Intergenerational mobility in 28 European countries: A new measure from a public health perspective

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ABSTRACT

INTRODUCTION We assessed levels of intergenerational mobility across 28 European countries using a new composite measure of social status for European adults and their parents.

METHODS We conducted a secondary dataset analysis of the cross-sectional Special Eurobarometer Survey wave 88.4, performed in December 2017 among 27538 individuals in 28 countries. Respondents' adulthood perceived social status ('adult') as well as their parents' perceived social status ('parental') were investigated by combining three indicators: subjective social status, occupation, and education. We created an intergenerational mobility scale by calculating the change in respondents' social status compared to their parents'. The size of the interquartile range (IQR) of this scale was used to estimate intergenerational mobility in each country.

RESULTS Median parental and adult social status scores varied across countries and regions. Overall, the median adult and parental social status scores were 4.35 (out of 10) and 5.00. Denmark (3.15), the Netherlands (2.96), and Sweden (2.96) had the largest IQRs of intergenerational mobility scores, indicating greater intergenerational mobility, whereas Slovakia (1.85), Croatia (1.85), Hungary (1.94) and Bulgaria (1.94) had the smallest IQRs.

CONCLUSIONS Using a new composite indicator of intergenerational mobility, we found large variation in intergenerational mobility between countries, as expressed by the size of the IQR of our novel scale. Our findings highlight countries which could reorient their policies to increase social mobility.

INTRODUCTION

It is well-established that lower social status is associated with poorer health. Different interrelated pathways lay behind this association along life course including physiological, environmental, social, psychological and familial processes[1]. Childhood social status has been shown to influence various health outcomes in adulthood, such as premature mortality[2], cardiovascular[3] and mental health[4], as well as several health-related behaviors, such as smoking and alcohol consumption[4,5]. However, social status is not static and, although partly determined by family circumstances, it may change over time, either to a higher (upward mobility) or to a lower (downward mobility) one.

The change between children's or adults' social status and their parents' social status is called intergenerational mobility[6]. There has been a growing interest in investigating the impact of intergenerational mobility on health. This was first driven by the 'dissociative theory' that predicts unsettlement and disruption when individuals' social status deviates from its origin to a new one[7]. Thus, and in particular when social status moves downward, individuals may experience depression and life dissatisfaction[8]. Additionally, the high interest in socioeconomic inequalities and how evidently they affect health[9] and the fact that parents' social status influences their children's health outcomes[10], have contributed to the increasing number of studies on this topic. For instance, when upward intergenerational mobility is limited, the embedded socioeconomic inequalities are higher, and the consequent health inequalities are perpetuated from one generation to the next, resulting in cumulative

health disadvantages from early childhood to later stages of adulthood[11].

Europe underwent a significant transition in social mobility and class structure during the second half of the last century. This was a result of substantial improvements in certain countries; however, there was little change or sometimes relapse in others[12]. Therefore, differences in intergenerational mobility between European countries are well-observed. Northern European countries have been found to have higher intergenerational mobility compared to Eastern and Southern European countries[13,14]. For example, Denmark, Finland and Sweden have higher intergenerational income mobility than Spain and Italy[13]. Similarly, Denmark and Finland have also shown to have higher educational and occupational mobility than Spain and Portugal[12,14].

Although some studies have used multi-component measures to estimate intergenerational social mobility[15], studies which focused on health tended to use single measures of mobility[16]. For instance, previous studies have explored the association of intergenerational educational mobility with depressive symptoms, tobacco smoking, binge drinking, physical activity, self-rated health and health satisfaction; the association of intergenerational occupational mobility with oral health and physical activity; the links between intergenerational income mobility and self-rated health and physical activity; or the association between subjective social mobility and self-rated health[17-20]. Results, however, have been inconclusive perhaps because of the different measures of intergenerational mobility[21]. Moreover, the use of education alone is becoming questionable in some European countries where the relation of education and intergenerational mobility has weakened[13,14]. Education, occupation and income are also difficult to measure across many European countries in the absence of cross-nationally standardized data sources, or when applying different measures of pre-tax income compared to net income for example[13,14,22,23]. Hence, the use of multiple indicators of social status may be required in further research to cover this gap. We could identify only one recent study that used a combined measure of educational and occupational attainment to investigate the association of intergenerational mobility with mental and physical health[24] among individuals aged 25–32 years from the United States. Among existing studies that used a combination of two or more different social status components to measure intergenerational mobility, none has done this across the European Union.

