



Does perceived social mobility affect health? Evidence from a fixed effects approach

Alexi Gugushvili^{a,b,*}, Olga Zelinska^b, Patrick Präg^c, Grzegorz Bulczak^{b,d}

^a Department of Sociology and Human Geography, University of Oslo Postboks 1096 Blindern, 0317, Oslo, Norway

^b Institute of Philosophy and Sociology, Polish Academy of Sciences, Nowy Swiat 72, 00 330, Warszawa, Poland

^c Center for Research in Economics and Statistics (CREST), ENSAE, Institut Polytechnique de Paris, 5 Avenue Henry Le Chatelier, 91764, Palaiseau, France

^d Faculty of Management, Gdynia Maritime University, 81-87 Morska, 81-225, Gdynia, Poland

ARTICLE INFO

Keywords:

Perceived social mobility
Subjective social mobility
Health psychology
Physical health
Psychological wellbeing
Polish panel survey
Hybrid effects
Poland

ABSTRACT

Rationale: The question as to whether changing one's socioeconomic position over the life course affects health has not been answered in a conclusive manner. At the same time, it has been established that individuals who think of themselves that they are higher in the social hierarchy are healthier than those who think otherwise.

Objective: In this study, we focus on *perceived* social mobility to shed new light on the issue of how social mobility affects health. We examine whether perceived social mobility, i.e., an individual's appraisal of doing better or worse than their parents, affects health by analyzing longitudinal data from Poland.

Methods: Using a fixed effects approach to account for all time-invariant and important time-varying confounders, we analyze the Polish Panel Survey which has been collecting data on participants' social mobility perceptions along with information on their self-reported physical health and psychological wellbeing.

Results: We find that perceived social mobility is a significant predictor of self-reported physical health and psychological wellbeing, even in models that adjust for a host of theoretically relevant control variables. The results demonstrate that upward subjective mobility has a consistent and strong positive effect on health outcomes. The effect of perceived social mobility is stronger for males and for those with less advantageous social origins.

Conclusions: Our findings are in line with the "from rags to riches" theoretical perspective, emphasizing the positive implications of upward social mobility on health through various psychological mechanisms. Based on our findings, we call for greater scholarly attention to subjective aspects of social mobility in research on health outcomes.

1. Introduction

There is a growing literature on the effect of subjective socioeconomic position (SSP) on various health outcomes (Euteneuer, 2014; Hoebel and Lampert, 2020; Singh-Manoux et al., 2003). This scholarship primarily builds on the psychosocial theory of health inequalities which posits that irrespective of one's objective socioeconomic conditions, one's subjective position in the social hierarchy negatively affects health because perceived social distances erode social trust and lead people to feel their lives are less valuable (Marmot, 2004; Wilkinson and Pickett, 2018). Empirical studies usually find that individuals who consider themselves being in the lower end of the socioeconomic hierarchy have

worse health outcomes than individuals who consider themselves being at the higher end of the socioeconomic hierarchy (Demakakos et al., 2018; Karvonen and Rahkonen, 2011; Richards et al., 2022). Nonetheless, most of the existing literature is based on cross-sectional data, making it challenging to rule out possible confounders of the SSP–health relationship. Some recent studies started to investigate how changes in SSP across individuals' lives, i.e., subjective intra-generational mobility, are associated with health (Euteneuer et al., 2021; Mendoza et al., 2018; Yan et al., 2018).

While changes in SSP over time are an important aspect of health inequalities, another fundamental dimension of equality of opportunity is the intergenerational transmission of (dis)advantages and the health

* Corresponding author.

E-mail addresses: alexi.gugushvili@sosgeo.uio.no (A. Gugushvili), olga.zelinska@ifispan.edu.pl (O. Zelinska), patrick.prag@ensae.fr (P. Präg), gbulczak@ifispan.edu.pl (G. Bulczak).

<https://doi.org/10.1016/j.socscimed.2022.114705>

Received 19 August 2021; Received in revised form 31 December 2021; Accepted 5 January 2022

Available online 7 January 2022

0277-9536/© 2022 The Authors. Published by Elsevier Ltd. This is an open access article under the CC BY license (<http://creativecommons.org/licenses/by/4.0/>).

consequences of this transmission process (Anderson, 2018; Boyle et al., 2009; Bulczak et al., 2021; Gugushvili and Kaiser, 2020; Präg et al., 2022; Präg and Richards, 2019; Venkataramani et al., 2020). Recently, scholars began to study the health and wellbeing consequences of subjective perceptions of social mobility (Berger and Engzell, 2020; Gugushvili, 2021a; Präg and Gugushvili, 2021; Vaquera and Aranda, 2017). The central sociological and psychological theories on the implications of social mobility assume that mobility experiences affect individuals via psychological channels when individuals are well aware of how far they moved socioeconomically from their origins. This means that subjective or perceived social mobility might be as much or even more important for individuals as their actual mobility experiences (Lipset, 1992). The case that research into social mobility effects on health should more heavily draw on a psychological perspective has also been made by Simandan (2018). In line with this suggestion, we draw on mobility as subjectively perceived by individuals to contrast it with conceptions about social mobility as developed by social stratification researchers.

Few studies to date have explored and identified the association between subjective perception of mobility and health (Euteneuer and Schäfer, 2018; Gugushvili and Präg, 2021; Präg and Gugushvili, 2021), but they used cross-sectional data and thus had limited ability to rule out confounders. In other words, in cross-sectional studies, it is difficult to observe all individual characteristics that drive both perceptions of social mobility and health. Individual traits like optimism, cognitive ability, or other aspects of personality are difficult to observe, yet they might be confounding the associations between perceived social mobility and health. Individuals with positive mindsets might be misreporting both their position in the socioeconomic hierarchy and their health status. In fact, individuals' characteristics such as Big Five personality traits and cognitive ability have been shown to account for as much as half of the inequalities in health-related socioeconomic position (SEP) (Mackenbach, 2010, 2019).

In the present study, we account for personality characteristics and related features by utilizing a unique long-running, nationally representative panel survey that has collected information on individuals' intergenerational perceived social mobility for the past three decades (Tomescu-Dubrow et al., 2021). In our fixed effects regression models that allow to control for time-invariant individual-level characteristics, the predictor of individuals' changing health outcomes is their changing subjective perception of social mobility. After additionally accounting for time-varying characteristics known to affect health such as education, income, social connections, and economic development in the analyzed country, Poland, we reveal that perceived social mobility is indeed an important predictor of individuals' self-rated physical health and psychological wellbeing. Our findings have implications for the health psychology literature and help to comprehend the wellbeing consequences of changing perceptions of social mobility of the large share of populations in different parts of the world (Berger and Engzell, 2020; Gugushvili, 2021a; Kelley and Kelley, 2009).

2. Background

2.1. Why should the subjective perception of mobility affect health?

Social epidemiology and public health research have produced overwhelming evidence that individuals' childhood characteristics and attained SEP in adulthood drive later-life health and wellbeing (Hughes et al., 2017; Phelan et al., 2010). As social mobility means changing one's SEP over the life course, it usually leads to better or worse health. However, when comparing individuals to their counterparts with the same socioeconomic origin or destination, it is highly disputed whether and how social mobility experiences are associated with health (Bulczak et al., 2021; Präg and Gugushvili, 2020). Even though the study of the health and wellbeing consequences of social mobility is a long-standing area of social science inquiry, the relationship between social mobility,

on the one hand, and individuals' cognitive capacity to adapt to the new environments after experiencing social mobility, on the other hand, remains one of the foundational questions in sociology and social psychology (Blau, 1956; Kerckhoff, 1989; Sorokin, 1927).

At least four theoretical explanations exist for the social mobility consequences for individuals' health and wellbeing. The perspective originally contemplated by Durkheim (1897) and later developed by Sorokin (1927), also known as the "dissociative thesis," posits that upward social mobility introduces major changes in individuals' lives and is a deviation from the expected continuity of individuals' childhood circumstances. Increasing distance from the familiar and seemingly more natural past environment and adjusting to new and unfamiliar surroundings has a psychological toll and can have a major stress-inducing effect, compromising the health and wellbeing of socially mobile individuals. In addition, individuals from disadvantaged origins who overcome various barriers and experience upward social mobility are likely to have interactions with their class of origin members that are marred by the negative emotion of envy (Simandan, 2018).

An alternative perspective, the "from rags to riches" approach, posits that upward mobility, in addition to positive effects stemming from a new, more affluent destination position, can improve individuals' wellbeing because upwardly mobile individuals feel confident from being able to overcome barriers of various kinds and successfully deal with difficulties in their journey out of a less advantaged SEP (Gugushvili et al., 2019a). The upwardly mobile are also likely to feel gratitude to the existing socioeconomic and political system that made the attainment of their present position possible (Day and Fiske, 2017). A sense of gratitude, in turn, is known to be linked with better health outcomes (Watkins et al., 2003).

When it comes to the consequences of downward social mobility, the main theoretical explanation predicts downward mobility to have negative health effects. The so-called "falling from grace" thesis suggests that downward social mobility leads to an undesirable loss of ascribed SEP at birth and psychological maladjustment to a new environment, which can precipitate chronic stress and thus compromise the health of downwardly mobile individuals (Newman, 1988). Lastly, the acculturation hypothesis claims that the mobility experiences *per se*, including downward social mobility, do not have any physiological effects on individuals. Instead, it is the mode of socialization, practices and environments at the origin and destination positions that shape individual wellbeing outcomes (Blau, 1956).

