

ORIGINAL ARTICLE

Sick of social status: A Bourdieusian perspective on morbidity and health inequalities

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Abstract

Self-reported health (SRH) is one of the most frequently used measures for examining socioeconomic inequalities in health. Studies find that when faced with 'identical objective health', individuals in lower socioeconomic groups consistently report worse SRH than those in higher socioeconomic groups. Such findings are often dismissed as being the result of reporting bias, and existing literature dominated by the biomedical conception of SRH has not investigated the underlying social mechanisms at work. To address this limitation, drawing on the work of Bourdieu we employ a relational thinking between health and social position. By way of multiple correspondence analysis, we construct social space of health determinants for three European countries from different welfare states and map the trajectories of educational groups experiencing similar levels of morbidity and their relation to SRH. Differences in SRH observed among social groups for the same level of morbidity are understood in relation to the position and the relative power of individuals in different educational groups to maintain or improve their social conditions, especially with increasing levels of health loss. Our analysis indicates that reporting differences in SRH among educational groups emerges from objectively

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healthy individuals and follows differences in accumulation of social advantages and disadvantages.

KEYWORDS

Bourdieu, capital theory, health inequalities, morbidity, multiple correspondence analysis, reporting heterogeneity, SRH

INTRODUCTION

Chronic conditions are responsible for the majority of the burden of disease in Europe (Vos et al., 2015). The prevalence of several conditions has been on the rise in the past decades due to an increase in behavioural and social risk factors and ageing of the population (Cassou et al., 2002; Karanikolos et al., 2013; van Oostrom et al., 2016). This trend has set comorbidity and multimorbidity to become the new norm and one of the main challenges in developed countries. Increased levels of morbidity lead to greater disability (Fortin et al., 2005; Uijen & van de Lisdonk, 2008), more activity limitation at work (Bielecky et al., 2015; Leijten et al., 2014), decreased participation in the labour market (Jetha et al., 2017), lower quality of life (Fortin et al., 2004; Saarni et al., 2006), and lower levels of self-reported health (SRH) (McDaid et al., 2013). Although morbidity is affecting larger segments of our societies, social inequalities in morbidity continue to persist. Different social groups not only have different exposure to morbidity but also have different levels of vulnerability and face different consequences (Christensen et al., 2008; Garin et al., 2014; Holland et al., 2011). For example, lower social position is associated with slower recovery from health problems (Herd et al., 2007; Putman et al., 2006). In addition, physical limitations rising from morbidity, coupled with physically demanding jobs, have disproportionately affected labour market participation and living conditions among the lower social classes, and this trend has been strengthening over time (Minton et al., 2012).

Differential effects of morbidity on perception of overall health (SRH) by social position have also been identified. Nonetheless, these effects on SRH have been the subject of considerably less theoretical and empirical investigation. Our current knowledge in this area is confined to the consistent empirical finding that the higher educated consistently report better overall perceived health than the lower educated, even when they have similar health profiles. Such differences are commonly referred to as reporting heterogeneity. The mainstream approach, grounded in a biomedical perspective, treats reporting heterogeneity as a deviation that should be controlled for to avoid an overestimation of the 'real' health burden. In the quest to validate SRH as a health measure, the biomedical conception of the relationship between "true" morbidity and the perception of health has continued to conceal the interplay between the experience of illness and social context in the evaluation of SRH. Indeed, an artificial division between the objective and the subjective part of SRH reproduces the distinction between the living body as 'subject' and 'object' common to several sociological theories (Bradby, 2012). To overcome this dualism, Shilling (2012) suggests that the body "is best conceptualised as an unfinished biological and social phenomenon possessed of its own emergent properties." Therefore, in evaluating their body, in our case in terms of health, individuals assess the interdependent biological and social transformations of their body in society (Berthelot, 1986).

Reporting heterogeneity remains a contested topic not directly taken up by sociologists of health. In cross-national research, the main arguments are founded in cultural differences in

defining health and health loss (Desesquelles et al., 2009; Jürges, 2007; Jylhä, 2009). However, there is less problematisation of what health loss means for different social groups within different social contexts. The differential effect of morbidity on subjective health between social groups is particularly important because studies have convincingly demonstrated that perception of health is a more powerful predictor of future health and social outcomes than any other combination of objective health measures (Chirikos, 1993; DeSalvo et al., 2006; Pelkowski & Berger, 2004). Indeed, the perception of health has been shown to have a strong salutogenetic or pathogenetic effect on the body (Chipperfield, 1993; Stenholm et al., 2016). In practical terms, if two individuals with the same chronic condition perceive their health differently, it will lead to different health and social trajectories. Therefore, to understand and improve future health and social trajectories of individuals, we need to unpack the effect on SRH of the interplay between morbidity and resources imbedded in social groups in our societies.

BOURDIEU'S CAPITAL INTERACTION AND SRH REPORTING HETEROGENEITY

According to Bourdieu, individuals engage in social struggle to acquire, maintain and expand valuable material and non-material resources. These struggles, taking place in different fields such as education (Bourdieu, 1998), science (Bourdieu, 1975), and culture (Bourdieu, 2013), legitimise the value of resources for the respective field and create the potential for these resources to accumulate and act as convertible capital (Savage et al., 2005). The sum total of fields present in a society constitutes the **social space** of struggle for every form of capital. The distribution of relevant capitals determines the power of social positions in the social space. Individuals occupying different social positions in the social space tend to reproduce their capitals, while at the same time aiming to expand them, thereby transforming the boundaries within the social space (Bourdieu, 1987).

Within the social space, agents compete to gain and retain capitals through their ability to adjust to and adjust the rules of the social space. Therefore, the power to renegotiate, maintain and accrue capital is constantly legitimised by the interplay of agency and structure. Different societies have developed different rules affecting the acquisition of capital and the extent to which changes in the capital structure to which agents aspire are attainable (Williams, 1995). In principle, every individual is trying to expand their capital and improve their position in the field and ultimately in the social space. However, the extent to which this is possible depends not only on the intentions and strategies of individuals but also on the constraints and opportunities present in the social structure.

According to Bourdieu and Wacquant (Bourdieu & Wacquant, 1992), acknowledging that “capital can take a variety of forms is indispensable to explain the structure and dynamics of differentiated societies.” In “The Forms of Capital” (1986) Bourdieu differentiates between four types of capital. First, economic capital is directly convertible into money and material assets. Second, cultural capital can exist in three forms: in embodied disposition (*habitus*), in an objectified state as cultural goods and in an institutionalised state, the most prominent of which is educational qualifications. Third, social capital represents material and non-material resources that individuals can mobilise from mutual recognition as members of a group. Fourth, symbolic capital is the form each capital can assume when it is recognized as legitimate. Bourdieu introduces physical capital as a form of cultural capital, which he refers to as “heavily disguised” embodied cultural capital. Generally, Bourdieu understands physical capital as the acquisition

of habits of body comportment through socialisation in sports, patterns of food consumption and etiquette (Bourdieu, 2013). Similarly, health scholars inspired by his theoretical work have largely been concerned with the relational dynamic between health-related behaviours of social groups, as an expression of their physically embodied cultural capital (physical capital), and the distribution, reproduction and conversion of these behaviours in the structural circumstances imbedded in a particular social space (Blue et al., 2016; William C; Cockerham, 2005; Frohlich et al., 2001; Tomlinson, 2003; Wainwright & Turner, 2003; Williams, 1995). With few exceptions (Shilling, 1991, 2012), less attention has been paid to physical capital as a prerequisite for participating in work, education and social activities. Loss of health (morbidity) can be defined as loss of physical capital, which in turn can influence conservation and conversion of other forms of capital throughout life.

Following a loss of physical capital, individuals need to ensure that loss of one kind of capital will not affect the possession of other health promoting capitals and potentially compensate for the lost capital. Therefore, we would expect differing perceptions of the body among social groups for similar health conditions to reflect the differential negotiating and compensating power of social agents within existing social structures. Individuals have different degrees of negotiating power, not only because they have accumulated different capitals but also because of their embodied experience in the social space starting from their original conditions of upbringing to the individual trajectories that have shaped their way of thinking and acting (*habitus*). To be able to follow Bourdieu's relational approach in examining how perception of health is constructed, it is important not to take either individual dispositions or the state of capital distribution as the starting point but instead focus on their interdependent action.

Consequently, the perception of health emerges in the relational interplay between *habitus* (experiential mental phenomena) and resources (as resources affect a person's capability to adopt the strategies of his or her *habitus*) within the current state of the social space (Burnett & Veenstra, 2017). Burnett (Burnett & Veenstra, 2017) proposes a useful definition of *habitus* as "the internalized durable dispositions formed in relation to the needs and interests that emerge from the social context and conditions of existence within which individuals are born and raised." Thus, *habitus* generates perceptions, expectations and practices. In investigating cultural practices, Bourdieu suggests that the deepest dispositions of the *habitus* are revealed in the relation of individuals to their bodies (Bourdieu, 2013). Embodiment of the body across social classes is shaped from early socialisation in different positions in the social space. For individuals brought up in lower social classes, the function rather than the state of the body is important to meet the demands of material necessity. The body in its physical sense is understood as a means to an end. In addition, people in lower social groups accumulate more experience with illness (Herd et al., 2007; Paterson, 1982) in their trajectory in the social space, thus also gaining practical knowledge of the degree of disease severity that can undermine the instrumentalisation of their body. For those with a higher social position, on the contrary, the state of the body is more relevant because they view the body as an end in itself (Bourdieu, 2013; Shilling, 2012; Weininger, 2002). Indeed, vignette studies presenting individuals from different social classes with the same hypothetical health profiles can attest to these different dispositions towards the body. These studies find that for the same health profile, individuals from higher social classes evaluate the objective health of the body more critically than those from lower social classes (Bago d'Uva, Van Doorslaer, Lindeboom, & O'donnell, 2008; Dowd & Todd, 2011; Molina, 2016).

Nonetheless, we cannot understand the evaluation of health only in terms of social class disposition towards the body because the evaluation of health, as of any behaviour, is the product of one's *habitus* and current circumstances. The perception of the body in the social space

in lower social groups will depend on the returns from the instrumentalisation of the body. In a sense, the body is used as physical capital to maintain or increase distance from necessity. When such distance is not attainable, the perception of the state of the body will be compromised. Moreover, increasing morbidity threatening both the body and instrumentalisation of the body can reduce the distance from necessity. On the contrary, for higher social groups, the perception of the body will depend on the returns from other forms of capital to maintain the body as a project, especially when faced with increasing loss of physical capital. Hence, evaluation of health from a social class perspective across social spaces reflects the relation between an individual's predisposition towards the body and the circumstances that enable or constrain him or her to maintain that view. The relation between capitals, practices, habitus and morbidity in the evaluation of health leading to SRH heterogeneity by social position in the social space is presented in the conceptual framework in Figure 1 and it follows the theoretical approach originally developed by Balaj (2022). According to our framework higher levels of capitals lend access to more health promoting social practices. The most important social practices for health are the social determinants of health (SDH) such as living conditions, occupational and lifestyle factors which together with the stratified predisposition (habitus) towards one's body determine the perception of health among physically healthy individuals. Their combined effect on health perception changes at different rates across social position for increasing levels of morbidity hence leading to SRH heterogeneity by social position.

THE SOCIAL SPACE OF SOCIAL DETERMINANTS OF HEALTH

The social space is comprised of a space of positions delineated by the capital portfolios of the individuals, a space of habitus and a space of practices – these spaces map onto one another, that is, are homologous to one another, and together constitute the social space. There is a homology between capitals and access levels to determinants of health. Higher levels of capitals lend access to better social determinants of health therefore in our study the social space is structured by the distribution of social determinants of health (social determinant space). It has been argued that social determinants symbolise practices connected to the social position of individuals but also the relative power of that social position (Korp, 2008; Scambler & Scambler, 2013). We differentiate between three types of social determinants of health: lifestyle, occupational and living conditions. Studies have shown that these three resources of health are interdependent, but they

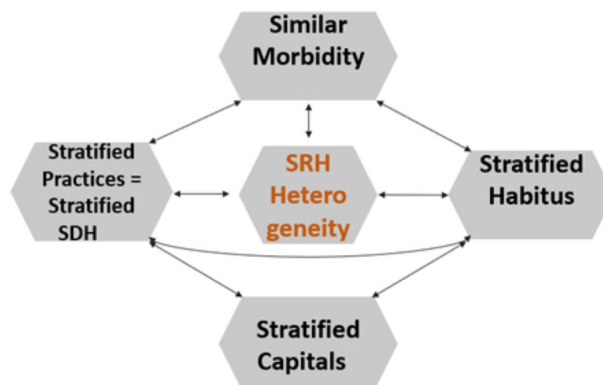


FIGURE 1 Conceptual framework of the relational interplay of capitals, habitus, practices and health

are also subtly different, making it possible to identify a fine-grained distinction between groups of individuals with different composition and volume of each of these forms of health-relevant capitals (Veenstra & Patterson, 2012) (William C. Cockerham et al., 2017). The direction and magnitude of displacement (trajectory) in the social determinants space for groups experiencing similar levels of morbidity is a function of the agency exerted by individuals to maintain and increase the total volume of their social determinants coupled with structurally based resources related to their position in the particular social space. In order to map the trajectory of individuals experiencing similar levels of morbidity, we have focussed on the trajectory of educational groups. Our decision was guided by two main considerations. First, existing research considers education as the key to socioeconomic differences in health (Ross & Mirowsky, 2010). In general, people attain their highest level of education early in the life course and it provides them differential access to cultural, occupational and economic resources. Moreover, education is one of the most stable resources in the social space; contrary to economic or social capital, for example, it is immune to later social (divorce, unemployment, retirement) and physical (health decline) changes. For instance, unemployment (as a social stressor) can reduce economic and social capital but has no negative effect on education level. At the same time, the effect of unemployment on both financial strain and social isolation is moderated by education (Christensen et al., 2006; McKee-Ryan et al., 2005; Singh-Manoux et al., 2002; Sverke et al., 2002). Second, we focus on education for the purpose of comparison with research findings from SRH heterogeneity studies. These studies provide more consistent findings employing education as a measure of social stratification.

