of living conditions throughout the course of life. One's position in the social structure at each point in time is linked to health, and the accumulated time in lower social positions constitute a good summary measure of life-time "exposure" to adverse conditions. Over and above that, however, adverse living conditions during different periods of the life course affect health (Braveman & Barclay 2009; Galobardes, Lynch & Davey Smith 2004; Lundberg 1993, 1997; Shaw & Krause 2002; Wadsworth & Kuh, 1997). It is of particular interest that social and material conditions during childhood can have both independent effects on health in adult and later life (Elstad 2005; Lundberg, 1993, 1997; Turell et al 2007), as well as be part of the social stratification process (Lundberg 1991).

The key questions on childhood conditions include economic as well as social circumstances during

upbringing, typically up to age 16. They can include direct descriptions of these conditions (experience of economic difficulties during one's upbringing), or descriptions of the circumstances in terms of family structure, housing conditions or parental social class (Lundberg 1991, 1993; Fors et al. 2009).

Expected relationship with other complex and simple concepts

822

Olle Lundberg

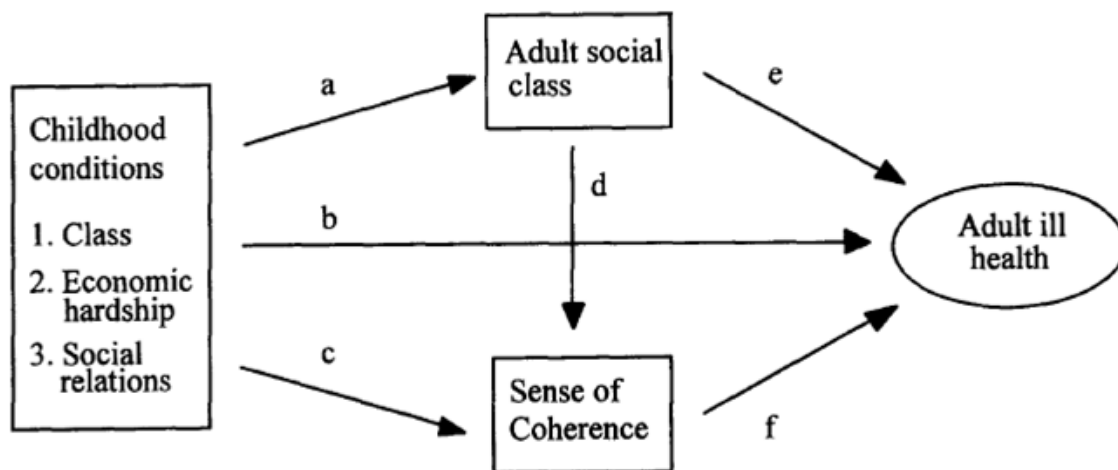


Fig. 1. Conceptual model.

It is well established that conditions during early life and childhood are important for processes and conditions later in life. The educational level and occupation of the parents (covered by the core ESS) will also be useful in establishing the social position of the childhood family.

SUB CONCEPT NAME: Friction in family while growing up

Describe the first sub concept in detail outlining any further sub concepts or specifying that it can be measured directly

Conflicts or dissention in the childhood family could have been manifested and experienced in many ways. An item measuring friction in the family while growing up is empirically the most powerful predictor of adult health and living conditions of the childhood factors measured in the Swedish Level of Living Surveys (SLLS).

Expected relationship with other sub concepts

Analyses on the impact of childhood conditions on health in adulthood showed clearly the predictive relationship between this item and adult health and living conditions (Lundberg, 1993). The item also interacts with other factors – the poorest mental health is found among adults who experienced serious dissention but where the parents did not divorce (Gähler, 1998), whereas children of divorcees did not differ from others in their mental health regardless of whether there were conflicts or not.

Question wording:

D32 CARD 49 Using this card, please tell me how often there was serious conflict⁶ between the people living in your household when you were growing up?

⁶ 'conflict' in the sense of 'tension, verbal arguments or physical violence'.

Always	1
Often	2
Sometimes	3
Hardly ever	4
Never	5
(Don't know)	8

SUB CONCEPT NAME: Economic hardship in family while growing up

Describe the first sub concept in detail outlining any further sub concepts or specifying that it can be measured directly

Economic problems and conflicts or dissention in the childhood family could have been manifested and experienced in many ways. The question is to be interpreted in relation to essential consumption. The family should have experienced difficulties in affording the necessities like food, clothes, housing, bills etc.

Expected relationship with other sub concepts

See diagram under 'expected relationships' under the heading for 'childhood conditions'.

Question wording:

D33 STILL CARD 49 Using the same card, please tell me how often you and your family experienced severe financial difficulties when you were growing up?

Always	1
Often	2
Sometimes	3
Hardly ever	4
Never	5
(Don't know)	8

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COMPLEX CONCEPT NAME: Working conditions

Describe the concept in detail, outlining the various sub concepts it comprises

Working life remains one of the most important spheres of life for people's health, but in complicated ways. Work provides economic resources and a range of other rewards that are crucial for health, but at the same time adverse working conditions are still an important source of poor health and a major driving force behind health inequalities (Benach, Muntaner, Santan et al. 2007). Even today, large parts of the work force are exposed to harmful physical working conditions in all European countries, although the variation across nations is large (Lundberg, Hemmingsson & Hogstedt 2007). There is a range of working conditions of importance for health, but the most important include heavy lifting, bent or otherwise unsuitable work postures, noise and exposure to dust, smoke or toxic substances. Such conditions are directly linked to musculoskeletal disorder, hearing problems, respiratory problems and specific diseases, but can also affect psychological health through stress (Cox et al. 2000).

In addition, the psychosocial work environment has proven to be important for health. In the classic demand-control model introduced by Robert Karasek (Karasek 1979; Karasek & Theorell 1990) the focus is placed on the job strain that results from the combination of high demands and low control. The model has been consistently related to a range of health outcomes, including mortality (e.g. Belkic et al 2004; Vermeulen & Mustard 2000; de Jonge, Bosma et al 2000), although not necessarily in all occupational groups (de Jonge, Dollard et al 2000). It is also unclear to what extent demand-control variations contribute to inequalities in health (Lundberg 1991b).

Other approaches to the psychosocial dimensions of work include the effort-reward model proposed by Johannes Siegrist (Siegrist et al 1986; Siegrist 1996). This model includes several components, but the basic idea is that an imbalance between (high) efforts put in by an employee and (low) rewards from the employer will result in strain and poor health among employees. While part of the model has received substantial support (van Vegchel et al 2005), there are still several unresolved issues that would need cross-national comparisons to be addressed properly.

In sum, therefore, a cross-European focus on social determinants of health and health inequalities requires information of key work environment factors, including both physical and psycho-social work hazards. Given the limited space we will have to focus on a few indicators only, and while this is quite easy to do for the physical demands of importance it will be more difficult to capture both demand-control and effort-reward with a few questionnaire items. We will therefore most likely focus on the former of these constructs.

Physical working conditions are important determinants of health and will be a very important measure for the module. They have been shown to affect general health (Borg, Kristensen, Burr 2000), sickness absence (Labriola, Lund, Burr 2006; Lund, Labriola, Christensen, Bultmann, Villadsen 2006), disability pension and cardiovascular disease (Holtermann, Mortensen, Burr, Søgaaard, Gyntelberg, Suadicani 2009) and mortality (Holtermann, Mortensen, Burr, Søgaaard, Gyntelberg, Suadicani 2009).

Physical working conditions cannot be measured directly. Several sub concepts are possible. We could make a distinction between *exposure* (vibrations, noise, high or low temperatures, breathing in smoke/fumes (powder, dust), skin contact with chemical products, tobacco smoke or being in contact with materials that can be infectious) and *work tasks* (tiring positions, lifting or moving people, carrying heavy loads, standing, repetitive hand or arm movements).

We focus on *hazardous* working conditions by means of two sub concepts: 'ergonomic hazards', and 'material hazards' (including environmental and chemical hazards).

Importantly, by physical working conditions we want to capture working conditions that are clearly hazardous for health. Physical working conditions explain the most work related class variance in health.

With respect to expected prevalence, we can get a good estimate from the European Survey of Working Conditions (ESWC):

	Almost all the time			About ¼ of the time		
	M	W	Tot	M	W	Tot
EXPOSURE						
Vibrations from hand tools, machinery, etc.?	15%	4%	10%	35%	10%	24%
Noise so loud that you would have to raise your voice to talk to people?	14%	7%	11%	39%	19%	30%
High temperatures which make you perspire even when not working?	8%	5%	7%	31%	17%	25%
Low temperatures whether indoors or outdoors?	5%	2%	4%	29%	13%	22%
Breathing in smoke, fumes, powder or dust etc.?	10%	3%	7%	28%	8%	19%
Breathing in vapours such as solvents and thinners?	4%	2%	3%	15%	7%	11%
Handling or being in skin contact with chemical products or substances?	4%	4%	4%	17%	11%	14%
Radiation such as X rays, radioactive, welding light, laser beams?	2%	1%	1%	6%	3%	5%
Tobacco smoke from other people?	8%	5%	7%	25%	14%	20%
Handling or being in direct contact with materials which can be infectious?	2%	5%	4%	8%	11%	9%
WORK TASKS						
Tiring or painful positions?	16%	15%	16%	48%	42%	45%
Lifting or moving people?	1%	4%	3%	6%	11%	8%
Carrying or moving heavy loads?	12%	6%	10%	43%	25%	35%
Standing or walking?	43%	43%	43%	75%	70%	73%
Repetitive hand or arm movements?	32%	35%	34%	62%	62%	62%
Working in places other than home or company/ organisation premises?	19%	7%	14%	39%	16%	29%
Dealing directly with people who are not employees at your workplace?	34%	49%	41%	59%	66%	62%
Working with computers: PCs, network, mainframe?	22%	30%	25%	43%	48%	45%
Wearing personal protective clothing or equipment?	32%	17%	25%	42%	23%	34%

Exposures to vibrations and noise are most common in men. Exposures to inconvenient temperatures and to smoke - fumes as well as to tobacco smoke - are also rather common. Exposure in general is less often reported by women. With respect to the work tasks, standing or walking, repetitive hand or arm

movements, and tiring or painful positions seem to be quite common in Europe, affecting up to 70% of the employees at least a quarter of their working time and up to 40% almost all the time. A considerable percentage of men report their tasks involve carrying or moving heavy loads.