One recently proposed explanation why the described theoretical perspectives are not always confirmed in empirical studies is that individuals have to be aware of experiencing upward or downward intergenerational social mobility. If objective mobility is not adequately reflected in individuals' subjective perceptions, then existing theoretical predictions, almost exclusively relying on psychological mechanisms, are inadequate when mobility is measured with objective indicators of SEP. A recent perspective on positionality and situated knowledge points to a distinction between one's personally remembered situation and the shared account of that situation (the 'fourth epistemic gap' according to Simandan (2019)), which might account for the discrepancy between objective and subjective social mobility. According to Simandan, one's knowledge is necessarily incomplete and situated, as "political motivations, social pressures, fear of punishment, stigmatization and social exclusion, shame, embarrassment, self-presentational concerns, and myriad other situational factors that convince us to heavily curate and edit what we share from our private recollections" (p. 139).

Two recent studies which explored an association between subjective social mobility and various health and wellbeing outcomes found that perceived occupational mobility was linked with individuals' life satisfaction in Germany (Präg and Gugushvili, 2021), while in Russia a strong and consistent association was found between perceptions of social mobility and physical and mental health outcomes (Gugushvili and Präg, 2021).

The main concern with the described empirical studies is that they

rely on cross-sectional data and therefore cannot account for various person-specific characteristics that could affect both individuals' perceptions of social mobility and health. We can expect that perceptions of intergenerational social mobility are time-varying and change with individuals' life course due to changing individuals' SEP or changes in other aspects of life such as marital status or migration. We know that parents are one of the most important reference groups in socioeconomic comparisons, and individuals are likely to re-evaluate the comparison of their current SEP to the one ascribed via their family circumstances at birth (Gugushvili, 2021b). Therefore, based on psychological theories of SEP and social mobility, we expect that deterioration or improvement in intergenerational socioeconomic comparison would be associated with individuals' changing health outcomes.

2.2. Differences by gender and social origin

Individuals' sociodemographic characteristics, such as gender and social origins, may affect their perceptions of social mobility and they can also be important for linking perception of social mobility and health. For understanding gender differences in the consequences of perceived social mobility on health, socio-psychological explanations can be most relevant. According to the theory of causal attribution, men and women differ in assessing the primary causes determining their success or failure in life (Miller and Ross, 1975). Studies usually find that men are more likely than women to attribute failures (i.e., perceived downward social mobility) to factors that are beyond their control and more likely to explain successes (i.e., perceived upward social mobility) by their talents, abilities and efforts (O'Leary et al., 2014). Therefore, once men believe that they have experienced upward mobility, they are also more likely to believe that they have achieved success due to own merits and efforts, and this, in turn, might be beneficial for their health outcomes (Gugushvili, 2016; Gugushvili et al., 2019a).

The effect of perceived social mobility on health might also differ by individual's origin circumstances. Psychological advantages resulting from upward social mobility, such as confidence of overcoming difficulties in life, boosting locus of control, and having a sense of gratitude to the existing system, might be stronger for those who were particularly disadvantaged during their childhoods (Day and Fiske, 2017; Schafer et al., 2013). For instance, research suggests that those who become well-educated develop a greater sense of personal control over their fates and tend to engage in healthier lifestyles (Ross and Mirowsky, 2011). Attainment of a higher SEP than parents can also expand and develop a social network with beneficial health consequences. Going back to personality characteristics, moving up in the social hierarchy against the odds may also reflect a type of individuals who are, for some unobserved reasons, more resilient to potential health problems (Mackenbach, 2020).

2.3. Perceived social mobility and health in Poland

Understanding the health consequences of perceived social mobility is particularly relevant in post-communist societies. One of the most important countries with relatively good data availability in the region of Central and Eastern Europe is Poland. Poland has experienced major social, economic, and political changes since the end of the 1980s. Although social mobility in transitional Poland was not a priority in the policy agenda (Rek-Woźniak, 2020), perceptions of social mobility have long been a subject of interest in this country (Mach, 1991).

In Poland, objective social mobility experiences are known to be only loosely associated with subjective mobility perceptions (Janicka, 2020). A possible reason for this might be the dynamic nature of opinions and assessments that drive awareness of intergenerational social mobility, next to being affected by individuals' psychological characteristics and social context. Lack of precision in the measurement of perceived social mobility might be another reason. Longitudinal datasets, in turn, could provide more robust measures of the construct. The longitudinal

dimension of data is particularly important as respondents assess their location within the social hierarchy (or their advancement compared to the parental generation), within the unique historical context when data are collected from individuals (Zielińska and Kołodziej, 2014).

For instance, in 1998, only 19% of Poles had a feeling of improvement when compared to their own SEP in the late communist period in 1988, 25% declared being stable, and the majority, 56% of Poles, considered themselves being downwardly mobile (Domański, 2004). These findings are in line with research for other societies that demonstrates how sensitive the indicator of perceived social mobility is to individual- and contextual-level characteristics of the socioeconomic and political environment (Berger and Engzell, 2020; Chambers et al., 2015; Gugushvili, 2021a; Kelley and Kelley, 2009). It was suggested that perceived intergenerational mobility might be a relevant indicator of individuals' trajectories within the social stratification system. Therefore, it could potentially be a stronger predictor of the consequences of intergenerational social mobility for various outcomes, including health and psychological wellbeing, than mobility measures based on objective indicators (Domański, 2004). As Janicka (2020) puts it: "the belief that there has been an intergenerational advancement or, on the contrary, degradation, is a potential factor for the wellbeing or discomfort of an individual" (p. 132).

The important role of perceived social mobility in Poland might also be driven by some distinctive aspects of Polish society. It has been argued that a norm of negativity in assessing one's wellbeing is the main building block of the prevalent culture of complaining in the country and among Polish migrants abroad (Jarosz and Gugushvili, 2020; Wojciszke and Baryła, 2002). This could imply that people express and possibly perceive their standing in the social hierarchy in a more negative light than if it was based on objectively verifiable indicators (Wojciszke, 2004). Further, an empirical study has shown that Polish survey respondents desired that the relatively rich groups were poorer, while the relatively poor groups desired to be richer and this characteristic might have consequences for individuals' social mobility perceptions (Baryła et al., 2015). This culture of complaining about oneself and others can also have consequences for individuals' health in Poland, as dissatisfaction with various aspects of life is known to prospectively predict physical health outcomes, including the presence of limiting, long-term health conditions (Siahpush et al., 2008).

In terms of health outcomes, the initial years of the post-communist transition contributed to deteriorating health in Poland (Raphael, 2006). According to a 1995 survey, 85% of Poles believed that the state of health in the country had worsened substantially, and a third of respondents assessed their health as bad or very bad (Ostrowska, 1999). The country also experienced an increase in psychological problems, including rising suicide rates and alcoholism. As material conditions improved, especially after Poland joined the European Union in 2004, the country has experienced steady growth in life expectancy and improved the general state of health of its population (Marek et al., 2012). However, these improvements further increased inequalities in health for various socioeconomic groups. Studies have revealed a substantial social gradient in health and that both physical health and psychological wellbeing are strongly related to individuals' SEP in Poland (Mikucka, 2016; Tobiasz-Adamczyk and Zawisza, 2017). In the present study, we explore perceived social mobility as an antecedent of health outcomes.

3. Research design

3.1. Dataset

In this study, we use the Polish Panel Survey, POLPAN, one of the longest continuously run panel studies in Europe, which started when Poland still was a communist country. POLPAN has been fielded every five years since 1988, with wave-specific samples representative of the Polish adult population and response rates for participants consistently

above 70%. Participation in POLPAN is based on informed consent and respondent data are collected, stored, and processed in line with national and international regulations on privacy and data protection. Participants' information in publicly available POLPAN data is fully anonymized (Tomescu-Dubrow et al., 2021). Specifically designed for research on the socioeconomic structure and on population wellbeing in Poland, POLPAN is well-suited for studying how individuals' perceptions of social mobility are associated with their health. Although questions about perceived social mobility were included in all waves, information on self-rated physical health and psychological wellbeing are only available from Wave Three (1998) to the most recent Wave Seven (2018). This provides an opportunity to investigate how changes in individuals' social mobility perceptions are associated with changes in their health outcomes over twenty years.

In POLPAN, information on physical health is available for 4389 individuals (10,263 individual-time observations) and for wellbeing – for 4307 individuals (10,244 individual-times). These numbers are further reduced as data on self-perceived social mobility is missing for more than 30% of those who provided health- and wellbeing-related information. This is because POLPAN participants filled in different versions of the questionnaire depending on their age and survey participation history. In 2018, for example, only those aged 21–70 answered the perceived social mobility question, while older participants did not (Zelinska et al., 2021b). Next, several important covariates further reduce the sample size. Most importantly, 17% of those who provided health- and wellbeing-related information have missing data on household income. After taking only cases with no missing values on our variables of interest, we have 5539 individual-time observations nested in 2779 individuals for physical health and 5630 individual-times for 2795 individuals for psychological wellbeing. Table S1 in the supplementary materials demonstrates that for the key variables of interest, including health and perceived social mobility, the samples with and without missing data are identical to each other, while fixed effects models in Table S2 show that only age is a significant and consistent predictor of missingness in household income.

Our power analysis (with power 0.8 and alpha 0.05) indicates that the employed POLPAN sample has a minimum detectable effect size of around 5.5 percentage points between downwardly mobile and immobile individuals and 4.5 percentage points between upwardly mobile and immobile individuals. In turn, the actual prevalence of, for instance, low psychological wellbeing between downwardly mobile and immobile individuals suggests that the post-hoc power of our study is well above 0.9. The POLPAN dataset is available at Harvard Dataverse (Słomczyński and Tomescu-Dubrow, 2021), while a replication Stata do-file is available via Open Science Framework (Gugushvili et al., 2021b).