In this article, we introduce a new measure to comprehensively assess intergenerational mobility among Europeans in 28 countries using Eurobarometer data.

METHODS

Study population and data collection

This is a secondary dataset analysis of the cross-sectional wave 88.4 of the Eurobarometer survey, which was conducted in 28 European Union (EU) countries (including the United Kingdom, which was an EU member state at the time) in December 2017. The Eurobarometer Survey aims to cover a wide range of issues facing EU citizens. Data were collected through face-to-face interviews in the languages of the participating country[25]. Respondents were aged ≥15 years when they participated in the study, although we only considered eligible those aged ≥18 years (n=27538) because adolescents' social status is often very closely linked to that of their parents.

All interviews were conducted with uniform instructions using the same format across all countries. Data were collected using a computer-assisted personal interview system. A multi-stage random sampling was designed to produce a sample representative by age, sex and area of residence. During the first stage, primary sampling units (PSU) were selected systematically according to the population size of each country and stratified by their degree of urbanization. During the second stage, clusters of addresses from each PSU, then households, then one respondent were randomly selected. Respondents to the survey gave informed consents, and their responses were anonymized. European Commission approved the study protocols and data were freely available in the public domain[25].

Measures

Three indicators of social status were measured in the survey and assessed in our study: subjective social status (SSS), education level and occupation.

Subjective social status (SSS)

SSS was assessed by asking respondents: 'Where would you place yourself on this ladder relative to other people in [relevant country]?'; and 'Where would you place your parents on this ladder relative to other people in [relevant country]?'. Respondents reported a score between 1 (bottom) and 10 (top) for themselves and their parents (an average of both parents as one score).

Education level

Education level was assessed by asking respondents: 'What is the highest level of education that has been achieved by [themselves; their mothers; their fathers]?'. Respondents selected one of these five available responses: 'not completed primary'; 'completed primary'; 'completed secondary'; 'completed post-secondary vocational studies, or higher education to Bachelor's level or equivalent'; and 'completed upper level of education to Master's, Doctoral degree or equivalent'. When the highest level of education was not the same for the mother and father, we used the higher of the two parents to calculate the composite parental social status scale.

Occupation

Occupation was assessed by asking respondents: 'What is

your current occupation?'; and 'As far as you know, what was the main occupation of the person in your family who was the principal contributor to your household's income when you were around 15 years old?'. Respondents were asked to choose from 19 occupational categories for their own status and from 21 occupational categories for parents' status. For the purpose of this analysis, we categorized occupation into four groups (from highest to lowest): 'higher managerial, administrative and professional occupations'; 'intermediate occupations'; 'routine and manual occupations'; and 'never worked and long-term unemployed'. These categories are based on the National Statistics Socio-economic classification (NS-SEC) which is an ordinal measure of occupation[26].