These items were placed in section F of the core ESS questionnaire (next to the other 'job' questions) in order to group all related questions together (asking about current or most recent job) and to avoid unnecessary routing.

Expected relationship with other complex and simple concepts

Recent research into the physical work environment has particularly focused on ergonomic hazards including vibration exposure, lifting heavy loads, work which involves painful positions, and repetitive work. Epidemiological evidence has accumulated demonstrating an association between exposure to vibration (e.g. by the regular and frequent use of vibrating hand-held tools, driving heavy vehicles or operating certain machines) and musculoskeletal disease as well as hand arm vibration syndrome and carpal tunnel syndrome (Chetter et al, 1998). For example, a systematic review found that lower back pain was more frequent in workers exposed to whole body vibration (Lings and Leboeuf-Yde, 2000). Work involving tasks such as lifting and carrying heavy loads or people is also known to be a risk factor for the development of musculoskeletal disorders particularly of the lower back (Parkes et al, 2005). Similarly, work involving repetitive movements has been associated with an increased prevalence of musculoskeletal symptoms involving the neck, shoulders, and upper extremities (Health and Safety Executive, 2010). There is also tentative evidence to suggest that mental health conditions tend to be more frequently reported by workers exposed to repetitive work (Vinet et al, 1989). Working in strenuous, painful and static postures is also associated with musculoskeletal symptoms (Fredriksson et al, 2001; Ohlsson et al, 1995).

Recent research by QDT members Eikemo and Bambra and colleagues shows that *physical* working conditions are most strongly associated with health.

SUB CONCEPT NAME: Ergonomic hazards

Describe the first sub concept in detail outlining any further sub concepts or specifying that it can be measured directly

Ergonomic hazards at work are essential to understand the dangers of physical working conditions (see working conditions above). It can be measured directly and no further sub concepts are needed. Standing and walking are not included in this sub concept.

Expected relationship with other sub concepts:

Ergonomic hazards (vibrations) are expected to be associated with lower socioeconomic position, back pain, and poor self-reported health (Bambra, 2011).

Question wording:

****F35a CARD 77** In any of the jobs you have ever had, which of the things⁷ on this card were you exposed to? **INTERVIEWER PROBE:** Which others?
CODE ALL THAT APPLY

Vibrations from hand tools or machinery	1
Tiring or painful positions	2
Manually lifting ⁸ or moving people	3

⁷ 'things' – translators should use a neutral term that does not convey problems.

⁸ 'Lifting' in the sense of picking people up.

Manually carrying ⁹ or moving heavy loads	4
(None of these)	5
(Don't know)	8

SUB CONCEPT NAME: Material hazards

Describe the first sub concept in detail outlining any further sub concepts or specifying that it can be measured directly

Material hazards include environmental and chemical hazards. Environmental hazards at work are essential to understand the dangers of physical working conditions (see working conditions above). Chemical hazards at work are essential to understand the dangers of physical working conditions (see working conditions above).

Expected relationship with other sub concepts:

Environment hazards (noise) are expected to be associated with lower socioeconomic position, heart problems, smoking and poor self-reported health (Bambra, 2011; Gan et al., 2010). For example, chronic exposure to occupational noise is strongly associated with prevalence of cardiovascular heart disease, especially for young male current smokers). Chemical hazards (contact with chemical products) are expected to be associated with lower socioeconomic position, poor self-reported health (Bambra, 2011), skin conditions and heart problems (Price, 2004).

Question wording:

****F35b CARD 78** And in any of the jobs you have ever had, which of the things on this card were you exposed to? **INTERVIEWER PROBE:** Which others?

CODE ALL THAT APPLY

Very loud noise	01
Very hot temperatures	02
Very cold temperatures	03
Radiation such as X-rays	04
Handling, breathing in or being in contact with chemical products, vapours or substances ¹⁰	05
Breathing in other types of smoke, fumes ¹¹ , powder or dust	06
(None of these)	55
(Don't know)	88

SUB CONCEPT NAME: Job control

Describe the first sub concept in detail outlining any further sub concepts or specifying that it can be measured directly

Job control is a very important psychosocial aspect of working conditions (e.g. in the European Survey of Working Conditions). The 'psychosocial work environment' is a collective way of referring to psychological and social influences on health such as time pressure, social reciprocity, job control and autonomy, fairness, and work demands. There is strong evidence of relationships between job strain and adverse

⁹ 'Carrying' in the sense of picking something up and moving it.

¹⁰ Chemical refers to products, vapours and substances

¹¹ Fumes in the sense of gases

health outcomes including coronary heart disease (Hemmingway and Marmot, 1999) and associated risk factors (Brunner et al, 2007; Chandola et al, 2006), musculoskeletal pain (Bongers et al, 1993) as well as psychological ill health (Stansfeld et al, 1999). Job control cannot be measured directly. It requires further sub concepts, such as organization of working life and working hours, which are both part of the core module of the ESS.

The nature of work in Europe has altered considerably in recent decades, with a rise in flexible – or precarious - employment: increasing numbers of people are working on either temporary contracts or no contracts, characterised by lower levels of security and poorer working conditions (Benach et al, 2002). Precarious employment is usually associated with low income, long and unsociable working hours and high job strain (Quinlan et al, 2001). A core measure of working hours will make it possible to combine a psychosocial measure with the physical working condition enabling analyses of the independent and joint contribution of these two concepts to socioeconomic inequalities in health.

Expected relationship with other sub concepts

A number of adverse physical and mental health indicators are associated with precarious employment including stress, fatigue, backache and muscular pains, self-reported health, minor psychiatric morbidity, blood pressure, health related behaviours as well as mortality (Benavides et al, 2000; Ferrie et al., 2002; Kivimäki et al, 2003).

There is a sizeable body of evidence that demonstrates the negative effects of shift work, and particularly night work, on health and wellbeing (Åkerstadt, 1990; Monk and Folkard, 1992). Reported health problems include sleep disturbances, fatigue, digestive problems, emotional problems, cardiovascular problems, and stress-related illnesses, as well as increases both in general morbidity and in sickness absence (Pilcher et al, 2000; Bøggild, 2000). We therefore expect associations with back pain, poor self-reported health, low socioeconomic position, stomach pain, heart problems, and health related behaviors (for example smoking).

Long working hours have been shown to have negative health impacts (Sparks et al, 1997) and shift work, and working long hours or abnormal hours may result in work-life balance problems which can in turn result in poorer health (Johansson, 2002). We therefore expect the variable to be associated with low socioeconomic position, heart disease (Yang et al., 2006) and poor self-rated health from the core module. Previous research has also demonstrated associations with overweight, smoking and excessive alcohol consumption (Shields, 1999). These are therefore associations that we could expect to find in our module as well.

Question wording (Core ESS items):

ASK ALL WORKING/PREVIOUSLY WORKED

CARD 75 I am going to read out a list of things about your working life. Using this card, please say how much the management at your work allows/allowed you **_ READ OUT _**

	I have/ had no influence											I have/had (Don't complete know) control	
F27	_ to decide how	00	01	02	03	04	05	06	07	08	09	10	88
	your own daily												
	work is/was												
	organised?												

F28	_ to influence policy decisions about the activities of the organisation?	00	01	02	03	04	05	06	07	08	09	10	88
F29	What are/were your total 'basic' or contracted hours each week (in your main job), excluding any paid and unpaid overtime? INTERVIEWER: 0 hours contract should be coded as 0 hours. Acceptable range of responses is between 0 and 168 hours.												
	WRITE IN HOURS:	<input type="text"/> <input type="text"/> <input type="text"/>											
	(Don't know)	888											
	(Do not have set 'basic' or contracted number of hours)	555 ¹²											
F30	Regardless of your basic or contracted hours, how many hours do/did you <u>normally work</u> a week (in your main job), including any paid or unpaid overtime. INTERVIEWER: Acceptable range of responses is between 0 and 168 hours.												
	WRITE IN HOURS:	<input type="text"/> <input type="text"/> <input type="text"/>											
	(Don't know)	888											

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¹² **NEW CODE SINCE ESS7.**

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COMPLEX CONCEPT NAME: Alcohol consumption

Describe the concept in detail, outlining the various sub concepts it comprises

According to the World Health Organization (WHO), alcohol consumption is a leading risk factor for mortality and morbidity related to both intentional and unintentional injury. In 2000, 16.2% of deaths and 13.2% of disability-adjusted life years (DALYs) from injuries were estimated to be attributed to alcohol in the entire world (Cherpitel C. et.al, 2009). Heavy drinking and alcohol abuse or dependence are common problems in most European countries, and result in substantial suffering, mortality and economic costs. Injuries attributable to alcohol are a growing concern from a public health perspective, as alcohol related injuries such as traffic accidents, burns, poisonings, falls and drowning make up more than a third of the disease burden attributable to alcohol consumption. The WHO estimates that 2.3 million premature deaths occur every year as a result of harmful alcohol use (Cherpitel C. et.al, 2009). The impact of alcohol affects not only those who are intoxicated at the time of injury, but also those who are direct victims of their behaviour. In addition, heavy alcohol drinking has substantial psychological, social and family consequences that extend beyond the individual.