3.2. Health outcomes

Our outcomes in this study are self-rated physical health and psychological wellbeing (Gugushvili et al., 2019b; Jylhä, 2009; Layes et al., 2012; Zelinska et al., 2021a). For the question on physical health, “generally speaking, how would you assess your health in comparison with the health of most people at your age?” in Wave Five (2008) there was an increase in response options from four to five categories. Answers in the earlier version included “definitely better than the health of most people at your age,” “somewhat better,” “somewhat worse,” and “definitely worse than the health of most people at your age,” to which a middle category “the same” was added. We recoded the responses to the physical health question into a dummy variable to make them comparable across all waves. Answers “somewhat worse” and “definitely worse than the health of most people at your age” were coded as 1 so that this binary variable indicates individuals' self-rated poor physical health.

Identical answer options were used consistently in POLPAN Waves Three through Seven for the question on physiological wellbeing, asking respondents, “how would you assess your psychological wellbeing? Is your psychological wellbeing usually:” “very good,” “fairly good,”

“fairly poor,” or “very poor.” Out of the provided answer options, we created an outcome measure for psychological wellbeing by recoding the original survey items into a binary variable, taking a value of 1 if respondents' psychological wellbeing was “poor” or “very poor.”

3.3. Perceived social mobility

Respondents' perception of social mobility in POLPAN was measured with the following question: “When you compare your social position with that of your father when he was at your present age, do you think that your position is ...”. Respondents could choose an answer ranging from 1 = “much lower” to 5 = “much higher.” We used this variable both as a continuous measure to detect any linear association and as a categorical indicator to differentiate effects of perceived downward from perceived upward social mobility. In Fig. 1, we visualized responses from POLPAN's Wave Five in 2008 to Wave Seven in 2018. For each wave, the Sankey diagram shows the distribution of individuals by their mobility perceptions (shown in different colors); it also reveals the share of individuals who maintained or changed their mobility perceptions in 2008–2013 and 2013–2018. The number of individuals in specific trajectories is reflected in the width of presented flows. This Sankey diagram shows that most people have stable perceptions of their social mobility experiences. At the same time, as downward and upward trajectories show, a substantial share of individuals change their perceptions of social mobility from one wave to another. It is worth highlighting that changes in perceived social mobility from wave to wave can be caused either by changes in individuals' assessment of own social position or by changes in parental social position along with increasing parental age in consecutive waves. In this study, we are not able to answer the question of what the drivers of changes in perceived social mobility are.

3.4. Time-invariant and time-varying confounders of health and social mobility perceptions

We present some of the results using model specifications that account for the following time-invariant variables: gender, fathers' education, and fathers' occupational class. Previous studies on social determinants of health in Poland have revealed substantial health differences both by gender and social origin (Marek et al., 2012; Tobiasz-Adamczyk et al., 2004; Tobiasz-Adamczyk and Zawisza, 2017; Zelinska et al., 2021a). Information on father's educational attainment, a proxy for social origin, ranges from 1 = “primary” to 8 = “completed tertiary”. For father' social class when respondents were 14 years old, following earlier work (Domański et al., 2009), we recoded a 14-category occupational variable into three hierarchical classes: (1) salariat class, which includes professionals, high-level officials and managers; (2) intermediate class, including technical specialists, administrative workers and middle-level specialists, business owners and technicians; and (3) working class, which includes workers and farmers.

Considering that there is a large educational gradient in health in Poland (Korzeniowska and Puchalski, 2015; Szklarska and Anita Janowska, 2003), we account for participants' educational attainment (coded as for fathers). Although some studies in the field treat education as time-invariant (e.g. Tøge and Blekesaune, 2015), in POLPAN the chances of respondents moving from one educational category to another from wave to wave are significantly higher than zero. Table S3 in the supplementary materials shows a matrix of transition probabilities of educational attainment between POLPAN waves.

Another time-varying factor known to affect health outcomes is individuals' social ties (Kok et al., 2013). In addition to the positive effects of social connections with friends (Ostrowska, 2011), marital status (married = 1, zero otherwise) is a significant predictor of health in Poland (Kłodacz-Alessandri and Cygańska, 2020). To account for the health effects of respondents' social capital, we used the information on the number of friends participants had, creating a continuous measure

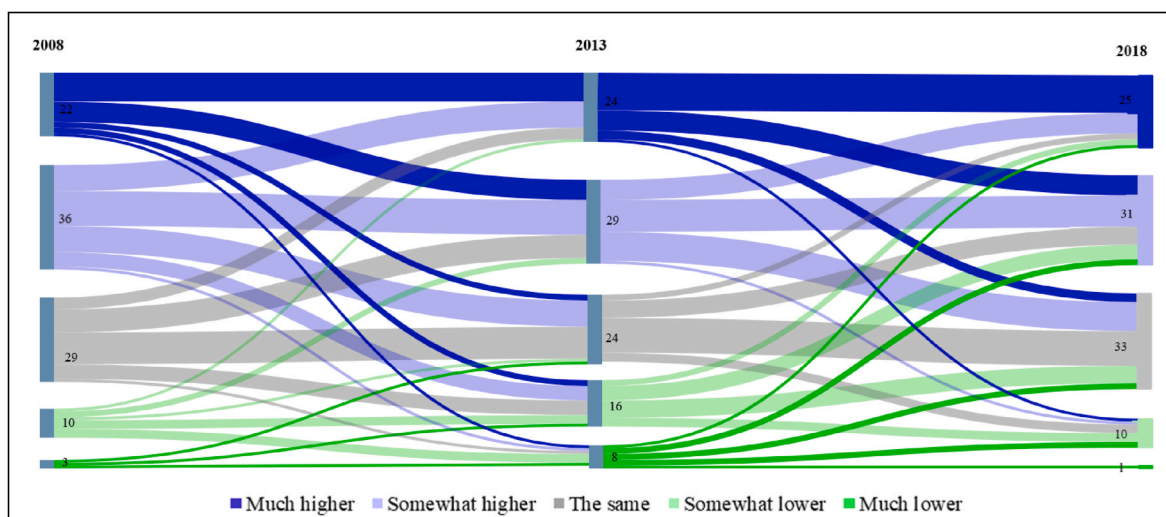


Fig. 1. Perceived social mobility from 2008 to 2018 measured via self-assessed social position compared to that of the father, percentage distribution within each POLPAN wave for individuals appearing in all three waves. Due to rounding, the sum of percentage distribution not always makes up 100%.

ranging from 0 = no friends to 20 = the upper cut-off in the number of friends.

Previous research suggests that both physical health and psychological wellbeing are strongly related to individuals' SEP (Phelan et al., 2010), which, in addition to education, is often measured by occupational attainment and income in the Polish context. Among other mechanisms, economic resources shape the access to health care, quality of housing, and health-conducive lifestyles such as having regular and healthy meals, better hygiene, and daily physical activities (Marek et al., 2012; Ostrowska, 2011). All our models account for Duncan's Socio-economic Index (SEI), ranging from 14 to 86 (Stevens and Featherman, 1981). Further, to account for the health effects of income, we used POLPAN information on household income recoded into logarithmic form. We also control for survey wave effects and participants' age.

Poland is one of the most rural countries in Europe, and substantial differences in health have been shown by settlement type and geographic location (Ucieklak-Jeż and Bem, 2020). Therefore, we also consider respondents' residential area and the region of Poland where they lived at different waves of POLPAN. The size of the locality variable ranges from 1 = rural area to 5 = cities with over 500,000 residents. To account for local economic development, we used the gross domestic product (GDP) per capita at the level of 16 Polish regions, voivodeships

(i.e., NUTS-2 level). We derived voivodeship-level data from the Local Data Bank of the Polish Central Statistical Office (2021) and merged the dataset with information on respondents' residence voivodeships. In all models, we used the mean-centered GDP per capita measure. Summary statistics for time-invariant and time-varying confounders are presented in Table 1.

3.5. Statistical analyses

Most research studying the effects of objective social mobility on health (Campos-Matos and Kawachi, 2015; Steiber, 2019) and a few recent studies exploring the association between perceived social mobility and health (Gugushvili and Präg, 2021; Präg and Gugushvili, 2021) rely on cross-sectional datasets, which limits causal inference from their findings. Conventional regression models are prone to omitted variable bias and reverse causality, affecting the reliability of estimates (Andreß et al., 2013). Longitudinal data sets and corresponding research designs can mitigate some of the concerns related to individuals' unobserved characteristics that do not vary over time. With panel data, we can capture both variation between individuals, similar to cross-sectional analysis, and variation over time within individuals. In other words, analyzing panel data reduces omitted variable bias due to

Table 1
Summary statistics for all variables.

