



Grandparenting, education and subjective well-being of older Europeans

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Published online: 20 March 2018
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Abstract

We study whether grandparenthood is associated with older people's subjective well-being (SWB), considering the association with life satisfaction of having grandchildren per se, their number, and of the provision of grandchild care. Older people's education may not only be an important confounder to control for, but also a moderator in the relation between grandparenthood-related variables and SWB. We investigate these issues by adopting a cross-country comparative perspective and using data from the Survey of Health, Ageing and Retirement in Europe covering 20 countries. Our results show that grandparenthood has a stronger positive association with SWB in countries where intensive grandparental childcare is not common and less socially expected. Yet, this result is driven by a negative association between grandparenthood without grandparental childcare and SWB that we only found in countries where intensive grandparental childcare is widespread. Therefore, in accordance with the structural ambivalence theory, we argue that in countries where it is socially expected for grandparents to have a role as providers of childcare, not taking on such a role may negatively influence SWB. However, our results show that grandparental childcare (either intensive or not) is generally associated with higher SWB. Overall, we do not find support for a moderating effect of education. We also do not find striking differences by gender in the association between grandparenthood and SWB. The only noteworthy discrepancy refers to grandmothers being often more satisfied when they provide grandchild care.

Keywords Grandparenthood · Grandchild care · Subjective well-being · Education · Cross-country comparison · SHARE

Background

In ageing societies, where the overlapping lives of grandparents and grandchildren are longer than ever before, grandparenthood is a central stage in later life (Leopold and Skopek 2015; Margolis 2016). Grandparents' role is also beneficial for the society in terms of integrating or substituting (costly) services offered by the market and (scarce) public provision (Hagestad 2006; Albertini et al. 2007; Mare 2011; Aassve et al. 2012; Glaser et al. 2013; Arpino et al. 2014; Di Gessa et al. 2016).

Yet, research on the association between grandparenthood and grandparents' subjective well-being (SWB) is scarce. Moreover, indirect evidence investigating health outcomes provides contradicting results. This study examines whether grandparenthood is associated with SWB. In doing so, we consider the multidimensionality of grandparenthood: (1) grandparenthood per se (i.e. being grandparent), (2) number of grandchildren, (3) grandparental childcare. SWB is measured as life satisfaction, a broad indicator of a person's well-being at a certain point in time.

Responsible Editors: Karsten Hank, Karen Glaser (guest editors) and Marja J. Aartsen.

Electronic supplementary material The online version of this article (<https://doi.org/10.1007/s10433-018-0467-2>) contains supplementary material, which is available to authorized users.

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In line with the conceptual work on social capital and SWB that emphasises a moderating role of social inequality (Umberson 1992), we investigate the association between grandparenthood and grandparents' SWB across educational groups and cultural contexts. Education, as one of the individual's major social structural characteristics, affects the outcomes of social relationships (Umberson 1992). In investigating the extent to which the association between grandparenthood and grandparents' SWB differs across educational groups, both a positive and a negative moderating role might be at play (see also King and Elder 1998; Silverstein and Marengo 2001; Mahne and Huxhold 2015).

As grandparenthood per se and grandparental childcare prevalence vary considerably across countries (Hank and Buber 2009; Leopold and Skopek 2015; Bordone et al. 2017), the moderating effect of education in its association with SWB is also expected to vary across Europe. Neuberger and Haberkern (2014) suggest that the role of grandparents can either meet or contradict social expectations and norms. These are in turn shaped by the strength of the support offered by the welfare state and can be perceived differently by individuals in different educational groups. Therefore, using a cross-country comparative approach, we account for cross-country variations to uncover the role of social norms as well as of welfare in the degree to which life satisfaction is associated with grandparenthood.

The multidimensionality of grandparenthood and its association with SWB

The existing literature has mainly focused on the contribution of socio-demographic characteristics to life satisfaction among grandparents, assuming a connotation of joy to be associated with grandparenthood (Sands et al. 2005). For example, Goodman and Silverstein (2006) studied the variation in custodial grandmothers' life satisfaction by ethnic group in the USA, showing that Latina grandmothers experience higher life satisfaction than African-American or White grandmothers. To our knowledge, only the unpublished work of Powdthavee (2011) offered a more general picture, showing that in the UK having grandchildren per se is positively associated with life satisfaction.

Being grandparent may provide grandparents with a range of positive experiences, including emotional closeness and strengthened generational ties through contact with grandchildren (Silverstein et al. 1998). Using German data, Mahne and Huxhold (2015) showed that contact frequency with and emotional closeness to grandchildren generally boost positive aspects of SWB.

Yet, a study on subjective age in the USA (Bordone and Arpino 2016) suggested that the "grandparenthood effect" may be a compound outcome of several dimensions often ignored or investigated separately in the literature. Therefore,

we first distinguish between grandparents and grandchild-less respondents; among grandparents, we then differentiate in terms of number of grandchildren, and by frequency of grandparental childcare (intensive, non-intensive, or none).

Considering measures of age identity, USA studies found that to a higher number of grandchildren corresponds an older feeling (Barak and Gould 1985) and a greater desired age (Kaufman and Elder 2003). This might suggest that those with more grandchildren are overwhelmed by their role as grandparents, but also somewhat more satisfied with their own ageing. However, Moore and Rosenthal (2015) found no correlation between number of grandchildren and life satisfaction among Australian non-custodial grandmothers.

