

‘Falling from grace’ and ‘rising from rags’: Intergenerational educational mobility and depressive symptoms

Published in **Social Science & Medicine** Volume 222, February 2019, Pages 294-304.

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Abstract

With this study, we make a number of contributions to the ongoing debate on the implications of intergenerational mobility for individuals’ health. First, instead of focusing on absolute intergenerational mobility in educational attainment, we analyse varying implications of relative intergenerational mobility for depressive symptoms by considering the distribution of educational credentials separately in the parental and offspring generations. Second, unlike conventional approaches, which predominantly emphasise that upward and downward mobility has a negative effect, we argue that upward mobility might improve individuals’ mental well-being and that this effect may vary by gender. Third, we use statistical approach which was designed specifically to study the consequences of intergenerational mobility and does not conflate mobility effects with effects of the positions of origin and destination. Using the 2012-2014 waves of the European Social Survey and data for 52,773 individuals nested in 28 societies, we fit the diagonal reference models with both individuals’ short- and long-range experiences of intergenerational educational mobility. The results indicate that upward and downward mobility is associated with, respectively, lower and higher levels of depressive symptoms, as measured with the Center for Epidemiological Studies Depression Scale, and that these effects are only observed among men.

Keywords: Social mobility, education, health, depressive symptoms, inequality, gender, diagonal reference models, European Social Survey.

1. Introduction

It is well known that, in addition to individuals' own socio-economic status, their social origins are also related to the risk of developing depressive symptoms in adult life (Adler et al., 1994; Bjelland et al., 2008; Edwards et al., 2003; Hughes et al., 2017; Ross and Willigen, 1997; Schilling et al., 2007). Further, there is now growing research on the possible mechanisms – such as the role of individuals' life course trajectories, or the geography of health – that may underlay the complex relationships between social origins, socio-economic status and health outcomes (Chaparro and Koupil, 2014; Gugushvili et al., 2018b; Hart et al., 1998; Iveson and Deary, 2017; Palloni et al., 2009; Simandan, 2018). Still, we know very little about how far individuals' experience of intergenerational social mobility *per se* – i.e., the attainment of higher or lower socio-economic positions than their parents' – affects their psychological well-being, in addition to the effects of social origins and own socio-economic status. We aim to fill this void by answering the following, inter-related, research questions: Are individuals who are intergenerationally mobile more or less likely than those who are immobile to develop depressive symptoms in adult life? If so, are there differences in the effects of upward and downward mobility? More specifically, do the downwardly mobile report more, and the upwardly mobile report less, depressive symptoms than their immobile counterparts? Finally, are the effects of intergenerational mobility different for men and women? Since in the existing literature the theorised pathways between social mobility and health outcomes primarily refer to various psycho-social mechanisms, we consider depressive symptoms as an ideal dependent variable for investigating the health consequences of intergenerational mobility.

The present study makes three distinct contributions to the literature. First, we conceptualise intergenerational mobility in relative, rather than absolute terms – more specifically, we investigate the effects of individuals' relative educational mobility on their probabilities of developing depressive symptoms. Second, we argue that intergenerational upward mobility might in fact reduce individuals' risks of developing depressive symptoms; moreover, this effect may vary by gender. Third, we use statistical techniques that have been specifically designed to study the consequences of social mobility for life-outcomes of various kinds (e.g., social isolation or life satisfaction) in the field of social

stratification (Daenekindt, 2017; Hadjar and Samuel, 2015), but have scarcely been used in the fields of public health and social epidemiology (for a recent exception see Präg and Richards (2018)).

1.1. Conceptualisation of intergenerational mobility

One clear limitation of past research in this area is the inadequate conceptualisation of individuals' mobility experiences (Campos-Matos and Kawachi, 2015; Singhammer and Mittelmark, 2010). In the present study, we define intergenerational social mobility through comparing individuals' highest level of education to their parents'. We argue that investigating the links between intergenerational educational mobility and individuals' risks of developing depressive symptoms is relevant, for various reasons. First, education as an 'information capital' is known to be a powerful predictor of health outcomes (Zajacova and Lawrence, 2018). A higher level of education provides individuals with better knowledge and instruments for understanding health risks – including risks of developing depressive symptoms – or skills to evaluate health-related advice and obtain more benefits from health services (Torssander and Erikson, 2010). Second, individuals' educational attainment can be expected to affect their probabilities of developing depressive symptoms through its pivotal role in conditioning socio-economic and labour market outcomes, such as income (e.g., ensuring financial resources to preserve psychological well-being), social class (e.g., ensuring longer-term economic security and prospects), or social status (e.g., ensuring life-styles that are consequential for psychological health) (Torssander and Erikson, 2009; Zimmerman and Katon, 2005).

Past research that aimed to explore the link between intergenerational educational mobility and health outcomes is almost exclusively limited to comparing children's and parents' levels of education in absolute sense (Gall et al., 2010). But if we accept that individuals' health outcomes are, at least to some extent, shaped by the psychological effects of social comparisons (Thoits, 2011; Marmot, 2005; Marmot and Wilkinson, 2001), treating educational mobility in relative terms – i.e., explicitly acknowledging that educational credentials, given educational expansion, may have different meanings from one generation to another (the process often referred to as credential inflation) (Goldthorpe, 2013) – appears to be a more appropriate approach. It is particularly so, if we take into consideration that some

psychological effects of intergenerational educational mobility are likely to manifest themselves through labour market attainment. In this case, what matters is not how much education individuals have in absolute terms but how much relative to others, and especially relative to those others with whom they are in most direct competition in labour markets (Bukodi and Goldthorpe, 2016).

1.2. Relationship between social mobility and depressive symptoms: Two possibilities

As said, we also aim to contribute to the literature on the links between intergenerational social mobility and individuals' psychological well-being by exploring the possibility of differential effects of upward and downward mobility. Some studies find that intergenerational downward mobility has a detrimental effect on psychological health – more specifically, the downwardly mobile are more likely than the upwardly mobile or the immobile to develop depressive symptoms (Nicklett and Burgard, 2009; Tiikkaja et al., 2013; Ward et al., 2016). Theoretically, this line of research is based on the so-called '*falling from grace*' thesis which argues that the experience of intergenerational downward mobility elevates distress and feelings of insecurity in individuals, primarily because they find themselves less able to control their own lives as compared to what they had expected when growing up (Newman, 1999). A somewhat related argument, based on Pitirim Sorokin's (1927) seminal work and known as the '*dissociative thesis*', states that moving away from one's social origin, either downward or upward direction, can be disruptive, chiefly because not being fully integrated in either the origin or destination social environment, mobile individuals may feel less satisfied with life, and experience depression.

But some recent studies, using conventional regression models, suggest that, if anything, the upwardly mobile may have better, rather than worse, health-related outcomes than the immobile who are stuck in relatively disadvantaged socio-economic positions (Chan, 2018; Gugushvili et al., 2018b; Ward et al., 2016). In other words, it is possible that intergenerational upward mobility leads to an improvement, rather than a worsening, of individuals' depressive symptoms. Different reasons for this might be in order. First, ending up in a more advantaged social position than one's parents had may prevent developing depressive symptoms by generating a sense of control of life (Poulton et al., 2002; Wallston and Wallston, 1978). Second, based on the post-traumatic growth theory, one could argue that the experience of intergenerational upward mobility can boost psychological well-being in part because the

upwardly mobile feel confident that they are able to tackle barriers of various kinds and overcome difficulties in their journey out of less advantaged socio-economic positions (Tedeschi and Calhoun, 2004). Third, upwardly mobile individuals may seek to distance themselves from their social origins by eagerly following the dominant life-style and health-related behaviours associated with their new social environments (Burrows and Nettleton, 1995). Fourth, the upwardly mobile may even express a sense of gratitude to their new socio-economic environment for making the attainment of their present status possible (Tumin, 1957; Watkins et al., 2003). It is then likely that these positive effects of upward mobility on psychological well-being outweigh the potential negative effects. In opposition to the ‘falling from grace’ thesis, we call this new perspective the ‘*rising from rags*’ argument.

1.3. Gender specific effects of intergenerational mobility

What existing research has not been concerned with is the possibility of gender differences in the effects of intergenerational social mobility on depression (for two exceptions, though, see Timms, (1998) and Tooth and Mishra (2013)). But there might be structural and social-psychological explanations for expecting men and women to differ in this respect.