	Min	Max	Mean	Standard deviation	Number of individuals	Number of individual-time observations
<i>Dependent variables</i>						
Poor physical health	0.0	1.0	0.30	0.46	2779	5539
Low psychological wellbeing	0.0	1.0	0.13	0.33	2795	5630
<i>Time-varying covariates</i>						
Perceived social mobility	1.0	5.0	3.56	1.15	2801	5672
Age	21.0	86.0	44.85	15.64	2801	5672
Age2/100	4.4	74.0	22.56	14.82	2801	5672
Married	0.0	1.0	0.69	0.46	2801	5672
Occupational status (SEI)	14.3	77.7	32.56	15.39	2801	5672
Respondent's education	1.0	8.0	4.14	2.43	2801	5672
Household income (ln)	3.0	10.3	7.47	1.05	2801	5672
Number of friends	0.0	20.0	10.12	6.75	2801	5672
Size of locality	1.0	5.0	2.42	1.42	2801	5672
Regional GDP (std)	-1.2	2.3	0.01	1.01	2801	5672
<i>Time-invariant covariates</i>						
Gender (female = 2)	1.0	2.0	1.51	0.50	2801	5672
Father's education	1.0	8.0	2.39	2.01	2801	5672
Father's occupation	1.0	4.0	1.63	1.05	2801	5672

Note: Descriptive statistics for categorical form of father's occupation is shown in Table S4 in supplementary materials.

unmeasured time-invariant confounding.

Since our outcome variables are binary, we fit various forms of linear probability models (LPM). To compare findings across different model specifications, we first considered random effects regressions which assume that any unobserved heterogeneity is constant over time and not correlated with the independent variables (Cameron and Trivedi, 2009). Qualitatively, the random effects regression results and the pooled LPM output are almost identical, as shown in supplementary materials, Table S5. The advantage of the random effects model is that it estimates coefficients for time-invariant characteristics such as gender and social background characteristics. Nonetheless, for both physical health and physiological wellbeing outcomes, the Hausman tests rejected the null hypotheses, and we concluded that fixed effects estimators are more consistent than random effects estimators ($\text{Chi}^2(13) = 20,58, p = 0.082$ for physical health; $\text{Chi}^2(13) = 36,00, p = 0.001$ for psychological wellbeing).

A fixed effects approach, which we use as a more robust method of panel data analysis, reduces the impact of confounding by accounting for individuals' time-invariant both measured and unmeasured characteristics (Cameron and Trivedi, 2009; Gunasekara et al., 2014). Fixed effects estimators rely only on the variation within individuals. Furthermore, we also fit "hybrid" within-between regression models (Allison, 2009). This model specification allows combining the advantages of fixed-effects and random-effects panel models by controlling for unobserved time-invariant heterogeneity and simultaneously estimating

observed time-constant predictors. This implies including in the hybrid model time-varying predictors twice as time-invariant individual means and as time-varying deviations from these means. All calculations in fixed and hybrid models are performed with cluster-robust standard errors.

4. Results

4.1. Perceived social mobility and poor physical health

Table 2 presents regression output from models with fixed and hybrid effects specifications. In the fixed effects model, we observe a significant association between perceived social mobility and physical health. This effect remains unaffected in the hybrid effects regressions in Model 3, accounting for gender and parental characteristics. In other words, we find that those individuals who positively change their perceptions about social mobility also report having better physical health. Further, the between and within coefficients of subjective mobility are not different from one another, which means that it is not just the differences between participants that explain the association between perceived mobility and health but also the variation within the person that play a similar-sized role. The between components of the hybrid model demonstrate that several confounders, such as education and income, are positively associated with physical health. However, economic development is negatively associated with physical health,

Table 2
Perceived social mobility and poor physical health, LPM estimates from fixed and hybrid effects regressions.

	Model 1		Model 2		Model 3	
	Fixed effects		Fixed effects		Hybrid effects	
Perceived social mobility						
Between	–	–	–	–	–0.025**	[-0.04,-0.01]
Within	–0.021*	[-0.04,-0.00]	–0.021*	[-0.04,-0.00]	–0.021*	[-0.04,-0.01]
Age						
Between	–	–	–	–	0.012***	[0.01,0.02]
Within	0.000	[-0.01,0.01]	0.000	[-0.01,0.01]	0.002	[-0.01,0.01]
Age ² /100						
Between	–	–	–	–	–0.007*	[-0.01,-0.00]
Within	–0.004	[-0.01,0.01]	–0.003	[-0.01,0.01]	0.002	[-0.01,0.01]
Married						
Between	–	–	–	–	–0.030	[-0.07,0.01]
Within	–0.024	[-0.08,0.03]	–0.026	[-0.08,0.03]	–0.027	[-0.08,0.02]
Number of friends						
Between	–	–	–	–	–0.001	[-0.00,0.00]
Within	–0.001	[-0.00,0.00]	–0.001	[-0.00,0.00]	–0.001	[-0.00,0.00]
Size of locality						
Between	–	–	–	–	–0.016**	[-0.03,-0.00]
Within	0.027	[-0.02,0.07]	0.027	[-0.02,0.07]	0.033	[-0.01,0.07]
Regional GDP (std)						
Between	–	–	–	–	0.017*	[0.00,0.03]
Within	0.070	[-0.06,0.20]	0.070	[-0.06,0.20]	0.045	[-0.07,0.16]
Occupational status (SEI)						
Between	–	–	–	–	0.000	[-0.00,0.00]
Within	–	–	0.000	[-0.00,0.00]	0.001	[-0.00,0.00]
Respondent's education						
Between	–	–	–	–	–0.017**	[-0.03,-0.01]
Within	–	–	0.009	[-0.02,0.04]	0.004	[-0.02,0.03]
Household income (ln)						
Between	–	–	–	–	–0.064***	[-0.09,-0.03]
Within	–	–	–0.007	[-0.04,0.02]	–0.018	[-0.04,0.01]
Gender (female = 2)	–	–	–	–	0.019	[-0.01,0.05]
Father's education	–	–	–	–	0.015**	[0.01,0.03]
Father's occupation						
Salaried (ref. intermediate)	–	–	–	–	–0.080*	[-0.15,-0.01]
Working class	–	–	–	–	0.044*	[0.00,0.09]
Not known	–	–	–	–	0.037	[-0.02,0.09]
Intercept	0.452***	[0.20,0.70]	0.442***	[0.19,0.70]	0.599***	[0.33,0.86]
Individuals*waves	5539		5539		5539	
Individuals	2779		2779		2779	
R-squared (FE within)	0.02		0.02		0.02	

Notes: *p < 0.05, **p < 0.01, ***p < 0.001; 95% confidence intervals are shown in brackets; survey wave dummies are included in all models.

suggesting that the regions with greater economic activity are those in which people report lower levels of physical health. The results also show that males and females do not differ in their reported physical health. The effect size of the perceived social mobility variable (−0.021, CI95−0.04,-0.01) is comparable to what we observe for father’s education in Model 3 (0.015 CI95 0.01,0.03).

4.2. Subjective social mobility and low psychological wellbeing

Table 3 shows results for the role of perceived social mobility for low psychological wellbeing accounting for other predictors of the outcome. Perceived mobility maintains statistical significance in all model specifications. The effect size and level of significance are most prominent in the between component of the hybrid effects regression in Model 3 (and in the random effects model as shown in supplementary materials, Table S5), but it also significant in Models 1 and 2 with the fixed effects specification. A one-step change in the perception of intergenerational mobility variable is associated with a two percentage points lower likelihood of reporting low psychological wellbeing. The size of this effect is slightly lower than what we observe for a one standard deviation change in household income in the same model. There are no other significant predictors in the fixed effects specification associated with low psychological wellbeing. However, in the between specification of the hybrid model, we also see that females report lower psychological wellbeing, compared to males. Among other variables insignificant in

fixed effects models, but significant in other model specifications, are individuals’ age and educational attainment.

4.3. Health effects of perceived downward and upward social mobility

Fig. 2 shows point estimates from fixed effects regressions similar to Model 3 in Tables 2 and 3. We also report results for random effects models to visualize the comparison with fixed effect models. We can see that coefficient signs align with both the “from rags to riches” and the “rising from rags” hypotheses. Point estimates for those who perceive being downwardly mobile are positive (i.e., a negative effect on health and wellbeing), while point estimates for those who perceive being upwardly mobile are negative (i.e., positive effect on health and wellbeing). However, in the fixed effects specifications only for those individuals who think that their SEP is much high than their fathers’ SEP, the regression coefficients are significantly different from zero. The point estimate for strong upward mobility predicting poor physical health (−0.063, p < 0.05) is greater than the point estimate for one standard deviation change in household income (−0.037, p < 0.001). For low psychological wellbeing, the difference between the effect of doing much better than fathers (−0.037, p < 0.05) and one standard deviation change in household income (−0.035, p < 0.001) is not as pronounced. The full results of these models are given in Table S6 in the supplementary materials. The significant coefficients for both poor physical health and low psychological wellbeing fall within the range of

Table 3
Perceived social mobility and low psychological wellbeing, LPM estimates from fixed and hybrid effects regressions.