The power to attain, maintain and expand capitals varies across countries (social structures) also due to their variation on welfare traditions. Drawing from different welfare typologies, there is growing agreement regarding the emergence of five distinct welfare traditions in Europe (Muntaner et al., 2011). The Scandinavian (Social Democratic) welfare regime is characterised as a strong interventionist state that provides universal access to services and comparatively generous social benefits aimed at income protection. The Anglo-Saxon (Liberal) welfare regime is characterised by a low level of service provision, means testing for social transfers and for an emphasis on the role of the low regulated labour market. Countries in the Bismarckian (Conservative) welfare offer medium levels of welfare provision. Social transfers are strongly related to people's position in the market, and the emphasis on the role of the family is particularly pronounced. The Southern welfare regime is characterised by fragmented welfare services, high variance in the level of social transfers and a strong reliance on the family and the charitable sector. Finally, the Eastern European welfare regime is more problematic to define due to its considerable heterogeneity and the profound economic and political transformations in the early 1990s (Cerami, 2006). This welfare regime has emerged as a mixture of Bismarckian, Scandinavian and Anglo-Saxon features. It is characterised by the provision of limited welfare services and universal access to low levels of social transfers and benefits. Generally, compared with other European welfare states, Scandinavian welfare states have a stronger redistributive nature and promote an equality of the highest standards (Bambra et al., 2014). Scandinavian welfare states compared to Anglo-Saxon, Southern and Bismarckian one and particularly compared to Eastern European states present better material and occupational conditions both associated with healthier behaviours constituting the three main building blocks of social determinants of health (Balaj et al., 2017) and smaller social inequalities (Coburn, 2000; Coburn, 2004) (Avendano et al., 2009). Higher and more equal standard of living translate into higher overall levels of health and lower overall polarization of capitals in society (Kim et al., 2012; Dragano et al., 2011). Despite these dynamics public health researchers have been questioning the ability of extensive

welfare provision of Nordic countries to reduce health inequalities given that the level of social health inequalities is not the smallest in these countries. This puzzling finding is often referred to as the Nordic paradox. It is therefore essential also from a policy perspective to examine the composition and distribution of capitals across different welfare states societies and its impact on health and health inequalities.

In summary, our empirical analysis will examine how the social determinant space is organised in three European countries pertaining to three different welfare traditions – Scandinavian, Anglo-Saxon and Eastern European. This will allow us a cross-country comparison of the key social determinants polarizing the societies in these countries. We will further explore what is the position of educational groups in each of these social determinant spaces and what trajectories do each of the educational groups experience with increasing levels of morbidity. Lastly, we will analyse how these educational trajectories relate to perception of health.

DATA

This study is based on the data of the seventh round of the European Social Survey (ESS) fielded in 2014 in 20 European countries. We use data from three countries, Norway, the UK and Hungary. Country cases for this study were selected based on two criteria: (a) the organisation of the welfare state (Eikemo, Huisman, et al., 2008), because welfare state policies address the distribution of a wide range of social determinants of health; and (b) requiring the least modification of our statistical model. From the countries fitting these criteria, we present results for Norway, Hungary and the UK. The comparison of Norway and the UK are of particular interest given the longstanding debate on the Nordic paradox in health finding as large or even larger social inequalities health in the Nordic welfare states than in many less egalitarian societies such as the UK. While the comparison of Norway and the UK with Hungary brings to the discussion the west-east divide on health.

The response rates was 53.9% in Norway, 43.6% in the UK and 52.7% in Hungary. For the purpose of this study, data have been restricted to respondents aged 25–75 in order to include only respondents that have completed their education. Our final study sample, after deleting cases listwise by each variable in our analysis, included 1466 respondents from UK, 986 from Norway and 1027 from Hungary. The largest share of missing data was observed from alcohol measures. Distribution of variables can be consulted in supplementary file.

SRH was assessed using the following question: “How is your health in general?” Eligible responses were “very good,” “good,” “fair,” “bad,” and “very bad.” Due to the low response rate in several countries for the very bad category, we have grouped it together with the bad category.

The ESS7 health module includes 14 chronic conditions: heart/circulatory problems, high blood pressure, back pain, arm/hand pain, foot/leg pain, allergies, breathing problems, stomach/digestion problems, skin conditions, diabetes, severe headaches, cancer, depression, and obesity and whether any condition has hampered daily activities. For the purpose of this paper, an ordinal measure of multimorbidity was constructed following (Koroukian et al., 2015) with respondents stratified into three morbidity groups, excluding cancer: MM0, no chronic condition or functional limitation; MM1 one chronic condition or functional limitation; and MM2, two or more chronic conditions and functional limitation. Earlier studies have shown that in general chronic conditions have a cumulative negative effect on SRH, with single conditions worsening perception of health to a larger extent than each co-occurring disease (Galenkamp et al., 2011; McDaid et al., 2013). Studies also find the effect of single chronic conditions on SRH

to be of comparable magnitude, with the exception of heart conditions, depression and allergies (Goldberg et al., 2001; Moussavi et al., 2007; Perruccio et al., 2007; Verropoulou, 2012). Although we are not able to distinguish between specific combinations of chronic conditions, we will pay particular attention to their educational distribution.

In the ESS, respondents' highest completed level of education was measured with country-specific education items, which were later harmonised in the original database following the International Standard Classification of Education (ISCED). From the 7 ISCED categories, an educational variable with three categories was created: respondents with lower education (ISCED I, II – less than upper secondary education) are contrasted with respondents with middle education (ISCED IIIa, IIIb and IV – upper secondary education) and with respondents with tertiary education (ISCED V, VI).

Three groups of social determinants of SRH were studied: first, lifestyle factors, which include BMI, physical activity, fruit and vegetable consumption, smoking behaviour, and alcohol consumption (measured according to frequency of drinking and whether individuals remained under the recommended two units of alcohol per day); second, occupational factors, which include material hazards and ergonomic hazards at work, job control and unemployment history as a proxy measure for job insecurity; and third, living conditions, which include financial difficulties and serious conflicts between family members in the household experienced during childhood, social support, living in a house with accommodation problems, perceived financial strain and not being able to get medical treatment (For operationalisation of variables see supplementary file).

METHODS

An extension of correspondence analysis, multiple correspondence analysis (MCA) has become a well-established method in the social sciences for analysing associations between multiple categorical variables present in socioeconomic surveys. MCA transforms large sets of variables with the least possible loss of information into principal dimensions that reveal the underlying structure within the data (Clausen, 1998). A dimension is, in essence, a representation of the polarities in the data (Hjellbrekke, 2018). In general, the two to three principal dimensions (i.e. axes) capturing the most variance are displayed in a graphical representation of the social space model. These axes are interpreted based on the variables that contribute mostly to their construction (i.e. the most polarized variables in that particular social space). Commonly these variables are situated along the extremities of the axis. Variables situated at the extremities of the quadrants tend to contribute to the construction of both axes. The advantage of this method lies in the ability to explore further the associations between the categories of different variables and to capture the similarities and differences between individuals from a multidimensional perspective (Husson & Josse, 2014). In line with the relational approach developed by Bourdieu, MCA does not identify a dependent variable. Instead, the clustering of categories of variables and their position in relation to each other in the social space provide key insights into their relationships.

In our analysis, theoretical and empirical considerations have guided our decision to introduce social determinants of health as the *active variables* in the construction of social determinant spaces. A wealth of studies has identified a strong and positive relationship between occupational, material, psychosocial, and lifestyle resources and health outcomes (William C. Cockerham et al., 2017). Moreover, research on social determinants of health has provided consistent evidence worldwide that they are socially stratified and lead to social inequalities in

health (M. Marmot, 2005; Scambler, 2012). Therefore, the distribution of these determinants reflects the accumulation of capitals by different social groups. Although, on average, higher social groups tend to accumulate more health-protecting factors than lower social groups, not all individuals from an advantaged social position in every social determinant space benefit from high levels of social support, good working conditions or a healthy lifestyle, just as not all individuals from more socially disadvantaged groups accumulate health-damaging factors. Therefore, the relative composition of the sum total of health determinants varies within and between social positions and across social spaces. Inviting parallels to the theory of capital, these determinants represent the material circumstances and habitus of individuals situated in different social spaces and in different positions within each social space.

Individuals are distributed in the social space based on patterns of differences and similarities in the response categories (Le Roux & Rouanet, 2010). Individuals reporting similar categories will be situated in the same region of the social space. Concentration ellipses reflecting the dispersion of subgroups of individuals in the social space and deviations between the mean positions of sub-groups will be used to evaluate whether their locations vary significantly in the social determinant space (Le Roux & Rouanet, 2010). These subgroups are determined by the introduction of additional variables, referred to as *supplementary variables*. Supplementary variables are not used to compute the principal dimensions but are projected onto them. Their position in the social determinant space allows us to explore the relation between active and supplementary variables (Clausen, 1998). Since one of the main objectives of our study is to identify the trajectories of educational groups (i.e. direction of pull of educational groups within the social determinants space) experiencing the same levels of morbidity within a social determinant space, we have added morbidity and education level as supplementary variables. Additionally, SRH is added as a supplementary variable to allow us to assess the relation of these trajectories vis-à-vis the perception of health.

In total, as shown in Table 1 (Supplementary file), the MCA analysis contained 15 active variables with a total of 39 categories and 3 passive variables with 10 categories.

RESULTS

UK

The social determinant space for the UK is constructed along three main dimensions, summing up 94% of the variance. The first axis (x-axis) alone captures 77% of the total variance. Variation in nine main social determinants of health contributes to the construction of the first axis (Figure 2a). Main contributing factors to the first axis are current and past material difficulties (difficulties with present income, growing up with frequent financial difficulties, housing problems), situated on the left side of axis 1, in contrast to material advantages, situated on the right side of the axis. The second largest contributor to this axis is the accumulation of occupational disadvantages, found on the left side (two or more material and ergonomic hazards, long-term unemployment history and low job control), opposing occupational advantages on the right side of the axis. Two lifestyle factors, smoking behaviour (smoking vs. non-smoking) and fruit and vegetable consumption (<2 portions vs. 4–6 portions), further reinforce the oppositions on axis 1. In essence, axis 1, characterised by material factors, contrasts the accumulation of social advantages and healthy lifestyle with the accumulation of social disadvantages and unhealthy lifestyle. The second axis further distinguishes between exposure to work hazards and lifestyle factors

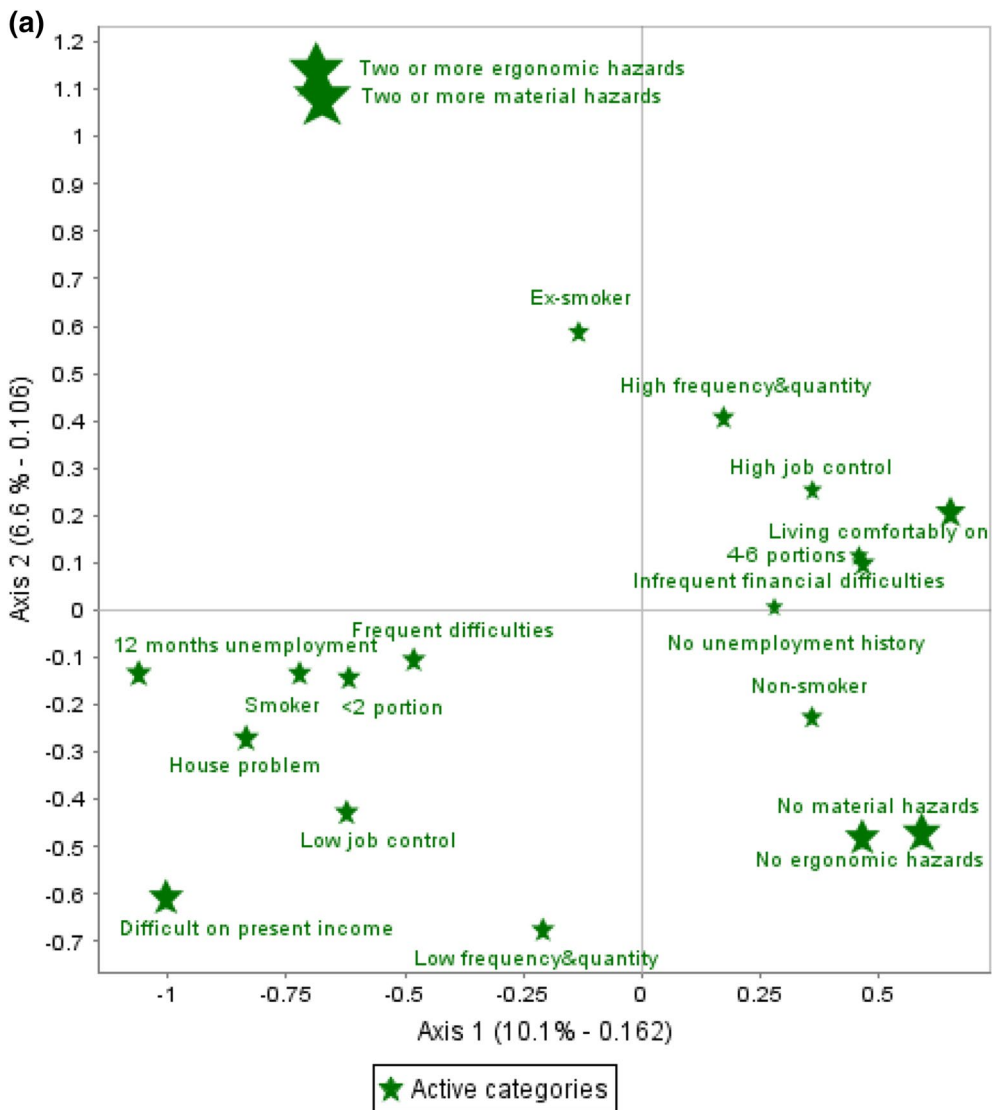


FIGURE 2 (a) Plane 1–2. Interpretation of Axis 1: 17 categories with the greatest contribution to the axis. Interpretation of Axis 2: 7 categories with the greatest contribution to the axis. The size of each marker is proportional to its contribution to the axis. (b) Plane 1–3. Interpretation of Axis 3: 6 categories with the greatest contribution to the axis. The size of each marker is proportional to its contribution to the axis

such as patterns of alcohol consumption and smoking behaviour, while the third axis, shown in Figure 2b, characterises the social determinant space in terms lifestyle factors, especially physical activity, BMI and fruit and vegetable consumption.