So far as possible structural explanations are concerned, past research showed that inequalities between men and women in educational attainment in relation to social origins have declined in the past decades (Breen et al., 2010); and there is now a basic similarity between men and women in the chances of intergenerational class mobility as well (Bukodi and Paskov, 2018). One could then argue that there is no reason to expect gender differences in the consequences of intergenerational social mobility for health either. But a counter-argument is also possible. There is some existing evidence suggesting that, as compared to social origins, the level of own education is more important for women than for men, in regard to their labour market outcomes (Bukodi et al., 2016). It is then conceivable that insofar as individuals’ labour market positions affect their mental health (Paul and Moser, 2009), and insofar as education is a major determinant of labour market position, social origins and the experience of intergenerational mobility might be relatively less important predictors of women’s than of men’s depressive symptoms.

So far as possible social-psychological explanations are concerned, the theory of causal attribution suggests that men and women might differ in their understanding and assessment of the causes behind their own success and failure in life (Miller and Ross, 1975). Many studies find that men are more likely than women to attribute failure to factors that are beyond their control (i.e. inter-personal causal attribution) and more likely to explain successes by pointing to their own abilities and effort (i.e. intra-personal causal attribution) (Meece et al., 2006; O’Leary et al., 2014). In other words, it is possible that women are less likely to attribute their experience of upward intergenerational mobility to internal dispositions, e.g. their own merits (Deaux and Farris, 1977; Shirazi and Biel, 2005). Although gender differences in causal attribution are not consistently found in every study (Mezulis et al., 2004), and some feminist theorists believe that psychological differences between men and women are primarily due to gender-specific socialisation during childhood and adolescence that affects gender inequalities in later life (Gilligan, 1993), one can still expect a ‘gendered pattern’ in the effects of intergenerational upward and downward mobility on psychological well-being.

Finally, it is also possible, as some recent research suggests, that health-related behaviours are more likely to be transmitted intergenerationally between children and parents of the same gender (Gugushvili et al., 2018a; Ikram et al., 2018). In an auxiliary analysis we take this issue up, and investigate the effects of intergenerational mobility on developing depressive symptoms via comparing sons’ education to their fathers’ and daughters’ education to their mothers’.

2. Methods

2.1. Data

Our main interest in this study is to identify common patterns across a large number of countries in the relationship between intergenerational mobility and depressive symptoms. For this purpose, we use the 2012 (response rate of 59.2%) and 2014 (response rate of 53.6%) waves of the European Social Survey (ESS). ESS includes countries with differing levels and patterns of intergenerational mobility (Bukodi et al., 2017) and depressive symptoms (Van de Velde et al., 2010). This makes ESS highly appropriate

to analyse the consequences of intergenerational mobility for depressive symptoms. Our sample, that covers 28 countries (see online supplementary material, Table A1, for the list of countries), is restricted to respondents aged 25-65; the majority of individuals in this age-range have already completed their full-time education and have not reached the age of retirement. As none of the included variables have missing values accounting for more than 1% of the sample, we use list-wise deletion to exclude cases with missing information in any of the included variables. The analytical sample consists of 52,773 respondents.

2.2. Dependent variable: Depressive symptoms

Our dependent variable captures features of depression via the eight-item version of the Center for Epidemiological Studies Depression Scale (CES-D scale) (Radloff, 1977). The 2012 and 2014 waves of ESS ask respondents about the following feelings and behaviours during the week prior to the interview: ‘you felt depressed’, ‘you felt everything you did was an effort’, ‘your sleep was restless’, ‘you were happy’, ‘you felt lonely’, ‘you enjoyed life’, ‘you felt sad’, and ‘you could not get going’. Respondents answered the questions using the following four-fold scale: (a) none or almost none of the time, (b) some of the time, (c) most of the time, and (d) all or almost all of the time (ESS, 2014).

The CES-D scale of depressive symptoms has been validated and applied in different times, contexts, and countries, including using the same data-set that we use in the present study (Karim et al., 2015). Nonetheless, the application of CES-D scale in the pooled sample of 28 countries might still be problematic. First, the prevalence of certain psychological problems may vary across countries, and this could potentially affect the results on the strength of the associations between intergenerational educational mobility and depressive symptoms. Second, not only the absolute level of depressive symptoms could differ across countries, but the relative weight of the different components of the CES-D scale could also vary. To mitigate these two concerns, we used principal component analysis to derive country-specific measures of depressive symptoms. As expected, factor loadings for the eight items of the CES-D scale vary between countries (see Table A1 in Online Appendix). But, and importantly for our purposes, for every country in our sample, only one factor has been identified which forms our

dependent variable. In our final analytical sample with complete cases, the measure has a mean value of 0 and standard deviation of 1.

2.3. Key explanatory variables: Intergenerational educational mobility

Our variables of intergenerational educational mobility are based on the comparison of the highest level of education of respondents and their parents. In ESS, the highest level of education is measured by the seven-category International Standard Classification of Education (ISCED) scale. In regard to parental education, we consider the qualifications of both parents, and in the case of different levels of qualification for fathers and mothers, we take the highest.

We have constructed two variables for intergenerational educational mobility: one that is used in the main analysis and treats education, in both generations, in relative terms – relative mobility – and another one that is used in an auxiliary analysis and is based on a simple comparison of respondents' and their parents' highest level of education in absolute terms – absolute mobility. In order to construct a measure of relative education, we use the seven-category version of ISCED, and – based on the distribution of the variable in the respondents' and the parents' generations, respectively – we approximate to tertiles, separately in each country (Gugushvili et al., 2017). In order to construct a measure of absolute education, we collapse the seven-category ISCED into a three-category variable in the following way: (1) ISCED V1 and V2 – lower and higher tertiary education; (2) ISCED IIIa, IIIb and IV – upper-secondary and advanced vocational education; and (3) ISCED I and II – lower secondary education and below. Finally, we construct our variables for intergenerational educational mobility, by cross-classifying parents' and respondents' highest level of education: 1) respondent has a higher level of education than their parents – the upwardly mobile; 2) respondent has lower level of education than their parents – the downwardly mobile; 3) there is no difference in respondent's and their parents' educational levels – the immobile. We also distinguish between short-range and long-range mobility by splitting the upward and downward mobility groups into one-step upward, two-steps upward, one-step downward, and two-steps downward mobility sub-groups. Figure 1 compares the distributions of the measures of educational mobility, based on our relative and absolute scales. As is apparent, as regards absolute mobility, about two-fifth of the respondents attained higher levels of education than their

parents and only around 10% of them attained lower level, but as regards relative mobility, the distribution is much more even.

FIGURE 1 ABOUT HERE

2.4. Control variables

In addition to our key explanatory variables, we include a range of controls in our analyses. Some characteristics of individuals may have direct effects on their risks of developing depressive symptoms and may also, to some extent, be associated with their experience of educational mobility. In order to take country and survey-wave differences into account, as far as possible, we include country and survey-wave fixed-effects in all of our models. In models that are based on the pooled sample of men and women, we always include a gender dummy. Previous research has shown a nonlinear association between age and depressive symptoms (Kessler et al., 1992), so that both age and age-squared are controlled for. Marital status may also make a difference, as marriage tends to have emotional benefits for people (Simon, 2002). To account for health inequalities driven by migration (Beckfield et al., 2013), our models also control for individuals' country of birth. Employment status is included, in order to capture respondents' labour market involvement, which is known to affect mental health (Paul and Moser, 2009). Living in rural versus urban areas may have different implications for individuals' psychological status (Peen et al., 2010); we therefore control for social environment of the residential place. In an auxiliary analysis, we also account for respondents' social class position, which is shown to be affected by educational attainment and is likely to be linked to depressive symptoms (Griffin et al., 2002). Social class is operationalised through a three-fold collapse of the European Socio-economic Classification (ESeC). If respondents were not in employment at the time of interview, we allocate them to a class position on the basis of their last employment. Descriptive statistics for all explanatory and control variables are shown in Table 1.