Despite the relevance of alcohol as a risk factor for mortality, there is limited understanding of how alcohol consumption is related to social and economic factors, and how this varies across European countries. Patterns of alcohol consumption vary enormously across Europe. For example, moderate wine drinking is common in the Southern Mediterranean countries, where alcohol has historically been consumed during meals. In contrast, The Nordic European countries have historically been characterized by higher levels of binge drinking. Furthermore, excessive alcohol consumption is not equally distributed within a society. Research indicates that there is a strong social gradient in excessive alcohol consumption, which contributes substantially to social inequalities in health and mortality. For example, it is estimated that up to a third of excess mortality in the lower socioeconomic groups in Finland could be attributable to alcohol consumption.

The measurement of alcohol consumption in this module is not only important given the major burden attributable to alcohol from a public health perspective, but also because alcohol patterns are socially and culturally determined, and the way alcohol relates to social, economic and employment variables is likely to differ substantially across countries. In addition, alcohol policies targeted to altering alcohol consumption patterns differ enormously across Europe. Through cross-nationally comparative data on alcohol, researchers will be able to examine how alcohol policies may have an impact on overall alcohol consumption patterns.

In this module, the QDT aims to measure three dimensions of alcohol consumption: (a) the frequency of alcohol consumption, (b) the quantity of alcohol consumed, and (c) binge drinking. Whereas consuming a high volume of alcohol is mostly associated with health risks, heavy drinking occasions are especially harmful in terms of violence, injuries, and accidents that result from these episodes (WHO, 2004). Hence, because of the broad range of adverse consequences of alcohol use, it is essential to understand the determinants of multiple dimensions of alcohol use, instead of focusing on one aspect. Although this will require the use of three items in the module, we believe that this is necessary to fully and accurately capture alcohol consumption. Additionally, this is necessary to do justice to cross-national variations in alcohol consumption patterns (i.e., some countries are characterized by high binge drinking but low overall frequency of alcohol use, whereas in other countries the opposite pattern can be observed). We do not examine alcohol addiction or severe problem drinking. Although these dimensions of alcohol consumption would be interesting to study as well because of the strong effects on health, the QDT believes that it would not be feasible to study these dimensions as part of the current module, because of the low prevalence of severe problem drinking in most countries.

Recently, the World Health Organization has developed and validated an instrument to measure alcohol consumption, particularly focused on identifying hazardous or harmful alcohol use. The Alcohol Use Disorders Identification Test (AUDIT) is a 10-item screening questionnaire with 3 questions on the amount and frequency of drinking, 3 questions on alcohol dependence, and 4 on problems caused by alcohol. The AUDIT instrument was developed to assess alcohol dependence, adverse alcohol drinking, and adverse consequences of alcohol use. *Hazardous drinking* refers to a pattern of consumption that increases the risk

of harmful consequences for the user or others. *Harmful use* refers to alcohol consumption that leads to substantial physical and mental health consequences. *Alcohol dependence* refers to a cluster of behavioural, cognitive and physiological reactions that may develop after repeated alcohol use, and that include strong desire to consume alcohol, impaired control over consumption, persistence in drinking despite harmful consequences, a higher priority given to drinking than other activities, increased alcohol tolerance, and physical withdrawal symptoms if alcohol is discontinued (Babor, T., 2001). The AUDIT instrument comprehensively assesses all these dimensions of alcohol drinking behaviour, and has become a major tool for assessing alcohol consumption in several countries. The AUDIT instrument has been translated to a variety of languages, and a manual is available for its use. The instrument has been validated in many different contexts, and has shown high reliability and good psychometric properties (Allen, 2001; Reinert, 2007). The AUDIT questionnaire is available from the World Health Organization without copyright fee. A shorter version of the instrument, the AUDIT-C (which is a 3-item version) was developed to meet the challenge of brevity and ease of administration in broader settings. The AUDIT-C has been shown to have very good properties, and to perform almost as well as the 10-item AUDIT questionnaire to assess both, heavy/hazardous drinking and alcohol abuse or dependence (Bush et al. 1998).

Using a modified version of this approach requires collaboration with national experts on alcohol consumption, rather than with international experts, since precise knowledge on units and ways of serving drinks in all specific countries is required. Conversion of all specific units / drinks into one standard measure could be achieved after the survey. Potential problems of seasonal effects and time reference periods are less pertinent with the current phrasing used in the UK version of the AUDIT-C. For binge drinking, there is an explicit reference to a time period of within the last 12 months. Because of the salience of binge drinking as opposed to regular moderate consumption, we believe that respondents should be able to recall their general frequency of binge drinking in the last year.

The AUDIT-C is used to calculate a score as follows, with a total of 5+ indicating increased or higher risk drinking:

Questions	Scoring system					Your score
	0	1	2	3	4	
How often do you have a drink containing alcohol?	Never	Monthly or less	2 - 4 times per month	2 - 3 times per week	4+ times per week	
How many units of alcohol do you drink on a typical day when you are drinking?	1 - 2	3 - 4	5 - 6	7 - 9	10+	
How often have you had 6 or more units if female, or 8 or more if male, on a single occasion in the last year?	Never	Less than monthly	Monthly	Weekly	Daily or almost daily	

Expected relationship with other complex and simple concepts

From earlier research it is known that binge drinking and high quantity of alcohol consumption are negatively related to socioeconomic position (i.e., lower socioeconomic groups exhibit more binge drinking and consume higher quantities of alcohol). However, it has also been shown that this is not necessarily true for the *frequency* of alcohol consumption. The frequency of alcohol consumption is not clearly related to socioeconomic position. This is partly due to moderate and regular alcohol consumption having (modest) beneficial effects on health (mainly by reducing the risk of cardiovascular disease). Therefore, many individuals from higher socioeconomic groups drink moderately.

Binge drinking and a high quantity of alcohol consumed are negatively associated with people's health (e.g., by increasing the risk of several types of cancer, liver diseases, and accidents). Additionally, people who consume high quantities of alcohol have a higher BMI. However, regular consumption of moderate

quantities of alcohol (1-2 units per day) appears to be better for health than abstinence. Hence, the association between alcohol consumption is complex, and needs to be examined by distinguishing several dimensions of alcohol consumption.

In general, alcohol consumption (especially binge drinking and a high quantity of alcohol consumed) is expected to be positively related to other forms of health damaging behaviour that are included in this module, such as low physical activity, smoking, and low fruit and vegetable consumption.

SUB CONCEPT NAME: Frequency of alcohol consumption

Describe the first sub concept in detail outlining any further sub concepts or specifying that it can be measured directly

The frequency of alcohol consumption refers to how often people generally consume alcoholic drinks. The frequency of alcohol consumption does not include any further sub concepts, and it can be measured directly.

Expected relationship with other sub concepts

Frequency of alcohol consumption, quantity of alcohol consumption, and binge drinking are not necessarily positively correlated.

The relationship between these sub-concepts differs across countries. In some countries (e.g., in Northern Europe), binge drinking is relatively high whereas the frequency of alcohol consumption is relatively low. In Southern Europe, we observe the opposite pattern. Typically, people with a pattern of binge drinking usually have a low rather than high frequency of alcohol consumption. Therefore, the three sub-concepts represent truly different dimensions of alcohol consumption, rather than strongly interrelated items within a general internally consistent dimension of alcohol use.

Question wording:

ASK ALL

D6 CARD 36 In the last 12 months, that is since [MONTH, YEAR], how often have you had a drink containing alcohol? This could be wine, beer, cider¹³, spirits or other drinks containing alcohol. Please choose an answer from this card.

INTERVIEWER: Refer to the same month as the interview but of the previous year. For example, if the interview takes place in September 2014, use [September 2013].

Every day	01	ASK D7
Several times a week	02	
Once a week	03	
2-3 times a month	04	
Once a month	05	
Less than once a month	06	
Never	07	GO TO D11
(Don't know)	88	ASK D7

¹³ All countries should include 'wine, beer and spirits' as examples. If cider is not a well-known drink, countries may exclude this or substitute it with a different category of drink.

SUB CONCEPT NAME: Quantity of alcohol consumption

Describe the first sub concept in detail outlining any further sub concepts or specifying that it can be measured directly

The quantity of alcohol consumption refers to the number of drinks or units consumed on a typical day. The quantity of alcohol consumption does not include any further sub concepts, and it can be measured directly.

Expected relationship with other sub concepts

Frequency of alcohol consumption, quantity of alcohol consumption, and binge drinking are not necessarily positively correlated. The relationship between these sub-concepts differs across countries. In some countries (e.g., in Northern Europe), binge drinking is relatively high whereas the frequency of alcohol consumption is relatively low. In Southern Europe, we observe the opposite pattern. Typically, people with a pattern of binge drinking usually have a low rather than high frequency of alcohol consumption.

Therefore, the three sub-concepts represent truly different dimensions of alcohol consumption, rather than strongly interrelated items within a general internally consistent dimension of alcohol use.

Question wording:

ASK IF CODE 01, 02, 03, 04, 05, 06 OR 88 AT D6

D7 CARD 37 Please think about the last time you were drinking alcohol on a Monday, a Tuesday, a Wednesday or a Thursday.

INTERVIEWER PAUSE TO ALLOW RESPONDENT TO CONSIDER THE SHOWCARD.

How many of each of the following drinks did you have on that day? Use this card to guide your answer.

INTERVIEWER PROBE: any other drinks?

INTERVIEWER: If respondent gives an answer that is not on the card, please refer to the box below:

INTERVIEWER RECORD NUMBER OF EACH TYPE OF DRINK:

(Never drink alcohol Monday to Thursday) 555

(Don't know) 888

NOTE ON ADMINISTRATION OF D7: Country specific question. Translation of the source question wording should be carried out as normal in all countries. Country specific answer categories and showcards will be developed in consultation with ESS ERIC HQ (ess@city.ac.uk). The interviewer guidance box referred to in the interviewer note will also be country specific and agreed during the consultation process. Responses for D7 will be recoded into grams of alcohol before data deposit. See separate adaptation guidelines for further information.