Another way to interpret the social determinant space is by quadrant (i.e. upper right = I counter-clockwise to lower right = IV). In plane 1-2, axis 1 differentiates respondents who have accumulated social advantages and healthy lifestyle factors positioned in quadrants I and IV from respondents positioned in quadrants II and III who have accumulated more social disadvantages and unhealthy lifestyle factors. Axis 2 indicates differences within the socially advantaged and socially disadvantaged categories identified by the first axis. For example, although

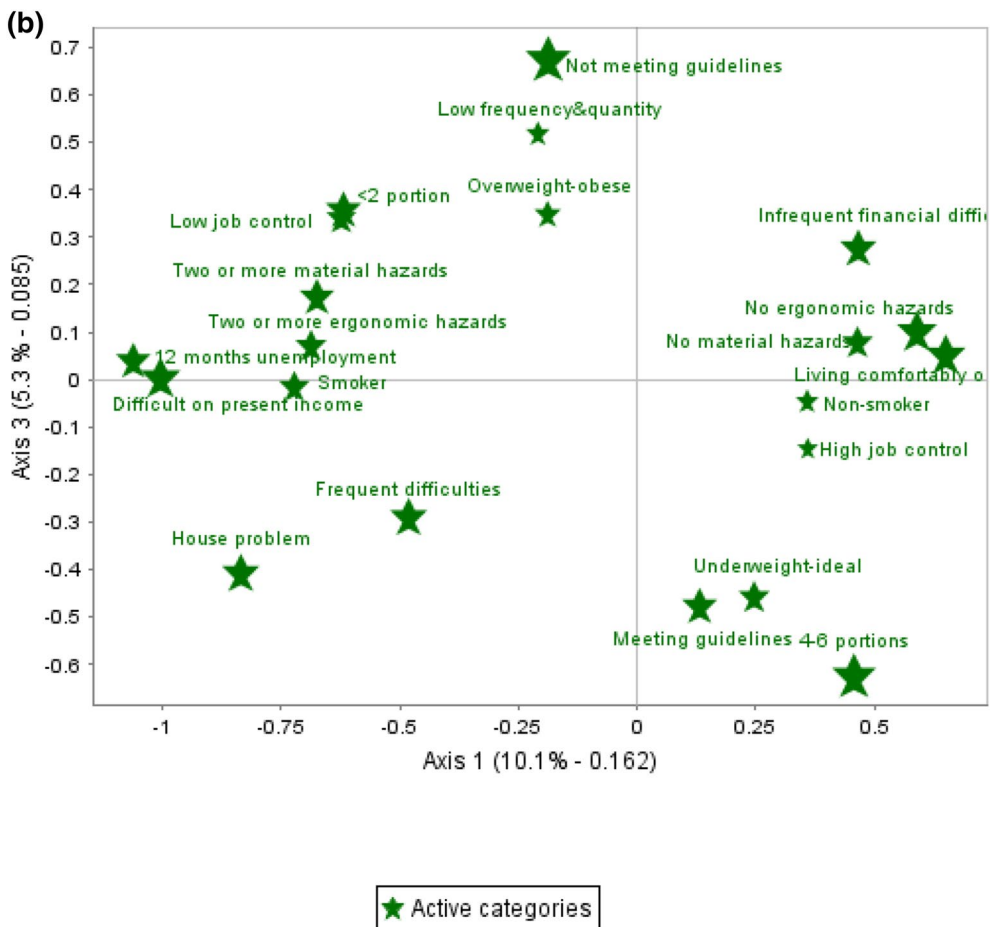


FIGURE 2 (Continued)

respondents in quadrants II and III are, on average, more likely to experience two or more work hazards compared to the rest of the sample, respondents positioned in quadrant II are the most likely to experience UK such hazards (Supplementary file provides a detailed description of the percentage contribution of categories to the construction of the axes for all countries).

To investigate potential structuring factors of the UK social determinant space we have projected our supplementary variables: SRH in Figure 3a and education*morbidity in Figure 3b. Notable (≥ 0.5) and large (≥ 1) deviations between categories of supplementary variables indicate substantial differences in the composition of social determinants (in Supplementary File deviation tables for all countries). The category of very good SRH has a notable to large deviation on axis 1 between the fair (0.751) and poor SRH categories (1.139). Similarly, the deviation between good and poor SRH categories is notable (0.795) on axis 1. There are no notable deviations between SRH categories on axis 2 and only the very good to poor category is notable on axis 3 (-0.677). Overall, SRH is correlated only to axes 1 and 3. Taking a closer look at the ellipses, we can observe the shifts across these axes. The ellipse for good SRH category is located at the centre of planes 1-2 and 1-3, while the very good SRH category is shifted on the socially advantaged and healthier lifestyle on axes 1 and 3 respectively. The fair and poor/very poor SRH categories are shifted on the more socially disadvantaged and unhealthier lifestyle side. It is important to note

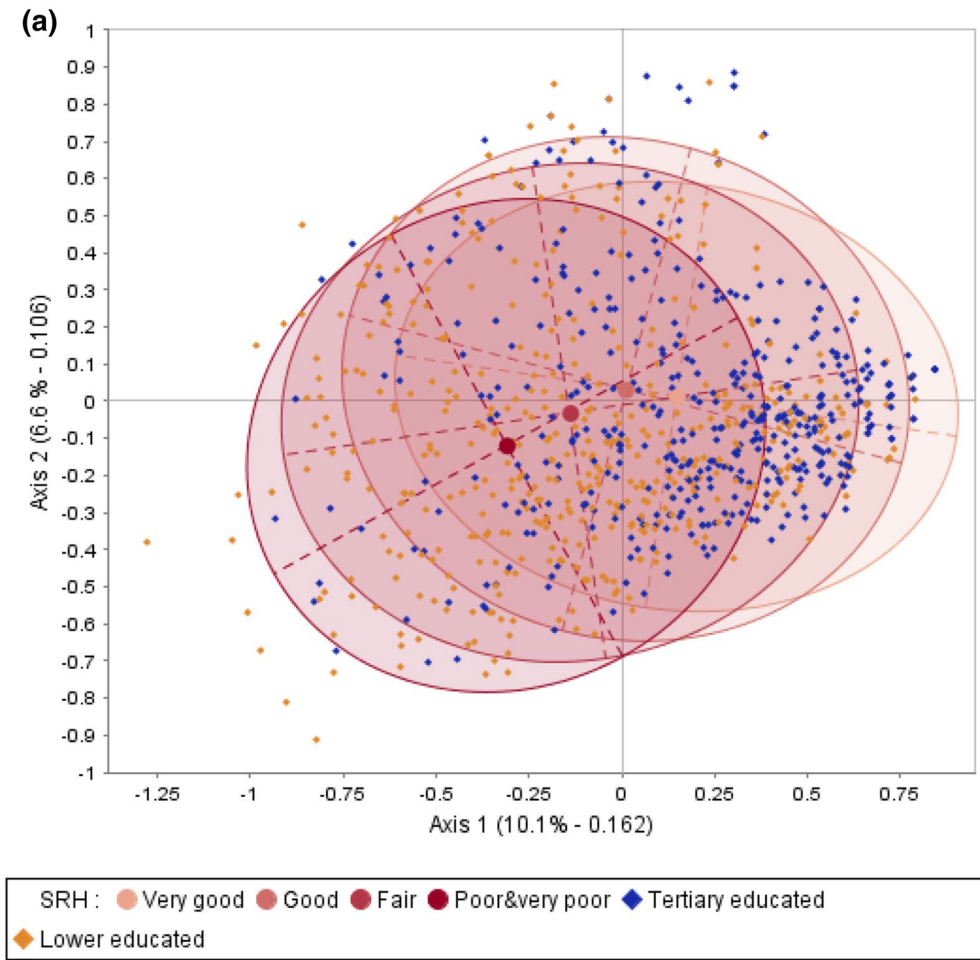


FIGURE 3 (a) Self-reported health ellipses in plane 1–2. Tertiary education cases in blue markers and lower education in orange markers. (b) Self-reported health ellipses in plane 1–3. Tertiary education cases in blue markers and lower education in orange markers

that in addition to notable deviations across SRH categories there is overlapping of SRH ellipses. Nonetheless, when projecting tertiary (in blue) and lower (in orange) education cases a clustering of tertiary educated under better perception of health is revealed, in particular along axis 1. But how do these educational groups for each morbidity level relate to the axis and SRH?

For the crossing of education and morbidity, we can identify deviations on axes both within educational groups per level of morbidity and across educational groups for same level of morbidity. Focussing on the composition of social determinants of health within educational groups, we find the tertiary educated without chronic conditions in the most socially advantaged position on axis 1. The composition of social advantages changes notably (0.531) only when the tertiary educated report two or more chronic conditions. Nonetheless, the tertiary educated with multimorbidity remain on the socially advantaged side of axis 1. Increasing levels of morbidity for the tertiary educated are not associated with changes in the social determinant's composition along the second axis. On the third axis, change in lifestyle is observed between the tertiary educated without conditions and those with morbidity. The latter adhere to a healthier lifestyle.

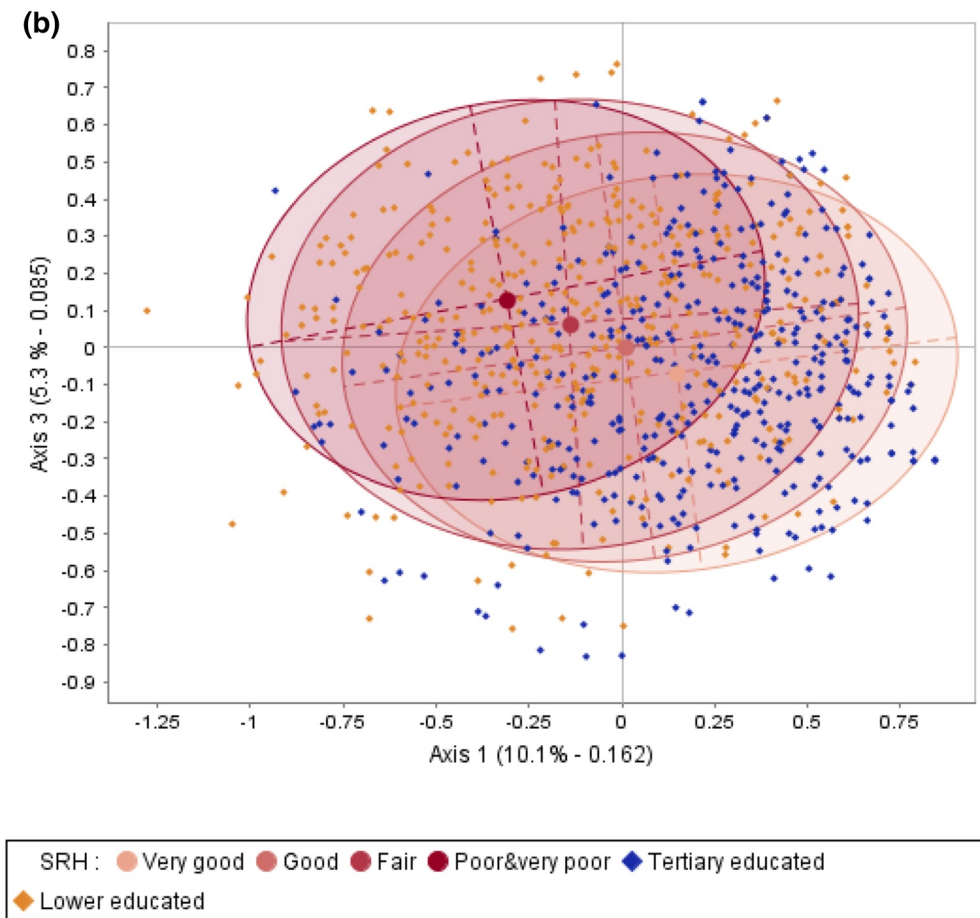


FIGURE 3 (Continued)

Among the middle educated, reporting different levels of morbidity is not accompanied by notable changes in the composition of determinants along any of the axes. As shown in Figure 4a, the category of middle educated with two or more conditions is clearly positioned on the more disadvantaged side of axis 1; however, the overlap of the ellipses (figure not shown) is quite large, as all middle-educated categories are closely positioned at the centre of planes 1–2 and 1–3.