TABLE 1 ABOUT HERE

2.5. Statistical analysis

As educational mobility is measured by the difference between parents' and respondents' highest levels of education, using a conventional regression approach would face the problem of perfect multicollinearity, if the effects of origin, destination, and mobility were examined simultaneously. For this reason, we use diagonal reference models which are specifically designed to disentangle mobility effects from origin and destination effects. The main idea behind this modelling approach is that individuals' outcomes may be affected by both their origin and destination positions; and, in addition to these positions, their mobility experience may also exert an independent effect.

In diagonal reference models, in order to identify the origin effect and the destination effect, each mobile individual is compared with two corresponding immobile individuals: one that came from the same origin group and one that ended up in the same destination group. This is so because the models are based on the assumption that the immobile represent the typical outcomes of their positions. Based on this logic, the level of depressive symptoms of the mobile individuals is not directly estimated using their own characteristics, but rather indirectly, in reference to the level of depressive symptoms of their comparator groups. Once the position effects are estimated in this way, the mobility effects could then be identified as the remaining systematic difference in the level of depressive symptoms between the mobile and the immobile, without the problem of multicollinearity. More formally, our baseline model is constructed as follows:

$$\hat{u}_{ij} = w * u_{ii} + (1 - w) * u_{jj} + \beta_1 Up_{ij} + \beta_2 Down_{ij} \quad (0 \leq w \leq 1) \quad (1)$$

In this equation, i refers to parents' education and j refers to respondent's education. \hat{u}_{ij} is the estimated average value of the level of depressive symptoms in cell ij , which is predicted by a weighted combination of u_{ii} and u_{jj} , the respective mean values of the depressive symptoms for the immobile members of educational groups i and j ; w is the origin weight, denoting the relative importance of parents' education as compared to that of respondents' education in the estimation of \hat{u}_{ij} . Given the sum of the two weights equals to 1, the weight of respondent's education is indicated as $1 - w$. Both w and $1 - w$ have an interval of $[0, 1]$, within which a higher value means a larger relative influence. In addition, two mobility terms have been added to indicate the effects of experiencing upward and

downward mobility, respectively, and they have been estimated in addition to the origin and destination effects.

Since the effect of long-range mobility on individuals' depressive symptoms may differ from that of short-range mobility, an additional model (Equation 2), has been constructed to further differentiate between four types of mobility route: one-step upward, two-steps upward, one-step downward, and two-steps downward.

$$\hat{u}_{ij} = w * u_{ii} + (1 - w) * u_{jj} + \gamma_1 Up1_{ij} + \gamma_2 Up2_{ij} + \gamma_3 Down1_{ij} + \gamma_4 Down2_{ij} \quad (0 \leq w \leq 1) \quad (2)$$

Our full model, that also includes all the control variables, is specified in Equation (3). We include country fixed-effects in all of our models. One clear advantage of doing so is that the inclusion of 27 country-dummies explains all time-independent variance at the country level, and there is then no variance left to be explained by additional country-specific characteristics (Allison, 2009).

$$\hat{u}_{ij} = w * u_{ii} + (1 - w) * u_{jj} + \gamma_1 Up1_{ij} + \gamma_2 Up2_{ij} + \gamma_3 Down1_{ij} + \gamma_4 Down2_{ij} + \sum \delta X_{ijk} \quad (0 \leq w \leq 1) \quad (3)$$

All three models have been estimated with the “Diagref” package in Stata 15. Although the distribution of our outcome variable is slightly skewed – as expected with depressive symptoms (see Figure A1 in Appendix) – we are able to fit diagonal reference models with the maximum likelihood algorithm based on Gaussian functional form. For more details on the diagonal reference models, see Sobel (1981).

A final note is also in order. When using the word ‘effect’, we always mean to describe a statistical association, rather than to imply any causal relationship between variables.

3. Results

3.1. Depressive symptoms among mobile and immobile individuals

Table 2 shows the standardised mean scores of depressive symptoms for nine groups of individuals, defined by the cross-classification of parents' and respondents' highest levels of education. The filled

grey columns on the main diagonal of the figure represent the mean values of depressive symptoms among the immobile, i.e., among individuals with the same levels of education as their parents, and the off-diagonal columns (blank columns) show the mean levels of depressive symptoms for the six mobile groups.

The following points should be noted. First, in both the respondents' and the parents' generations there is a clear educational gradient in the mean level of depressive symptoms: a lower level of education is associated with a higher level of depressive symptoms. Second, individuals' mobility experience does matter. The second-generation low-educated report the highest level of depressive symptoms, whereas the second-generation high-educated report the lowest level of depressive symptoms. Third, it is also clear that the upwardly mobile and the downwardly mobile differ in their levels of depressive symptoms: the mean scores are all negative for the former (i.e., for those who have more education than their parents), while the scores are either positive or close to zero for the latter (i.e., for those who have less education than their parents). But we are not able to determine from these bivariate associations how far this pattern is generated by position effects or by independent mobility effects. In order to address this question, we use diagonal reference models.

TABLE 2 ABOUT HERE

3.2. Intergenerational mobility and depressive symptoms in diagonal reference models

Table 3 shows the results from three diagonal reference models. As expected, in the case of the immobile, a higher level of education is associated with a lower risk of developing depressive symptoms. This is captured by the terms u_{11} , u_{22} , and u_{33} , which represent the average scores of depressive symptoms for the immobile in the highest, middle, and lowest educational tertiles. As is apparent from the coefficient for the weight parameter in Model 1 (0.417; CI 0.268, 0.565), the effect of parental education is almost as important as the effect of individuals' own education in affecting their psychological well-being. Further, in addition to these position effects, individuals who experienced intergenerational upward mobility in terms of education report significantly *lower* level of depressive symptoms than the immobile (reference group); whereas those whose highest level of education is lower

than that of their parents – the downwardly mobile – report significantly *higher* level of depressive symptoms than the immobile.

TABLE 3 ABOUT HERE

Model 2 further elaborates on the mobility effects by distinguishing short-range (one-step) and long-range (two-steps) mobility in both directions. Longer-range mobility – especially into an upward direction – appears to matter more for the level of depressive symptoms than shorter-range mobility. For example, individuals coming from the lowest tertile of parental education but who attained qualifications that place them in the highest tertile of respondents' education – the long-range upwardly mobile – report around one-fifth standard deviation lower level of depressive symptoms than the immobile. The corresponding figure for the short-range upwardly mobile is less than one-tenth standard deviation. Including a more fine-grade measure of intergenerational mobility also improves the fit statistics, as captured by the values of AIC and BIC.

Finally, Model 3 adds the control variables. The effects of the controls are in line with what we know from past research. For example, we too find that men report lower level of depressive symptoms than women; likewise, the scores for depressive symptoms are lower for the married than for singles and for the employed than for the unemployed. But, and more importantly, all mobility effects, except those for long-range downward mobility, remain statistically significant, although with reduced effect sizes. Just to take an example, the size of the coefficient for long-range upward mobility drops from -0.157 (CI -0.207, -0.096) in Model 2 to -0.092 (CI -0.152, -0.033) in Model 3; but this still indicates approximately one-tenth standard deviation lower level of depressive symptoms for the long-range upwardly mobile than for the immobile. This effect size, although with an opposite sign, is comparable to that of living in urban rather than in rural area (0.071; CI 0.054, 0.089), or being divorced rather than being single (0.098; CI 0.064, 0.132). As regards the weight parameter for parental education, it is in the same size of magnitude as in Model 1 – 0.481 (CI 0.251, 0.712).

3.3. Gender differences in the effects of intergenerational mobility on depressive symptoms

In order to identify any gender difference in the effects of intergenerational educational mobility on psychological ill-health, we run our three models separately for men and women. The results are shown in Table 4. As regards to the position effects, the weight parameter for social origins is clearly higher for men than for women in all models; for women, it does not even reach the 5% significance level. This implies that, for men, parental education is more important than their own education in affecting their risks of developing depressive symptoms; whereas for women, it is the other way around. Turning to the mobility effects, we, again, find significant gender differences. In the case of men, the upwardly mobile – those who experienced long-range upward mobility, in particular – tend to report lower level of depressive symptoms than the immobile, and the downwardly mobile tend to report higher level of depressive symptoms than the immobile. But women's psychological ill-health is not affected at all by their experience of intergenerational educational mobility. The model fit statistics also suggests that the variables included in the analysis predict less well women's depressive symptoms than men's.