	Model 1		Model 2		Model 3	
	Fixed effects		Fixed effects		Hybrid effects	
Subjective mobility						
Between	–	–	–	–	−0.032***	[−0.04,-0.02]
Within	−0.019**	[−0.03,-0.01]	−0.018*	[−0.03,-0.00]	−0.015*	[−0.03,-0.00]
Age						
Between	–	–	–	–	0.007**	[0.00,0.01]
Within	0.000	[−0.01,0.01]	0.004	[−0.00,0.01]	0.004	[−0.01,0.01]
Age ² /100						
Between	–	–	–	–	−0.006*	[−0.01,-0.00]
Within	−0.006	[−0.01,0.00]	−0.007	[−0.02,0.00]	−0.002	[−0.01,0.00]
Married						
Between	–	–	–	–	−0.034*	[−0.06,-0.00]
Within	−0.030	[−0.07,0.01]	−0.031	[−0.07,0.01]	−0.026	[−0.06,0.01]
Number of friends						
Between	–	–	–	–	−0.004**	[−0.01,-0.00]
Within	−0.001	[−0.00,0.00]	−0.001	[−0.00,0.00]	−0.001	[−0.00,0.00]
Size of locality						
Between	–	–	–	–	−0.005	[−0.01,0.00]
Within	0.004	[−0.02,0.03]	0.002	[−0.02,0.03]	0.007	[−0.02,0.03]
Regional GDP (std)						
Between	–	–	–	–	0.011*	[0.00,0.02]
Within	−0.073	[−0.16,0.01]	−0.069	[−0.15,0.01]	−0.038	[−0.11,0.04]
Occupational status (SEI)						
Between	–	–	–	–	0.001*	[0.00,0.00]
Within	–	–	0.001	[−0.00,0.00]	0.001*	[0.00,0.00]
Respondent’s education						
Between	–	–	–	–	−0.009**	[−0.02,-0.00]
Within	–	–	0.006	[−0.01,0.02]	0.007	[−0.01,0.02]
Household income (ln)						
Between	–	–	–	–	−0.091***	[−0.11,-0.07]
Within	–	–	−0.032*	[−0.05,-0.02]	−0.046***	[−0.07,-0.02]
Gender (female = 2)	–	–	–	–	0.023*	[0.00,0.04]
Father’s education	–	–	–	–	−0.004	[−0.01,0.00]
Father’s occupation						
Salarial (ref. intermediate)	–	–	–	–	0.013	[−0.04,0.07]
Working class	–	–	–	–	0.011	[−0.02,0.04]
Not known	–	–	–	–	0.035*	[0.00,0.07]
Intercept	0.361***	[0.19,0.53]	0.367***	[0.20,0.54]	0.698***	[0.51,0.89]
Individuals*waves	5630		5630		5630	
Individuals	2795		2795		2795	
R-squared (FE within)	0.02		0.03		0.03	

Notes: *p < 0.05, **p < 0.01, ***p < 0.001; 95% confidence intervals are shown in brackets; survey wave dummies are included in all models.

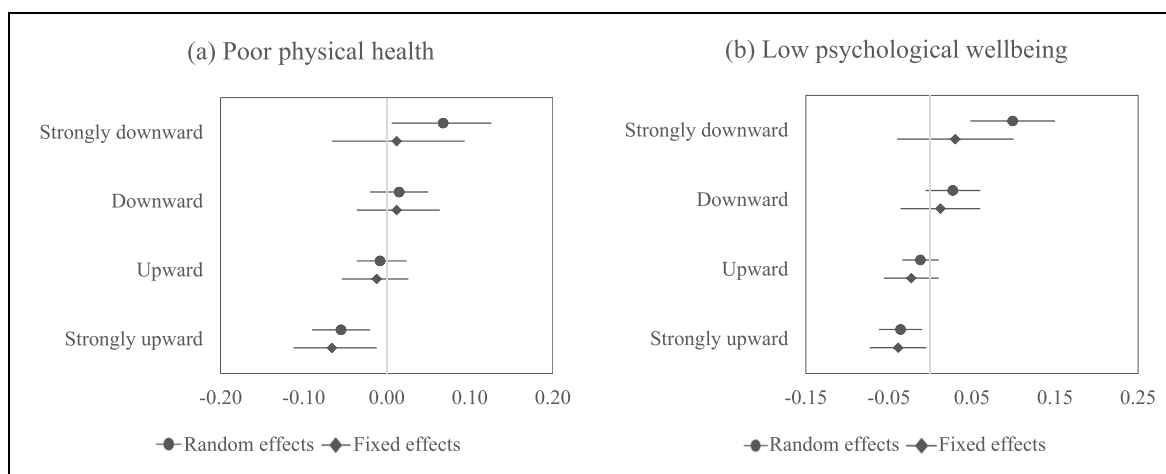


Fig. 2. Subjective downward and upward social mobility and health outcomes. Note: Bars represent 95% confidence intervals.

the minimum detectable effect size of strong upward mobility considering the sample size of our study.

4.4. Heterogeneous effects of perceived social mobility

After identifying significant effects of social mobility on physical health and psychological wellbeing and testing various implications of downward and upward social mobility, in this section, we examine any heterogeneous subjective social mobility effects by individuals' key time-invariant sociodemographic and socioeconomic characteristics: gender and father's SEP. In Table 4, we split models by these categories and fit separate fixed effects models.

For gender, we observe a significant association between perceived social mobility and physical health and psychological wellbeing among males but not among females. Finally, we split father's education by primary and above primary education – the sample size for analyzing individuals with fathers' who had tertiary education would be too small, and also by fathers' salariat and intermediate class, on the one hand, and working class, on the other hand. The results suggest that perceived social mobility is associated with both health outcomes among individuals who had fathers with primary education and working class occupation.

4.5. Further analyses

In addition to the results reported above, we have conducted additional analyses as a robustness test of our main findings. First, in supplementary materials, Table S7, we reversed our outcome variables from poor to good physical health and from low to high psychological

wellbeing and fit the same LPM models as in the main analyses. The results are quite similar to those of the main models. Second, to capture the full variation in health outcome measures, in supplementary materials, Table S8, we use the full range of ordinal answer options for physical health and psychological wellbeing and treat them as continuous measures, which is not uncommon in research using fixed effects models (Brüderl and Ludwig, 2015). Running linear rather than LPM regression specifications makes the effect of perceived social mobility even stronger than was the case with the binary operationalization of poor physical health and low psychological wellbeing.

5. Discussion

In this study, we build on two streams of literature on the social determinants of health. First, over the last two decades, it has been repeatedly shown that the socioeconomic position (SEP) that individuals think they occupy in the socioeconomic hierarchy is an important predictor of health. This understanding relies on systematic and consistent evidence from observational studies (Euteneuer, 2014; Hoebel and Lampert, 2020; Präg, 2020). Some of the theoretical explanations of the subjective SEP's effect on health, such as social identity theory or social categorization theory (Turner, 1975), posit that when individuals compare and perceive themselves as being part of a certain group, they are likely to share their environment, engage in similar activities, mimic their behavior, and consequently come closer to that group in terms of various life outcomes including health (D Hooge et al., 2018; Jarosz and Gugushvili, 2021; Stringhini et al., 2011).

Second, we also know that individuals tend to compare their position in the system of stratification with the positions of others, and if this

Table 4

Perceived social mobility, physical and mental health by gender and father's characteristics, fixed effects LPM regressions.

Stratifying variable	Poor physical health			Low psychological wellbeing		
	Model	Perceived mobility	Observations (Individual * time)	Models	Perceived mobility	Observations (Individual * time)
Gender	Males	-0.032** [-0.05,-0.01]	2830	Males	-0.030** [-0.05,-0.01]	2869
	Females	-0.013 [-0.04,0.01]	2864	Females	-0.006 [-0.03,0.01]	2918
Fathers' education	Primary	-0.027* [-0.05,-0.01]	4181	Primary	-0.023* [-0.04,-0.01]	4250
	Secondary plus	-0.008 [-0.04,0.02]	1358	Secondary plus	-0.006 [-0.03,0.01]	1380
Fathers' occupation	Salariat and intermediate	0.005 [-0.03,0.04]	1129	Salariat and intermediate	-0.018 [-0.04,0.01]	1136
	Working class	-0.034** [-0.05,-0.01]	3825	Working class	-0.023* [-0.04,-0.01]	3905

Notes: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; 95% confidence intervals are shown in brackets.

comparison is detrimental, individuals perceive their lives as less valuable or worthy (Wilkinson and Pickett, 2018). One aspect of this research that has been largely overlooked is individuals' comparisons to their initial conditions. It is known that a significant share of individuals, including those in Poland, compare their socioeconomic position to that of their parents. The latter can also be facilitated by the parental expectation that the offspring attain a SEP at least as high as that from which they originate (Breen and Goldthorpe, 1997). It is likely that individuals internalize these parental expectations, and meeting or exceeding them can be a significant and positive factor for their well-being, while perceived downward mobility can lead to frustration and lower self-esteem.

The main shortcoming of the handful of previous studies on the implications of perceived social mobility on health is that they ignore individuals' characteristics that are stable across lives but are usually omitted or inadequately captured in conventional cross-sectional datasets. Recent evidence suggests that individuals' genetic composition and personality traits are among the most important explanations of their health status (Mackenbach, 2020). In the dataset we analyzed, we do not have information on individuals' genetic predisposition or psychological profile, yet our research design allows for controlling for these characteristics to estimate the effects of perceived social mobility on health outcomes. Unlike the previous studies that used cross-sectional datasets and corresponding statistical methods to identify an association between perceived social mobility and health, we relied on longitudinal panel data to look at how changes in social mobility perceptions were associated with changes in health outcomes. Our approach does not address the problem of reverse causation or the potential effect of unobserved time-varying characteristics. Because the health outcomes we analyze are self-reported, our approach heavily relies on psychological perspectives of SEP, social mobility, and health. These areas of research have recently witnessed a wealth of theoretical and conceptual developments. One of the main findings in this field is that the various indicators of perceived SEP are significantly associated with self-rated measures of health as well as objective health outcomes such as allostatic load, susceptibility to viral infections, and mortality (Simandan, 2018).