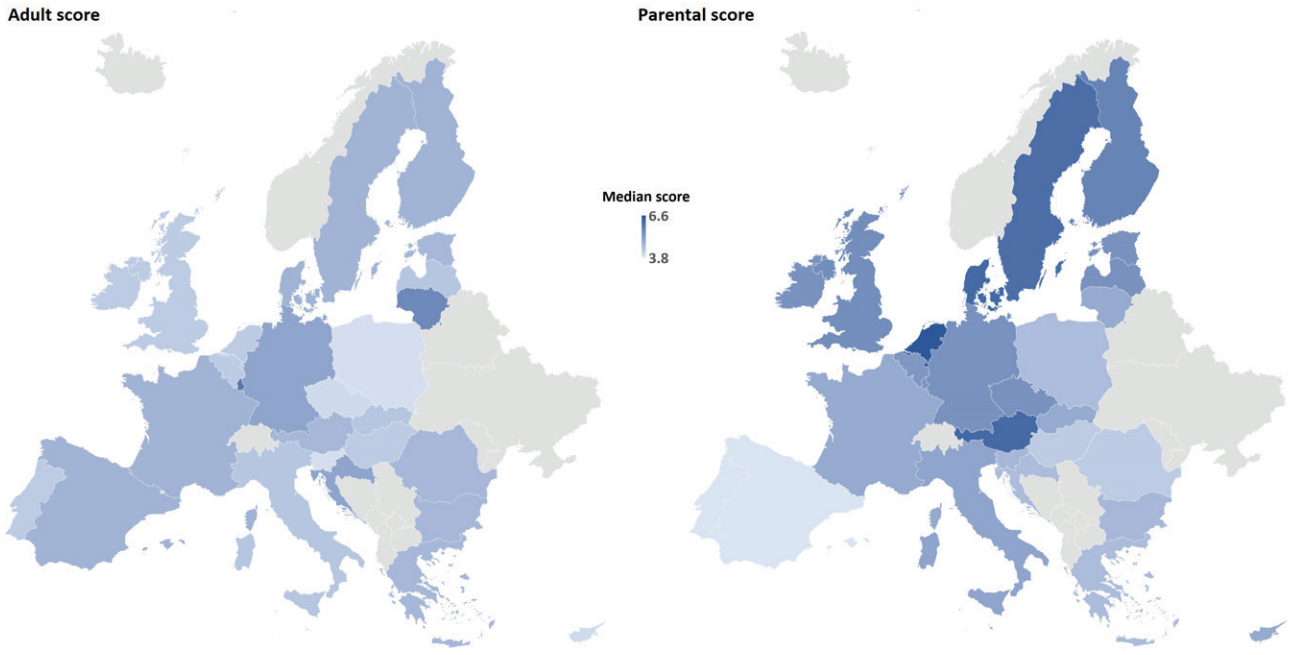
Statistical analysis

SSS, education level and occupation were re-categorized for the purpose of creating a composite scale with the lowest value as zero. SSS was re-categorized so that the lowest value in the ladder was 0 rather than 1 (with 9 being the highest). Each education level was assigned a value from zero to four, where zero stands for 'not completed primary' and four stands for 'Master's, Doctoral degree or equivalent'. The four occupational categories were given a value between zero (lowest) and three (highest) based on their position in the hierarchy. Each component was given equal weight and a total score from zero (lowest) to ten (highest) was calculated. Two scales of the composite perceived social status were created in this way: adult (respondents') and parental.

For each individual, adjusted adult and parental social scores were calculated by subtracting the respective median scores (of their country of residence) from their actual adult and parental scores. An additional intergenerational mobility scale was created by subtracting the value of the adjusted parental scale from the value of the adjusted adult scale to examine the intergenerational change in social status. For example, an individual whose adult score was one point higher than the country median adult score, and parental score was one point lower than the country median parental score, would have an intergenerational mobility score of two. In the opposite scenario, their intergenerational mobility score would be minus two. We use the size of the interquartile range (IQR) of the intergenerational mobility score as an indicator of social mobility. Since we are using measures relative to the median in each country, upward mobility for some indicates downward mobility for others; as such, the size of the IQR represents the range of both upward and downward changes across generations relative to the median.