TABLE 4 ABOUT HERE

3.4. Auxiliary analysis

We conduct three kinds of auxiliary analysis. First, we include in our model, as a possible mediator variable, individuals' most recent class positions. The rationale behind this is that both own education and social origins are known to have independent effects on individuals' class attainment (e.g., Bukodi et al., 2016) that may in turn affect their depressive symptoms. Given these associations, it is conceivable that individuals' class attainment helps, at least to some extent, explain the effects of intergenerational educational mobility on the level of their depressive symptoms. We investigate this possibility in Table 5. As expected, individuals' most recent class positions have a significant effect on depression: those in less advantaged classes tend to have a higher level of depressive symptoms – women, in particular. However, social class does not 'explain away' the effects of educational mobility on the risks of developing depressive symptoms. Although the sizes of the coefficients for the weight parameters and for the mobility dummies are reduced - for instance, from -0.065 (CI -0.106, -0.025) to -0.042 (CI -0.075, -0.008) for one-step upward mobility among men - they largely remain statistically significant. This suggests that, whilst individuals' social class goes some way to account for the

relationship between intergenerational educational mobility and depression, there are other individual characteristics and factors that also contribute to explaining this relationship.

TABLE 5 ABOUT HERE

In our second auxiliary analysis we replace the variables for educational mobility with ones that are based on parents' and individuals' highest levels of education in absolute rather than relative terms, in order to demonstrate the possible differences between the two approaches. We show the results, for the pooled sample of men and women, in online supplementary material, Table A2. Two points of importance emerge. First, the size of the weight parameter for parental education is lower when we operationalise education in absolute rather than in relative terms. Second, educational mobility exerts, overall, weaker effects on depression when we base it on parents' and respondents' absolute level of education – this is most apparent in Models 1, 3 and 4. This latter result is in line with past research that, in most cases, found rather weak effects of educational mobility on various health outcomes when operationalising it via absolute educational attainment. Finally, in the online supplementary material, we also compare the highest level of education of women to their mothers' and the highest level of education of men to their fathers', and test if there is a gender-specific effect of intergenerational mobility on depressive symptoms. But the results, shown in Table A3, are essentially the same to what we report in the main analysis.

4. Discussion

In this study we sought to contribute to the literature on the consequences of intergenerational social mobility for individuals' psychological ill-health. Unlike past research that focused on the possible negative consequences of intergenerational mobility regardless of its direction (e.g., Nicklett and Burgard, 2009; Tiikkaja et al., 2013), we argued that intergenerational upward mobility might in fact have a positive, rather than a negative, effect on individuals' risks of developing depressive symptoms in adult life. Insofar as upward mobility is associated with positive psychological changes, a sense of achievement, confidence in one's own abilities or an increased level of locus of control – i.e.

individuals' belief that they have control over their lives and can influence their own future – it might be expected to lower the level of depressive symptoms (Battle and Rotter, 1963; Park et al., 1996; von Stumm et al., 2009). We do not imply that intergenerational upward mobility never leads to circumstances in individuals' lives that may trigger stress in them; we rather argue that the positive effects of upward mobility, overall, outweigh the possible negative effects.

We also argue that one possible explanation for why past research has not generally found positive effects of upward mobility could be the inadequate conceptualisation and operationalisation of intergenerational social mobility itself. Relying on socio-economic measures in absolute terms, which do not account for the over-time changes in the distributions of these variables between the parents' and the children's generations, can lead to distorted results, as far as the consequences of social mobility for psychological health are concerned. For example, the group of individuals who attained higher level of education than their parents in a nominal sense can be quite heterogeneous, consisting of those who simply moved up as a consequence of the educational expansion that occurred in all advanced societies in the past decades, and of those who attained qualifications that are rewarded in the labour market with relatively high returns. On the other hand, the group of individuals who attained lower level of education than their parents in a nominal sense can be rather small and negatively selected in terms of individual characteristics that are known to be associated with depressive symptoms (Mackenbach, 2012). Indeed, our own analysis shows that the proportion of the downwardly mobile is only around nine per cent when we base our measure of intergenerational mobility on absolute education, while it is twice as much if we operationalise mobility through relative education.

If we base the measure of intergenerational mobility on parents' and children's relative educational standing, we find that for men, though not for women, upward mobility does have a positive effect on mental well-being – i.e., it 'protects' men from experiencing depressive symptoms – while downward mobility has a negative effect – i.e., downwardly mobile men are more likely than the immobile to report depressive symptoms. This pattern is less apparent when we base our measure of intergenerational mobility on individuals' absolute education.

In summary, our findings give some support to the ‘falling from grace’ argument, insofar as we too find that downward mobility is detrimental for psychological well-being – either because individuals perceive downward mobility as ‘unjust’, or because downward mobility brings status loss and unexpected changes in socio-economic conditions (Dennison, 2018). On the other hand, we do *not* find any negative effect of upward intergenerational social mobility. As discussed, we rather find that men who experienced upward mobility are less, rather than more, likely than their immobile counterparts to develop depressive symptoms – we call this finding, and the arguments behind it, the ‘rising from rags’ thesis. In the light of our results, and also of some others in the field of social stratification (e.g., Chan, 2018), it is puzzling that the ‘dissociative thesis’ – that in itself is not based on high-quality empirical data – is still quite popular, especially in qualitative sociological research (e.g., Freedman, 2015).

Unlike past research, we have also examined how far the effects of intergenerational educational mobility differ among men and women. We have found stark gender differences: while parental education and the experience of educational mobility are both important determinants of developing depressive symptoms for men, they scarcely matter at all for women. As argued earlier, there might be a number of structural and social-psychological reasons for these gender differences. First, there is some evidence in sociological research that the relative importance of own education, as compared to social origins, in affecting labour market outcomes and social class trajectories is stronger for women than for men (Bukodi et al., 2016). For instance, in the US, returns to education in terms of earnings, career advancement or social status are stronger for women than for men (DiPrete and Buchmann, 2006). All this could also mean that social origins and intergenerational mobility might be relatively less important for women than for men in developing depressive symptoms. Second, it is possible that due to either inherent psychological differences or social conditioning, men are just more likely than women to attribute upward mobility to their own merits, abilities and effort, but they may be more likely than women to attribute downward mobility to adverse circumstances (Meece et al., 2006). Third, despite the convergence between men and women in educational and labour market attainment, there can still be significant gender differences in intergenerational transmission of (dis)advantages of certain kinds. For example, evidence suggests that adverse childhood experiences (e.g., physical and emotional abuse)

have more detrimental effects on mental health in adulthood for men than for women (Edwards et al., 2003; Schilling et al., 2007).

4.1. Strength and limitations

We believe that one of the main strengths of this study concerns the dependent variable. We consider the level of depressive symptoms as a highly appropriate outcome for investigating the consequences of intergenerational educational mobility for individuals' health, chiefly because the main theoretical expectations that could underpin this link almost exclusively rely on psychological mechanisms. However, until recently, rigorous investigation of the relationship between intergenerational social mobility and individuals' risks of developing depressive symptoms has not been possible, especially in cross-national settings, primarily due to the lack of high quality comparable data on intergenerational mobility and measurement bias in depressive symptoms (Van de Velde et al., 2010). Conceptualising educational attainment in relative terms and using the standardised tool of the CES-D scale for a large number of countries allowed us to minimise measurement bias and to provide evidence, for the first time, on the effects of intergenerational educational mobility on depressive symptoms in a truly cross-national fashion, rather than relying on idiosyncratic results from isolated country studies. Lastly, unlike the majority of studies on health consequences of intergenerational mobility, we used diagonal reference models that do not conflate mobility effects with effects of the positions of origin and destination (van der Waal et al., 2017).

Two limitations of this study should be also noted. First, strictly speaking, we do *not* claim establishing causal relationship between individuals' intergenerational educational mobility experience and their psychological ill-health. This is chiefly because we use cross-sectional data that do not allow us to rule out the possibility of reverse causation as predicted by social selection theory. Although studies using high quality longitudinal data largely find support for social causation rather than social selection in the risk of developing depressive symptoms (Anderson, 2018; Hudson, 2005; Ritsher et al., 2001), it is possible that, for example, the downwardly mobile had more depressive symptoms than their immobile counterparts before they completed their educational careers, i.e., before we can establish whether or

not they experienced any educational mobility. However, we believe that the first step in any social research is that of ‘establishing the phenomena’ through a sophisticated description. Specifying and testing the processes at the level of individual action and interaction that then generate the regularities observed would require data and analysis of different kinds to those we use in the present study. But getting the *explananda* right to begin with is essential.