We used panel data from Poland; to our knowledge, POLPAN is the only high-quality panel survey in the world that includes information on perceived social mobility over an extended period of time. Poland is an interesting case study as both perceived social mobility and health outcomes might be affected by distinctive aspects of Polish society, such as the prevalent culture of complaining about various aspects of life. Using fixed effects models to account for time-invariant individual-level characteristics and a comprehensive vector of time-varying confounders of health such as education, occupational status, and household income, we found that a higher perception of subjective social mobility is linked with both better self-reported physical health and psychological well-being. Perceived social mobility maintained a significant association with health outcomes in fixed and hybrid effects models for physical health and psychological well-being. The effect sizes of the reported associations are not trivial; for instance, the effect of perceived strong upward mobility on poor physical health is greater than the effect of a one standard deviation change in household income. Our results also demonstrate that upward subjective mobility has a stronger positive effect than downward subjective mobility has a negative effect on health outcomes. The upwardly mobile might struggle to be fully accepted in their destination social class through social exclusion and discrimination (Simandan, 2018), but these experiences can be offset by the positive consequences of upward social mobility for health through various psychological mechanisms such as sense of achievement, control of life, and gratitude, as predicted by the "from rags to riches" theoretical perspective (Gugushvili et al., 2019a).

We have also revealed that subjective social mobility effects partially depend on individuals' time-invariant characteristics. We found that men are more likely to be affected by subjective social mobility than

women. One of the explanations for this association can be that men are more likely to explain successes, such as upward social mobility (or its perception), by pointing to own abilities and effort – the process which is referred to in social psychology as intra-personal causal attribution (O'Leary et al., 2014). Lastly, we saw that individuals who had fathers with only primary education or working class background were the ones for whom perceived social mobility is associated with health outcomes. This finding is in line with the earlier evidence that upward social mobility is more beneficial for the health of those with a lower propensity to attain higher SEP based on a wide range of childhood adversities (Gaydos et al., 2018; Gugushvili et al., 2021a; Schafer et al., 2013).

5.1. Limitations

Our study has several limitations. First, the main explanatory variable, perceived social mobility, is derived in relation to the father's SEP, and it cannot account for the potential effects of perceived social mobility on health in relation to maternal SEP. This can be one of the reasons why we observe significant effects of perceived social mobility on health among men but not among women. Second, because of the differences in answer options for survey questions for physical health and psychological well-being, as well as changes over time in the answer options, we could not utilize the full variation in the dependent variables across all survey waves in the main analysis. Third, POLPAN provides a relatively short observational window, as health measures used in our study became available only from Wave Three onwards. Fourth, like in other panel surveys, participant attrition could influence our results if individuals systematically different from others due to their health status or perceived social mobility leave the survey in greater numbers. Fifth, although time-constant personal characteristics are taken care of in the fixed effects specifications, and several important time-varying variables such as marital status, household income, and education are accounted for, it is still possible that a changing health status affects mobility perceptions or that both of those are affected by unobserved time-varying characteristics. Recent evidence suggests that the role of health causation sharply declines as individuals age, which implies that social causation is a more important factor in our observed results, considering that the mean age of the pooled POLPAN sample is 44 (Hoffmann et al., 2018, 2019). Further, the problem of so-called common method variance can be mitigated by exploring biomarkers or mortality as health outcomes in future studies (Gugushvili et al., 2021a).

6. Conclusion

Despite the described limitations, the results of our longitudinal data analyses, together with previous cross-sectional evidence, suggest that individuals' socioeconomic comparison with their parents, i.e., perceived social mobility, is an important indicator of individuals' health. We could not directly compare perceived and objective social mobility indicators, but it is reasonable to suggest that subjective mobility perceptions come closer to theoretical explanations of the links between social mobility and health consequences. This is also in line with the broader trends in sociology, social epidemiology, and public health, which emphasize the role of relative aspects of life, such as perceptions of equality of opportunity and social justice, rather than the absolute aspects of material wellbeing. In addition to having relevance for the health psychology literature, our findings are also useful for comprehending future wellbeing consequences of changing perceptions of social mobility. Existing evidence suggests that large shares of the world population do not consider themselves doing better than their parents, and there are reasons to believe that this trend will accelerate in the future.

Author contributions

Alexi Gugushvili: Conceptualization; Data curation; Formal analysis; Funding acquisition; Investigation; Methodology; Project administration; Resources; Software; Supervision; Validation; Visualization; Roles/Writing – original draft; Writing – review & editing. Olga Zelinska: Conceptualization; Data curation; Formal analysis; Investigation; Methodology; Project administration; Software; Visualization; Roles/Writing – original draft; Writing – review & editing. Patrick Präg: Conceptualization; Formal analysis; Investigation; Methodology; Validation; Visualization; Roles/Writing – original draft; Writing – review & editing. Grzegorz Bulczak: Conceptualization; Formal analysis; Investigation; Methodology; Project Roles/Writing – original draft; Writing – review & editing.

Funding

This work was supported by the Polish National Science Centre grant (Program SONATA14) [grant number UMO-2018/31/D/HS6/01877]. Patrick Präg's work is supported by a grant of the French National Research Agency ANR, 'Investissements d'Avenir' (LabEx Ecocod/ANR-11-LABX-0047). The sponsors did not play any role in study design; in the analysis and interpretation of data; in the writing of the report; and in the decision to submit the article for publication.

Declaration of competing interest

None.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.socscimed.2022.114705>.