The variables of interest (adult social status scores and parental social status scores) were analyzed using the survey weights for population size. Categorical variables are presented as weighted % with 95% confidence interval (CI) and continuous variables as weighted median with interquartile range (IQR). All analyses were performed with Stata version 16.1. Respondents with missing data on adult (2.8%) and parental (8.7%) SSS, occupation or education level were excluded from the statistical analysis, leaving 27245 participants in the adult social status analysis and 25589 participants in the parental social status analysis.

Figure 1. Map showing the median of adult and parental social status scale (out of 10) of individuals aged ≥18 years in 28 European countries, Eurobarometer wave 88.4, December 2017 (N=27538)



RESULTS

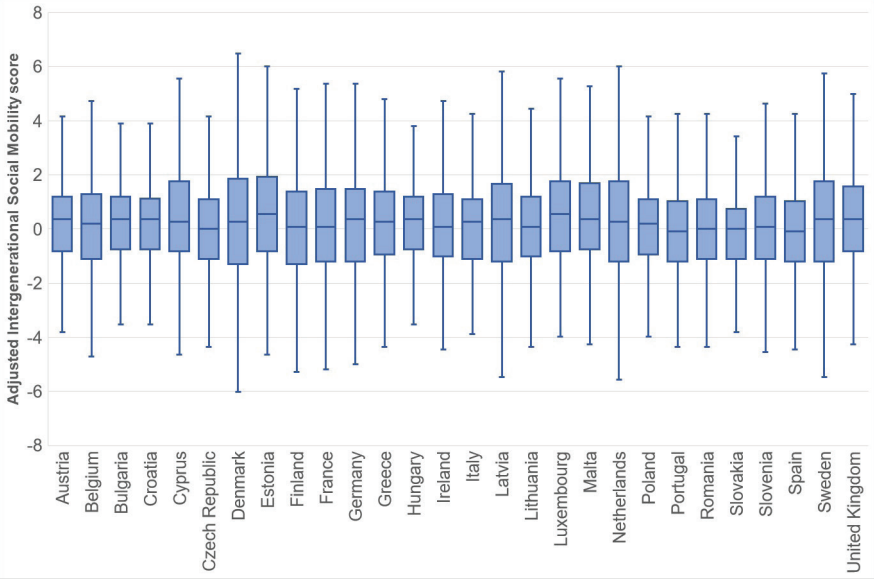
The distribution of the study sub-sample is shown in Supplementary file Table 1. The Netherlands (5.93; IQR: 4.26–7.69) and Austria (5.56; IQR: 4.26–6.94) had the highest adult social status scores, while Portugal (3.89; IQR: 2.41–5.37) and Spain (3.89; IQR: 2.69–5.09) had the lowest scores. Regarding parental social status, the highest scores were observed in the Netherlands (6.57; IQR: 5.28–8.06)

Table 1. Median adult and parental social status scale and size of the interquartile range of the adjusted intergenerational mobility score in 28 EU countries, Eurobarometer wave 88.4, December 2017 (N=27538)