D8 STILL CARD 37 Now please think about the last time you were drinking alcohol on a Friday, a Saturday or a Sunday.

INTERVIEWER PAUSE TO ALLOW RESPONDENT TO CONSIDER THE SHOWCARD.

How many of each of the following drinks did you have on that day?

INTERVIEWER PROBE: any other drinks?

INTERVIEWER: If respondent gives an answer that is not on the card, please refer to the box below:

INTERVIEWER RECORD NUMBER OF EACH TYPE OF DRINK:

(Never drink alcohol Friday to Sunday) 555

(Don't know) 888

NOTE ON ADMINISTRATION OF D8: Country specific question. Translation of the source question wording should be carried out as normal in all countries. Country specific answer categories and showcards will be developed in consultation with ESS ERIC HQ (ess@city.ac.uk). The interviewer guidance box referred to in the interviewer note will also be country specific and agreed during the consultation process. Responses for D8 will be recoded into grams of alcohol before data deposit. See separate adaptation guidelines for further information.

SUB CONCEPT NAME: Binge drinking

Describe the first sub concept in detail outlining any further sub concepts or specifying that it can be measured directly

Binge drinking refers to the frequency of drinking 6 or more (females) or 8 or more (males) units of alcohol on a single occasion. Binge drinking does not include any further sub concepts, and it can be measured directly.

Expected relationship with other sub concepts

Frequency of alcohol consumption, quantity of alcohol consumption, and binge drinking are not necessarily positively correlated. The relationship between these sub-concepts differs across countries. In some countries (e.g., in Northern Europe), binge drinking is relatively high whereas the frequency of alcohol consumption is relatively low. In Southern Europe, we observe the opposite pattern. Typically, people with a pattern of binge drinking usually have a low rather than high frequency of alcohol consumption. Therefore, the three sub-concepts represent truly different dimensions of alcohol consumption, rather than strongly interrelated items within a general internally consistent dimension of alcohol use.

Question wording:

D9 INTERVIEWER CODE:

Respondent is male 1 **ASK D10a**

Respondent is female 2 **GO TO D10b**

ASK IF CODE 1 AT D9

D10a CARD 38 This card shows six different examples of how much alcohol a person might drink on a single occasion.

INTERVIEWER PAUSE TO ALLOW RESPONDENT TO CONSIDER THE SHOWCARD.

In the last 12 months, how often have you drunk this amount of alcohol or more on a single occasion? Was it... **READ OUT...**

...daily or almost daily,	1	GO TO D11
weekly,	2	
monthly,	3	
less than monthly,	4	
or, never?	5	
(Don't know)	8	

ASK IF CODE 2 AT D9

D10b CARD 39 This card shows six different examples of how much alcohol a person might drink on a single occasion.

INTERVIEWER PAUSE TO ALLOW RESPONDENT TO CONSIDER THE SHOWCARD.

In the last 12 months, how often have you drunk this amount of alcohol or more on a single occasion? Was it... **READ OUT...**

...daily or almost daily, 1

weekly, 2

monthly, 3

less than monthly, 4

or, never? 5

(Don't know) 8

NOTE ON ADMINISTRATION OF D10a & D10b: Country specific questions. Translation of the source question wording should be carried out as normal in all countries. Country specific showcards will be developed in consultation with ESS ERIC HQ (ess@city.ac.uk). See separate adaptation guidelines for further information.

References for Alcohol consumption

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COMPLEX CONCEPT NAME: Fruit and vegetable consumption

Describe the concept in detail, outlining the various sub concepts it comprises

It is widely accepted that fruit and vegetables are important components of a healthy diet, and that their consumption help prevent a range of diseases. In particular, ischemic heart disease, ischemic stroke, colorectal cancer, stomach cancer, lung cancer, oesophagus cancer and mouth & pharynx cancer belong to the major causes of death that are related to low fruit and vegetable intake (Ezzati et al., 2003).

Empirical studies have analyzed fruit and vegetable consumption in a very detailed form. For example, they have analysed the effects of particular fruit and vegetable sorts on a specific cause of death, e.g. high intake of cruciferous vegetables such as broccoli, cabbage or cauliflower may substantially reduce bladder cancer risk (Michaud et al., 1999).

Recent work has focused on the promotion of healthy life style in schools among teenagers and adolescents. In a review study, Ammerman et al. (2002) collected 22 studies reporting results for fruit and vegetable intake measured as either servings per day or in other units, such as fruit and vegetable consumption scores. Seventy seven percent of the studies could observe a significant effect in increasing fruit and vegetable intake. The increasing evidence that consumption of fruit and vegetables decreases the risk of several chronic diseases has created a firm basis for policy initiatives. However, knowledge of the actual intake distribution is needed for the strategies to be set up properly.

Currently, no survey containing valid measures of social stratification has measured fruit and vegetable consumption in representative European populations.

Consumption is not limited to *fresh* fruit and vegetables but should exclude juices. Although general measures of fruit and vegetable consumption are almost exclusively analysed in combination, this is an opportunity to examine whether it is the combination of them (or mainly fruit or vegetables) that contributes to better health.

Prevalence is available from the European Health Interview Survey (EHIS):

FV01. How often do you eat fruits (excluding juice)?

Twice or more a day	20.9%
Once a day	39.8%
Less than once a day but at least 4 times a week	11.9%
Less than 4 times a week but at least once a week	17.4%
Less than once a week	7.4%
Never	2.6%
Don't know	0.0%
Refusal	0.0%

FV02. How often do you eat vegetables or salad (excluding juice and potatoes)?

Twice or more a day	16.8%
Once a day	46.9%
Less than once a day but at least 4 times a week	15.4%
Less than 4 times a week but at least once a week	15.6%
Less than once a week	4.2%
Never	1.1%
Don't know	0.0%
Refusal	0.0%

Expected relationship with other complex and simple concepts

Increased consumption of fruit and vegetables has been shown to be associated with a reduced risk of stroke in most epidemiological studies (He et al., 2006). In our case, this can be extrapolated into an expected association with heart disease. It may also be associated with physical inactivity, smoking, alcohol consumption, and high BMI (Pérez, 2002).

SUB CONCEPT NAME: Fruit consumption

Describe the first sub concept in detail outlining any further sub concepts or specifying that it can be measured directly

Fruit consumption is included because it is one of two items which together constitutes the most frequently applied measure of dietary intake (fruit and vegetable consumption) which has been shown to have beneficial effects on several health outcomes (see above).

Fruit consumption can be measured directly and no further sub concepts are necessary. Frozen fruits should be included but fruit juices should be excluded. After all, frozen fruits largely retain their nutritional value, and therefore have the same expected beneficial effects on the health outcomes as fresh fruits. For fruit juices, however, this is not necessarily true: although certain natural fruit juices may also have beneficial effects on our health outcomes, fruit juices often have high quantities of added sugars, which may make them less beneficial for our health outcomes. It would be difficult to distinguish reliably between healthy and less healthy varieties of fruit juice in the questionnaire.

Expected relationship with other sub concepts

It has not been possible to distinguish the separate effects of fruits and vegetables in our literature review. Although some reviews have looked at specific sorts of fruits and specific sorts of vegetables, we have not identified any studies that have collected all fruits and all vegetables separately. It seems that epidemiological studies consistently apply both fruit and vegetables in their analyses. It will therefore be interesting to examine whether there is a separate effect of both indicators, or if it is the combination of them which makes them so powerful.

We expect low fruit- and vegetable consumption to be associated with low socioeconomic position (more so in the North compared to the South, see EUROTHINE report (2007)), cancer and stomach pain (given associations with oesophagus cancer and stomach cancer, see EURO-GBD-SE project), and heart disease ((Ezzati et al., 2003). It is also likely that we will see an association with high BMI (although this evidence is inconclusive – (see Azagba & Sharaf, 2012) and therefore also low levels of physical inactivity and diabetes because of their associations with BMI.

We also expect associations with poor self-rated health from the core module.

Question wording:

D2 CARD 34 Using this card, please tell me how often you eat fruit, excluding drinking juice?

INTERVIEWER: Frozen fruit should be included.

- | | |
|---|----|
| Three times or more a day | 01 |
| Twice a day | 02 |
| Once a day | 03 |
| Less than once a day but at least 4 times a week | 04 |
| Less than 4 times a week but at least once a week | 05 |
| Less than once a week | 06 |
| Never | 07 |
| (Don't know) | 88 |

SUB CONCEPT NAME: Vegetable consumption

Describe the first sub concept in detail outlining any further sub concepts or specifying that it can be measured directly

Vegetable consumption is included because it is one of two items which together constitutes the most

frequently applied measure of dietary intake (fruit and vegetable consumption) which has been shown to have beneficial effects on several health outcomes (see above).

Vegetable consumption can be measured directly and no further sub concepts are necessary. Salads and frozen vegetables should be included but potatoes and vegetable juices should be excluded. After all, frozen vegetables largely retain their nutritional value, and therefore have the same expected beneficial effects on the health outcomes as fresh vegetables. For vegetable juices, however, this is not necessarily true: although certain natural vegetable juices may also have beneficial effects on our health outcomes, vegetable juices often have high quantities of added sugars and/or salt, which may make them less beneficial for our health outcomes. It would be difficult to distinguish reliably between healthy and less healthy varieties of vegetable juice in the questionnaire. In contrast to other vegetables, little research supports a positive link between potato consumption and health outcomes.

Expected relationship with other sub concepts

Refer to details under the 'fruit' sub-concept.

Question wording:

D3 STILL CARD 34 Using the same card, please tell me how often you eat vegetables or salad, excluding potatoes?