References

- Allison, P.D., 2009. *Fixed Effects Regression Models*. Sage Publication, London.
- Anderson, L.R., 2018. Adolescent mental health and behavioural problems, and intergenerational social mobility: a decomposition of health selection effects. *Soc. Sci. Med.* 197, 153–160. <https://doi.org/10.1016/j.socscimed.2017.11.026>.
- André, H.-J., Golsch, K., Schmidt, A.W., 2013. *Applied Panel Data Analysis for Economic and Social Surveys*. Springer Berlin Heidelberg, Berlin, Heidelberg. <https://doi.org/10.1007/978-3-642-32914-2>.
- Baryla, W., Wojciszke, B., Cichoń, A., 2015. Legitimization and delegitimization of social hierarchy. *Soc. Psychol. Personal. Sci.* 6, 669–676. <https://doi.org/10.1177/1948550615576211>.
- Berger, T., Engzell, P., 2020. Trends and disparities in subjective upward mobility since 1940. *Socius Sociol. Res. a Dyn. World* 6. <https://doi.org/10.1177/2378023120951139>, 2378023120951139.
- Blau, P.M., 1956. Social mobility and interpersonal relations. *Am. Socio. Rev.* 21, 290–295. <https://doi.org/10.2307/2089282>.
- Boyle, P.J., Norman, P., Popham, F., 2009. Social mobility: evidence that it can widen health inequalities. *Soc. Sci. Med.* 68, 1835–1842. <https://doi.org/10.1016/j.socscimed.2009.02.051>.
- Breen, R., Goldthorpe, J.H., 1997. Explaining educational differentials: towards a formal rational action theory. *Ration. Soc.* 9, 275–305. <https://doi.org/10.1177/104346397009003002>.
- Brüderl, J., Ludwig, V., 2015. Fixed-effects panel regression. In: *The SAGE Handbook of Regression Analysis and Causal Inference*. SAGE Publications Ltd, 1 Oliver's Yard, 55 City Road, London EC1Y 1SP United Kingdom, pp. 327–357. <https://doi.org/10.4135/9781446288146.n15>.
- Bulczak, G., Gugushvili, A., Zelinska, O., 2021. How are social origin, destination and mobility linked to physical, mental, and self-rated health? Evidence from the United States. *Qual. Quantity* 1–34. <https://doi.org/10.1007/s11135-021-01286-5>.
- Cameron, C., Trivedi, P., 2009. *Microeconometrics Using Stata*. Stata Press.
- Campos-Matos, I., Kawachi, I., 2015. Social mobility and health in European countries: does welfare regime type matter? *Soc. Sci. Med.* 142, 241–248. <https://doi.org/10.1016/j.socscimed.2015.08.035>.
- Chambers, J.R., Swan, L.K., Heesacker, M., 2015. Perceptions of U.S. Social mobility are divided (and distorted) along ideological lines. *Psychol. Sci.* 26, 413–423. <https://doi.org/10.1177/0956797614566657>.
- D Hooge, L., Achterberg, P., Reeskens, T., 2018. Mind over matter. The impact of subjective social status on health outcomes and health behaviors. *PLoS One* 13, e0202489. <https://doi.org/10.1371/journal.pone.0202489>.
- Day, M.V., Fiske, S.T., 2017. Movin' on up? How perceptions of social mobility affect our willingness to defend the system. *Soc. Psychol. Personal. Sci.* 8, 267–274. <https://doi.org/10.1177/1948550616678454>.
- Demakakos, P., Biddulph, J.P., de Oliveira, C., Tsakos, G., Marmot, M.G., 2018. Subjective social status and mortality: the English longitudinal study of ageing. *Eur. J. Epidemiol.* 33, 729–739. <https://doi.org/10.1007/s10654-018-0410-z>.
- Domanski, H., 2004. *O Ruchliwości Społecznej W Polsce*. Wydawnictwo IFIS PAN, Warszawa.
- Domanski, H., Sawiński, Z., Stomczyński, K.M., 2009. *Sociological Tools Measuring Occupations. New Classification and Scales*. IFIS Publishers, Warsaw.
- Durkheim, É., 1897. *Suicide: A Study in Sociology*. Routledge, London.
- Euteneuer, F., 2014. Subjective social status and health. *Curr. Opin. Psychiatr.* 27, 337–343. <https://doi.org/10.1097/YCO.0000000000000083>.
- Euteneuer, F., Schäfer, S.J., 2018. Brief report: subjective social mobility and depressive symptoms in Syrian refugees to Germany. *J. Immigr. Minority Health* 20, 1533–1536. <https://doi.org/10.1007/s10903-018-0692-y>.
- Euteneuer, F., Schäfer, S.J., Neubert, M., Rief, W., Sissenbach, P., 2021. Subjective social status and health-related quality of life—a cross-lagged panel analysis. *Health Psychol.* 40, 71–76. <https://doi.org/10.1037/hea0001051>.
- Gugushvili, A., 2021a. Why do people perceive themselves as being downwardly or upwardly mobile? *Acta Sociol.* 64, 3–23. <https://doi.org/10.1177/0001699320929742>.
- Gugushvili, A., 2021b. Which socio-economic comparison groups do individuals choose and why? *Eur. Soc.* 23, 437–463. <https://doi.org/10.1080/14616696.2020.1793214>.
- Gaydos, L., Schorpp, K.M., Chen, E., Miller, G.E., Harris, K.M., 2018. College completion predicts lower depression but higher metabolic syndrome among disadvantaged minorities in young adulthood. *Proc. Natl. Acad. Sci. U. S. A.* 115, 109–114. <https://doi.org/10.1073/pnas.1714616114>.
- Gugushvili, A., 2016. Intergenerational social mobility and popular explanations of poverty: a comparative perspective. *Soc. Justice Res.* 29, 402–428. <https://doi.org/10.1007/s11211-016-0275-9>.
- Gugushvili, A., Bulczak, G., Zelinska, O., Koltai, J., 2021a. Socioeconomic position, social mobility, and health selection effects on allostatic load in the United States. *PLoS One* 16, e0254414. <https://doi.org/10.1371/journal.pone.0254414>.
- Gugushvili, A., Jarosz, E., McKee, M., 2019b. Compared with whom? Reference groups in socio-economic comparisons and self-reported health in 34 countries. *Int. J. Epidemiol.* 48. <https://doi.org/10.1093/ije/dyz122>.
- Gugushvili, A., Kaiser, C., 2020. Equality of opportunity is linked to lower mortality in Europe. *J. Epidemiol. Community Health* 74, 151–157. <https://doi.org/10.1136/jech-2019-212540>.
- Gugushvili, A., Präg, P., 2021. Intergenerational social mobility and health in Russia: mind over matter? *Adv. Life Course Res.* 47, 100390. <https://doi.org/10.1016/j.alcr.2020.100390>.
- Gugushvili, A., Zelinska, O., Präg, P., Bulczak, G., 2021b. Replication package to: does perceived social mobility affect health? Evidence from a fixed effects approach. *Open Sci. Framew.* <https://doi.org/10.17605/OSF.IO/GNCSR>.
- Gugushvili, A., Zhao, Y., Bukodi, E., 2019a. 'Falling from grace' and 'rising from rags': intergenerational educational mobility and depressive symptoms. *Soc. Sci. Med.* 222, 294–304. <https://doi.org/10.1016/j.socscimed.2018.12.027>.
- Gunasekara, F.I., Richardson, K., Carter, K., Blakely, T., 2014. Fixed effects analysis of repeated measures data. *Int. J. Epidemiol.* 43, 264–269. <https://doi.org/10.1093/ije/dyt221>.
- Hoebel, J., Lampert, T., 2020. Subjective social status and health: multidisciplinary explanations and methodological challenges. *J. Health Psychol.* 25, 173–185. <https://doi.org/10.1177/1359105318800804>.
- Hoffmann, R., Kröger, H., Geyer, S., 2019. Social causation versus health selection in the life course: does their relative importance differ by dimension of SES? *Soc. Indic. Res.* 141, 1341–1367. <https://doi.org/10.1007/s11205-018-1871-x>.
- Hoffmann, R., Kröger, H., Pakpahan, E., 2018. Pathways between socioeconomic status and health: does health selection or social causation dominate in Europe? *Adv. Life Course Res.* 36, 23–36. <https://doi.org/10.1016/j.alcr.2018.02.002>.
- Hughes, K., Bellis, M.A., Hardcastle, K.A., Sethi, D., Butchart, A., Mikton, C., Jones, L., Dunne, M.P., 2017. The effect of multiple adverse childhood experiences on health: a systematic review and meta-analysis. *Lancet Public Health* 2, e356–e366. [https://doi.org/10.1016/S2468-2667\(17\)30118-4](https://doi.org/10.1016/S2468-2667(17)30118-4).
- Janicka, K., 2020. Samoocena ruchliwości międzypokoleniowej w kontekście przemian struktury społecznej. *Stud. BAS* 2, 129–142. <https://doi.org/10.31268/StudiaBAS.2020.17>.
- Jaros, E., Gugushvili, A., 2020. The 'good life' of Polish migrants in Britain: Daily behaviours and subjective well-being of migrants, stayers and the British. *Popul. Space Place* 26, 1–13. <https://doi.org/10.1002/psp.2343>.
- Jaros, E., Gugushvili, A., 2021. BMI and dissatisfaction with life: contextual factors and socioemotional costs of obesity. *Qual. Life Res.* <https://doi.org/10.1007/s11136-021-02912-3>.
- Jylhä, M., 2009. What is self-rated health and why does it predict mortality? Towards a unified conceptual model. *Soc. Sci. Med.* 69, 307–316. <https://doi.org/10.1016/j.socscimed.2009.05.013>.
- Karvonen, S., Rahkonen, O., 2011. Subjective social status and health in young people. *Sociol. Health Illness* 33, 372–383. <https://doi.org/10.1111/j.1467-9566.2010.01285.x>.
- Kelley, S.M.C., Kelley, C.G.E., 2009. *Subjective social mobility: data from 30 nations*. In: Haller, M., Jowell, R., Smith, T. (Eds.), *Charting the Globe: The International Survey Programme 1984-2009*. Routledge, London, pp. 106–125.
- Kerckhoff, A.C., 1989. On the social psychology of social mobility processes. *Soc. Forces* 68, 17–25. <https://doi.org/10.1093/sf/68.1.17>.