Country	Median adult social status score (IQR)	Median parental social status score (IQR)	IQR size of adjusted intergenerational mobility score
Western Europe	**4.72 (3.43–6.48)**	**5.37 (3.98–6.94)**	**2.59**
Austria	5.56 (4.26–6.94)	6.20 (5.09–7.04)	2.04
Belgium	4.63 (3.43–6.11)	5.28 (3.89–6.57)	2.41
France	4.26 (3.15–5.83)	4.91 (3.70–6.48)	2.69
Germany	4.72 (3.52–6.48)	5.37 (3.89–7.31)	2.69
Luxembourg	5.00 (3.52–6.85)	5.28 (4.17–6.57)	2.59
The Netherlands	5.93 (4.26–7.69)	6.57 (5.28–8.06)	2.96
Southern Europe	**4.26 (3.06–5.74)**	**4.54 (3.43–5.74)**	**2.13**
Croatia	4.17 (3.15–5.37)	4.54 (3.52–5.74)	1.85
Cyprus (Republic)	5.00 (3.15–6.85)	4.91 (3.70–6.11)	2.59
Greece	3.98 (2.69–5.56)	4.54 (3.43–5.74)	2.31
Italy	4.63 (3.43–6.11)	5.00 (4.07–6.11)	2.22
Malta	4.35 (3.15–6.57)	5.00 (3.80–6.11)	2.41
Portugal	3.89 (2.41–5.37)	3.80 (2.69–4.81)	2.22
Slovenia	4.26 (3.15–5.83)	4.63 (3.80–6.11)	2.31
Spain	3.89 (2.69–5.09)	3.80 (3.06–5.09)	2.22
Northern Europe	**4.72 (3.61–6.57)**	**5.46 (4.26–6.94)**	**2.68**
Denmark	5.37 (3.98–7.04)	6.20 (4.72–7.41)	3.15
Estonia	4.72 (3.24–6.94)	5.37 (3.89–7.31)	2.78
Finland	4.63 (3.15–6.20)	5.65 (4.54–7.22)	2.69
Ireland	4.72 (3.52–6.57)	5.37 (3.98–6.48)	2.31
Latvia	4.26 (3.15–6.11)	5.37 (4.17–6.85)	2.87
Lithuania	4.35 (3.15–5.83)	4.91 (3.52–6.20)	2.22
Sweden	5.56 (4.26–7.31)	6.11 (4.54–7.59)	2.96
United Kingdom	4.72 (3.89–6.48)	5.46 (4.26–6.94)	2.41
Eastern Europe	**4.26 (3.15–5.74))**	**4.63 (3.70–5.74)**	**2.22**
Bulgaria	4.26 (2.78–5.56)	4.63 (3.52–5.74)	1.94
Czechia	4.63 (3.15–5.74)	5.37 (4.26–6.11)	2.22
Hungary	3.98 (2.78–5.37)	4.26 (3.43–5.46)	1.94
Poland	4.26 (3.15–5.74)	4.54 (3.80–5.74)	2.04
Romania	3.89 (2.78–5.37)	4.26 (3.43–5.37)	2.22
Slovakia	4.63 (3.43–5.74)	4.91 (3.89–6.11)	1.85
All Countries	**4.35 (3.15–6.11)**	**5.00 (3.80–6.48)**	**2.50**

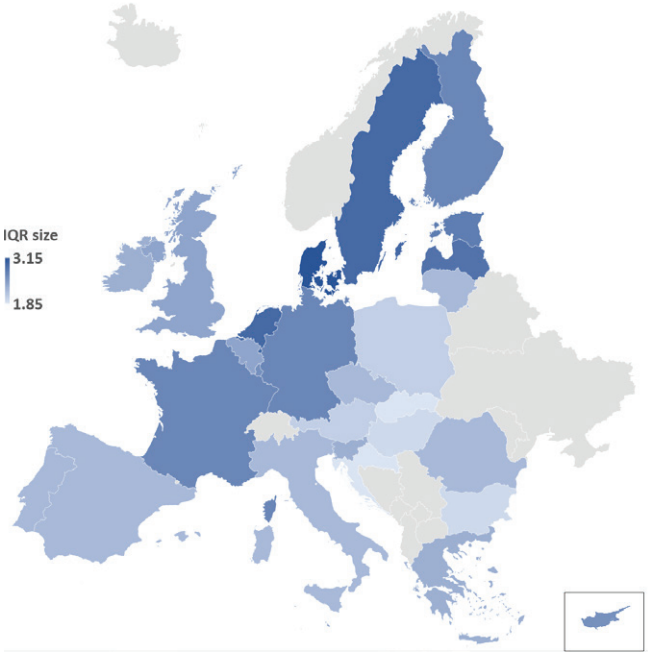
The adjusted intergenerational mobility score was calculated as the difference between adjusted adult and parental social scores. These were calculated by subtracting the respective median scores (of their country of residence) from their actual adult and parental scores.