Directly linked to grandparenthood are informal roles of caregiving which may correlate with grandparents' SWB according to the frequency of engagement. Drawing on the buffering hypothesis (Cohen and Wills 1985), we may assume that in the same way as social integration predicts well-being, mortality, and health outcomes (see Berkman and Glass 2000 for a review), the involvement in grandparental childcare may buffer older people's SWB. Moore and Rosenthal (2015), for example, showed that frequency of grandparental childcare is positively correlated with life satisfaction of Australian grandmothers. However, a study based in Barcelona (Spain) found that grandparental childcare is a source of positive emotions, independently on its intensity (Triadó et al. 2014).

Also the growing number of studies investigating the impact of grandparental childcare on grandparents' health showed mixed results. Studies on non-custodial grandchild care, both in Europe and in the USA, tend to report positive associations with health (Hughes et al. 2007; Arpino and Bordone 2014; Di Gessa et al. 2016). Negative consequences of grandparental childcare have been found for custodial grandparents' physical and psychological health (Minkler and Fuller-Thomson 1999; Grinstead et al. 2003). However, in a qualitative American study, Waldrop and Weber (2001) found beneficial effects of custodial grandparenting on grandparents' lifestyle, while Ates (2017) found no significant associations between non-custodial grandchild care and self-rated health in Germany. These heterogeneous findings might depend on the degree of involvement (Coall and Hertwig 2011) as well as on the social (Mahne and Huxhold 2015) and cultural context considered (Neuberger and Haberkern 2014).

Grandparenthood and its gendered nature

A vast literature shows that grandmothers provide more grandchild care than grandfathers do, attributing such gender difference to the gendered tasks, responsibilities, and expectations traditionally associated with grandparenthood

(Kaufman and Elder 2003; Stelle et al. 2010; Winefield and Air 2010). Leopold and Skopek (2014) showed that such gender gap follows the North–South geographical gradient in the family–state division of caring responsibilities and the societal framing of gender roles. Investigating further such a gender gap is central in view of, for example, the increasing grandmothers' participation in the workforce that will make women more likely than men to experience competing roles in later life.

Mixed evidence exists on the gendered effects of grandparental childcare on health. In the USA, Hughes et al. (2007) found better self-reported health and fewer functional limitations only among grandmothers. Similarly, Grundy et al. (2012) showed that Chilean grandmothers, but not grandfathers, who provided grandparental childcare had a lower risk of depression. However, other studies did not find substantial differences by gender (e.g. Arpino and Bordone 2014 on cognitive functioning).

Yet, only a few studies have directly examined the gender gap in life satisfaction linked to grandparenthood. In this respect, Grundy et al. (2012) found that Chilean grandfathers engaged in grandparental childcare were more satisfied with their lives, but such effect was not found for grandmothers. Winefield and Air (2010) suggested that grandmothers belonging to older generations were more satisfied in their grandparental role than grandfathers because they viewed it as an extension of their maternal role. Marital and work lifecycle characteristics might differ by gender and also contribute to the gender gap in the association between grandparenthood and SWB (Price et al. 2015).

We therefore stratify the analyses by gender. Following Bordone and Arpino (2016), we argue that if a gender gap in the association between grandparenthood and SWB exists, this is mainly driven by grandparental childcare and it is larger in contexts where the responsibilities in childcare are gendered, with grandmothers more engaged in the welfare of the child (e.g. feeding, changing clothing/nappies, and bathing) and grandfathers more involved in entertaining the grandchildren.

Education as selective and moderating force

It is well established in the literature that people with lower levels of education are, on average, less satisfied with their life, partly because they are more exposed to stressors and less able to cope with them (Meeks and Murrell 2001). However, the role that education may exert, as both a selective force and a moderator, in the association between grandparenthood and SWB remains a notable gap in the literature.

Education acts as a selective force into grandparenthood because the likelihood of being grandparent, having more grandchildren, and engaging in grandchild care differs

according to observable (e.g. fertility history, labour market participation) and unobservable (e.g. values, preferences) factors associated with education. Educational gradients in fertility (Kravdal and Rindfuss 2008) suggest a stratification of the experience of grandparenthood as the combined outcome of fertility in successive family generations. Skopek and Leopold (2017) examined for the first time educational differences in the transition to grandparenthood among the German population born between 1933 and 1938. The likelihood of becoming a grandmother was much lower among (West) German women with higher levels of education as compared to their counterparts with lower education. No educational differences were found in the chance of becoming a grandfather and in the occurrence and timing of higher-parity transitions.

Education is also selective with respect to grandparental childcare, serving as a resource that makes grandparents with higher levels of education better integrated in the family network (Eggebeen and Hogan 1990). In fact, previous studies on the same data we use have found that the likelihood of grandparental childcare is positively associated with education (e.g. Igel and Szydlik 2011; Arpino and Bordone 2014; Di Gessa et al. 2016). However, a reversed association emerged when intensity of care was considered: grandparents with higher education are less likely to provide intensive childcare. In fact, preferences for a longer participation in the labour market, hobbies, and social activities of grandparents with higher education tend to reduce the intensity of their childcare provision (Dimova and Wolff 2008; Arpino and Bordone 2017).

Given that grandparents with higher (lower) education are likely to also have children with higher (lower) education, a higher demand for childcare to grandparents with higher education may also result from aspects linked to the higher educational attainments of their children. Education is positively associated with values that promote female employment and grandparents may be an important source of childcare, especially in contexts with weak welfare provision. However, higher education is also positively associated with externalisation of childcare to the market or the state, higher likelihood to afford market services (Arpino et al. 2014), and higher geographical mobility. This would hint to a higher demand for intensive grandparental childcare among grandparents with lower levels of education.