The lower educated with no chronic condition are positioned in proximity to the centre of plane 1–2 with a social determinant composition slightly better than the average in the sample. Along axis 1, in terms of the composition of social determinants of health, this group resembles the tertiary education with multimorbidity group. The lower educated with two or more conditions show a notable shift away from their healthier peers along axis 1 (from no condition: 0.668, from one condition: 0.536). Their position worsens along the third axis as well with an increase in unhealthy lifestyle factors. These shifts place the lower educated with multimorbidity in the most disadvantaged position of the social determinant space and increase the probability that they will report poor health.

Different positions and trajectories of educational groups per morbidity level along all axes contribute to differences between educational levels for the same level of morbidity, thus exposing a more complex picture of inequalities in the social determinant space. As seen in Figure 5

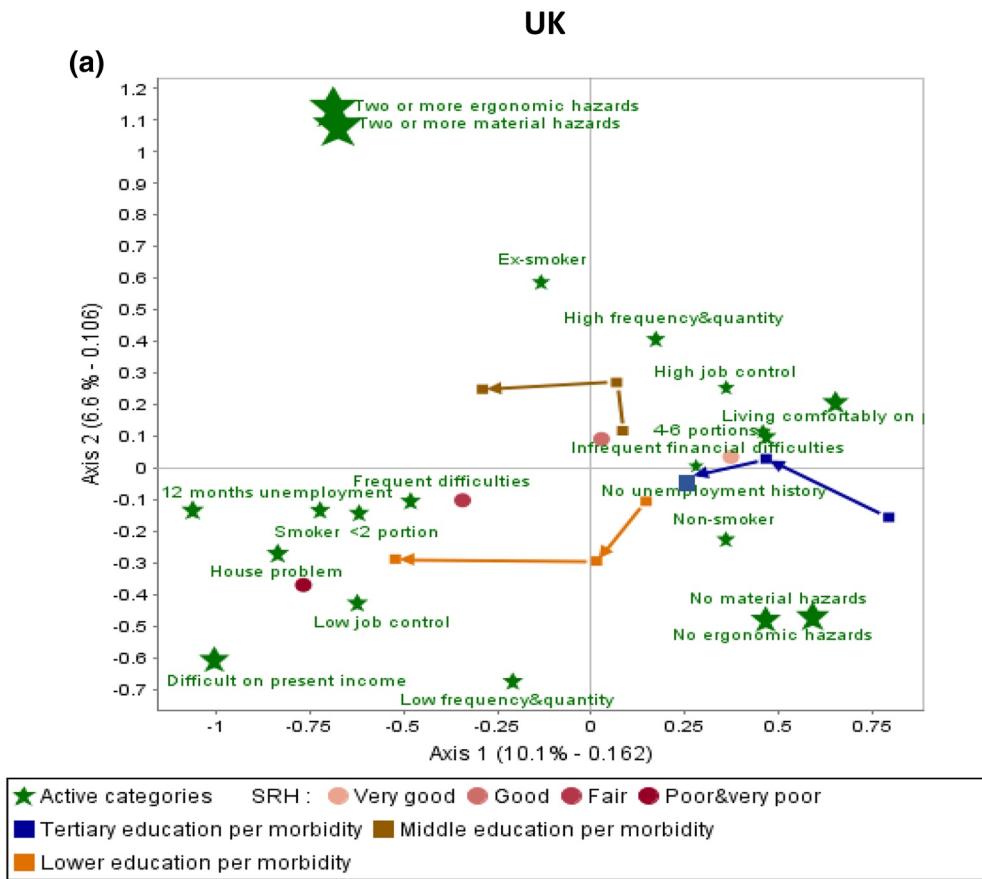


FIGURE 4 (a) Position of SRH categories and trajectories of educational groups per morbidity level in plane 1–2. (b) Position of SRH categories Trajectories of educational groups per morbidity level in plane 1–3

along axis 1, the tertiary educated without chronic conditions have a substantially more advantageous composition of determinants compared to the objectively healthy middle (0.708) and lower educated (0.646). With respect to SRH, for no chronic conditions, the tertiary educated are more likely to assess their health as very good, while the middle and lower educated fall between the good and very good SRH categories. Educational differences in social determinants composition becomes less pronounced when educational groups report only one condition. However, notable differences in determinants remerge between educational groups with multimorbidity. The tertiary educated with multimorbidity accumulate substantially more social advantages than both the middle educated (0.551) and the lower educated (axis 1: 0.783, axis 3: 0.592) with multimorbidity. With respect to SRH, although the tertiary educated with multimorbidity accumulate fewer social advantages (axis 1) than their healthier peers, they ascribe to a better lifestyle (axis 3) thus remaining likely to still report good or very good SRH. However, the simultaneous shift of the lower and middle education groups with multimorbidity towards more socially disadvantaged and unhealthier lifestyles increases the likelihood that the middle educated will assess their health as either good or fair and that the lower educated will assess their health as either fair or poor/very poor.

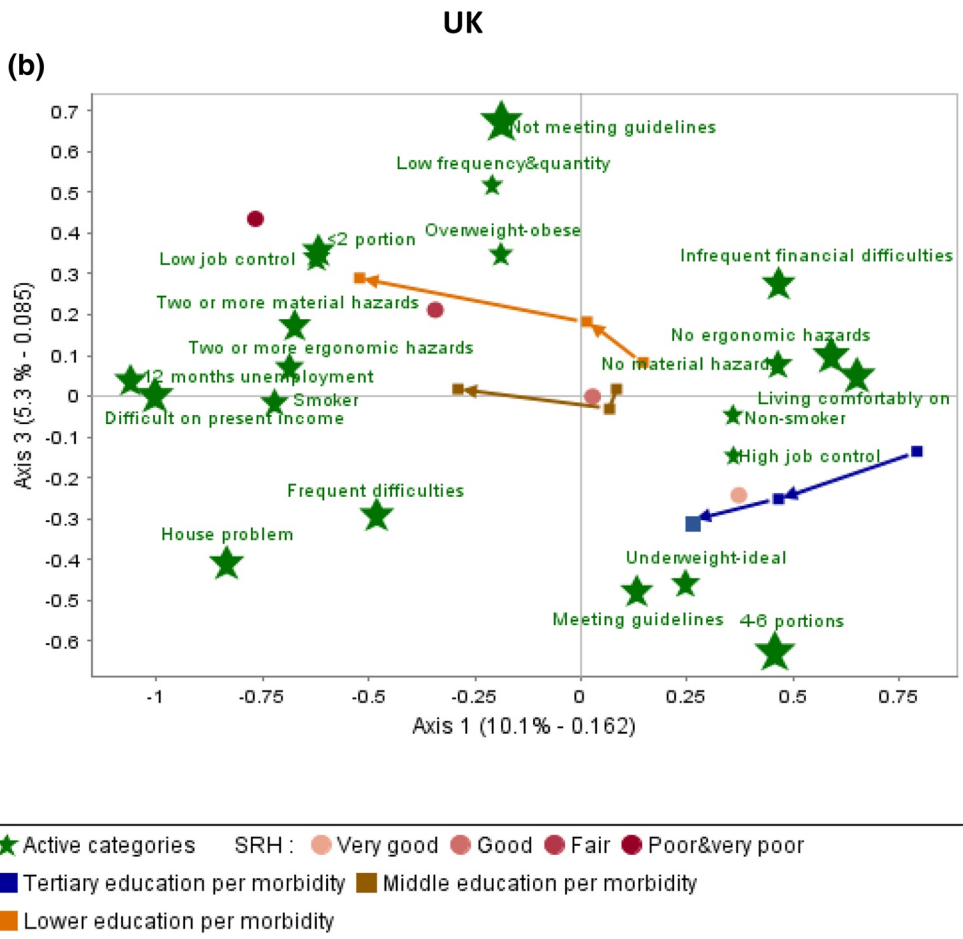


FIGURE 4 (Continued)

Norway

Similar to in the UK, the Norwegian social determinant space of health determinants is constructed along three main dimensions, summarising 91% of the variance in the data. The first axis captures 66% of the total variance. This axis, depicted in Figure 6, contrasts accumulation of advantages (right side) with disadvantages (left side) on five factors coming from the three sets of social determinants but is largely dominated by occupational factors. The second axis opposes accumulation of living conditions disadvantages with a healthy lifestyle (upper side) to accumulation of working conditions disadvantages with an unhealthy lifestyle (lower side). The third axis, shown in Figure 7, further distinguishes healthy (lower side) from unhealthy (upper side) lifestyle in addition to differentiating between levels of social network and job control.

Supplementary variables are projected into the social determinant space in Figure 8 for SRH and Figures 9 and 10 for education and morbidity crossing. The category of very good SRH has notable deviations with fair SRH (0.769) on axis 1 and with poor and very poor SRH along the three axes (axis 1: 0.965; axis 2: -0.578; axis 3: -0.511). The good SRH category has notable deviations on axis 1 (0.590) and 2 (-0.629) with the poor SRH. In addition, the poor SRH category has a notable deviation on axis 2 as does the fair SRH category (-0.634). In general, axis 1 seems to

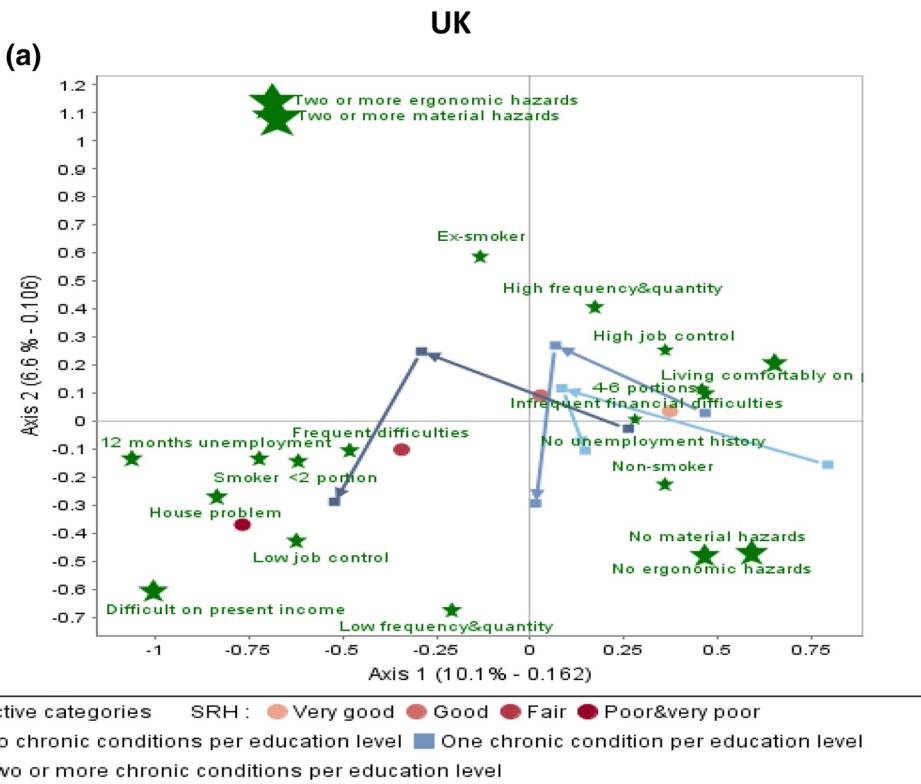


FIGURE 5 (a) Position of SRH categories and trajectories of morbidity groups per educational level in plane 1–2. (b) Position of SRH categories Trajectories of morbidity groups per educational level in plane 1–3

distinguish between individuals in good health and individuals in fair and poor health, whereas individuals in poor health are distinguished on axis 2 from the rest of the SRH categories and on axis 3 from the very good category. As observed in Figure 8, there is considerable intersection between SRH categories and the notable deviations identified on axes 1 and 2 for the poor/very poor category are due to the small weight ($n = 63$) but large contribution to this axis of the category “difficulties on present income” which is more likely to report poor/very poor health. Tertiary (blue markers) and lower education group (orange markers) exhibits similar deviations as SRH on axis 1 (0.738) and axis 3 (−0.655).