Second, our primary interest in this study was in *commonalities* across countries in the effects of intergenerational mobility on depressive symptoms. For this reason, we included in all of our models country fixed-effects, in order to control away, as far as possible, all the country-specific characteristics that can affect individuals’ risks of developing depressive symptoms and also the link between intergenerational mobility and depression. This research design inevitably allows for a possibility that the findings are not equally applicable to all countries in our sample. It is for future research to investigate how far the established link between intergenerational educational mobility and depressive symptoms is moderated by macro-institutional characteristics, such as the type of the welfare state or the degree of educational and economic inequality.

5. Conclusions

Based on our research, the following three main conclusions can be reached. First, in regard to psychological ill-health, the direction of intergenerational social mobility does matter: upward mobility is likely to protect individuals from depressive symptoms, while downward mobility is likely to increase the risks of depression. Second, our results show marked gender differences in the consequences of intergenerational educational mobility for depressive symptoms, highlighting a possible avenue for further research in this field. Third, in order to give a rigorous and sophisticated description of the relationship between social origins, intergenerational educational mobility and depressive symptoms, one has to be aware of the consequences of using different conceptualisations of the individual attributes that serve the basis of defining social mobility, and one has to employ appropriate statistical techniques, such as diagonal reference models.

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Table 1: Descriptive statistics for explanatory
and control variables

| | Percentage/mean (SD) |
|------------------------------------|----------------------|
| <i>Level of relative education</i> | |
| Parents' | |
| Bottom tertile | 45.1% |
| Middle tertile | 28.1% |
| Top tertile | 25.8% |
| Respondent's | |
| Bottom tertile | 38.7% |
| Middle tertile | 28.8% |
| Top tertile | 32.5% |
| <i>Control variables</i> | |
| Gender | |
| Men | 46.5% |
| Women | 53.5% |
| Age | 45.7 (11.6) |
| Marital status | |
| Never married | 26.4% |
| Married | 58.0% |
| Separated | 0.8% |
| Divorced | 11.7% |
| Widowed | 3.1% |
| Residential area | |
| Rural | 34.5% |
| Urban | 65.5% |
| Migration | |
| Born in survey country | 93.0% |
| Born in another country | 7.0% |
| Employment status | |
| Not employed | 29.9% |
| Employed | 70.1% |
| Class position (most recent) | |
| Salariat | 41.0% |
| Intermediate class | 34.9% |
| Working class | 21.1% |
| Out of labour market | 2.9% |
| Survey wave | |
| 6 th round (2012) | 57.2% |
| 7 th round (2014) | 42.8% |

Note: Analytical sample size: 52,773. *Source:* Authors' calculations based on data from ESS (2012-2014)

Table 2: Standardised mean score of depressive symptoms (with 95% confidence intervals) by the joint distribution of parents' and respondents' highest level of relative education

| Parents' education (tertiles) | Respondents' education (tertiles) | | |
|-------------------------------|-----------------------------------|----------------------|----------------------|
| | Bottom | Middle | Top |
| Bottom | 0.13 [0.11, 0.15] | -0.06 [-0.08, -0.04] | -0.15 [-0.17, -0.13] |
| <i>N</i> | 13,626 | 6,251 | 4,433 |
| Middle | 0.01 [-0.01, 0.03] | -0.10 [-0.12, -0.08] | -0.20 [-0.22, -0.18] |
| <i>N</i> | 4,896 | 5,401 | 4,554 |
| Top | 0.03 [-0.01, 0.07] | -0.04 [-0.08, 0.00] | -0.20 [-0.22, -0.18] |
| <i>N</i> | 1,889 | 3,557 | 8,166 |

Source: Authors' calculations based on data from ESS (2012-2014)

Table 3: Effects of parental education and intergenerational educational mobility on individuals' depressive symptoms, pooled sample of men and women, coefficients from diagonal reference models

| | Model 1 | Model 2 | Model 3 |
|--|-----------------------------------|-----------------------------------|-----------------------------------|
| Weight for parental education | 0.417 [0.268, 0.565] | 0.597 [0.440, 0.755] | 0.481 [0.251, 0.712] |
| <i>Mobility effects (immobile=ref)</i> | | | |
| Upward mobility | -0.065 [-0.099, -0.030] | — | — |
| Downward mobility | 0.039 [0.000, 0.078] | — | — |
| Upward mobility (one-step) | — | -0.079 [-0.114, -0.045] | -0.054 [-0.089, -0.020] |
| Upward mobility (two-steps) | — | -0.152 [-0.207, -0.096] | -0.092 [-0.152, -0.033] |
| Downward mobility (one-step) | — | 0.073 [0.038, 0.108] | 0.051 [0.013, 0.088] |
| Downward mobility (two-steps) | — | 0.098 [0.028, 0.167] | 0.059 [-0.010, 0.129] |
| <i>Estimated mean scores of depressive symptoms for the immobile</i> | | | |
| u ₁₁ (Top tertile) | -0.021 [-0.176, 0.133] | -0.010 [-0.164, -0.144] | -0.865 [-1.070, -0.658] |
| u ₂₂ (Middle tertile) | 0.065 [-0.094, 0.223] | 0.056 [-0.103, 0.214] | -0.810 [-1.019, -0.600] |
| u ₃₃ (Bottom tertile) | 0.296 [0.142, 0.450] | 0.303 [0.148, 0.457] | -0.636 [-0.842, -0.429] |
| <i>Control variables</i> | | | |
| Gender (female=ref) | — | — | -0.130 [-0.146, -0.113] |
| Age | — | — | 0.055 [0.049, 0.062] |
| Age-squared | — | — | -0.001 [-0.001, -0.001] |
| Marital status (single=ref) | | | |
| Married | — | — | -0.231 [-0.253, -0.210] |
| Separated | — | — | 0.249 [0.135, 0.364] |
| Divorced | — | — | 0.098 [0.064, 0.132] |
| Widowed | — | — | 0.232 [0.172, 0.291] |
| Employment status (unemployed=ref) | — | — | -0.345 [-0.366, -0.324] |
| Residential area (rural area=ref) | — | — | 0.071 [0.054, 0.089] |
| Migration (born in survey country=ref) | — | — | 0.202 [0.167, 0.236] |
| <i>Model fit</i> | | | |
| AIC | 145,716.5 | 145,637.9 | 142,262.0 |
| BIC | 145,778.6 | 145,966.3 | 142,679.0 |
| N | 52,773 | 52,773 | 52,773 |

Note: Statistically significant coefficients are in bold, and 95% confidence intervals are in parentheses. All models account for country and survey fixed-effect. *Source:* Authors' calculations based on data from ESS (2012-2014)

Table 4: Effects of parental education and intergenerational educational mobility on individuals' depressive symptoms, separately by gender, coefficients from diagonal reference models