Education may also act as a moderator of the association between grandparenthood and SWB. How grandparenthood is experienced can largely vary according to grandparents' educational level. Education provides opportunities and knowledge that affect the actualisation and outcomes of the grandparent role (King and Elder 1998; Silverstein and Marengo 2001). One may argue in favour of a more positive association between grandparenthood and SWB for people with higher education because they are better able to

cope with negative life events including stress due to their grandparental role (Mahne and Huxhold 2015). Conversely, grandchildren may play a less important role in shaping the SWB of people with higher education as their SWB may be influenced by a wider range of activities both within and outside the family. For example, grandparents with higher education may face higher opportunity costs in the decision to reduce their labour market participation in favour of grandchild care.

Cross-country differences

In countries where formal childcare coverage is minimal, such as Mediterranean countries and Poland, the family bears the main care responsibilities (Saraceno and Keck 2010). There, grandparents act as a substitute for the weak childcare system and when they provide childcare they do it daily. Bordone et al. (2017) identified other two models of grandparental childcare in Europe. In Nordic countries and France, grandparents take on a secondary role, intervening when needed. Most of the Western European countries and the Czech Republic represent an intermediate model, where grandparents are involved in childcare with a lower frequency than in the first model but higher than in the second (usually on a weekly basis).

Neuberger and Haberkern (2014) argued that the role of grandparents as providers of care to grandchildren may be more or less socially expected, depending on the context. Using the concept of structural ambivalence, defined as the contradiction between behaviour and cultural norms, they suggest that in countries where grandparental childcare is expected, not engaging in grandchild care may generate negative feelings and therefore decrease grandparents' SWB. Conversely, in countries with low social expectations towards grandparenting, grandparents who provide grandchild care may feel obliged to do so, experiencing a lower SWB. The effects of dimensions of grandparenthood different from grandparental childcare might be similar. Indeed, being grandparent may provide grandparents with the (context-specific) satisfaction of fulfilling normative expectations (Silverstein et al. 1998).

Following these arguments, we hypothesise stronger positive associations between grandparenthood and SWB in countries where (intensive) grandparental childcare is more common (e.g. Mediterranean countries). In these countries, we also expect larger education differences, because grandparenthood is normative for everybody, but childcare is taken on intensively mainly by grandparents with lower education.

Data and method

We use data from the Survey of Health, Ageing and Retirement in Europe (SHARE), a panel survey representative of

the non-institutionalised population aged 50 and older in Europe and Israel (Börsch-Supan et al. 2013, 2017a, b, c, d). We pooled interviews from waves 2, 4, 5, and 6. Wave 1 includes a different scale for measuring life satisfaction and wave 3 (SHARELIFE) only collected retrospective information. Our analyses focus on 20 countries (Austria, Belgium, Croatia, Czech Republic, Denmark, Estonia, France, Germany, Greece, Hungary, Israel, Italy, Luxembourg, the Netherlands, Poland, Portugal, Slovenia, Spain, Sweden, and Switzerland). We excluded Ireland because of its limited number of observations.

We selected respondents aged 50–84 years at the time of interview and with at least one child. In this way, we avoid selection effects when considering grandchildless people (i.e. grandchildlessness in our sample is a consequence of the children's behaviour and not of respondents' childlessness).

Dependent variable

Our dependent variable is life satisfaction, measured with the widely used Satisfaction with Life Scale: "On a scale from 0 to 10 where 0 means completely dissatisfied and 10 means completely satisfied, how satisfied are you with your life?". This allows respondents to integrate and weight various life domains the way they choose (Pavot and Diener 1993; see Arpino and De Valk 2017 for a recent use on European data).

Explanatory variables

SHARE asks the respondents how many grandchildren they have. We derive from this information the dummy variable *being grandparent* (1 = yes; 0 = no) and the categorical variable *number of grandchildren* (0—reference; 1 or 2; 3+). Then, grandparents are asked whether during the 12 months before the interview they have looked after any grandchild without the presence of the parents (*yes; no*). Those answering positively are additionally asked how often they engaged in grandchild care (*almost daily; almost every week; almost every month; less often*). Based on this information, we constructed the variable *grandparental childcare*, distinguishing grandchildless respondents, grandparents who do not engage in grandparental childcare, grandparental childcare on a non-intensive basis, and intensive grandparental childcare (i.e. at least weekly).

Education and country dummies are more than control variables in our study, as we also consider them as possible moderators. SHARE classifies *educational attainments* according to the ISCED categories. However, especially for the cohorts considered, the meaning of various levels of education differs across Europe, with Nordic countries already reporting considerably higher prevalence of tertiary

Table 1 Sample sizes and descriptive statistics (mean) on subjective well-being (SWB) and education by gender and grandparenthood

Grandparenthood-related variables	Women				Men			
	SWB	Education	<i>N</i>	<i>n</i>	SWB	Education	<i>N</i>	<i>n</i>
Grandchildless	7.65	69.82	25,479	15,145	7.76	71.98	24,171	14,462
Grandparents (all)	7.53	61.01	80,278	37,581	7.69	67.19	59,256	28,406
1–2 grandchildren	7.49	64.19	31,098	15,400	7.66	68.86	24,013	12,165
3+ grandchildren	7.55	59.00	49,180	22,181	7.71	66.05	35,243	16,241
Grandparent no care	7.22	58.03	28,919	13,695	7.46	65.97	19,850	10,325
Not intensive care	7.67	64.22	13,501	6424	7.90	70.09	9046	4420
Intensive care	7.63	62.35	17,677	8702	7.79	68.73	9279	4667
Total	7.50	63.41	105,757	52,726	7.69	69.31	83,427	42,868

SWB subjective well-being; education is measured in relative terms: for each individual, we calculated the percentage of people (of the same gender and in the same country) with a lower level of education than his/her one. *N* number of observations (individuals \times waves), *n* number of individuals

educational attainment than Mediterranean countries. Following Kalmijn (2013), we use a relative measure of education. For each individual, we calculate the percentage of people (of the same gender and in the same country) with a lower level of education than his/her one. This rank gives a continuous measure that also simplifies the models. Descriptive statistics on life satisfaction and education by gender and grandparenthood are shown in Table 1. Despite the interesting patterns of association between grandparenthood and SWB, we should note that these descriptive differences between groups might be due to compositional effects.