If tertiary and lower educated in general are shifted towards opposite sides of accumulation of occupational, living conditions and lifestyle of axes 1 and 3, is this pattern reinforced or weakened for different levels of morbidity? Within the tertiary education group (Figure 9a), a notable shift along axis 1 (0.549) is identified between reporting no chronic conditions and reporting two or more chronic conditions. Nevertheless, individuals in the tertiary education with multimorbidity group remain on the more advantaged side of the social determinant space and benefit from more healthy lifestyle factors, social networks and job control than their healthier counterparts. For the lower education category, it was not possible to distinguish between categories of no chronic conditions ($n = 17$) and only one chronic condition ($n = 26$) due to the low number of cases. Therefore, these categories were combined, and we will refer to this group as lower education with one condition. This group is positioned slightly on the more socially disadvantaged side on axis 1 but in proximity to the centre of the social determinant space in plane 1–2,

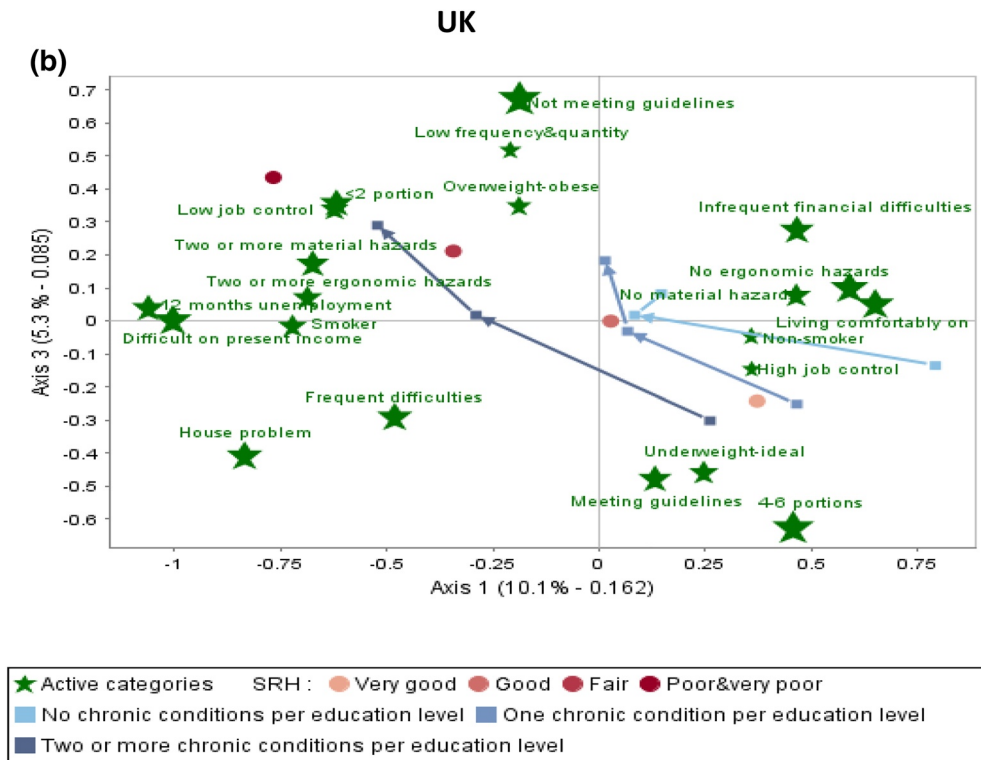


FIGURE 5 (Continued)

whereas in plane 1–3, they occupy the most disadvantaged combination of social determinants on axis 3 (lifestyle, social network and job control). Reporting two or more conditions shifts lower educated towards a more disadvantaged position along all axes. Individuals with middle education with no conditions are located on the centre of the three-dimensional space, while with increasing levels of morbidity, especially when reporting two or more conditions they shift towards the less advantaged side of axis 1. This deviation (0.469) is slightly below the notable threshold.

To explore inequalities between educational groups for same level of morbidity, trajectories for each morbidity level are shown in Figure 10. Tertiary and middle education have substantial differences in the composition of social determinants along axis 1 for each level of morbidity (no condition: 0.674, one condition: 0.790, two or more conditions: 0.657). These shifts in composition of social advantages expose the different likelihood of these two educational groups to change perception of health with increasing morbidity. Like in the UK, in Norway, perception of health tends to worsen (from good to fair health) with increasing morbidity for the middle educated. However, it is more likely to remain stable at good or very good levels for the tertiary educated. Differences in social determinants of health and SRH perception are even more pronounced between the tertiary and lower educated groups for the two levels of morbidity available. These groups have substantial differences both on axis 1 (0.661; 0.657) and axis 3 (−0.543; −0.745). Again, while the health perception of the tertiary educated is more stable at good levels, the lower educated with increasing morbidity are more likely to shift towards reporting fair and poor health. Increasing levels of morbidity do not give rise to notable differences in determinants between the lower and middle educated groups.

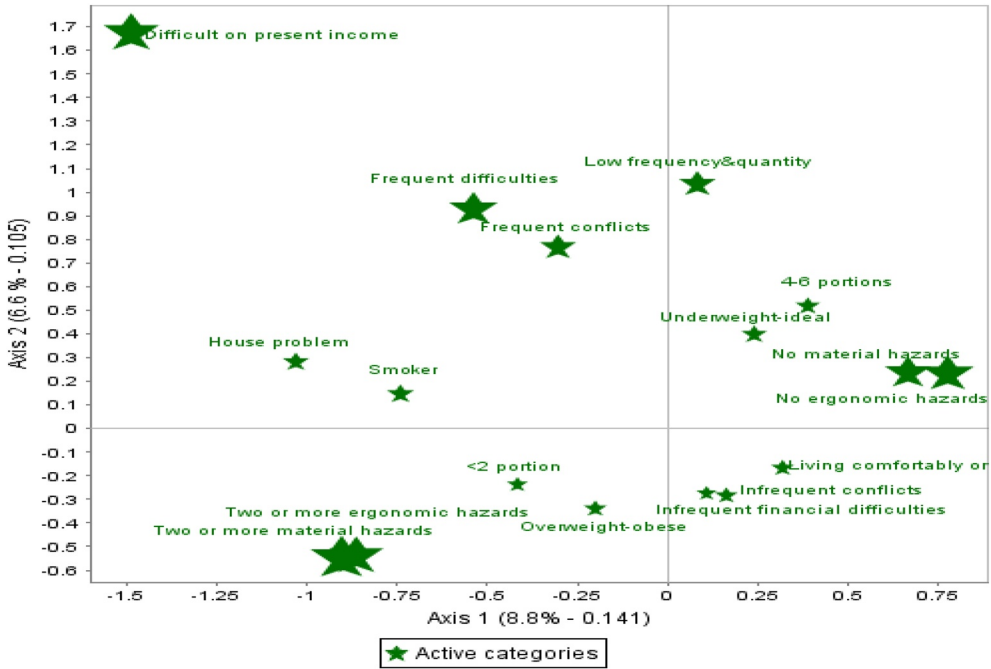


FIGURE 6 Plane 1–2. Interpretation of Axis 1: 8 categories with greatest contribution to the axis. Interpretation of Axis 2: 12 categories with the highest contribution to the axis. The size of each marker is proportional to its contribution to the axis

NORWAY

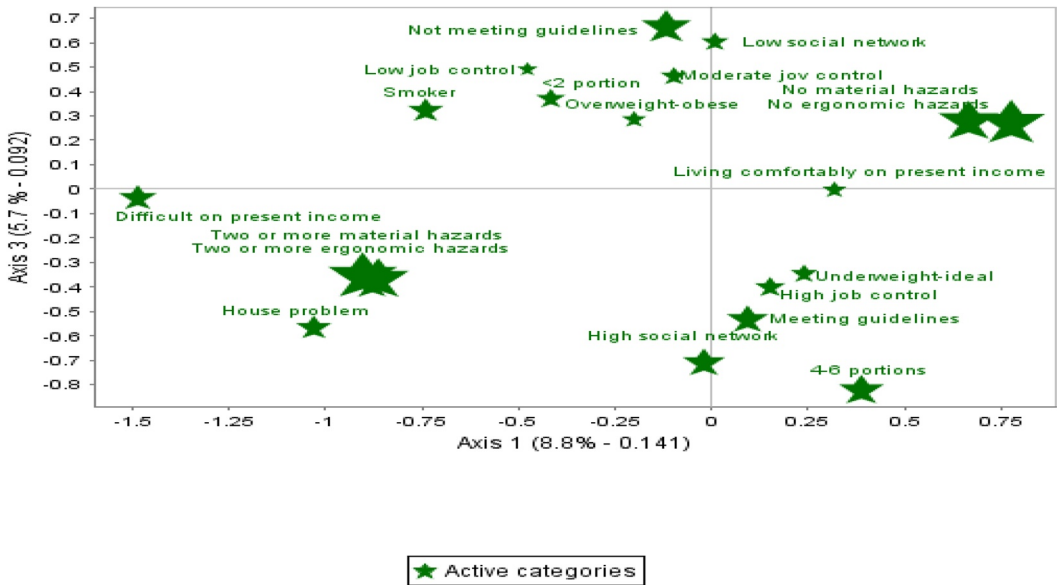


FIGURE 7 Plane 1–3. Interpretation of Axis 3: 10 categories with the greatest contribution to the axis. The size of each marker is proportional to its contribution to the axis

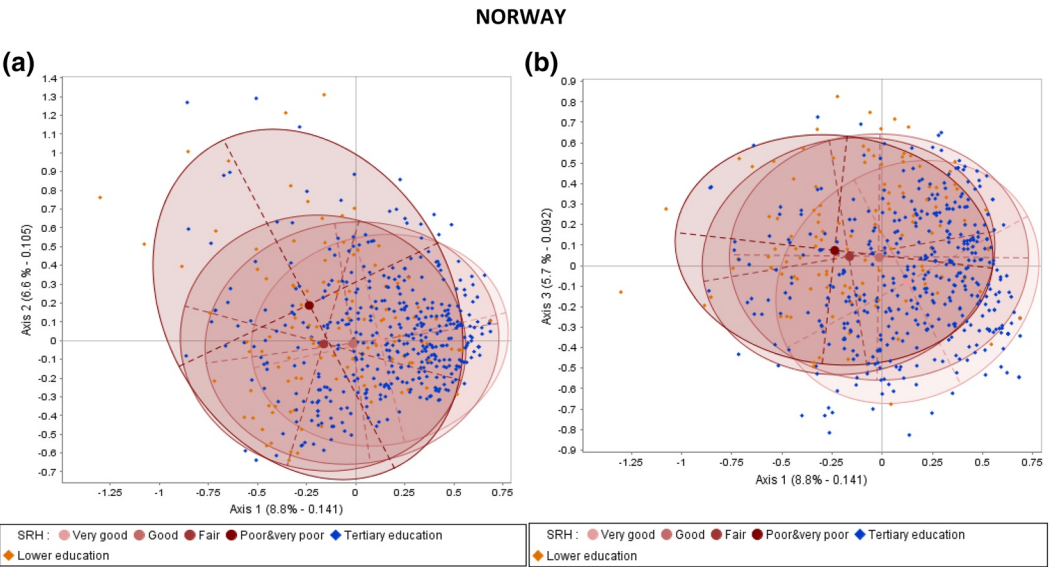


FIGURE 8 (a) Self-reported health ellipses in plane 1–2. Tertiary education cases in blue markers and lower education in orange markers. (b) Self-reported health ellipses in plane 1–3. Tertiary education cases in blue markers and lower education in orange markers

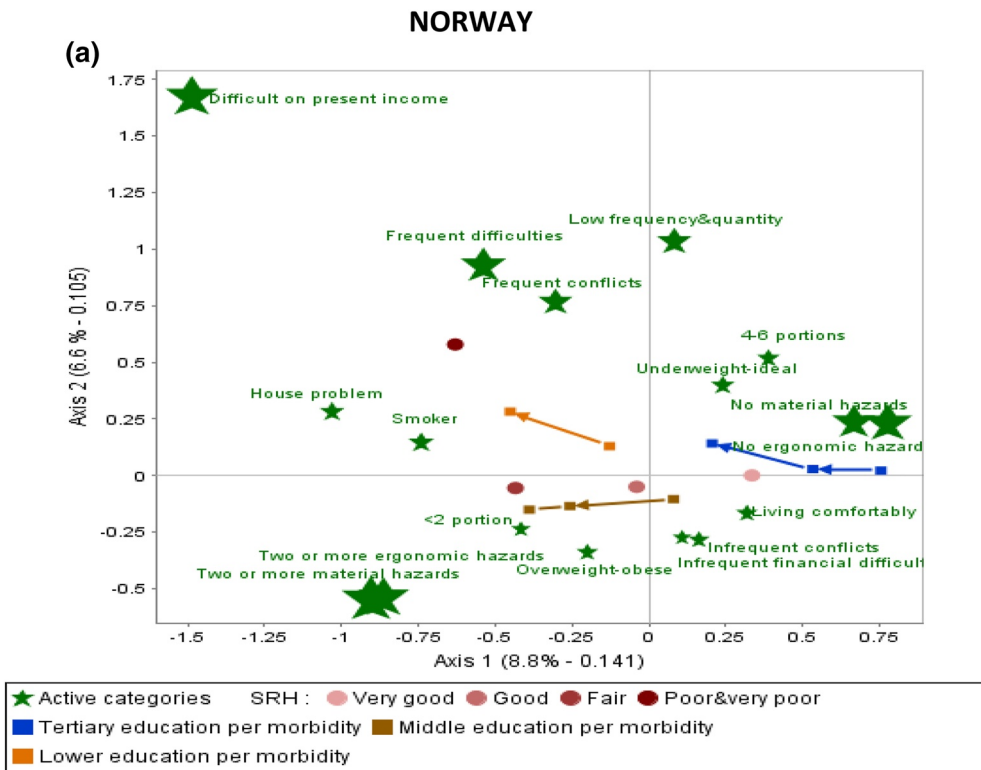


FIGURE 9 (a) Position of SRH categories and trajectories of educational groups per morbidity level in plane 1–2. (b) Position of SRH categories Trajectories of educational groups per morbidity level in plane 1–3