Figure 2. Adjusted intergenerational mobility score by country in 28 European countries, Eurobarometer wave 88.4, December 2017 (N=27538)



The adjusted intergenerational mobility score was calculated as the difference between adjusted adult and parental social scores. These were calculated by subtracting the respective median scores (of their country of residence) from their actual adult and parental scores.

Figure 3. Map showing the interquartile range (IQR) of the adjusted intergenerational social status scale of individuals aged ≥18 years in 28 EU countries, Eurobarometer wave 88.4, December 2017 (N=27538)



and the lowest in Portugal (3.80; IQR: 2.69–4.81) (Table 1). All countries had a decrease in median social status from parental to adult except for Cyprus, Portugal and Spain where adults' median social status was higher than their parents'. Regional variation in social status is also evident and persists across generations. Table 1 and Figure 1 show that Northern and Western Europe had, in general, higher social status than Southern and Eastern Europe.

We used the size of the IQRs of the adjusted intergenerational mobility scale to estimate the extent of intergenerational mobility by country (Table 1). Denmark (3.15), the Netherlands (2.96), and Sweden (2.96) had the largest IQRs of intergenerational mobility scores, whereas Slovakia (1.85), Croatia (1.85), Hungary (1.94) and Bulgaria (1.94) had the smallest IQRs. There were also regional variations among the four socio-geographical regions of Europe with Northern (2.68) and Western Europe (2.59) having the highest IQR of intergenerational mobility scores, and Southern (2.13) and Eastern Europe (2.22) having the lowest scores (Table 1 and Figures 2 and 3).

DISCUSSION

Our study among participants from 28 European countries showed that intergenerational mobility varied substantially between countries and geographical regions. Our study is novel as it used a composite measure of social status to investigate intergenerational mobility across the EU. Our findings showed that Northern European countries such as Denmark and Sweden showed a greater variability of social status between generations than Eastern and Southern European countries.

Our findings are in line with previous studies on social status and intergenerational mobility differences between European countries and confirm their findings at the EU

level. It is worth noting, however, that those previous studies have only used one measure of social status to examine intergenerational mobility, which does not fully capture the influence of other social status components. In addition, study populations were mostly limited to certain countries and did not expand to such a big population[13,14,22,24]. Nordic countries have demonstrated higher social status, larger intergenerational mobility and less inequalities across generations than the rest of the EU[12-14,22]. These findings could be explained by the institutional policies implemented by Northern and Western European countries in order to reduce socioeconomic inequalities from early-life stages, such as low wage dispersion, high income redistribution and fostering access to the egalitarian public educational system[12]. As a result, and as observed in countries with high social status, the influence of parental background during early life on adulthood social status is weaker and this is termed as higher intergenerational elasticity[12-14]. Whether intergenerational mobility drifts upwards or downwards, it can have remarkable implications for health and healthy lifestyle among Europeans[18,27]. The consequent health outcomes vary between European women and men[18,27], and are still clearly influenced by the recent social and political transitions in Europe during the past few decades[18,21].

It is well-established that social status is an important determinant of health, mainly because it is associated with various lifestyle risk factors such as smoking, alcohol consumption, diet, physical activity, as well as work or household conditions[28]. Socioeconomic inequalities, therefore, are a key driver of substantial health inequalities, where individuals with low social status suffer from poorer health outcomes such as lower life expectancy and higher probability of premature death, especially due to cardiovascular diseases compared to those with higher social status[29]. Such inequalities have also been observed across European countries with Central and Eastern European countries having lower life expectancy than Sweden, Italy, and Norway[30]. A recent review concluded that one extra year of healthy life for a parent is linked to around three additional months of healthy life for their children in the United States, with estimates in some European countries suggesting higher health mobility than in the United States[31]. Overall, a burgeoning literature has emerged on the issue of intergenerational health mobility, and we hope that the new measure we have presented contributes to this field.