Control variables

All the analyses control for age (50–54—reference; 55–59; 60–64; 65–69; 70–74; 75–79; 80–84), marital status (married or cohabiting with a partner—reference; never married; divorced/separated; widowed), employment status (retired—reference; working; other), number of children, whether the respondent lives in a rural (= 1) or urban (= 0) area. To disentangle the role of education from that of the household economic condition, we control for the total household net income transformed in a relative measure within countries similarly to what was done for the education variable. Moreover, we included a dummy variable indicating whether the respondent has any long-standing illnesses and the GALI (Global Activity Limitation Indicator; = 1 for respondents declaring that, because of health, are “limited, but not severely” or “severely limited” in activities people usually do; = 0 otherwise). Dummies for survey waves are also included. The analyses are stratified by gender.

Methodological approach

We use linear regression models with clustered robust standard errors to account for within-individual correlation (see Table 1 for sample sizes). In the first set of regression models

(Models 1–10 in Table 2), we include the grandparenthood-related explanatory variables, one at a time, together with the controls (full estimates are available in Supplementary Tables S1 and S2). These “pooled” models estimate cross-country average associations of grandparenthood-related variables with SWB. Model 1 adds only education as explanatory variable. The following models include each grandparenthood-related variable separately, first without (Models 2, 5 and 8) and then with (Models 3, 6 and 9) the control for education to assess the selection into grandparenthood/grandparental childcare by education. Finally, interactions between education and the grandparenthood-related variables are added to assess the moderating role of education (Models 4, 7 and 10).

In the second set of analyses, the grandparenthood-related explanatory variables are interacted with education and country dummies to investigate cross-country variability. To interpret the substantive magnitude of the estimated effects, we should mention that the SWB literature usually considers marginal effects of around 0.2 points on the 11-point life satisfaction scale to be of substantive interest (e.g. Balbo and Arpino 2016).

Given that education is centred on the grand mean, in the models including interactions between education and the grandparenthood-related variables, the coefficients of the latter can be interpreted as their marginal effects for people who occupy an average education rank.

Results

Pooled models

Model 1 in Table 2 shows that the association of education with SWB is positive and statistically significant, for both women and men. Additionally, its size does not change noticeably when including the grandparenthood variables (Models 3, 6 and 9).

Table 2 Estimated coefficients from linear regression models on life satisfaction, by gender (robust standard errors in parentheses)

Explanatory variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
<i>Women</i>										
Education	0.34*** (0.02)		0.35*** (0.02)	0.33*** (0.04)	0.03* (0.02)	0.36*** (0.02)	0.33*** (0.05)		0.37*** (0.03)	0.33*** (0.05)
Grandparent (ref.: not)		0.06*** (0.01)	0.07*** (0.01)	0.07*** (0.02)						
Education * grandparent				0.03 (0.04)						
1–2 grandchildren (ref.: 0)				0.03* (0.02)	0.05*** (0.02)		0.05** (0.02)			
3+ grandchildren				0.09*** (0.02)	0.12*** (0.02)		0.11*** (0.02)			
Education * 1–2 grandchildren							–0.02 (0.06)			
Education * 3+ grandchildren							0.07 (0.06)			
Grandparent no care (ref.: grandchildless)								–0.07*** (0.02)	–0.04* (0.02)	–0.04* (0.02)
Not intensive care								0.09*** (0.02)	0.11*** (0.02)	0.10*** (0.03)
Intensive care								0.15*** (0.02)	0.17*** (0.02)	0.16*** (0.02)
Education * grandparent, no care										0.03 (0.06)
Education * not intensive care										0.06 (0.07)
Education * intensive care										0.07 (0.07)
<i>N</i>	105,757	105,757	105,757	105,757	105,757	105,757	105,757	85,576	85,576	85,576
<i>Men</i>										
Education	0.27*** (0.02)		0.28*** (0.02)	0.24*** (0.04)		0.28*** (0.03)	0.24*** (0.04)		0.30*** (0.03)	0.24*** (0.04)
Grandparent (ref.: not)		0.06*** (0.01)	0.07*** (0.01)	0.06*** (0.02)						
Education * grandparent				0.06 (0.05)						
1–2 grandchildren (ref.: 0)				0.04** (0.02)	0.05*** (0.02)		0.04* (0.02)			
3+ grandchildren				0.09*** (0.02)	0.10*** (0.02)		0.09*** (0.02)			
Education * 1–2 grandchildren							0.04 (0.06)			

Table 2 (continued)

Explanatory variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Education * 3+ grandchildren							0.07 (0.06)			
Grandparent no care (ref.: grandchildless)								-0.04* (0.02)	-0.02 (0.02)	-0.05** (0.03)
Not intensive care								0.09*** (0.02)	0.10*** (0.02)	0.11*** (0.03)
Intensive care								0.10*** (0.02)	0.11*** (0.02)	0.09*** (0.03)
Education * grandparent, no care										0.17** (0.07)
Education * not intensive care										-0.06 (0.08)
Education * intensive care										0.09 (0.08)
N	83,427	83,427	83,427	83,427	83,427	83,427	83,427	62,346	62,346	62,346

All the models control for age, marital status, employment status, number of children, whether the respondent lives in a rural area; whether the respondent has any long-standing illnesses; GALI; country and survey waves

* $p < 0.5$; ** $p < 0.01$; *** $p < 0.001$. Full estimates available in supplementary tables S.1 and S.2

Being grandparent

Models 2–4 present the results for the association of grandparenthood per se with SWB. Model 2 indicates that both grandmothers and grandfathers are significantly more satisfied with their life as compared to their grandchildless counterparts.