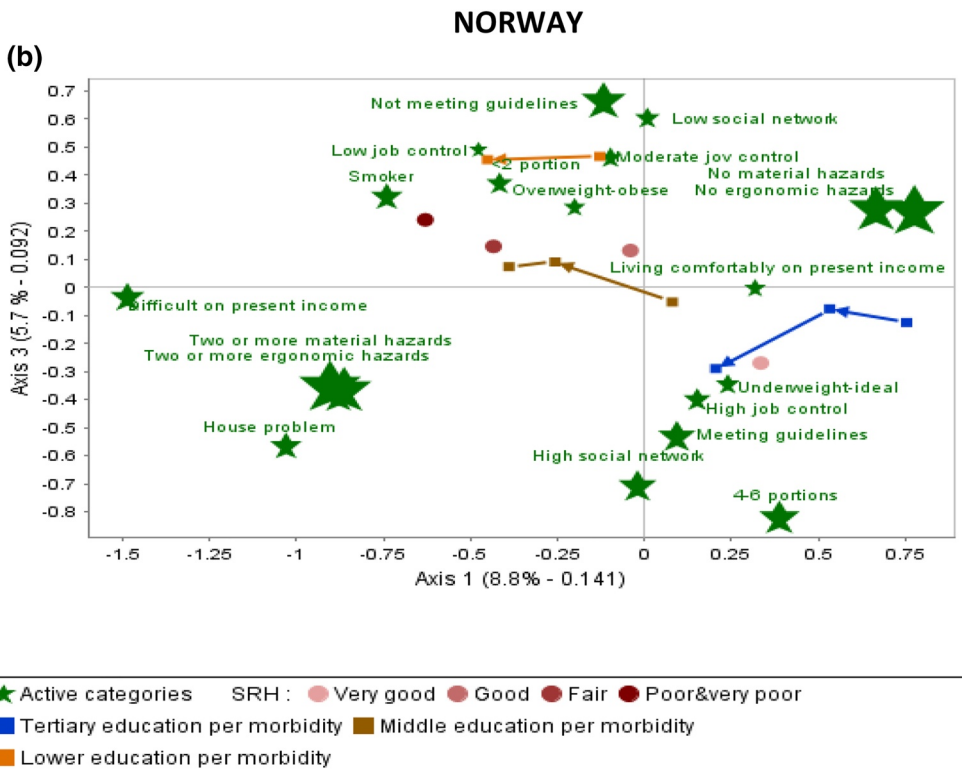


FIGURE 9 (Continued)

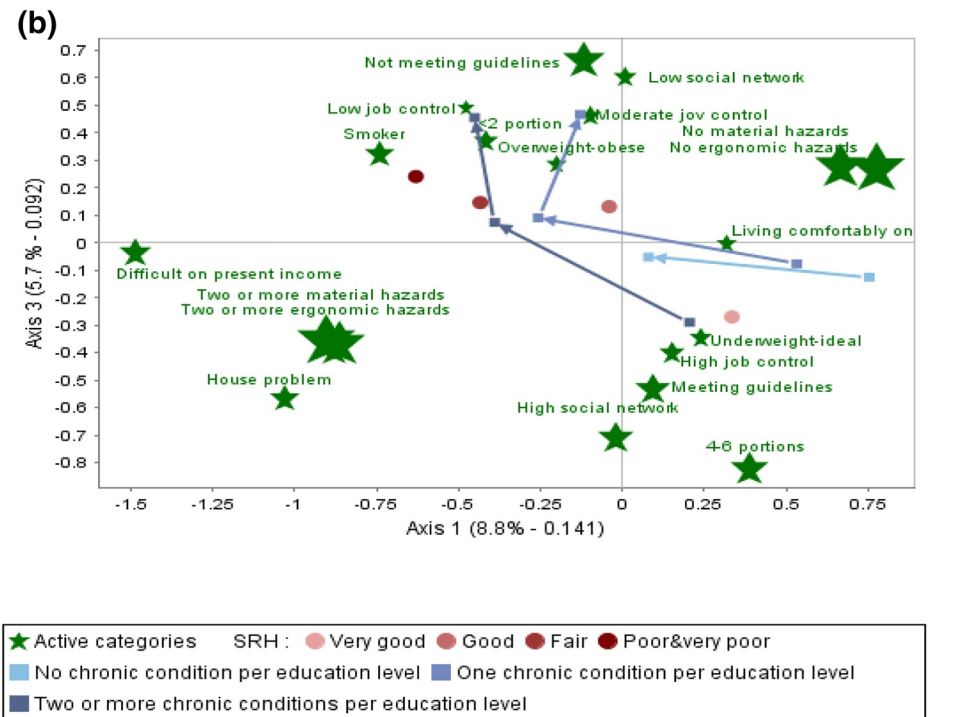
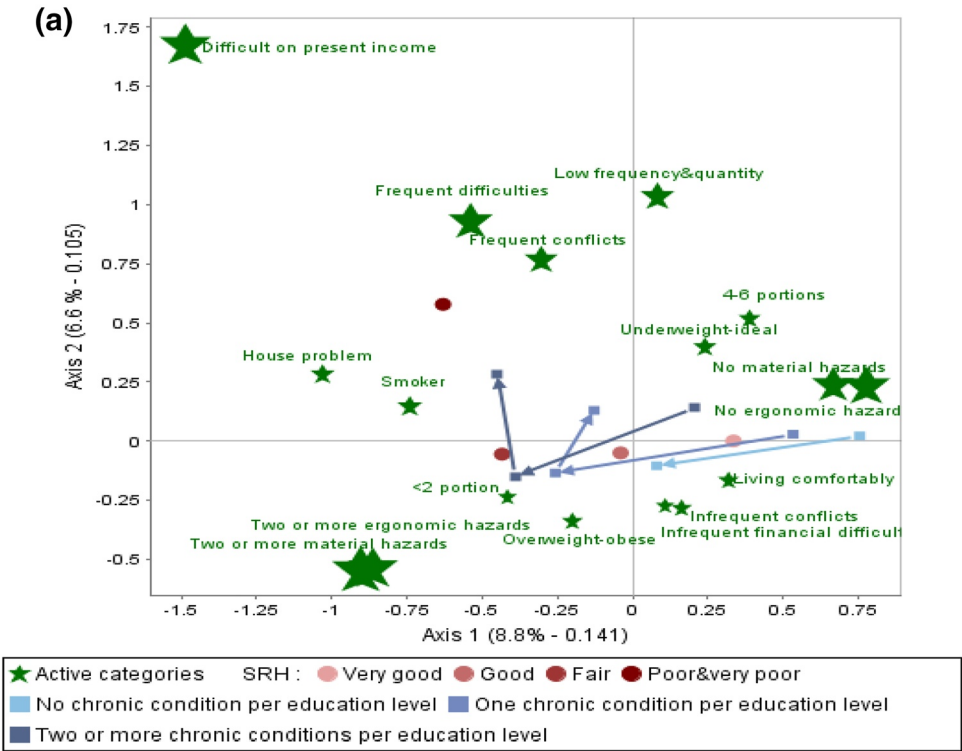
Hungary

The Hungarian social determinant space of health determinants depicted in Figure 11 yields two main dimensions to interpret, capturing 85% of the variance. The first axis summarises 76% of the total variance. This axis, structured along seven factors, contrasts the accumulation of living conditions and occupational advantages over the life course (right side) with disadvantages (left side). Concerning the second axis, over half of the contribution derives from the opposition of lifestyle factors.

Figure 12a shows the position and dispersion of SRH categories in the Hungarian social determinant space. The very good and good SRH categories are located on the socially advantaged side of axis 1 and, as we can see, this area includes mostly the tertiary educated (blue). On the opposite side of axis 1 we find the categories of fair and poor/very poor health, predominately constituted by the lower education cases. Deviations are notable on axis 1 from each SRH category to the poor/very poor category (0.925; 0.976; 0.510). In addition, the deviations between good and very good SRH categories and the fair category on axis 1 (0.415; 0.467) are almost notable. No notable deviations are present for SRH across axis 2. Overall SRH is correlated to axis 1 only.

In Figure 13, which presents trajectories within educational groups per morbidity level, we observe that tertiary education with two conditions reaches an almost notable deviation from tertiary educated with only one (0.449) or no chronic condition (0.477) on axis 1. The deviation along the second axis is less pronounced; however, the location of tertiary education with multi-morbidity in quadrant II suggests that while this group has more material advantages and is more

NORWAY



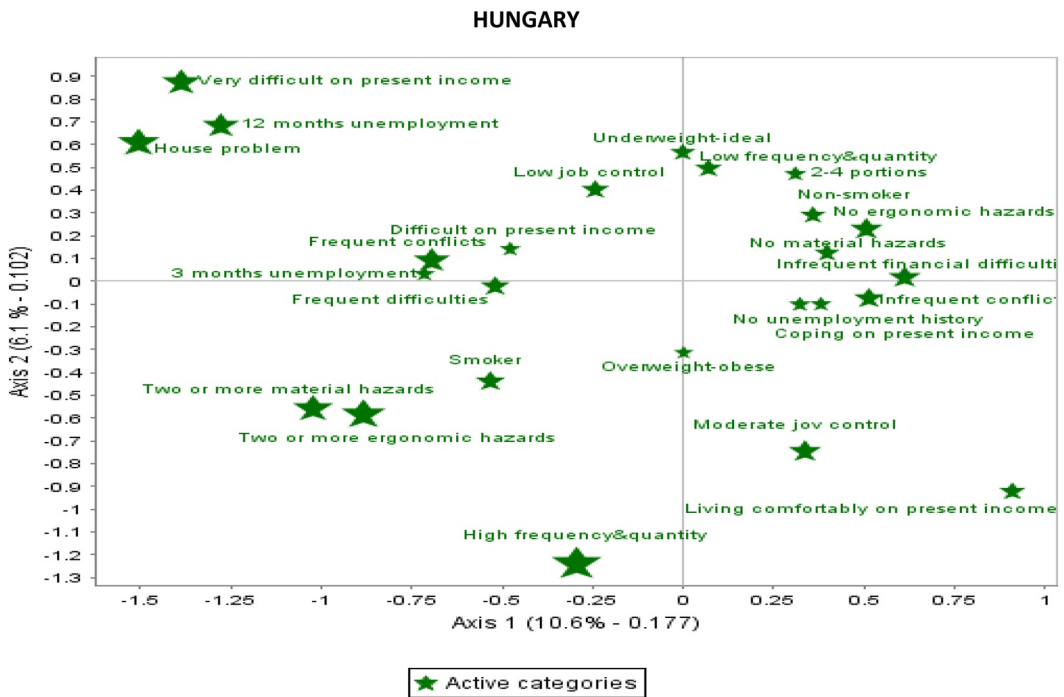


FIGURE 11 Plane 1–2. Interpretation of Axis 1: 15 categories with the highest contribution to the axis. Interpretation of Axis 2: 14 categories with the highest contribution to the axis. The sizes of the markers are proportional to the contribution to the axis

likely to have moderate job control, it faces more work hazards and has an unhealthier lifestyle. Within the middle education group, only the deviation between reporting no chronic conditions to two or more chronic conditions is notable (0.609). This deviation shifts the middle educated with multimorbidity towards accumulation of living condition and occupational disadvantages. In contrast, the middle educated without chronic conditions are likely to resemble the higher educated with multimorbidity in terms of social determinant composition. Lower education was categorised into only two morbidity groups due to the low number of cases (34 reporting no condition and 26 reporting only one conditions). The lower education group with one condition is located in the second quadrant. This quadrant represents the most disadvantaged categories in terms of occupation and living conditions but with healthier lifestyle than other groups. The deviation between morbidity levels is not notable, but it nonetheless it shifts lower education with multimorbidity towards a higher probability of experiencing disadvantages in terms of occupational and living conditions.