INTERVIEWER: Frozen vegetables should be included.

Three times or more a day	01
Twice a day	02
Once a day	03
Less than once a day but at least 4 times a week	04
Less than 4 times a week but at least once a week	05
Less than once a week	06
Never	07
(Don't know)	88

References for Fruit and vegetable consumption

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COMPLEX CONCEPT NAME: Health care utilization

Describe the concept in detail, outlining the various sub concepts it comprises

Socioeconomic differences in the use of health care services have been widely reported. People in a lower socioeconomic position are less likely to use preventive health services (Veugelers and Yip 2003). Moreover, they tend to be more intensive users of general practitioners, while higher socioeconomic groups report significantly more specialist contacts, even when taking into account the generally poorer health of lower socioeconomic groups (Droomers and Westert 2004; van Doorslaer et al. 2004; Mielck et al. 2007). A number of possible reasons for such disparities have been suggested, including systematic differences by socioeconomic position in interpretation of symptoms and perception of the need for health care (Adamson et al 2003). However, only a few studies have been conducted to analyse such differences. For example, in the Netherlands a lower educational level has been found to be associated with a higher tendency to consult a doctor (van der Meer and Mackenbach 1998), and in the US, lower socioeconomic groups were more likely to report that they would access medical care immediately in response to a clinical scenario (Adamson et al. 2003). It has also been shown with ESS data that there are systematic differences of people's health care seeking behavior between welfare states belonging to different welfare regimes (Grosse Frie et al., 2010).

The QDT has extensive experience in this field. For example, Johan Mackenbach coordinates the AMIEHS project jointly with the London School of Hygiene & Tropical Medicine, which aims to develop a 'new' list of indicators (causes of death) for which mortality rates are likely to reflect variations in the effectiveness of health care, with health care being limited to primary care, hospital care and personalized health services (see LSHTM home page: <http://www.lshtm.ac.uk/>).

Perception of need for seeking primary health care was part of a module on 'health and care seeking' in Round 2 of the ESS. It was measured by the reported tendency to consult a doctor in case of four hypothetical symptoms (very sore throat, serious headache, serious sleeping problems and serious backache). Respondents were asked to whom they would go first for advice or treatment. For every symptom there were eight answer categories: (1) nobody, (2) friends or family, (3) pharmacist/chemist/drugstore, (4) doctor, (5) nurse, (6) the internet/web, (7) a medical helpline and (8) other practitioner. Adding to our knowledge about the reversed social gradients with respect to GP and specialist seeking behavior, one question should therefore also be added as to whether the respondent has been treated by a specialist the last year. However, this question only reflected health care use in hypothetical scenarios (Grosse Frie et al. 2010). To advance this, we propose asking about self-reported experiences of actual visits and hospitalizations. We therefore suggest drawing upon key questions from the European Community Household Panel (ECHP), by asking about hospital admissions, the number of visits to a general practitioner or medical specialist over the previous 12 months, which we know have important variations in OECD countries (van Doorslaer et al. 2006).

The key distinction for Round 7 is between secondary and primary care. The module will try to capture social inequalities in health care utilization (there are likely to be different patterns with regards specialist health care and generalist health care). There may be large cross national differences in means of accessing health care (especially specialists). For example, in many countries people can only access a specialist with a referral from a generalist practitioner. In other countries people can access a specialist directly.

Expected relationship with other complex and simple concepts

Socioeconomic differences in the use of health care services have been widely reported. People in a lower socioeconomic position are less likely to use preventive health services (Veugelers and Yip 2003). Moreover they tend to be more intensive users of general practitioner while higher socioeconomic groups report significantly more specialist contacts, even when taking into account the generally poorer health of lower socioeconomic groups (Droomers and Westert 2004 van Doorslaer et al. 2004; Mielck et al. 2007).

SUB CONCEPT NAME: Access to healthcare

Describe the first sub concept in detail outlining any further sub concepts or specifying that it can be measured directly

While we expect actual utilisation of health care to be the most important determinant of health inequalities in the module, measures concerning access to health care (including affordability, trust or geographical distance) are also of interest.

The concept of “unmet need” may also be useful to measure variations in access. EU-SILC 2007 (Baert & De Norre, 2009) included the following question: “Was there any time during the last twelve months when, in your opinion, you personally needed a medical examination or treatment for a health problem but you did not receive it?” A follow-up question asked for perceived reason for the unmet need.

Direct questions on whether respondents have private health insurance and their geographical location (urban versus rural residence, to estimate availability of physicians) could also be useful in research on social inequalities in health care utilisation. The suggestion of asking a direct question on whether respondents have private health insurance has been discussed. It was felt that this could be a sensitive question in some countries where private health insurance is a legal requirement. In some countries the term ‘private’ may be complicated for some respondents, as there may be a hybrid public/private insurance system. It was agreed that this issue could be covered instead with contextual data.

Useful contextual data include number of doctors per 1000 population in various countries and regions. Other data of interest would be average levels of out-of-pocket expenses for the various services compared to average levels of income, the national prevalence of private health insurance, the availability of universal health care in a given country and whether there is ‘gate-keeping’ for secondary care.

Expected relationship with other sub concepts

Financial and geographical access to health care is expected to mediate the use of primary and secondary health services.

Question wording:

D14 CARD 41 In the last 12 months, that is since [MONTH, YEAR], were you ever unable to get a medical consultation or the treatment you needed for any of the reasons listed on this card?

INTERVIEWER: Refer to the same month as the interview but of the previous year. For example, if the interview takes place in September 2014, use [September 2013].

Yes	1	ASK D15
No	2	GO TO D16
(Don't know)	8	

ASK IF CODE 1 AT D14

D15 STILL CARD 41 Which of the reasons on the card explains why you were unable to get this medical consultation or treatment?

CODE ALL THAT APPLY.
INTERVIEWER PROBE: 'Any others'?

Could not pay for it	01	GO TO D17
Could not take the time off work	02	
Had other commitments	03	
The treatment you needed was not available where you live or nearby	04	
The waiting list was too long	05	
There were no appointments available	06	
Other (WRITE IN) _____	07	
(Don't know)	88	

ASK IF CODE 2 OR 8 AT D14

D16 Was that because...**READ OUT...**

- ... you were able to get any medical consultation or treatment you needed, 1
- or, you did not need a medical consultation or treatment in the last 12 months? 2
- (Don't know) 8

SUB CONCEPT NAME: Use of alternative health care

Describe the first sub concept in detail outlining any further sub concepts or specifying that it can be measured directly

According to an article in JAMA (Eisenberg et al., 1998) 42 percent of the US population used at least one alternative therapy in 1997. Use was more frequent among women than men (49 percent vs. 38 percent), and was most frequent (50 percent) in the 36-49 year age bracket. The use was higher in those with college education (51%) and with higher incomes. The authors note that the high use of alternative medicine is occurring in the setting of low insurance coverage. Still, the few studies available suggest that use of alternative medicine is more frequent in higher social classes, which is a similar relationship as observed for use of medical specialists.

Expected relationship with other sub concepts

A number of studies demonstrate that there are marked differences in both the demographic characteristics and health conditions of users of alternative medicine and non-users. A Canadian review (Wiles & Rosenberg, 2001) suggests that those with a higher level of education, particularly some college education, are also more likely to utilise alternative services (Astin, 1998; Eisenberg et al (1993;1998); Goldstein and Glik, 1998; Kelner and Wellman, 1997a-b; Kitai et al., 1998). The gradation for increasing education appears to be stronger for women (Millar, 1997).

There are a number of potential reasons for the importance of education, such as exposure to non- traditional forms of health in the course of education/reading or that patients educate themselves about illnesses and variety of possible treatments (Astin, 1998). Although users of alternative medicine may be better educated on average, it does not necessarily follow that they are better informed about the efficacy of alternative forms of treatment (Goldstein and Glik, 1998). It may also be that highly educated individuals are more willing to question the authority of conventional practitioners, and opt for alternative medicine.



Question wording:

ASK ALL

D19 CARD 44 In the last 12 months, that is since [MONTH, YEAR], which of the treatments on this card have you used for your own health?

INTERVIEWER: Refer to the same month as the interview but of the previous year. For example, if the interview takes place in September 2014, use [September 2013].

PROBE: Which others?

CODE ALL THAT APPLY

Acupuncture	01
Acupressure	02
Chinese medicine ¹⁴	03
Chiropractics	04
Osteopathy	05
Homeopathy	06
Herbal treatment	07
Hypnotherapy	08
Massage therapy	09
Physiotherapy	10
Reflexology	11
Spiritual Healing	12
(None of these)	55
(Don't know)	88

SUB CONCEPT NAME: Consultation of general practitioner

Describe the first sub concept in detail outlining any further sub concepts or specifying that it can be measured directly

In a study by Van Doorslaer et al 2006 mainly using recent ECHP data, the mean number of GP visits ranged from about 2.1 (Greece) to about 5.2 visits (Germany). In the same study, prevalence of GP visits in the past year ranged from about 54% in Greece to about 87% in Belgium (Van Doorslaer et al. 2006).

Expected relationship with other sub concepts

Recent international studies have generally found general practitioner utilization to be equitably distributed by education (Stirbu et al 2011) and income (Van Doorslaer et al 2006) in European countries, adjusting for available measures of need (self-reported health status and age). Higher unadjusted utilisation of GP consultations is expected in low SES groups due to poorer health status.

Question wording:

D13 CARD 40 In the last 12 months, that is since [MONTH, YEAR], with which of the health professionals on this card have you discussed your health?

INTERVIEWER: Refer to the same month as the interview but of the previous year. For example, if the interview takes place in September 2014, use [September 2013].

CODE ALL THAT APPLY.

INTERVIEWER PROBE: 'Any other'?

INTERVIEWER: include any form of communication and home visits.