When controlling for education (Model 3), for both women and men the gap in the predicted values of SWB between grandparents and grandchildless individuals slightly increase. This is due to a negative selection into grandparenthood on education, i.e. people with higher levels of education are less likely to be grandparent (see Table 1; see also Skopek and Leopold 2017). Despite its statistical significance, the association between being grandparent and SWB is small in magnitude (0.07 points).

The estimates in Model 4 indicate a small and not statistically significant interaction between education and being grandparent for both men and women.

Number of grandchildren

Models 5–7 include as main explanatory variable the number of grandchildren. Model 5 shows that the number of grandchildren is positively associated with SWB for both grandmothers and grandfathers. When adjusting for education (Model 6), we observe that the association between the number of grandchildren and SWB becomes slightly stronger. This again is due to the negative association between number of grandchildren and education (Table 1). As for grandparenthood per se, the interactions between education and the dummies for number of grandchildren are not statistically significant (Model 7).

Grandchild care

Models 8–10 focus on grandparental childcare. Models 8 and 9 demonstrate an interesting pattern of results that is independent of the control for education. For both women and men, having grandchildren but not providing any grandchild care is associated with a lower SWB compared to being grandchildless. On the contrary, providing care to grandchildren is associated with higher SWB compared to grandchildlessness. Such association is slightly stronger for women when intensive childcare is considered: women who look after their grandchildren on a regular basis are on average 0.17 points more satisfied with their life than their grandchildless counterparts. These results suggest that it is not grandparenthood per se that matters but the engagement with grandchildren, here measured by grandparental childcare.

Model 10 shows that the interactions between education and the categories of the grandchild care variable are not statistically significant. Remarkably, the only exception is for grandfathers who do not provide childcare: as the relative education position increases, the association between not looking after grandchildren and SWB for men is reduced and turns to be insignificant or even positive for very high values of education.

Cross-country variability

Models 4, 7 and 10 presented above were re-estimated to include interactions of country dummy variables with grandparenthood-related variables and education. This allows us to assess heterogeneity in the association between grandparenthood and SWB and variations in the moderating effect of education across countries. Given the complexity of the estimated regression models (involving three-way interactions), we present these results graphically. Complete regressions' estimates are available upon request. In all figures, countries are sorted according to the percentage of daily grandparental childcare (from lowest on the left-hand side to highest on the right-hand side).

Being grandparent

Figure 1 shows the association of being grandparent with SWB by gender, country, and education. Marginal effects are calculated for each country at two substantially different levels of education, corresponding to the first and third quartiles. The marginal effects vary substantially by country, but in an unexpected way: for both women and men, in countries located on the left-hand side of the graph, characterised by the lowest percentages of intensive grandparental involvement in childcare, being grandparent tends to be positively and statistically significantly associated with SWB. On the contrary, and especially for men, in countries located on the right-hand side, the marginal effects tend to be small and statistically insignificant.

Within countries, education does not moderate the association between grandparenthood per se and SWB. In all countries (with the exception of France, Estonia, Slovenia, and Italy for women and of Estonia and Portugal for men), the marginal effect of being grandparent is roughly the same (and not statistically different) across education ranks. This corresponds to insignificant interactions between grandparenthood per se and education, independently of the interaction with country dummies (results not shown but available upon request).

Number of grandchildren

Also for the association between number of grandchildren and SWB, we found no statistically significant moderating role of education: the association between number of grandchildren and SWB for people with education rank equal to the third quartile was statistically indistinguishable from that calculated for those at the first quartile. This was true in each country. Therefore, for simplicity we show the marginal effect of number of grandchildren by country averaging out education (and all other variables, Fig. 2). As Fig. 1, also Fig. 2 reports substantial heterogeneity by country. In countries on the left-hand side of the graph (e.g. Switzerland, France, and Estonia), where intensive grandparental childcare is less common, having more grandchildren is associated with higher SWB. However, the association with SWB of having (more) grandchildren tends to be insignificant or even negative for countries on the right-hand side of the graph, as it is the case for Spanish women with 3 or more grandchildren. Overall, patterns of associations are similar across genders.

Grandchild care

Figure 3 shows an interesting pattern of association between grandparental childcare and SWB across countries. As for number of children, we do not find a moderating effect of education. Therefore, we only present marginal effects by country and gender. For both women and men in Southern European countries and other countries on the right-hand side of the graph, grandparents not looking after grandchildren (first panel) tend to report lower SWB as compared to grandchildless people. In other countries, the SWB of the two groups does not differ significantly. Interestingly, in most of the countries grandparents who look after their grandchildren tend to report significantly higher SWB than their grandchildless counterparts, independently of the intensity. This is particularly true for grandmothers, who are more often more satisfied with their life when they provide grandchild care than grandfathers. These associations are not only statistically significant but also substantial as the marginal effects, when statistically significant, often take values between 0.2 and 0.3 points (on the life satisfaction scale). Exceptions to the positive marginal effect of grandchild care are found for Greek and Portuguese grandmothers, and Israeli grandfathers.