Persistent inequalities in a society steepen the social gradient of health and increase the rates of violence and homicides[32]. When intergenerational mobility is small, the socioeconomic inequalities are compounded in each new generation and gaps in health outcomes become larger[11]. For example, British girls of fathers who had a 'high class' occupation had better physical health and cognitive capabilities that also helped them keep a better social status in later life than girls of fathers with lower class professions[33]. Social mobility was additionally found to affect health in early-adulthood stages[19], which supports the need for constructive social policies targeting life quality and welfare to weaken the heritability of poor social and health status from early stages of life[30,34].

Many previous studies have used only one measure to assess the social status and intergenerational mobility, whereas our study included three measures together to holistically capture the social status and its elements which education and occupation alone cannot detect[35]. Although our approach confirmed the overall patterns detected in previous studies, it provides a comprehensive assessment on intergenerational mobility in Europe, which can serve as baseline for future studies and/or an indicator which can be used to explore associations with health-related behaviors and health outcomes across the continent, both in studies using Eurobarometer data and beyond.

In our analysis, median parental scores were higher than median adult scores in most countries. Although this might indicate a real decline in social status, some alternative explanations could be considered. For instance, participants may have reported their parental SSS based on present-day class hierarchies. Moreover, people generally tend to report more favorable responses about their parents, which may have slightly influenced our findings[36]. Data only assessed education in broad categories and occupation only for one parent, hence they are not nuanced and might not fully capture the variation among respondents, especially since there were no data on single-parent households. However, data for one parent have been previously used in studies on socioeconomic inequalities and self-rated health[37]. Longitudinal studies with detailed data collection could address this, although they would require long-term follow-up.

Strengths and limitations

This study is the first in this topic to include participants from 28 countries in Europe from all age groups over 18 years. Our cross-national sample can be considered representative for each of these countries based on the methodological approaches used, which in turn allow to generalize our results to all adults living in these 28 countries. However, the inclusion of young adults in the study might have affected the variability between countries. Many of young adults in different EU countries might be still in full-time education or at early stages of their professional careers, thus, might still be tied to parental assets and parents' social status. Additionally, we constructed our scale using three equally weighted elements, assuming that SSS, occupation and education level are equally important. We acknowledge this might not be true for all people, although there is no reason to believe that this would differ between countries; hence, cross-country comparison may still be valid. Due to the cross-sectional data collection of Eurobarometer, we were not able to fully capture changes between generations, which could only be possible through

multi-generational cohort studies.

In order to promote social mobility, effective enhancements of social policy can be implemented towards reducing occupational and educational inequalities between and within countries. This can be achieved by providing fair and safe employment conditions and equal access to labor market, as well as by reducing the socioeconomic barriers to higher education and eliminating the selective schooling systems in some parts of Europe[38,39]. Improvements in social policy should ultimately start from early-life stages with more public investments in child human capital, which could potentially offset the possible adverse effects of inequality on intergenerational mobility[30,34]. Our analysis can provide a useful tool for governments to monitor and address such inequalities.

CONCLUSIONS

We investigated the social status and intergenerational mobility among European adults and their parents using a new comprehensive measure consistently across the 28 EU countries. This research approach is important given the lack of consistent measures that assess intergenerational mobility in such a large sample from different countries. Our findings could help researchers investigate the association of intergenerational mobility with more health-related outcomes, but also motivate authorities to address this issue explicitly to better understand the mechanisms underlying the link between social mobility and health, in order to develop and apply more effectively targeted policy interventions.

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DATA AVAILABILITY
The data supporting this research are anonymized and publicly available from the following source: Eurobarometer data repository (https://search.gesis.org)

AUTHORS' CONTRIBUTIONS
FTF: conceived the study. YI, FTF and AAL: curated the data and conducted the main analysis. RJ: drafted the first version of the manuscript. All authors: data interpretation and manuscript preparation. All authors read and approved the final version of the manuscript.

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