¹⁴ meaning traditional Chinese Medicine not other forms of Asian medicine

General Practitioner ¹⁵	1
Medical Specialist (excluding dentists)	2
(None of these)	5
(Don't know)	8

SUB CONCEPT NAME: Consultation of medical specialist

Describe the first sub concept in detail outlining any further sub concepts or specifying that it can be measured directly

A medical specialist is a doctor whose practice is limited to certain groups of patients, diseases or treatments. Treatment by medical specialists is considered secondary care, as opposed to primary care, and is treated as distinct from specialist care received while hospitalised. 'Consultation during hospitalisation' is excluded to avoid overlap with hospitalization, which is a separate sub-concept. Dentists should not be included. Examples of specialists are orthopedist / orthopedic surgeons, cardiologist allergologist, or pneumologist. Here is a much more extensive list: <http://www.webmd.com/a-to-z-guides/medical-specialists-medical-specialists> (WebMD, 2012).

In a study by Van Doorslaer et al 2006 concerning a group of OECD countries, the mean number of specialists visits in the past year ranged from about 0.5 (Ireland) to about 3.3 (Germany). In the same study, prevalence of specialist visits ranged from about 22% (Ireland) to about 64% (Austria).

Expected relationship with other sub concepts

Recent international studies have generally found medical specialist utilisation to be distributed in favour of high SES (Stirbu et al 2011, Van Doorslaer et al 2006) in European countries, adjusting for available measures of need (self-reported health status and age). Higher unadjusted utilisation of medical specialists in low SES groups is possible due to poorer health status in these groups.

Question wording:

See question wording for D13 (Consultation of general practitioner) above – same question wording used to capture Consultation of a medical specialist.

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COMPLEX CONCEPT NAME: Dimensions of mental wellbeing

Describe the concept in detail, outlining the various sub concepts it comprises

Mental health problems are a major public health issue. Worldwide depression is becoming one of the most important illnesses. Mental health is a considerable element of general well-being and quality of life. Moreover, psychological discomfort means not only personal suffering, but also has a significant impact on the immediate environment (such as relationships with partner or children) and the society. Mental health problems also have a major economic cost. Mental health complaints are a major cause of absenteeism and declining productivity at work (Lerner et al., 2004; Lerner & Henke, 2008). In addition, the total expenditures for psychotropic drugs and mental healthcare use have risen in most industrialized countries (Amin, 2012; Cassano & Fava, 2002; Casteels et al., 2010; Hermans, De Witte, & Dom, 2012).

On the one hand, people are worried about this increase of psychotropic (or psychoactive) drugs use and the prominent role of medication in mental health treatment. They often refer to the increasing medicalization of unhappiness and therefore the expansive treatment with antidepressants (Conrad, 2005, 2007). On the other hand, there is still unmet need and limited access to medical treatment of mental health problems in some at-risk populations. Not only in physical health, but also in mental health and mental health care use, there are social inequalities, both nationally as internationally (Empereur, Baumann, Alla, & Briancon, 2003; Olfson & Marcus, 2009).

Expected relationship with other complex and simple concepts

Marital status- The majority of the studies have shown the detrimental effects of divorce on mental health, with the divorced experiencing higher levels of depression, stress, and fear (Amato, 2000; Diener, Gohm, Suh, & Oishi, 2000; Wade & Cairney, 2000; Wade & Pevalin, 2004; Strohschein, McDonough, Monette, & Shao, 2005; Kalmijn & Monden, 2006).

Age- It is very well known that mental health problems increase with age. This increase is reflected in the use of care (Koopmans & Lamers, 2006). However, when we examine health care use, controlling for mental health status, the results of the influence of age are less consistent. The findings often depend on the age range of the sample.

Income- Research has already indicated that people with high incomes more often use specialized care, while those with low incomes more often contact a GP (Alegria, Bijl, Lin, Walters, & Kessler, 2000; Gouwy, Christiaens, & Bracke, 2008; Vasiliadis, Tempier, Lesage, & Kates, 2009).

Education- Research has observed that mainly the highly educated tend to contact specialized professional help, while the less educated more often use GP consultations (Alonso, 2004 et al.; Bijl & Ravelli, 2000; Gouwy et al., 2008; Svensson, Nygard, Sorensen, & Sandanger, 2009; Ten Have, Oldehinkel, Vollebergh, & Ormel, 2003; Tjhuis, Peters, & Foets, 1990; Vasiliadis et al., 2009).

Employment status- There are conflicting findings regarding the relationship between employment status and mental healthcare use. Some studies show that unemployed people are less likely to seek professional help when faced with depressive symptoms (Alonso et al., 2007; Gouwy et al., 2008), while other studies indicate a higher use of care among the unemployed (Bebbington et al., 2000; Bijl & Ravelli, 2000; Cairney & Wade, 2002; Isacson & Haglund, 1988).

SUB CONCEPT NAME: Depressive Feelings

Describe the first sub concept in detail outlining any further sub concepts or specifying that it can be measured directly

Depression is a major public health issue. This item is intended to measure feelings of depression using a single item. For the operationalization of depressive feelings, the first item of the 8-item version of the Centre of Epidemiological Studies Depression Scale (CES-D scale) (Radloff, 1977) is used. The wording

below is the same used in E8 in ESS Round 3 and D5 in ESS Round 6.

Expected relationship with other sub concepts

When studying social inequalities in medical treatment for mental health problems, it is very important to take indicators of mental health status into account and to pay attention to gender differences. The differential expression hypothesis and stress theory argue that men externalize and women internalize stress and emotional problems (Cotton, Wright, Harris, Jorm, & McGorry, 2006; Dohrenwend & Dohrenwend, 1976). When both depressive feelings and the consumption of alcohol are used as indicators of mental health, this gendered expression of mental health problems should be taken into account.

To account for the co-morbidity between mental and physical health, subjective health is included as an additional indicator. Self-rated health is widely used as an indicator of need because it has a good prognostic value (Idler & Benyamini, 1997), even for mental health (Thielke, Diehr, & Unutzer, 2010). Alcohol consumption and general health are already included in the questionnaire.

Question wording:

CARD 45 I will now read out a list of the ways you might have felt or behaved during the past week. Using this card, please tell me how much of the time during the past week - **READ OUT** -¹⁶

		None or almost none of the time	Some of the time	Most of the time	All or almost all of the time	(Don't know)
D20	- you felt depressed?	1	2	3	4	8
D21	- you felt that everything you did was an effort?	1	2	3	4	8
D22	- your sleep was restless?	1	2	3	4	8
D23	- you were happy?	1	2	3	4	8
D24	- you felt lonely?	1	2	3	4	8
D25	- you enjoyed life?	1	2	3	4	8
D26	- you felt sad?	1	2	3	4	8
D27	- you could not get going ¹⁷ ?	1	2	3	4	8

SUB CONCEPT NAME: Sleep Quality

Describe the first sub concept in detail outlining any further sub concepts or specifying that it can be measured directly

Sleep complaints are a common symptom in the general adult population and have been frequently observed in lower SES individuals. White-collar workers report better sleep than blue-collar workers, in terms of the difficulty in falling asleep, waking up frequently in the night and early morning

¹⁶ The same translation for this battery should be used as in D5-D12 in ESS6.

¹⁷ 'could not get going' in the sense of 'felt lethargic and lacked motivation'.

awakening. Individuals from disadvantaged social classes are more likely to have sleep disturbances.

During periods of severe economic recession in Finland, blue-collar workers were more likely to suffer from sleep problems than white-collar workers.

Previous research suggests that social inequalities in sleep could influence, in part, social inequalities in physical and, in particular, mental health (Sekine et al. 2006). Furthermore, among various aspects of sleep, quality aspects of sleep (i.e. subjective sleep quality, sleep latency and sleep disturbances) contributed more to the reduction in social inequalities in health than quantity aspects of sleep (i.e. sleep duration). Therefore, this module focuses rather on quality of sleep than on quantity.

Poor sleep quality includes difficulty in falling asleep, waking up frequently in the night and early morning awakening.

The item measuring sleep quality is included in the 8-item version of the Centre of Epidemiological Studies Depression Scale (CES-D scale) (Radloff, 1977), see above.

Expected relationship with other sub concepts

Although there have been relatively fewer studies on the impact of poor sleep quality on health, significant associations of sleep quality with physical and mental health have been observed. In addition, there is some evidence that sleep quality has a stronger impact on health than sleep quantity. Individuals of low socioeconomic status (SES) are likely to have poor sleep and poor health. Sleep quality may mediate the relationship between SES and physical and, in particular, mental health in men.

Question wording:

Please refer to question wording for D22 under the sub-concept 'Depressive Feelings' (above).

References for Dimensions of mental wellbeing

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SIMPLE CONCEPT NAME: Smoking

Describe the concept in detail

Tobacco is widely recognized as one of the most prominent causes of morbidity and premature mortality in Western Europe and North America. Each year, tobacco is responsible for approximately one fifth of all deaths (Danaei et al., 2009). Tobacco smoking is associated with an elevated risk of ischemic heart disease, hypertension, cardiovascular diseases, respiratory diseases, and multiple forms of cancer. Additionally, passive smoking (i.e., inhalation of smoke) is related to a heightened risk of lung cancer.

Although the association between smoking and morbidity and mortality is well-established, less is known about the social determinants of smoking, and variation in smoking behaviour across European countries. A study by Cavelaars et al. (2000) demonstrated that there are marked differences across Europe in the prevalence of smoking, as well as educational differences in smoking behaviour. This implies that smoking is strongly driven by social and cultural determinants. Most notably, differences in the prevalence of smoking between educational groups appeared to be particularly large in Northern Europe, and smallest in Southern Europe. Among Southern European women, the higher educated even appeared to smoke more than the lower educated. An article examining the trend in the educational gradient in smoking between 1985 and 2000 revealed that in most European countries the educational differences in smoking converge towards the pattern observed in the Northern European countries (Giskes et al., 2005). This implies that an increasingly selective group of Europeans from the lower socioeconomic strata will be affected by smoking-related diseases in the next few decades. These expectations were confirmed via ESS 7 data showing that lower educated are more likely to engage in smoking behaviour (Huijts et al. 2017a).