Discussion and conclusions

Using SHARE data, this paper investigated the association of having grandchildren per se, number of grandchildren, and grandparental childcare with SWB across different

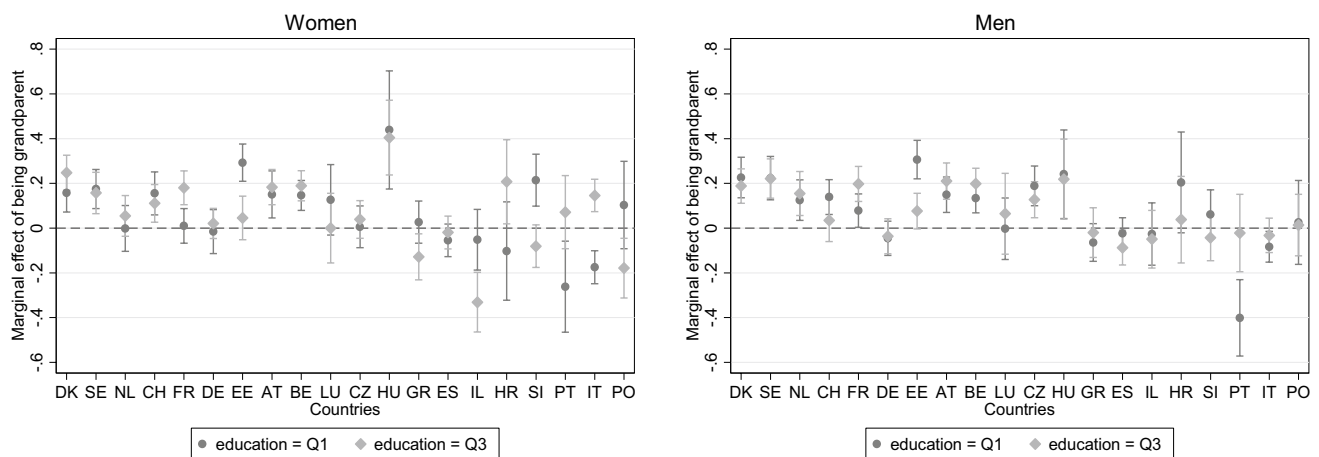


Fig. 1 Marginal effects of being grandparent on SWB by gender, country, and measured at two levels of the education rank (Q1 = first quartile, Q3 = third quartile). *Note:* DK Denmark, SE Sweden, NL Netherlands, CH Switzerland, FR France, DE Germany, EE Estonia, AT Austria, BE Belgium, LU Luxembourg, CZ Czech Republic, HU Hungary, GR Greece, ES Spain, IL Israel, HR Croatia, SI Slovenia, PT Portugal, IT Italy, PO Poland. All the analyses control for

age, marital status, employment status, number of children, whether the respondent lives in a rural area; whether the respondent has any long-standing illnesses; GALI; survey waves. Confidence intervals are centred on the point estimates and have lengths equal to $2 \times 1.39 \times$ standard errors to have an average level of 5% for the Type I error probability in the pair-wise comparisons

countries. Additionally, we considered the moderating role of education in the relationship between grandparenthood and SWB.

Our multivariate analyses indicate that grandparents are, on average, more satisfied with their lives than grandchildless people, especially if they have 3 or more grandchildren. However, this “grandparenthood effect” is mainly driven by the provision of grandchild care. Indeed, grandparents who never look after their grandchildren are less satisfied with their lives as compared to their grandchildless counterparts.

Overall, we found no striking difference by gender in the association of grandparenthood and its components with SWB. The only noteworthy discrepancy refers to grandmothers who, in most countries, are found to be more satisfied when they provide grandchild care. This result might be driven by the fact that grandmothers are usually more socially expected to provide care to their grandchildren, thereby perceiving lower costs and more rewards associated with such a role.