Although the composition of social determinants does not change greatly within educational groups, with the exception of the middle educated, there are large inequalities between educational groups for the same morbidity level (Figure 14). Along axis 1 for each morbidity level, deviations between educational groups range from notable to large. The largest deviations are found between the tertiary and lower education groups (one condition: 1.510; two conditions: 1.268), followed by deviations between the tertiary and middle educated (no condition: 0.601;

FIGURE 10 (a) Position of SRH categories and trajectories of morbidity groups per educational level in plane 1–2. (b) Position of SRH categories and trajectories of morbidity groups per educational level in plane 1–3

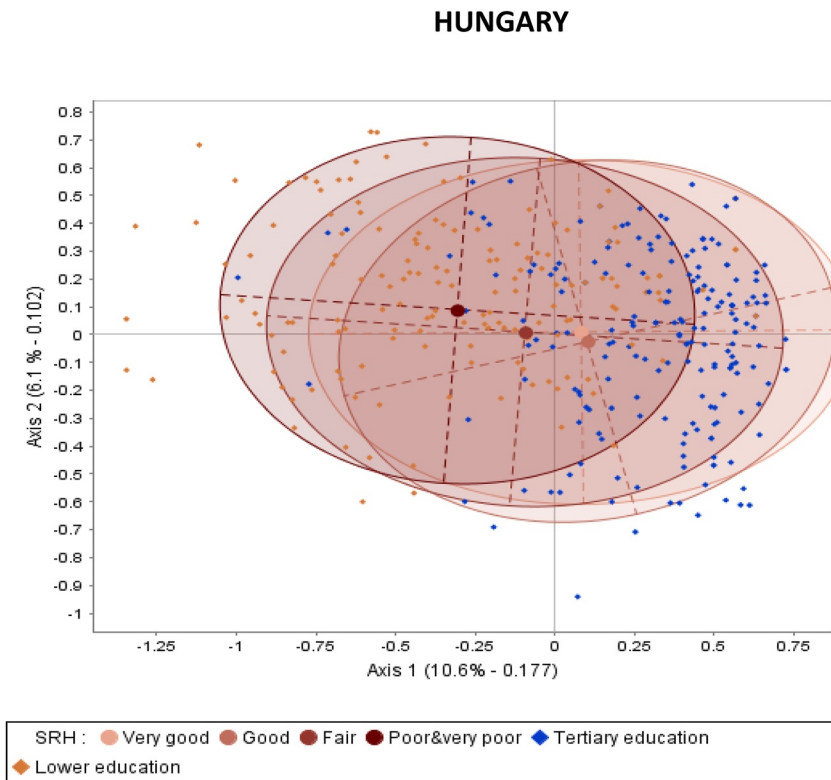


FIGURE 12 Self-reported health ellipses in plane 1–2. Tertiary education cases in blue markers and lower education in orange markers

one condition: 0.914; two conditions: 0.761) and between the middle and lower educated (one condition: 0.597; two conditions: 0.507). Taken together, shifts of educational groups for the same level of morbidity along axis 1 clearly illustrate the substantially different composition of social determinants across these groups. Like in the UK and Norway, the social advantages accruing to the tertiary educated in Hungary are associated with a more stable perception of good health, independently of morbidity level. For the middle educated, perception of health is more likely to shift towards fair and poor health with increasing levels of morbidity, whereas for the lower educated, higher levels of morbidity further increase the likelihood of poor health.

DISCUSSION

The nature and relative composition of social determinants of health, applied in the relational framework of social space, and the relation of these factors to educational groups and morbidity has provided us with several insights within the European context. Our study adds to a small but growing body of research applying a relational approach to social class and health in the following ways (Burnett & Veenstra, 2017; Frie & Janssen, 2009; Lengen & Blasius, 2007; Veenstra, 2007). First, by constructing the social space in terms of a wide range of social determinants, we have identified the differential exposure to everyday life conditions that the interaction of economic, cultural, symbolic, social and physical capitals provides access to in different welfare

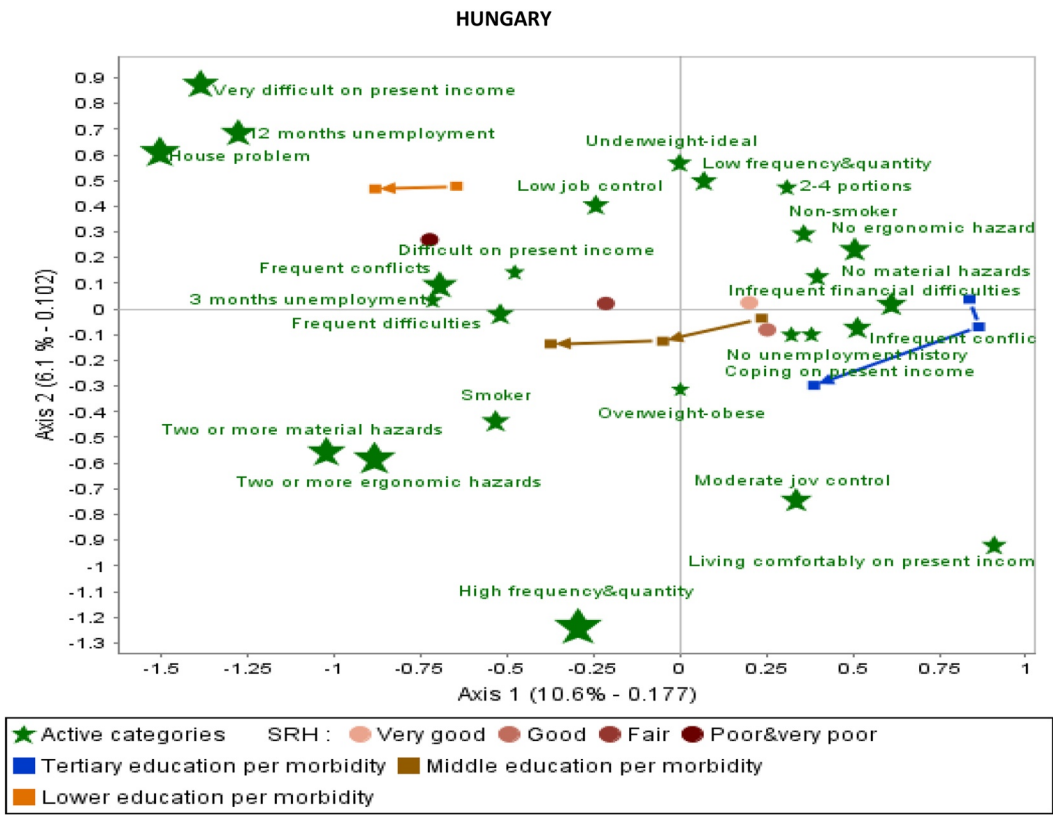


FIGURE 13 Position of SRH categories and trajectories of educational groups per morbidity level in plane 1-2

states. Second, to our knowledge, this is the first study to use MCA in a comparative approach to examine health inequalities, allowing for a more systematic between-country comparison of the main social determinants polarizing each society. Third, our specific focus on education provides insight into the differential conversion processes of education in different countries. Fourth, our mapping and comparison of trajectories exemplifies a dynamic relational approach to health and social position, which can broaden our view on the magnitude of social vulnerabilities within the social space. Fifth, we add to the literature on SRH heterogeneity by presenting a sociological understanding of social differences in perception of health by mapping the differential educational vulnerabilities and consequences of morbidity in perception of health. Mirroring these five contributions to the field a summary of main findings is presented in Table 1. This is then followed by a detailed discussion in the subsequent sections.

Organisation of social determinants space

To begin with, our country analysis allowed us to identify communalities and variations of dominant structuring social determinants of health in different European social determinant spaces. Focussing on the first axes, the three countries have in common an accumulation of social advantages and disadvantages as the main principle of differentiation. All three countries demonstrate

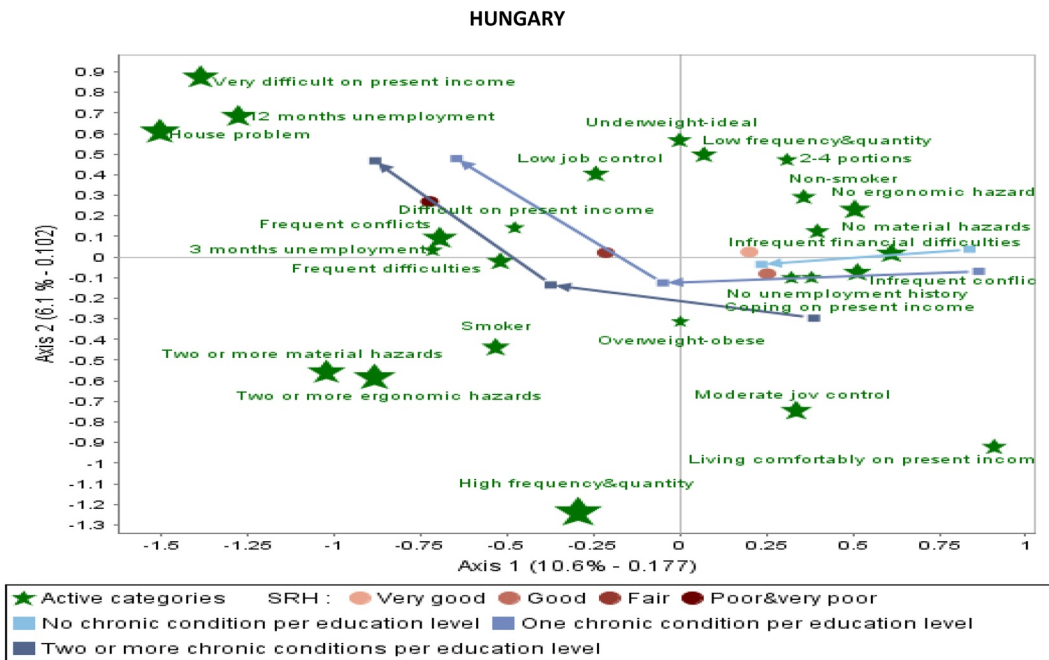


FIGURE 14 Position of SRH categories and trajectories of morbidity groups per educational level in plane 1-2

polarization of the social determinant space in terms of work hazards, housing problems and financial strain. However, even on the shared factors we notice variations across countries in terms of volume. For instance, in both the UK and Norway oppositions between having difficulty and living comfortably on current income emerge as structuring categories, while in Hungary this opposition is shifted between being very difficult and difficult and coping on present income.

In addition, the composition of the main social advantages and disadvantages varies considerably across countries. First, different sets of social determinants dominate the polarization of these societies. In Norway, work hazards contribute to almost half of the variance of the main axis, whereas in line with earlier research we find that living conditions determinants led by variation in financial strain are more polarizing in the UK and especially in Hungary (Marmot et al., 1991; Pikhart et al., 2003; Shaw et al., 2014). Second, a substantially larger number of differentiating factors is present in the UK (3 living conditions, 4 occupational, 2 lifestyle) and Hungarian (4 living conditions, 3 occupational) compared to the Norwegian (2 living conditions, 2 occupational, 1 lifestyle) first dimension. For example, as in earlier reports, levels of job control differentiates only the UK (Fuhrer et al., 2002) social determinant space while childhood difficulties and unemployment history are important structuring factors in both the UK and Hungary (Ferrie et al., 2005; Power et al., 1998). Unlike in Norway, in the UK and Hungary, the most disadvantaged seem to experience persistently poor social circumstances throughout their life as both current financial strain and difficulties in childhood polarise the main axis (Seabrook & Avison, 2012). On the other hand, similar to earlier studies, we find that the UK and Norway share differentiation on the basis of lifestyle factors that is not present in the Hungarian social determinant space (Arber et al., 2014; Balaj et al., 2017).

Overall, greater polarization of social determinants of health in the UK and Hungarian social spaces also shifts the average pattern of social determinant of these countries compared to

TABLE 1 Summary of main findings comparing the UK, Norway, and Hungary

Main findings	Comparison of the UK, Norway, and Hungary.
Social determinants space	Greater polarization across social determinants of health was found in the UK and Hungarian societies compared to the Norwegian one. Material determinants are stronger polarizing factors in the UK and particularly in Hungary while occupational ones (working hazards) in Norway. These differences in composition and volume of polarizing determinants are associated with different levels of average health of these societies. We find as expected a positive relationship between levels of average health and generosity of the welfare state.
Position of educational group in the space	Corresponding to differences in decommodification levels across welfare states, in the Hungarian social determinant space each education level was associated with substantially different resources. In contrast, in the UK and Norway, the middle and lower educated showed comparable composition of resources which differ substantially from those with tertiary education. In Norway, although lower educated in general were more likely to be exposed to lower levels of social disadvantages than in the UK, they seem to experience homogenous class circumstances. In contrast, in the UK the lower educated group experience a combination of class circumstances ranging from accumulation of some social advantages to accumulation of a high number of disadvantages. These variations in the experience of class circumstances within the lower educated in the UK and Norway could in part contribute to the Nordic paradox and explain why we do not observe fewer inequalities in SRH in Norway than in UK.
Trajectories of educational groups with same levels of morbidity	<p>With increasing levels of morbidity higher educated both in Norway and UK tend to compensate the decline of social advantages by improving their health behaviours and only for Norway also their control over their job and participation in social network. On the contrary, compensation strategies are not observed within the lower educated group experiencing multimorbidity either in the UK or in Norway. Different from Norway, the low educated with multimorbidity in the UK experience a vast deterioration of material resources which is also coupled with increasing levels of unhealthy behaviours.</p> <p>In terms of the Nordic paradox, it seems that the magnitude of health inequalities in Norway is mostly driven from the increased social resilience of higher educated with increasing levels of morbidity (improved labour market position and lifestyle) rather than from loss of resources from lower educated. On the contrary the magnitude of health inequalities in UK seems to be driven mostly by a large increase of social vulnerability among lower educated while the resilience of higher educated is confined only to lifestyle factors. Concerning Hungary, despite the considerable loss of resources from higher educated it is the exceptionally large magnitude of social vulnerability of lower educated independently from their morbidity status that leads to very high levels of social and health inequalities confirming thus the strong west-east health inequality divide in Europe.</p>

(Continues)

TABLE 1 (Continued)

Main findings	Comparison of the UK, Norway, and Hungary.
Educational trajectories relate to perception of health	Similar to previous studies, we have found that SRH adheres closely to the position of social groups in the social space. The heterogeneity in SRH reporting for the same level of morbidity became more evident with increasing morbidity levels as higher social groups shifted towards accumulation of fewer social advantages and lower social groups towards accumulation of more social disadvantages at different rates. In Hungary, the strong educational gradient in resources was reflected in large educational differences in reporting SRH for the same level of morbidity. A similar relation between education and SRH reporting heterogeneity was present in the UK and Norway. However, as the gradient in distribution of resources was also less pronounced, differences in reporting of SRH for the same level of morbidity were smaller. These differences in the magnitude of SRH reporting heterogeneity between countries are in line with theoretical expectations because the capability to acquire and to preserve resources in case of health loss by different social positions depends on the level of welfare states generosity.