| | Males | | | Females | | |
|---|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|
| | Model 1 | Model 3 | Model 3 | Model 1 | Model 3 | Model 3 |
| Weight for parental education | 0.615 [0.445, 0.785] | 0.702 [0.516, 0.888] | 0.651 [0.386, 0.915] | 0.256 [0.073, 0.440] | 0.412 [0.121, 0.704] | 0.208 [-0.287, 0.702] |
| <i>Mobility effects (immobile=ref)</i> | | | | | | |
| Upward mobility | -0.103 [-0.142, -0.065] | — | — | -0.035 [-0.086, 0.016] | — | — |
| Downward mobility | 0.064 [0.022, 0.105] | — | — | 0.031 [-0.024, 0.085] | — | — |
| Upward mobility (one-step) | — | -0.095 [-0.138, -0.052] | -0.065 [-0.106, -0.025] | — | -0.059 [-0.012, 0.003] | -0.018 [-0.009, 0.054] |
| Upward mobility (two-steps) | — | -0.169 [-0.228, -0.110] | -0.111 [-0.168, -0.053] | — | -0.105 [-0.224, 0.013] | -0.030 [-0.180, 0.121] |
| Downward mobility (one-step) | — | 0.079 [0.038, 0.119] | 0.054 [0.014, 0.094] | — | 0.064 [-0.005, 0.134] | 0.022 [-0.064, 0.108] |
| Downward mobility (two-steps) | — | 0.090 [0.010, 0.169] | 0.058 [-0.017, 0.133] | — | 0.089 [-0.043, 0.220] | 0.010 [-0.145, 0.165] |
| <i>Estimated mean scores of depressive symbols for the immobile</i> | | | | | | |
| u ₁₁ (Top tertile) | 0.214 [0.000, 0.427] | 0.217 [0.004, 0.431] | -0.645 [-0.929, -0.361] | -0.125 [-0.451, -0.019] | -0.228 [-0.447, -0.009] | -1.166 [-1.461, -0.871] |
| u ₂₂ (Middle tertile) | 0.239 [0.022, 0.455] | 0.231 [0.012, 0.450] | -0.636 [-0.925, -0.348] | -0.102 [-0.322, 0.119] | -0.108 [-0.334, 0.116] | -1.07 [-1.371, -0.770] |
| u ₃₃ (Bottom tertile) | 0.468 [0.255, 0.681] | 0.470 [0.257, 0.685] | -0.477 [-0.762, -0.194] | 0.145 [-0.073, 0.363] | 0.150 [-0.070, 0.369] | -0.881 [-1.177, -0.585] |
| <i>Control variables</i> | | | | | | |
| Age | — | — | 0.059 [0.050, 0.068] | — | — | 0.053 [0.044, 0.062] |
| Age-squared | — | — | -0.001 [-0.001, -0.001] | — | — | -0.001 [-0.001, -0.000] |
| Marital status (single=ref) | | | | | | |
| Married | — | — | -0.219 [-0.248, -0.190] | — | — | -0.235 [-0.266, -0.204] |
| Separated | — | — | 0.327 [0.159, 0.494] | — | — | 0.197 [0.042, 0.351] |
| Divorced | — | — | 0.106 | — | — | 0.090 |

| | | | | | | |
|--|----------|----------|------------------|----------|----------|------------------|
| | — | — | [0.056, 0.156] | — | — | [0.043, 0.137] |
| Widowed | — | — | 0.364 | — | — | 0.192 |
| | — | — | [0.242, 0.487] | — | — | [0.122, 0.263] |
| Employment status (unemployed=ref) | — | — | -0.433 | — | — | -0.283 |
| | — | — | [-0.466, -0.401] | — | — | [-0.310, -0.256] |
| Residential area (rural area=ref) | — | — | 0.078 | — | — | 0.062 |
| | — | — | [0.055, 0.102] | — | — | [0.037, 0.087] |
| Migration (born in survey country=ref) | — | — | 0.225 | — | — | 0.183 |
| | — | — | [0.176, 0.275] | — | — | [0.134, 0.231] |
| <i>Model fit</i> | | | | | | |
| AIC | 65,025.7 | 64,924.6 | 63,112.7 | 79,941.3 | 79,944.2 | 78,731.7 |
| BIC | 65,082.5 | 65,208.4 | 63,485.7 | 80,230.0 | 80,249.4 | 79,111.1 |
| N | 24,529 | 24,529 | 24,529 | 28,244 | 28,244 | 28,244 |

Note: Statistically significant coefficients are in bold, and 95% confidence intervals are in parentheses. All models account for country and survey fixed-effect.

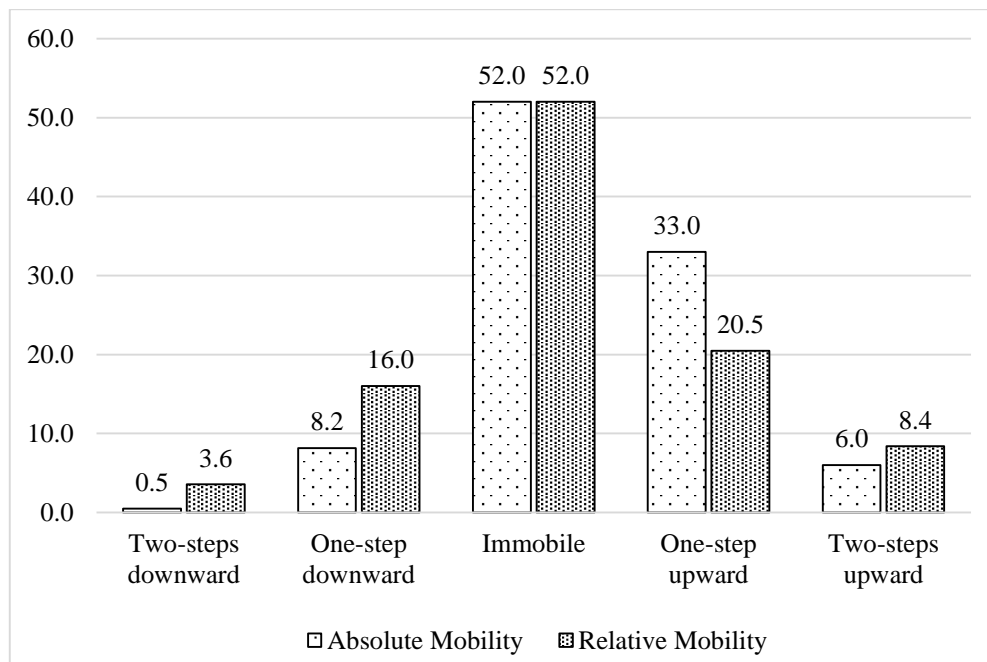
Source: Authors' calculations based on data from ESS (2012-2014)

Table 5: Effects of parental education and intergenerational educational mobility on individuals' depressive symptoms, allowing for current class position, coefficients from diagonal reference models

| | Overall sample | Males | Females |
|---|-----------------------------------|-----------------------------------|-----------------------------------|
| Weight for parental education | 0.443 [0.218, 0.667] | 0.603 [0.361, 0.846] | 0.154 [-0.391, 0.700] |
| <i>Mobility effects (immobile=ref)</i> | | | |
| Upward mobility (one-step) | -0.036 [-0.063, -0.009] | -0.042 [-0.075, -0.008] | -0.007 [-0.064, 0.005] |
| Upward mobility (two-steps) | -0.055 [-0.099, -0.012] | -0.062 [-0.106, -0.018] | -0.008 [-0.127, 0.112] |
| Downward mobility (one-step) | 0.037 [0.006, 0.068] | 0.032 [-0.002, 0.067] | 0.020 [-0.052, 0.092] |
| Downward mobility (two-steps) | 0.037 [-0.019, 0.093] | 0.021 [-0.042, 0.084] | 0.008 [-0.120, 0.135] |
| <i>Estimated mean scores of depressive symbols for the immobile</i> | | | |
| u ₁₁ (Top tertile) | -0.924 [-1.133, -0.716] | -0.695 [-0.982, -0.408] | -1.235 [-1.535, -0.937] |
| u ₂₂ (Middle tertile) | -0.914 [-1.125, -0.703] | -0.734 [-1.024, -0.444] | -1.181 [-1.484, -0.878] |
| u ₃₃ (Bottom tertile) | -0.781 [-0.989, -0.572] | -0.614 [-0.901, -0.327] | -1.037 [-1.337, -0.737] |
| <i>Control variables</i> | | | |
| Gender (female=ref) | -0.136 [-0.153, -0.120] | — | — |
| Age | 0.056 [0.050, 0.062] | 0.059 [0.050, 0.068] | 0.054 [0.044, 0.063] |
| Age-square | -0.001 [-0.001, -0.001] | -0.001 [-0.001, -0.001] | -0.001 [-0.001, -0.000] |
| Marital status (single=ref) | | | |
| Married | -0.225 [-0.246, -0.204] | -0.214 [-0.243, -0.185] | -0.229 [-0.260, -0.198] |
| Separated | 0.250 [0.136, 0.364] | 0.330 [0.164, 0.497] | 0.194 [0.040, 0.349] |
| Divorced | 0.100 [0.066, 0.134] | 0.108 [0.058, 0.157] | 0.091 [0.045, 0.138] |
| Widowed | 0.229 [0.170, 0.289] | 0.364 [0.243, 0.486] | 0.187 [0.117, 0.258] |
| Employment status (unemployed=ref) | -0.338 [-0.359, -0.317] | -0.432 [-0.366, -0.399] | -0.272 [-0.300, -0.244] |
| Residential area (rural area=ref) | 0.078 [0.061, 0.096] | 0.086 [0.062, 0.110] | 0.068 [0.043, 0.093] |
| Migration (born in survey country=ref) | 0.189 [0.154, 0.224] | 0.214 [0.164, 0.263] | 0.168 [0.120, 0.216] |
| Class position (salariat=ref) | | | |
| Intermediate | 0.074 [0.054, 0.094] | 0.085 [0.056, 0.113] | 0.068 [0.039, 0.096] |
| Working | 0.186 [0.161, 0.211] | 0.170 [0.137, 0.203] | 0.208 [0.168, 0.248] |
| Out of labour market | 0.057 [-0.001, 0.116] | -0.012 [-0.119, 0.094] | 0.085 [0.014, 0.156] |
| <i>Model fit</i> | | | |
| AIC | 142,051.0 | 63,006.2 | 78,624.3 |
| BIC | 142,494.7 | 63,403.5 | 79,028.5 |
| N | 52,773 | 24,529 | 28,244 |