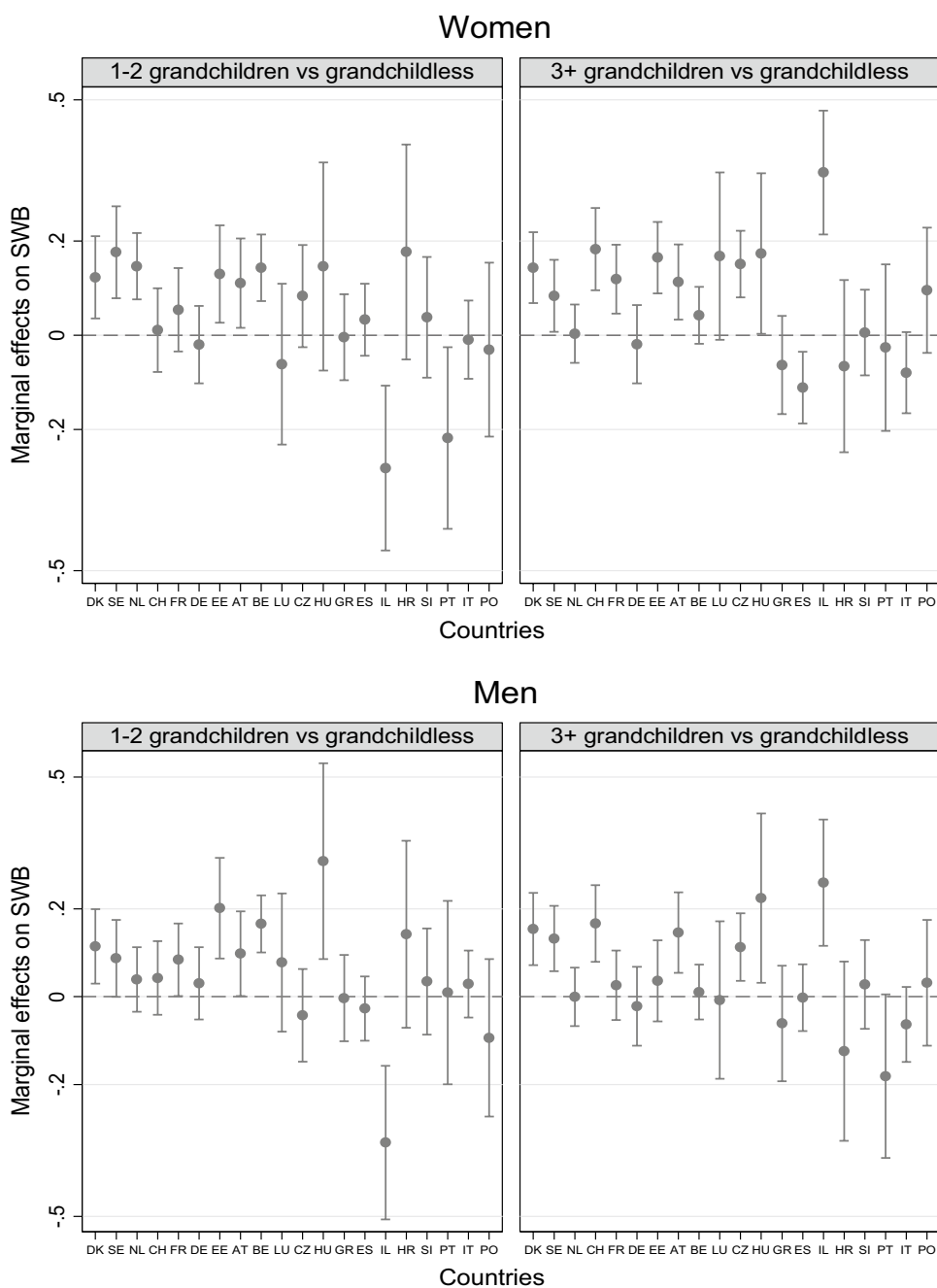
The null finding about the moderating effect of education confirms the results of Mahne and Huxhold (2015) on Germany. They find that education acts as a moderator for negative aspects of SWB such as loneliness, but not for the positive ones (e.g. life satisfaction). We argued that education may influence grandparents’ SWB according to two alternative mechanisms. On the one hand, being highly educated may imply the opportunity to engage in a variety of social activities, thereby reducing the relative importance of the role of grandparenthood on SWB or even increasing the costs associated with it. On the other hand, people with higher education may be better able to use their family ties

as a barrier against any negative life event or stressor. Our findings, however, showed no moderating effect of education in the association between grandparenthood and life satisfaction. Such a result may suggest that the two opposite mechanisms might cancel each other out, regardless of the cultural and institutional context in which the grandparent lives. Testing separately the two possible moderating mechanisms of education will be allowed, however, only with data on grandparents’ values, preferences, and social activities. We leave it to future research.

As for cross-country heterogeneities, we found unexpected differences in the association between grandparenthood and SWB by country: the (positive) association between grandparenthood and SWB is stronger in countries where intensive grandparental childcare is less common and thereby less socially expected. Yet, this result was driven by a negative association between grandparenthood without doing grandparental childcare and SWB that we found in countries where intensive grandchild care is widespread. Therefore, in accordance with the structural ambivalence theory, we argue that in countries where it is socially expected for grandparents to have a role as providers of childcare, those who do not take on such a role are likely to experience lower SWB. However, grandparental childcare (either intensive or not) was found to be associated with higher SWB in almost all countries.

The present work prepares the ground for further research that may, for example, examine how other grandparenthood-related aspects (e.g. emotional relatedness, non-childcare contacts, financial transfers, etc.) are associated with SWB in different countries.