However, this earlier work on the social determinants of smoking in Europe was based on data that were not fully comparable; information on both smoking behaviour and the social background of respondents was collected through different survey questions and through different sampling designs. Moreover, most studies only included data from a limited number of Western European countries. In order to achieve an adequate and comprehensive comparison of smoking behaviour and the social determinants of smoking across Europe, it is crucial to gather comparable data on a large number of countries in both Western and Eastern Europe simultaneously. These regional differences have been documented in ESS 7 studies that showed lower prevalence of current smokers in Northern Europe and the highest in Central and Eastern Europe (Huitjs et al. 2017b)

Additionally, examining smoking behaviour in a large number of European countries would allow researchers to investigate the impact and effectiveness of smoking-related policies. Recently, several European countries have implemented smoking bans in public places. Furthermore, strong efforts have been made to keep youngsters from starting smoking (e.g. by obliging cigarette producers to place warnings on cigarette packs, and by increasing taxes on tobacco), and to encourage adults to quit smoking (e.g. by large media campaigns). By comparing multiple European countries especially in two points in time (ESS7 and ESS11), scholars will be able to assess the impact of these policies on smoking behaviour.

In sum, given the large impact of tobacco smoking on morbidity and mortality, and the considerable insights that could be gained from comparing the social determinants of smoking across a large number of European countries, we include measures of smoking behaviour in the revised module on the social determinants of health for the ESS with only minor changes to ESS 7. Specifically, we provide a cut off of 10 cigarettes per day to distinguish between heavy and non-heavy smokers and removed the follow up question inquiring on the specific number of cigarettes smoked daily. This choice was driven by prevalence of smokers below and above 10 cigarettes in ESS round 7 and from the meagre use of number of cigarettes in studies using smoking behavior in their ESS 7 analysis. 'Years of smoking' is not included in the module, given the space limitations. The most important issue is whether the respondent smokes and how much. Second hand smoke (passive smoking) is also an important policy concern but is a problematic item to formulate to capture the different environments that we would want respondents to include. It is felt that it would not be feasible to measure passive smoking accurately, comprehensively, and comparably within the scope of this module.

Question wording:

D5 CARD 35 Now thinking about smoking cigarettes. Which of the descriptions on this card best describes your smoking behaviour?

INTERVIEWER: Include rolled tobacco but not pipes, cigars or electronic cigarettes.

I smoke daily, usually 10 or more cigarettes	1		
I smoke daily, usually 9 or fewer cigarettes	2		
I smoke but not everyday	3		
I don't smoke now but I used to	4		
I have only smoked a few times	5		
I have never smoked	6		
(Refusal)	7		
(Don't Know)	8		

References for Smoking

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SIMPLE CONCEPT NAME: Activity and Participation Limitations

Describe the concept in detail

Many people worldwide live with a disability, i.e. limitations in functioning. Overall prevalence is expected to increase due to demographic change and the growing importance of non-communicable disease and injury (Dans, A., 2011). To date, many epidemiological studies have used simple dichotomous measures of disability, even though the WHO's International Classification of Functioning, Disability, and Health (ICF) provides a multi-dimensional framework of functioning (WHO, 2011; Reinhard et al. 2013). The International Classification of Functioning, Disability, and Health (ICF) has rapidly become a guiding model for disability research and a key tool for both population-based and clinical understanding of disability (Badley, 2008). The ICF comprises a biopsychosocial model in which a person's functioning and disability is conceived as a dynamic interaction between health conditions and both environmental and personal contextual factors. The ICF provides a conceptual framework linking these components, together with classification schemes for environmental factors and for the two components of functioning and disability:

(a) body functions and structures, and (b) activities and participation. The ICF defines 'activity' as the execution of a task or action by an individual, and 'participation' as involvement in life situations.

Expected relationship with other complex and simple concepts

Being in paid employment, having higher education or higher income is associated with lower levels of activity and participation limitation (Koukoulis, et al. 2002; Reinhardt et al. 2011; Altmets, K. et al. 2011). Stronger social network utilization is also related to lower levels of A&P limitation, which is consistently observed across age groups.

ESS Core Question wording:

C8 Are you hampered¹⁸ in your daily activities in any way by any longstanding illness, or disability, infirmity or mental health problem? **IF YES**, is that a lot or to some extent?

Yes a lot	1
Yes to some extent	2
No	3
(Don't know)	8

References for Activity and Participation Limitations

Altmets, K., Puur, A., Uusküla, A., Saava, A., Sakkeus, L., & Katus, K. (2010). Self-reported activity limitations among the population aged 20–79 in Estonia: a cross-sectional study. *The European Journal of Public Health*, 21(1), 49-55. doi: 10.1093/eurpub/ckp239

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SIMPLE CONCEPT NAME: Quality of housing

Describe the concept in detail

Poor housing conditions are associated with a wide range of health conditions, such as breathing problems (infections, asthma), injuries, and mental health.

The association between housing conditions and physical and mental ill health is well established. Specific housing-related factors that can affect health outcomes (reviewed by Bonnefoy et al., 2004) include: Agents that affect the quality of the indoor environment such as indoor pollutants (e.g. asbestos, carbon monoxide, radon, lead, moulds and volatile organic chemicals); cold, damp, housing design or layout (which in turn can affect accessibility and usability of housing), infestation, hazardous internal structures or fixtures, noise. There are also factors relating more to the broader social and behavioural environment such as overcrowding, sleep deprivation, neighbourhood quality, infrastructure deprivation (i.e. lack of availability and accessibility of health services, parks, stores selling healthy foods at affordable prices), neighbourhood safety and social cohesion. Other factors identified include those relating to the broader macro-policy environment such as housing allocation, lack of housing (i.e. homelessness, whether without a home or housed in temporary accommodation), housing tenure, housing investment, and urban planning. See *UK National Institute for Clinical Excellence (NICE) evidence briefing (2005) Housing and public health: a review of reviews of interventions for improving health* for further details.

The World Health Organization LARES (Large Analysis and Review of European housing and health Status) project involves eight European countries. The aims are to identify and compare the existing health risks associated with the number and type of housing conditions. Evidence is needed to support the development of housing policies that promote health and are environmentally sustainable. Results from ESS 7 show a clear association between breathing problems, severe headaches and depression and housing quality (McNamara et al. 2017). The item has been revised for ESS11 to allow exploration of which factors drive the item, and as a result to examine the different pathways to health.

¹⁸ 'Hampered' = limited, restricted in your daily activities.

Expected relationship with other complex and simple concepts

Poor housing is expected to have a negative effect on general self reported health. Health conditions can also impact on an individual's housing opportunities. Studies have also found an association between housing deprivation in childhood and higher rates of hospital admissions and increased morbidity and mortality in adult life (Marsh et al., 1999).

The available evidence on the relationship between housing and health is still insufficient to adequately describe the health impact of housing. The LARES in-depth analysis provides new evidence of links between the health of inhabitants and their housing conditions, with focus on:

- indoor air pollution
- the effect of cold homes and dampness
- noise effects
- domestic accidents.

Question wording:

****F14a CARD 72¹⁹** Do any of the problems listed on this card apply to your accommodation? Just tell me which letters apply to you.

INTERVIEWER NOTE: If respondent has more than one home, they should think about the accommodation where they spend most of their time.

(Mould or rot in windows, doors or floors)	Z	01
(Damp walls or leaking roof)	F	02
(Lack of indoor flushing toilet)	T	03
(Neither bath nor shower)	K	04
(Overcrowding)	H	05
(Extremely hot or extremely cold)	Y	06
(Noise)	Q	07
(Presence of insects or rodents (for example, mice))	E	08
(None of these)	-	55
(Refusal)	-	77
(Don't know)	-	88

¹⁹ **NEW QUESTION:** F14a from the [ESS7 Source Questionnaire](#) has been amended to ask what specific housing problems the respondent experiences. Two new answer categories have been added ('Noise' and 'Presence of insects or rodents (for example, mice)') and one has been revised for clarity ('Neither bath nor shower', previously 'Lack of bath and shower').

References for Quality of Housing

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SIMPLE CONCEPT NAME: Provision of unpaid care

Describe the concept in detail

Care-giving can have a detrimental effect on carers' emotional health (stress, depression, and exhaustion), social activities, leisure time, energy levels, family relationships and access to health services (Hayes & Knox, 1984; Kerr and Smith, 2001; Scholte op Reimer et al, 1998). There is a lack of large scale quantitative research into the impact of unpaid care on specific aspects of carers' physical health, but there is some evidence of a negative effect of caring on general self-rated physical health (Greenwood et al, 2008; Haug et al, 1999). Analysis of UK Census data by Carers UK indicated substantially poorer self-reported general physical health amongst carers than non-carers (Carers UK, 2004). There has also been some research investigating the negative impact of caring on carers' sense of competence (measured by the 27 item Sense of Competence Questionnaire (SCQ), derived from the family-crisis model and the Burden Interview) - Scholte op Reimer et al, 1998.