Note: Statistically significant coefficients are in bold, and 95% confidence intervals are in parentheses. All models account for country and survey fixed-effect. *Source:* Authors' calculations based on data from ESS (2012-2014)

Figure 1: Distribution of respondents by experience of intergenerational educational mobility; parents' and respondents' education defined in relative and absolute terms (%)



Source: Authors' calculations based on data from ESS (2012-2014)

Table A1: Distribution of the sample by countries; and the results of the principal component analysis of the Center for Epidemiological Studies Depression Scale

| <i>Countries</i> | Response rate in 2012 | Response rate in 2014 | % in total sample | Factor 1 | |
|------------------|--------------------------|--------------------------|----------------------|------------|------------|
| | | | | Eigenvalue | Proportion |
| Austria | -- | 51.6% | 2.2% | 3.44 | 0.43 |
| Belgium | 58.7% | 57.0% | 4.1% | 3.51 | 0.44 |
| Bulgaria | 74.7% | -- | 2.5% | 4.43 | 0.55 |
| Czech Republic | 68.4% | 67.9% | 4.3% | 3.38 | 0.42 |
| Cyprus | 76.8% | -- | 1.3% | 4.24 | 0.53 |
| Denmark | 49.1% | 51.9% | 3.5% | 4.08 | 0.51 |
| Estonia | 67.8% | 59.9% | 4.8% | 3.23 | 0.40 |
| Finland | 67.3% | 62.7% | 5.0% | 3.32 | 0.41 |
| France | 52.1% | 50.9% | 4.4% | 3.68 | 0.46 |
| Germany | 33.8% | 31.4% | 6.8% | 4.04 | 0.51 |
| Hungary | 64.5% | 52.7% | 2.3% | 3.19 | 0.40 |
| Ireland | 67.9% | 60.7% | 5.8% | 3.58 | 0.45 |
| Israel | 78.1% | 74.4% | 5.1% | 3.66 | 0.46 |
| Iceland | 54.7% | -- | 0.8% | 4.18 | 0.52 |
| Italy | 36.0% | -- | 1.0% | 4.02 | 0.50 |
| Lithuania | 49.6% | 68.9% | 4.3% | 3.62 | 0.45 |
| The Netherlands | 55.1% | 58.6% | 4.4% | 3.40 | 0.43 |
| Norway | 54.9% | 53.9% | 3.7% | 3.57 | 0.45 |
| Poland | 74.9% | 65.8% | 4.0% | 4.14 | 0.52 |
| Portugal | 77.1% | 43.0% | 3.7% | 3.59 | 0.45 |
| Russia | 67.0% | -- | 2.6% | 3.16 | 0.39 |
| Slovenia | 57.7% | 52.3% | 2.8% | 4.07 | 0.51 |
| Slovakia | 74.1% | -- | 2.2% | 3.92 | 0.49 |
| Spain | 70.3% | 67.9% | 4.5% | 3.73 | 0.47 |
| Sweden | 52.4% | 50.1% | 3.9% | 3.37 | 0.42 |
| Switzerland | 51.7% | 52.7% | 3.6% | 3.88 | 0.48 |
| Ukraine | 59.1% | -- | 2.0% | 3.48 | 0.43 |
| United Kingdom | 53.1% | 43.6% | 4.3% | 3.72 | 0.47 |

Note: Total sample size is 52,773. *Source:* Authors' calculations based on data from ESS (2012-2014)

Table A2: Effects of parental education and intergenerational educational mobility in *absolute* terms on individuals' depressive symptoms, pooled sample of men and women, coefficients from diagonal reference models

| | Model 1 | Model 2 | Model 3 | Model 4 |
|---|--------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|
| Weight for parental education | 0.221 [0.102, 0.340] | 0.420 [0.289, 0.552] | 0.420 [0.200, 0.641] | 0.348 [0.142, 0.554] |
| <i>Mobility effects (immobile=ref)</i> | | | | |
| Upward mobility | -0.008 [-0.046, 0.031] | — — | — — | — — |
| Downward mobility | 0.033 [-0.008, 0.073] | — — | — — | — — |
| Upward mobility (one-step) | — — | -0.053 [-0.089, -0.017] | -0.045 [-0.086, -0.003] | -0.021 [-0.053, 0.010] |
| Upward mobility (two-steps) | — — | -0.140 [-0.210, -0.070] | -0.115 [-0.196, -0.034] | -0.065 [-0.127, -0.004] |
| Downward mobility (one-step) | — — | 0.069 [0.029, 0.108] | 0.041 [-0.001, 0.084] | 0.027 [-0.009, 0.063] |
| Downward mobility (two-steps) | — — | 0.184 [0.035, 0.333] | 0.146 [-0.002, 0.294] | 0.119 [-0.019, 0.256] |
| <i>Estimated mean scores of depressive symbols for the immobile</i> | | | | |
| u ₁₁ (Top tertile) | -0.013 [-0.166, 0.141] | 0.009 [-0.146, 0.163] | -0.857 [-1.064, -0.650] | -0.912 [-1.121, -0.701] |
| u ₂₂ (Middle tertile) | 0.132 [-0.022, 0.286] | 0.125 [-0.029, 0.280] | -0.757 [-0.963, -0.550] | -0.866 [-1.074, -0.658] |
| u ₃₃ (Bottom tertile) | 0.453 [0.296, 0.610] | 0.457 [0.300, 0.614] | -0.532 [-0.741, -0.322] | -0.685 [-0.896, -0.473] |
| <i>Control variables</i> | | | | |
| Gender (female=ref) | — — | — — | -0.126 [-0.143, -0.110] | -0.133 [-0.150, -0.117] |
| Age | — — | — — | 0.056 [0.049, 0.062] | 0.056 [0.050, 0.062] |
| Age-square | — — | — — | -0.001 [-0.001, -0.001] | -0.001 [-0.001, -0.001] |
| Marital status (single=ref) | | | | |
| Married | — — | — — | -0.231 [-0.252, -0.210] | -0.225 [-0.246, -0.204] |
| Separated | — — | — — | 0.242 [0.128, 0.356] | 0.244 [0.130, 0.358] |

| | | | | |
|--|-----------|-----------|------------------|------------------|
| Divorced | — | — | 0.100 | 0.102 |
| | — | — | [0.066, 0.134] | [0.068, 0.136] |
| Widowed | — | — | 0.229 | 0.227 |
| | — | — | [0.170, 0.289] | [0.168, 0.286] |
| Employment status (unemployed=ref) | — | — | -0.338 | -0.333 |
| | — | — | [-0.359, -0.317] | [-0.354, -0.311] |
| Residential area (rural area=ref) | — | — | 0.071 | 0.078 |
| | — | — | [0.053, 0.088] | [0.061, 0.096] |
| Migration (born in survey country=ref) | — | — | 0.188 | 0.178 |
| | — | — | [0.153, 0.223] | [0.143, 0.213] |
| Class position (salarial=ref) | | | | |
| Intermediate | — | — | — | 0.077 |
| | — | — | — | [0.057, 0.097] |
| Working | — | — | — | 0.182 |
| | — | — | — | [0.157, 0.207] |
| Out of labour market | — | — | — | 0.045 |
| | — | — | — | [-0.013, 0.103] |
| <i>Model fit</i> | | | | |
| AIC | 145,462.0 | 145,454.1 | 142,203.2 | 141,997.4 |
| BIC | 145,772.6 | 145,782.4 | 142,620.2 | 142,441.1 |
| N | 52,773 | 52,773 | 52,773 | 52,773 |