Norway. The average patten of social determinants is represented by the origin of the social determinant space. In other words, the health of individuals who possess the “average” social determinants of health in each country is different across these countries. These health differences are reflected in differences in the average population health across these countries (Marmot et al., 2012). Concretely, in both Norway and the UK, the good SRH category is situated close to the origin of the social spaces; however, in Norway, the origin is found between very good and good SRH while in the UK between the good and fair SRH categories. By comparison, in Hungary, the average distribution of social determinants (origin of the social space) is situated more clearly between lower levels of health, noticeably between the good (almost no distinction between good and very good) and fair categories of SRH. These general levels of health are in line with earlier research confirming higher overall levels of health in more generous welfare states (Eikemo, Andreas, Bambra, Judge, & Ringdal, 2008).

Position of educational groups in the social space

In constructing the social determinant space, we implicitly investigated the conversion of education into other forms of resources relevant for health. Educational groups located in different parts of the social determinant space reflect the differentiated possession of these resources. Overall, in the UK and Norway, with some variations addressed in the next section, the lower and middle educated were likely to occupy proximate positions in the social determinant space with comparable composition of resources. These resources were found to be substantially different from the accumulation of social advantages characteristic of the tertiary educated. Corresponding to differences in decommodification levels across welfare states, the Hungarian social space, in comparison to that of the UK and Norway, displayed stronger stratification of resources, as each education level was associated with substantially different resources (Armington & Bonoli, 2007).

The position of educational groups in relation to the origin of the social determinant space indicates how much the resources of these groups differ compared to the average distribution of resources in their societies and their relative position in the social hierarchy. Previous studies have identified a significant association between perceived position in the social hierarchy and SRH, independent of objective social markers (Demakakos et al., 2008; Präg et al., 2016; Singh-Manoux et al., 2005). A recent study examining how social comparison processes might affect the association between perceived social status and SRH found a stronger association when individuals were asked to compare themselves to the general “others in society” (Wolff et al., 2010). Although in our study we do not use perceived position in the social hierarchy as a measure, it is possible to interpret the position of educational groups in the social determinant space as capturing the average of their resources. It has been argued that this approach better encompasses the multifaceted nature of social position aligning closer to one's perception of social standing in society (Krieger et al., 1997; Oakes & Rossi, 2003; Veenstra, 2007). In that case, the distance to the average distribution of the social determinant space points to the gap between the educational groups' own characteristics and those representing the standard in society. For example, lower educated in the UK experience a combination of class circumstances ranging from accumulation of some social advantages to accumulation of a high number of disadvantages (for multimorbidity). However, based on Atkinson (2017) the social advantages experienced by lower educated in the UK represent mostly the social experience of low educated which have benefited from intergenerational transmission of high volumes of economic capital. Given the combined class experience of low educated in the UK, the high level of disadvantage for low educated with multimorbidity still masks to some extent the real level of adversity experienced by the low educated which are part of the dominated class in the UK society in terms of both cultural (education) and economic capitals. Whereas in Norway, although lower educated in general are more likely to be exposed to lower levels of social disadvantages than in the UK, they seem to experience more homogenous class circumstances that are lower than the average in their society independent of morbidity levels (especially on axis 3). These variations in the experience of class circumstances within the lower educated in the UK and Norway could in part explain why we do not observe fewer inequalities in SRH in Norway than in UK (Balaj et al., 2017). Whereas in Hungary, both the lower and higher educated groups showed a notable shift from the average distribution, strongly polarizing perception of health as observed in earlier studies (Balaj et al., 2017; von dem Knesebeck et al., 2006).

Trajectory of educational groups experiencing same levels of morbidity

By adding morbidity as a structuring factor, we were able to observe the direction and magnitude of morbidity effects within and between educational groups in various European welfare states. The trajectories within educational groups per level of morbidity are an indication of the interplay between resources, advancement strategies conditioned by habitus, and opportunities imbedded in social position. While the position of social groups can be identified, the strategies and opportunities of these groups in the social determinant space cannot be directly observed; they can, however, be apprehended interpretively by examining changes in the composition of social determinants of health induced by health loss. For example, notable differences in accumulation of social advantages along axis 1 found in the UK and Norway between those with

tertiary education reporting no condition and two or more conditions seem to be compensated by notable improvements in the position of the tertiary educated with multimorbidity on axis 3, in particular by adhering to a healthier lifestyle (both countries) or to higher levels of job control and social network (Norway only). In essence, tertiary educated individuals with multimorbidity who have developed a predisposition towards healthy lifestyle choices and have better chances (Cockerham, 2013; Maton, 2014) due to a relatively socially advantageous position seem to follow a compensation strategy to maintain overall levels of health-relevant capital.

On the contrary, compensation strategies are not observed within the lower educated group experiencing multimorbidity in either the UK or Norway. Indeed, lower educated individuals with increasing levels of morbidity shifted towards an unhealthy lifestyle in the UK and lower job control in both contexts. The increase in unhealthy lifestyle only in the UK could be the result of a more significant modification of material resources (shifting from socially advantaged to the most socially disadvantaged position) for lower educated individuals with increasing levels of morbidity. Fewer resources can place more constraints on the range of options for health-relevant agency in the UK social determinant space than in the Norwegian one (Abel & Frohlich, 2012). In this respect, similar to earlier studies (Averdano et al., 2009; Holland et al., 2011) the opportunities imbedded in the Norwegian welfare state seem to provide more stability for the material and occupational resources of the lower educated with morbidity. Similar to the lower education group, the middle educated with increasing levels of morbidity did not show a trend towards compensation for the loss of social advantages. Although the loss of social advantages is not considered substantial in either country, it is worth noting that the middle-educated group with multimorbidity still falls clearly on the more disadvantaged side. In terms of the Nordic paradox, it seems that the magnitude of health inequalities in Norway is mostly driven from the increased social resilience of higher educated with increasing levels of morbidity rather than from the loss of resources from lower educated. Indeed, with increasing level of morbidity higher educated in Norway tend to improve their position in the labour market and lifestyle behaviours. On the contrary the magnitude of health inequalities in UK seems to be driven mostly by a large increase of social vulnerability among lower educated while the resilience of higher educated is confined only to lifestyle factors.

Two main observations can be made concerning the trajectories within educational groups in the Hungarian social space. First, considerable changes in the composition of social determinants took place only for the tertiary and middle-educated groups with multimorbidity. The absence of such pattern for the lower education group might be due to its already highly disadvantaged position in terms of material factors for lower levels of morbidity. Second, in contrast to the UK and Norway, the loss of social advantages along the first axis for the higher educated group is not accompanied by an accumulation of health-relevant capital on the second dimension. A possible explanation could be the inverse association of lifestyle factors with education level, which has been observed in Hungary in previous studies (Roskam et al., 2010). As morbidity increases, the lack of disposition to lead a healthy lifestyle coupled with loss of material resources leads to a net but not substantial decrease of total volume of capital for the higher educational group in Hungary. Despite considerable loss of resources also from higher educated, the large magnitude of social vulnerability of lower educated independently from their morbidity status leads to very high levels of social and health inequalities in Hungary confirming the strong west-east health inequality divide in Europe.

Educational trajectories and perception of health

The ultimate objective of our paper was to examine whether differences in SRH observed between educational groups for same level of morbidity can be understood in relation to the relative resources and habitus of these groups. Similar to previous studies, we have found that SRH adheres closely to the position of social groups in the social space (Pinxten & Lievens, 2014; Veenstra, 2007). We took this observation one step further by examining to what extent morbidity exposes vulnerabilities of social groups thus redefining the boundaries between groups and their perception of health. In the UK, those in the tertiary, middle and lower education groups with a physically healthy body were all situated on the socially advantaged side. Nevertheless, tertiary educated were more likely to accumulate substantially more social advantages than middle and lower education groups and report very good instead of the good health reported by middle and lower education groups. The same pattern applied to the tertiary and middle educated with no health conditions in Norway. The heterogeneity in SRH reporting for the same level of morbidity became more conspicuous with increasing morbidity as higher social groups shifted towards accumulation of fewer social advantages and lower social groups towards accumulation of more social disadvantages at different rates. For instance, in Hungary we found a strong gradient in resources between educational groups for both morbidity and multimorbidity. This gradient was reflected in educational differences in reporting SRH for the same level of morbidity. Concretely, those in the lower educated group with multimorbidity in Hungary were more likely to report poor or very poor health, those in the middle-educated group poor and fair health, and those in the tertiary educated group good or very good health. A similar relation between education and SRH reporting heterogeneity was present in the UK and Norway. However, as the gradient in distribution of resources was also less pronounced, differences in reporting of SRH for the same level of morbidity were smaller. These differences in the magnitude of SRH reporting heterogeneity between countries are in line with theoretical expectations (Balaj, 2022) because the capability to acquire and to preserve resources in case of health loss by different social positions depends also on the level of welfare states generosity.

Traditionally, discussion of reporting heterogeneity in SRH by social position has taken place within the biomedical approach. Several studies have suggested three cognitive sources for reporting heterogeneity by education level (Bago d'Uva, O'Donnell, & van Doorslaer, 2008; Kerkhofs & Lindeboom, 1995; Layes et al., 2012; Shmueli, 2002). According to these studies, educational groups report different levels of SRH for the same morbidity because of differences in (a) conceptualisation of health (b) representation of disease and (c) interpretation of thresholds in SRH response categories. A recent review of educational differences across these sources of SRH heterogeneity has highlighted the limitation of this perspective (Balaj, 2022). This review found that the different educational groups to use similar criteria to evaluate their health, with the higher educated more likely to under-report health conditions and the lower educated to over-report them and the former group more likely than the latter one to rate the same health conditions as more severe. In other words, when studies compare higher and lower educated groups with the same level of morbidity, the former are more likely to be experiencing a higher number of conditions than reported, and to perceive reported conditions as more severe, while translating their worse health status into better perceived health than the objectively healthier lower educated. These discrepancies (reporting heterogeneity) speak to the need to go beyond the biomedical understanding of SRH solely as a health measure and redefine it as a social measure of health capable of capturing the lived experience of the embodied agent in the social context.

It is important to highlight some limitations of our study. First, our analysis is dependent on the social determinants used to construct the social space. Although we are confident that we have included resources representing accumulation and convertibility of economic (material conditions), social (social network and relationships), symbolic (occupational environment) and cultural (lifestyle) capital, future studies could further enrich our findings.

Second, we used survey data for our analysis, which means that we may not have captured the whole population, and our data are likely not fully representative of the populations of the three countries studied. For example, as with other surveys, the ESS suffers from non-response particularly in Norway, which may be selective among dimensions such as income, age and education. Nevertheless, based on evidence from earlier ESS rounds non-response bias tends to be low (Stoop et al., 2010). However, The survey only covers the non-institutionalised population, which means that, for instance, people who are hospitalised due to serious health problems are likely to be underrepresented.

Third, our measure of morbidity was a summary measure that can confound the effect of resources with the stronger negative effect of unequal distribution of heart conditions and depression on SRH evaluation. We run a sensitivity analysis which confirms similar patterns of SRH heterogeneity when these conditions are excluded.

Last, the power relations shaping the distribution of resources in each social context are important for our understanding of what shapes current perceptions of health. Nevertheless, each of these countries has experienced important changes in its economic and industrial structure in different periods that might have modified power relations and influenced population health beyond the compensatory ability of the welfare state. In our analysis, it is difficult to account for divergent historical contexts.

In conclusion, approaching SRH reporting heterogeneity from a sociological perspective as the assessment of the interdependent biological and social transformations of the body in society, has demonstrated the importance of the social circumstances in which individuals experience health conditions and the strategies they enact to maintain resources. This sociological understanding of SRH reporting heterogeneity strengthens the validity of SRH as a measure (capturing both the physical body and the experience of the body in the social space) for the comparison of social groups within and between countries. It is essential to highlight that heterogeneity in SRH reporting among educational groups starts from objectively healthy individuals and follows differences in accumulation of social advantages and disadvantages. This heterogeneity in SRH reporting among social groups increases as the level of morbidity increases due to the differential vulnerabilities of social groups to health loss (Diderichsen et al., 2018). Overall, embedded resources and strategies enacted by higher social positions seem to confirm a status shield effect, significantly reducing chances of SRH decline and increasing SRH heterogeneity between social groups (Verropoulou, 2012). In future studies of SRH inequalities, in order to understand who carries the burden of poor SRH in society we need to look beyond solely stratification of morbidity or of social determinants of health to examine their interaction effect on health.

AUTHOR CONTRIBUTIONS

Balaj: Conceptualisation (lead); writing – original draft (lead); formal analysis (lead); Software (lead); writing – review and editing (equal). **Andreas Eikemo:** Conceptualisation (supporting); writing – original draft (supporting); writing – review and editing (equal).

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DATA AVAILABILITY STATEMENT

The data that support the findings of this study are openly available in European Social Survey at <https://www.europeansocialsurvey.org/data/themes.html?t=healthineqr>.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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