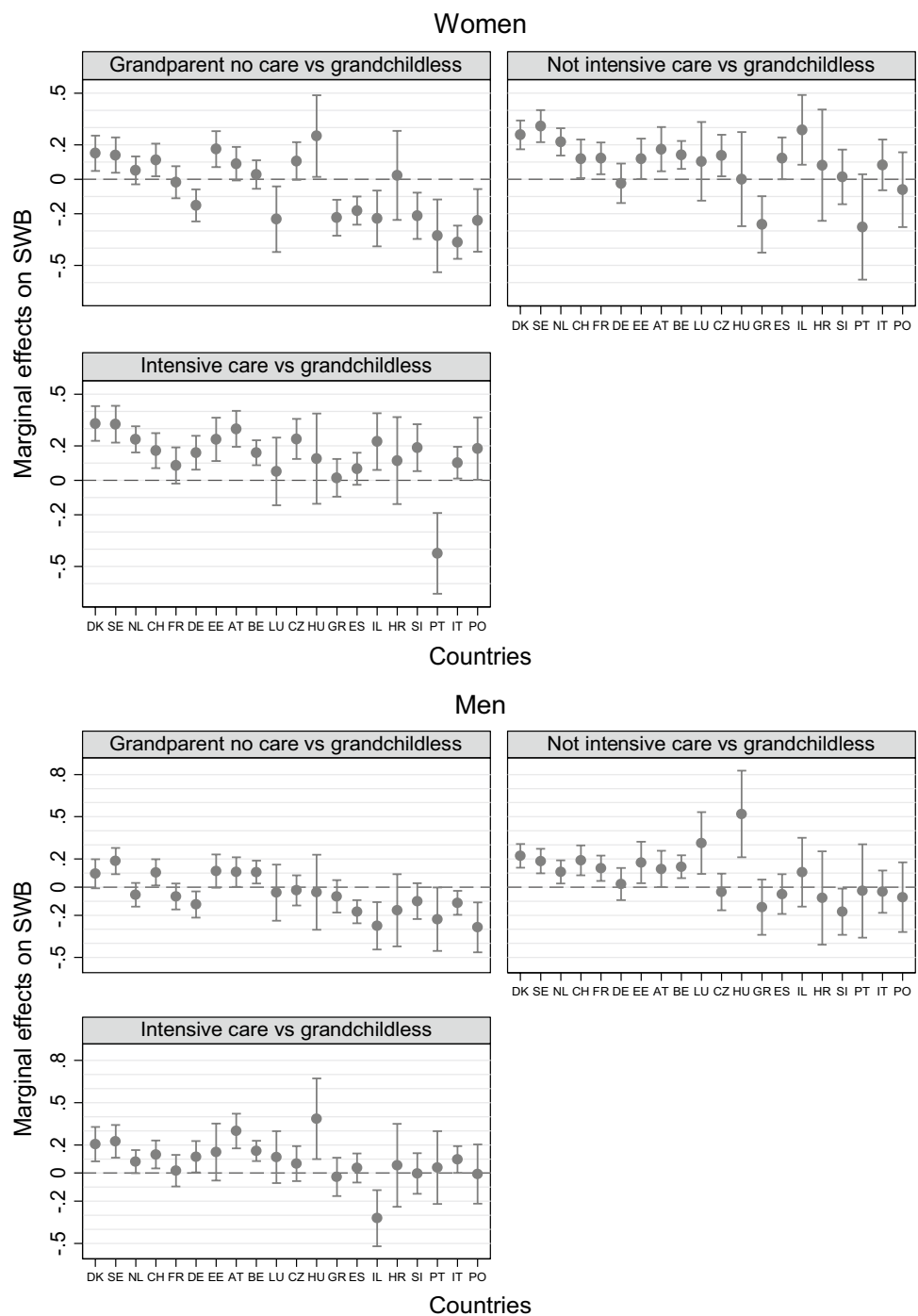
Fig. 2 Marginal effects of the number of grandchildren on SWB, by gender and country. *Note: DK* Denmark, *SE* Sweden, *NL* Netherlands, *CH* Switzerland, *FR* France, *DE* Germany, *EE* Estonia, *AT* Austria, *BE* Belgium, *LU* Luxembourg, *CZ* Czech Republic, *HU* Hungary, *GR* Greece, *ES* Spain, *IL* Israel, *HR* Croatia, *SI* Slovenia, *PT* Portugal, *IT* Italy, *PO* Poland. All the analyses control for age, marital status, employment status, number of children, whether the respondent lives in a rural area; whether the respondent has any long-standing illnesses; GALL; survey waves. Confidence intervals for pair-wise comparisons at 5% as in Fig. 1



Our work could be expanded by considering the economic component of grandparents' socio-economic status. We focused on the moderating role of education and adjusted for financial resources by controlling for the net household income. Financial resources influence SWB at any age but they are particularly important in later life because of the general decline in financial capacity due to retirement and higher health-related expenses (Litwin and Sapir 2009). Education and financial resources are generally positively correlated, although in our data the correlation was not very strong (between 0.21 and 0.32 across countries). Additional

analyses not controlling for income (available upon request) showed an even stronger association of education with SWB without changing the moderating effect of education. Further, financial resources could be considered as another, and independent (on education), factor that may influence grandparents' well-being. This might shed more light on whether richer grandparents gain more from grandparenthood than their less well-off counterparts. They might, for example, transfer more resources to their (grand)children (Albertini and Kohli 2013), and this giving behaviour may increase their subjective well-being independently or in addition to

Fig. 3 Marginal effects of having grandchildren and providing intensive or not intensive grandparental childcare on SWB, by gender and country. Note: *DK* Denmark, *SE* Sweden, *NL* Netherlands, *CH* Switzerland, *FR* France, *DE* Germany, *EE* Estonia, *AT* Austria, *BE* Belgium, *LU* Luxemburg, *CZ* Czech Republic, *HU* Hungary, *GR* Greece, *ES* Spain, *IL* Israel, *HR* Croatia, *SI* Slovenia, *PT* Portugal, *IT* Italy, *PO* Poland. All the analyses control for age, marital status, employment status, number of children, whether the respondent lives in a rural area; whether the respondent has any long-standing illnesses; GALL; survey waves. Confidence intervals for pair-wise comparisons at 5% as in Fig. 1



the well-being gained from contacts with the younger generations. Moreover, their provision of grandparental childcare on the side of the richer might be more likely a choice than for grandparents in poorer families. We believe that exploring these aspects will be a valuable contribution to the grandparenting literature and will complement the findings of our study.

Our study contributes to the European literature on the outcomes of grandparents by showing that grandparents

providing grandchild care tend to report a higher SWB as compared to grandparents who do not as well as to grandchildless individuals. This positive association holds in all countries studied and is slightly stronger for women.

Acknowledgements This study belongs to the multi-country project “Care, Retirement & Wellbeing of Older People Across Different Welfare Regimes” (CREW). Bruno Arpino acknowledges funding from the Spanish Ministry of Economy, Industry and Competitiveness

(PCIN-2016-005; PI: Bruno Arpino) within the second Joint Programming Initiative “More Years Better Lives”.

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