Note: Statistically significant coefficients are in bold, and 95% confidence intervals are in parentheses. All models account for country and survey fixed-effect. *Source:* Authors' calculations based on data from ESS (2012-2014)

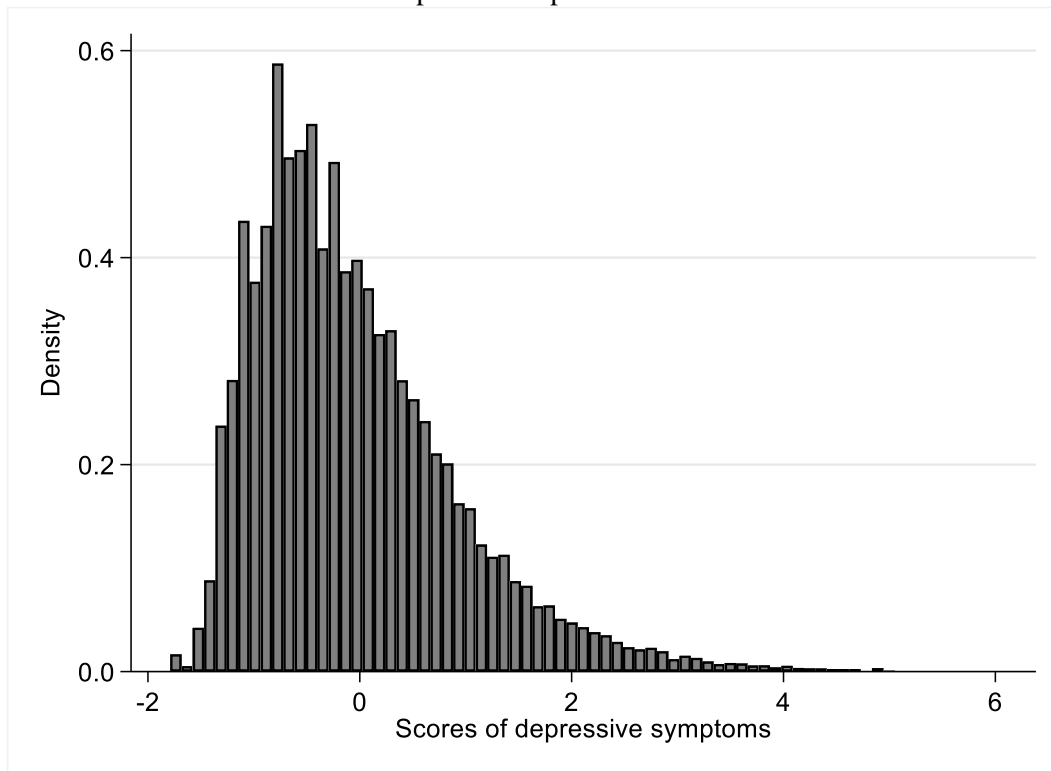
Table A3: Effects of father's education on men's depressive symptoms and effects of mother's education on women's depressive symptoms, coefficients from diagonal reference models

| | Males | | | Females | | |
|---|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|
| | Model 1 | Model 3 | Model 3 | Model 1 | Model 3 | Model 3 |
| Weight for parental education | 0.647 [0.463, 0.831] | 0.735 [0.541, 0.930] | 0.720 [0.438, 1.000] | 0.139 [0.000, 0.329] | 0.428 [0.154, 0.702] | 0.283 [-0.125, 0.690] |
| <i>Mobility effects (immobile=ref)</i> | | | | | | |
| Upward mobility | -0.108 [-0.147, -0.068] | — | — | 0.008 [-0.047, 0.062] | — | — |
| Downward mobility | 0.074 [0.032, 0.116] | — | — | -0.023 [-0.080, 0.033] | — | — |
| Upward mobility (one-step) | — | -0.095 [-0.141, -0.049] | -0.072 [-0.116, -0.027] | — | -0.046 [-0.109, 0.017] | -0.016 [-0.081, 0.049] |
| Upward mobility (two-steps) | — | -0.176 [-0.233, -0.120] | -0.119 [-0.175, -0.064] | — | -0.112 [-0.227, 0.002] | -0.054 [-0.183, 0.075] |
| Downward mobility (one-step) | — | 0.087 [0.047, 0.127] | 0.062 [0.023, 0.101] | — | 0.033 [-0.034, 0.099] | 0.006 [-0.070, 0.081] |
| Downward mobility (two-steps) | — | 0.103 [0.025, 0.182] | 0.071 [-0.004, 0.146] | — | 0.126 [-0.007, 0.259] | 0.058 [-0.084, 0.200] |
| <i>Estimated mean scores of depressive symbols for the immobile</i> | | | | | | |
| u ₁₁ (Top tertile) | 0.214 [-0.003, 0.432] | 0.220 [0.002, 0.439] | -0.643 [-0.932, -0.353] | -0.258 [-0.476, -0.041] | -0.246 [-0.467, -0.025] | -1.163 [-1.461, -0.865] |
| u ₂₂ (Middle tertile) | 0.229 [0.007, 0.451] | 0.220 [-0.006, 0.447] | -0.643 [-0.940, -0.345] | -0.114 [-0.337, 0.108] | -0.125 [-0.354, 0.104] | -1.070 [-1.374, -0.765] |
| u ₃₃ (Bottom tertile) | 0.450 [0.234, 0.666] | 0.454 [0.237, 0.673] | -0.488 [-0.777, -0.198] | 0.139 [-0.082, 0.360] | 0.146 [-0.076, 0.368] | -0.866 [-1.165, -0.567] |
| <i>Control variables</i> | | | | | | |
| Age | — | — | 0.058 [0.049, 0.067] | — | — | 0.053 [0.043, 0.062] |
| Age-squared | — | — | -0.001 [-0.001, -0.001] | — | — | -0.001 [-0.001, -0.000] |
| <i>Marital status (single=ref)</i> | | | | | | |
| Married | — | — | -0.211 [-0.241, -0.181] | — | — | -0.233 [-0.265, -0.202] |
| Separated | — | — | 0.327 [0.155, 0.491] | — | — | 0.184 [0.028, 0.340] |
| Divorced | — | — | 0.106 | — | — | 0.100 |

| | | | | | | |
|--|----------|----------|------------------|----------|----------|------------------|
| | — | — | [0.047, 0.149] | — | — | [0.053, 0.147] |
| Widowed | — | — | 0.372 | — | — | 0.199 |
| | — | — | [0.245, 0.499] | — | — | [0.128, 0.270] |
| Employment status (unemployed=ref) | — | — | -0.426 | — | — | -0.281 |
| | — | — | [-0.459, -0.393] | — | — | [-0.309, -0.254] |
| Residential area (rural area=ref) | — | — | 0.077 | — | — | 0.061 |
| | — | — | [0.053, 0.101] | — | — | [0.036, 0.087] |
| Migration (born in survey country=ref) | — | — | 0.224 | — | — | 0.180 |
| | — | — | [0.173, 0.274] | — | — | [0.131, 0.229] |
| <i>Model fit</i> | | | | | | |
| AIC | 61,229.2 | 61,223.1 | 59,555.4 | 78,429.5 | 78,429.6 | 77,239.9 |
| BIC | 61,511.2 | 61,521.2 | 59,926.0 | 78,717.6 | 78,734.1 | 77,618.5 |
| N | 23,322 | 23,322 | 23,322 | 27,738 | 27,738 | 27,738 |

Note: Statistically significant coefficients are in bold, and 95% confidence intervals are in parentheses. All models account for country and survey fixed-effect. *Source:* Authors' calculations based on data from ESS (2012-2014)

Figure A1: Distribution of average factor scores of depressive symptoms on the pooled sample of countries



Source: Authors' calculations based on data from ESS (2012-2014)