Assessing Needs of Care in European Nations, (ANCIEN) is a research project financed under the 7th EU Research Framework Programme. ANCIEN concerns the future of long-term care (LTC) for the elderly in Europe (<http://www.ancien-longtermcare.eu/>). The project uses data from Eurobarometer 67.3 (2007). Respondents are first asked if they, or someone they are close to, have "ever been in need of any regular help and long-term care over the last ten years". If so, they are asked to consider the experience "that affected [them] most" and to identify their relationship(s) to up to two people concerned (for example, their partner, parents or other relatives) (QA9). Respondents are identified as potential "informal carers" if they identify someone who has, or has had, a long-term care need and the person involved is or was a partner, parent, child, sibling, another relative, friend, acquaintance, colleague or neighbour (QA11). Potential informal carers are then asked "do you or did you personally get involved in helping this person?" A show card indicates a number of possible responses (with multiple answers possible), including: "you are/were not personally involved in helping this person"; visiting regularly to keep company; cooking and preparing meals; doing shopping; cleaning and household maintenance; taking care of finances and everyday administrative tasks; help with feeding; help with mobility; help with dressing; help with using the toilet; help in bathing or showering; organising professional care; none of these; and "others" (QA11).

According to this study, prevalence of informal caring (help with one or more 'activities of daily living' tasks) is 14% on average across all ANCIEN countries. Prevalence ranges from just over 10% in Denmark to over 18% in Spain, Estonia and Lithuania.

The questions below are adapted from a single item in the UK Census.

Expected relationship with other complex and simple concepts.

Informal caring is associated with various demographic variables and varies by country. Prevalence of informal caring tends to be much higher in women, and increases with age. It is expected to be associated with poor self-reported general health.

Question wording:

ASK ALL

D17 CARD 42 Do you spend any time looking after or giving help to family members, friends, neighbours or others because of any of the reasons on this card? Do not count anything you do as part of your paid employment.

NOTE: Yes to any of the reasons on the card should be coded 'yes'.

Yes	1	ASK D18
No	2	GO TO D19
(Don't know)	8	

CARD 42:

Long term physical ill health or disability

Long term mental ill health or disability

Problems related to old age

ASK IF CODE 1 AT D17

D18 CARD 43 In general, how many hours a week do you spend doing this? Please use this card.
: If respondent spends different number of hours each week, they should answer thinking about the time they spend on average per week.

(Less than 1 hour a week)	55
1-10 hours a week	01
11-20 hours a week	02
21-30 hours a week	03
31-40 hours a week	04
41-50 hours a week	05
More than 50 hours a week	06
(Don't know)	88

References for Provision of unpaid care

Assessing Needs of Care in European Nations, ANCIEN. Available at: <http://www.ancien-longtermcare.eu/>

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SIMPLE CONCEPT NAME: Physical activity

Describe the concept in detail, outlining the various sub concepts it comprises

Physical activity status has changed dramatically in the last decades. With economic and industrial development in the last century, physically demanding work became less common, and more sedentary (mostly sitting) jobs emerged. Insufficient physical activity is associated with a number of health outcomes, such as ischemic heart disease, breast cancer, colorectal cancer and diabetes as well as falls and osteoporosis, osteoarthritis, lower back pain and prostate cancer (Ezzati et al., 2005). The World Health Organization estimates that 3.3% of mortality and morbidity worldwide are caused by insufficient physical activity. Thus, at least 2 million deaths and 20 million disability-adjusted years of life (DALYs) could be prevented, given an effective promotion of physical activity (Bull et al. 2004).

However, data on physical activity are not easily available in many countries. Especially data on activities across the different domains of work, domestic, transport and leisure time are lacking. Thus, estimating the magnitude of negative health outcomes promoted by insufficient activity is difficult. An international comparison of activity status and related health outcomes is even more complicated, as comparable data is hardly available.

Physical activity was formerly described as “planned, structured and repetitive bodily movement done to improve or maintain one or more components of physical fitness”. (Stephens & Caspersen, 1994). However, this definition focussed only on activities outside the work or leisure time and is thought to be insufficient. Blair and colleagues found a positive effect of less intensive physical activities (e.g., Blair and Jackson 2001). Nowadays, efforts are undertaken to improve moderate intensive activities - cycling, quick walking or swimming - rather than focussing only on high intensity activities (Bull et al. 2004).

The International Physical Activity Questionnaire (IPAQ) is an instrument to assess total physical activity and sedentary behaviour (see also: <http://www.ipaq.ki.se>). It does not focus only on activity outside work but combines the domains of work, domestic, transport and leisure time. It was developed as a good measure of activity status as well as being internationally comparable. It is publically available and easy to implement into questionnaires. A long and a short version are available. The short version, containing 7 questions, is a good instrument to be implemented into international surveys and has shown good reliability and moderate criterion validity (Craig et al. 2003). Please refer to ‘Craig et al. (2003) International Physical Activity Questionnaire: 12-Country Reliability and Validity, *Medicine and Science in Sports and Exercise*, Vol. 35, No. 8, pp. 1381–1395’ for further information about how the IPAQ questions were developed. A further paper by Craig et al (unpublished - Google documents link [here](#)) about the development of the IPAQ suggests that walking is an extremely important sub-concept. During the design process it was decided that the existing IPAQ questions were overly long, complicated and burdensome for respondents, so a simpler, more general question was implemented.

The measurement of physical activity in the module is not only important given the burden attributable to insufficient activity from a public health perspective, but also because levels of activity are socially, economically and culturally determined. The way physical activity relates to social, economic and employment variables is likely to differ across countries. In addition, policies meant to enhance physical activity might differ across Europe. Through cross-nationally comparative data on physical activity, researchers should be able to examine how policies related to physical activity may have an impact on overall level of activity.

Expected relationship with other complex and simple concepts

We expect physical (in)activity to be associated with lower socioeconomic position, obesity, diabetes, heart disease, and poor self-rated health from the core module (Kurtze, Eikemo & Kamphuis 2013) and asthma (Clark & Cochrane, 1999).

Question wording:

D4 On how many of the last 7 days did you walk quickly²⁰, do sports or other physical activity for 30 minutes or longer?

INTERVIEWER: To be included, physical activity does not have to have been continuous.

WRITE IN NUMBER OF DAYS:

(Don't know) 88

References for Physical activity

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²⁰ 'walk quickly' in the sense of 'walk briskly'.

SIMPLE CONCEPT NAME: Sense of control

Describe the first sub concept in detail outlining any further sub concepts or specifying that it can be measured directly

The psychosocial explanation of health inequalities has been one of the most widely researched explanations in the last two decades. This explanation posits that individual socio-psychosocial resources mediate the relationship between health and social position. Nevertheless, previous research on psychosocial mechanisms has focused largely on relative deprivation and social comparisons, rather than on how people deal with stress and adversity. Relative deprivation and social comparisons have been brought forward as important mechanisms for remaining inequalities in health in affluent societies (Wilkinson and Pickett 2010). However, an earlier study based on the ESS showed that social comparisons based on income do not play a role in linking relative income to health outcomes, suggesting that social comparisons are of limited importance in explaining health inequalities (Präg, Mills, and Wittek 2014).

According to several scholars, a psychosocial explanation of health should be considered only when social and psychological resources are examined in tandem (Dagdeviren, Donoghue, and Promberger 2016; Thoits 2010; Whitehead et al. 2016). In order to allow for a more thorough testing of the psychosocial explanation, the ESS Health Module would benefit from complementing already existing social resources items such as social support and network with new items measuring psychological resources. In general resources, whether economic or social, do not automatically transform into a good life or a good health – resources have to be used, and they can be used more or less efficiently. Amartya Sen (Sen 1989) (Sen 1992) has touched on this when differing between ‘functionings’ and ‘capabilities,’ where the latter refer to the possibilities to achieve the conditions one desires. However, while Sen is mainly concerned with external obstacles to achieve the life one strives for, such as lack of personal freedom or arenas where to use one’s resources, here the focus will be on the capabilities that affect the way resources are used. Differences in health between individuals and groups will depend on the amount of resources at their disposal, but even at a given level of resources, differences in health are likely to be found. These differences will in turn depend on the way people perceive, interpret, and react to everyday demands. Hence, a concept that captures these internal processes will help us to better understand how economic and social conditions are transformed into poor health.

There is extensive body of research dating back to mid-80s linking sense of control with both physical and psychological health (Rodin 1986, Adler et al., 1994, Orton et al., 2019). Believing that one has control over outcomes is associated with better health, fewer and less severe symptoms, faster recovery and greater longevity. Given the universal finding of social gradient in health it is important to understand how psychosocial determinants such as sense of control over ones life explain the gradient. Several scales ranging from 1-10 items have been designed and tested to measure sense of control (Perlin and Schooler, 1978), (Mirowsky, 1995), (Lachman & Weaver, 1998a), (McConatha et al. 1998), (Assari, 2017). Generally, sense of control has been operationalized in two dimensions: personal mastery and perceived constraints (Lachman & Weaver, 1998). Personal mastery refers to one's sense of efficacy or effectiveness in carrying out goals. Perceived constraints indicate to what extent one believes there are obstacles or factors beyond one's control that interfere with reaching goals. The single item has been used successfully employed in previous research to measure domain specific sense of control (Lachman & Weaver, 1998b). For the purposes of ESS 11 this single item has been adapted to measure sense of control generally over one’s life.

Expected relationship with other sub concepts

We expect sense of control to be negatively related to self-reported conditions that are associated with stress, such as depressive symptoms, severe headaches, and heart problems. Also, we expect that sense of control is influenced by people’s socioeconomic position, where people with higher education, occupational status and income, stronger social ties, and better working and housing conditions have more resources to deal with adversity. Moreover, following Sen’s arguments described above, we expect sense of control to moderate relationships between resources and health outcomes: people are better able to fully use their resources to improve their health if they feel a higher sense of control over their lives.

Question item wording

D1²¹ CARD 33 Using a scale of 0 to 10, where 0 means no control at all and 10 means complete control, how much control do you feel you have over your life in general nowadays? Please use this card.

**No control
at all**

**Complete
control**

(Refusal)

**(Don't
know)**

00

01

02

03

04

05

06

07

08

09

10

77

88

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²¹ **NEW QUESTION**