- Kludacz-Alessandri, M., Cygańska, M., 2020. Socioeconomic determinants of health status among older adults in Poland. In: Bilgin, M.H., Danis, H., Demir, E. (Eds.), *Eurasian Economic Perspectives*. Springer International Publishing, Cham, pp. 239–253.
- Kok, B.E., Coffey, K.A., Cohn, M.A., Catalino, L.I., Vacharkulksemsuk, T., Algae, S.B., Brantley, M., Fredrickson, B.L., 2013. How positive emotions build physical health. *Psychol. Sci.* 24, 1123–1132. <https://doi.org/10.1177/0956797612470827>.
- Korzeniowska, E., Puchalski, K., 2015. Nierówności edukacyjne a zachowania zdrowotne i zdrowie. In: Ostrowska, A., Skrzypek, M. (Eds.), *Socjologia Medycyny W Polsce Z Perspektywy Półwiecza*. Wydawnictwo Instytutu Filozofii i Socjologii PAN, Warszawa.
- Layes, A., Asada, Y., Kepart, G., 2012. Whiners and deniers - what does self-rated health measure? *Soc. Sci. Med.* 75, 1–9. <https://doi.org/10.1016/j.socscimed.2011.10.030>.
- Lipset, S.M., 1992. Foreword: the political consequences of social mobility. In: Turner, F. C. (Ed.), *Social Mobility and Political Attitudes: Comparative Perspectives*. Transaction Publishers, New Brunswick, NJ (XV–XXIII).
- Mach, B.W., 1991. Ruchliwość społeczna w Polsce: 1945–1980. *Przeegląd Socjol.* 39, 69–84.
- Mackenbach, J.P., 2020. Re-thinking health inequalities. *Eur. J. Publ. Health* 30. <https://doi.org/10.1093/eurpub/ckaa001>, 615–615.
- Mackenbach, J.P., 2019. *Health Inequalities: Persistence and Change in European Welfare States*. Oxford University Press, Oxford.
- Mackenbach, J.P., 2010. New trends in health inequalities research: now it's personal. *Lancet* 376, 854–855. [https://doi.org/10.1016/S0140-6736\(10\)60313-3](https://doi.org/10.1016/S0140-6736(10)60313-3).
- Marek, M., Poznańska, D., Domińczak, A.C., Stokwiszewski, J., Kaleta, D., Wojtyński, B., Mazur, J., Zdrojewski, T., Miśkiewicz, P., 2012. *Social Inequalities in Health in Poland*. Geneva.
- Marmot, M., 2004. *The Status Syndrome: How Social Standing Affects Our Health and Longevity*. Owl Book, New York.
- Mendoza, S., Armbrister, A.N., Abraído-Lanza, A.F., 2018. Are you better off? Perceptions of social mobility and satisfaction with care among Latina immigrants in the U.S. *Soc. Sci. Med.* 219, 54–60. <https://doi.org/10.1016/j.socscimed.2018.10.014>.
- Mikucka, M., 2016. The health of elderly men and women. In: *Social Inequality and the Life Course*. IFIS Publishers, Warsaw, pp. 269–293.
- Miller, D.T., Ross, M., 1975. Self-serving biases in the attribution of causality: fact or fiction? *Psychol. Bull.* 82, 213–225. <https://doi.org/10.1037/h0076486>.
- Newman, K.S., 1988. *Falling from Grace: The Experience of Downward Mobility in the American Middle Class*. Free Press, New York.
- O'Leary, V.E., Unger, R.K., Wallston, B.S., 2014. *Women, Gender, and Social Psychology*. Routledge, New York.
- Ostrowska, A., 2011. Psychosocjalne uwarunkowania nierówności w zdrowiu. *Zdr. Publiczne i Zarządzanie* 9, 55–63.
- Ostrowska, A., 1999. *Styl Życia a Zdrowie: Z Zagadnień Promocji Zdrowia*. Wydawnictwo IFIS PAN, Warszawa.
- Phelan, J.C., Link, B.G., Tehranifar, P., 2010. Social conditions as fundamental causes of health inequalities: theory, evidence, and policy implications. *J. Health Soc. Behav.* 51, S28–S40. <https://doi.org/10.1177/0022146510383498>.
- Polish Central Statistical Office, 2021. *Local Data Bank*. URL: <https://stat.gov.pl/en/>.
- Präg, P., 2020. Subjective socio-economic status predicts self-rated health irrespective of objective family socio-economic background. *Scand. J. Publ. Health* 1–8. <https://doi.org/10.1177/1403494820926053>.
- Präg, P., Fritsch, N.-S., Richards, L., 2022. Intragenerational Social Mobility and Wellbeing in Great Britain. A Biomarker Approach. *Soc. Forces*. <https://doi.org/10.1093/sf/soab153>.
- Präg, P., Gugushvili, A., 2021. Subjective social mobility and health in Germany. *Eur. Soc.* 23, 464–486. <https://doi.org/10.1080/14616696.2021.1887916>.
- Präg, P., Gugushvili, A., 2020. Intergenerational Social Mobility and Self-Rated Health in Europe. *SocArxiv*. <https://doi.org/10.31235/osf.io/5tk4z>.
- Präg, P., Richards, L., 2019. Intergenerational social mobility and allostatic load in Great Britain. *J. Epidemiol. Community Health* 73, 100–105. <https://doi.org/10.1136/jech-2017-210171>.
- Raphael, D., 2006. Social determinants of health: present status, unanswered questions, and future directions. *Int. J. Health Serv.* 36, 651–677. <https://doi.org/10.2190/3MW4-1EK3-DGRQ-2CRF>.
- Rek-Woźniak, M., 2020. Badania nad ruchliwością międzypokoleniową: podejścia, konteksty, kontrowersje. *Stud. BAS* 2. <https://doi.org/10.31268/StudiaBAS.2020.12>.
- Richards, L., Maharani, A., Präg, P., 2022. Subjective social status and objective health among older people in England. A longitudinal approach with biomarkers. *Open Sci. Framework*.
- Ross, C.E., Mirowsky, J., 2011. The interaction of personal and parental education on health. *Soc. Sci. Med.* 72, 591–599. <https://doi.org/10.1016/j.socscimed.2010.11.028>.
- Schafer, M.H., Wilkinson, L.R., Ferraro, K.F., 2013. Childhood (Mis)fortune, educational attainment, and adult health: contingent benefits of a college degree? *Soc. Forces* 91, 1007–1034. <https://doi.org/10.1093/sf/sos192>.
- Siahpush, M., Spittal, M., Singh, G.K., 2008. Happiness and life satisfaction prospectively predict self-rated health, physical health, and the presence of limiting, long-term health conditions. *Am. J. Health Promot.* 23, 18–26. <https://doi.org/10.4278/ajhp.061023137>.
- Simandan, D., 2019. Revisiting positionality and the thesis of situated knowledge. *Dialogues Hum. Geogr.* 9, 129–149. <https://doi.org/10.1177/2043820619850013>.
- Simandan, D., 2018. Rethinking the health consequences of social class and social mobility. *Soc. Sci. Med.* 200, 258–261. <https://doi.org/10.1016/j.socscimed.2017.11.037>.
- Singh-Manoux, A., Adler, N.E., Marmot, M.G., 2003. Subjective social status: its determinants and its association with measures of ill-health in the Whitehall II study. *Soc. Sci. Med.* 56, 1321–1333. [https://doi.org/10.1016/S0277-9536\(02\)00131-4](https://doi.org/10.1016/S0277-9536(02)00131-4).
- Ślomczyński, K.M., Tomescu-Dubrow, I., 2021. *Polish Panel Survey POLPAN*. Harvard Dataverse, V2.
- Sorokin, P.A., 1927. *Social Mobility*. Harper & Brothers, New York.
- Steiber, N., 2019. Intergenerational educational mobility and health satisfaction across the life course: does the long arm of childhood conditions only become visible later in life? *Soc. Sci. Med.* 242, 112603. <https://doi.org/10.1016/j.socscimed.2019.112603>.
- Stevens, G., Featherman, D.L., 1981. A revised socioeconomic index of occupational status. *Soc. Sci. Res.* 10, 364–395. [https://doi.org/10.1016/0049-089X\(81\)90011-9](https://doi.org/10.1016/0049-089X(81)90011-9).
- Stringhini, S., Dugravot, A., Shipley, M., Goldberg, M., Zins, M., Kivimäki, M., Marmot, M., Sabia, S., Singh-Manoux, A., 2011. Health behaviours, socioeconomic status, and mortality: further analyses of the British whitehall II and the French GAZEL prospective cohorts. *PLoS Med.* 8, e1000419. <https://doi.org/10.1371/journal.pmed.1000419>.
- Szklarska, A., Anita Jankowska, E., 2003. Independent effects of social position and parity on body mass index among Polish adult women. *J. Biosoc. Sci.* 35, 575–583. <https://doi.org/10.1017/S002193200300600X>.
- Tobiasz-Adamczyk, B., Brzyski, P., Bajka, J., 2004. *Spoleczne Uwarunkowania Jakości Życia Kobiet U Progu Wieku starszego*. Badania Porównawcze, first ed. Wydawnictwo Uniwersytetu Jagiellońskiego, Kraków.
- Tobiasz-Adamczyk, B., Zawisza, K., 2017. Urban-rural differences in social capital in relation to self-rated health and subjective well-being in older residents of six regions in Poland. *Ann. Agric. Environ. Med.* 24, 162–170. <https://doi.org/10.26444/aaem/74719>.
- Tøge, A.G., Blekesaune, M., 2015. Unemployment transitions and self-rated health in Europe: a longitudinal analysis of EU-SILC from 2008 to 2011. *Soc. Sci. Med.* 143, 171–178. <https://doi.org/10.1016/j.socscimed.2015.08.040>.
- Tomescu-Dubrow, I., Ślomczyński, K.M., Sawiński, Z., Kiersztyn, A., Janicka, K., Życzńska-Ciołek, D., Wyszumek, I., Kotnarowski, M., 2021. The Polish panel survey, POLPAN. *Eur. Socio Rev.* 1–16. <https://doi.org/10.1093/esr/jcab017>.
- Turner, J.C., 1975. Social comparison and social identity: some prospects for intergroup behaviour. *Eur. J. Soc. Psychol.* 5, 1–34. <https://doi.org/10.1002/ejsp.2420050102>.
- Ucieklak-Jeż, P., Bem, A., 2020. Does “rural” always mean the same? Macro-social determinants of rural populations’ health in Poland. *Int. J. Environ. Res. Publ. Health* 17, 397. <https://doi.org/10.3390/ijerph17020397>.
- Vaquera, E., Aranda, E., 2017. Moving up and down the ladder: perceived social mobility and emotional dispositions among south Florida’s immigrants. *Socio. Forum* 32, 793–815. <https://doi.org/10.1111/sof.12379>.
- Venkataramani, A., Daza, S., Emanuel, E., 2020. Association of social mobility with the income-related longevity gap in the United States. *JAMA Intern. Med.* 180, 429. <https://doi.org/10.1001/jamainternmed.2019.6532>.
- Watkins, P.C., Woodward, K., Stone, T., Kolts, R.L., 2003. Gratitude and happiness: development of a measure of gratitude, and relationships with subjective well-being. *Soc. Behav. Personal. An Int. J.* 31, 431–451. <https://doi.org/10.2224/sbp.2003.31.5.431>.
- Wilkinson, R., Pickett, K., 2018. *The Inner Level: How More Equal Societies Reduce Stress, Restore Sanity and Improve Everyone’s Well-Being*. Penguin.
- Wojciszke, B., 2004. The negative social world: the Polish culture of complaining. *Int. J. Sociol.* 34, 38–59. <https://doi.org/10.1080/00207659.2004.11043140>.
- Wojciszke, B., Baryła, W., 2002. Jak odstrzelić sobie nogę: psychologiczne konsekwencje narzekania. *Kolokwia Psychol* 10, 213–235.
- Yan, F., He, G., Chen, Y., 2018. The health consequences of social mobility in contemporary China. *Int. J. Environ. Res. Publ. Health* 15. <https://doi.org/10.3390/ijerph15122644>.
- Zelinska, O., Gugushvili, A., Bulczak, G., 2021a. Social mobility, health and wellbeing in Poland. *Front. Sociol.* 6, 1–11. <https://doi.org/10.3389/fsoc.2021.736249>.
- Zelinska, O., Gugushvili, A., Bulczak, G., Tomescu-Dubrow, I., Sawiński, Z., Ślomczyński, K.M., 2021b. The Polish Panel Survey (POLPAN) Dataset: capturing the impact of socio-economic change on population health and well-being in Poland, 1988–2018. *Data Brief* 35, 106936. <https://doi.org/10.1016/j.dib.2021.106936>.
- Zielińska, M., Kołodziej, T., 2014. Poczucie stratyfikacyjna jednostki a subiektywna ocena położenia społecznego. *Przegląd Socjol.* 63, 73–91.