

Title: Becoming a grandparent and its effect on well-being: the role of order of transitions, time, and gender.

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Abstract

Objectives: Although the majority of older people are grandparents, little is known on whether and how the transition into grandparenthood affects their well-being. Moreover, evidence on whether the order of the transition, the time since grandchild's birth, and the socio-demographic characteristics of the offspring modify the grandparental well-being is scarce. Taking into account these factors, our study examines the association between becoming a grandparent and subsequent well-being.

Methods: Our study is based on grandparents aged 50 and over from waves 4-6 of the Survey of Health, Ageing and Retirement in Europe. Using longitudinal analyses, we investigate associations between becoming a grandparent and subsequent life satisfaction, positive affect, and depression controlling for demographic and socio-economic factors as well as health and well-being at baseline. Furthermore, we explore the role of modifying factors such as whether the grandchild was first-born, the time since transition, and socio-demographic characteristics of the offspring who became a parent.

Results: Becoming a grandparent has a positive effect on well-being only among women who became grandmothers for the first time and via their daughters. Moreover, this effect is particularly strong in the proximity of the birth of the grandchild. No effects were found among first-time grandfathers. Having an additional grandchild does not affect well-being of grandparents, regardless of the offspring's characteristics.

Discussion: Transitioning to grandparenthood *per se* does not affect well-being. More research is needed to further investigate if interpersonal relationships and changes in roles triggered by becoming a grandparent could help promote well-being in later life.

Key words: transition to grandparenthood, life satisfaction, depressive symptoms, longitudinal analyses, Europe

Introduction

Grandparenthood is a central role for people in later life, with the majority of individuals aged 50 and over having faced such transition (Glaser et al., 2013; Leopold & Skopek, 2015; Margolis, 2016). In answer to the recognised increasingly vital support of grandparents to their families by looking after grandchildren, most of the recent quantitative literature in the field has focussed on the caregiving role of grandparents and its effects on their health, their social engagement, as well as their daughters' labour market participation (Arpino, Pronzato, & Tavares, 2014; Bordone, Arpino, & Aassve, 2016; Danielsbacka, Tanskanen, Coall, & Jokela, 2019; Di Gessa, Glaser, Price, Ribe, & Tinker, 2016; Glaser et al., 2013; Hank & Buber, 2009; Lumsdaine & Vermeer, 2015). However, despite several calls to investigate the transition to grandparenthood (Cunningham-Burley, 1986; Hagestad & Lang, 1986; Thiele & Whelan, 2006), the impact of becoming a grandparent on well-being remains understudied.

Given the prevalence of grandparents and the important implications the transition to grandparenthood might have not only for the experience itself but also for its intersection with other life events, roles, and transitions, the present study aims to fill in this gap in the literature by providing new and robust evidence of the impact that becoming a grandparent has on well-being. Well-being is strongly linked with physical health (Stephoe, Demakakos, & de Oliveira, 2012) and there is growing interest in well-being as an indicator of societal progress among policymakers (Dolan, Layard, & Metcalfe, 2011). Thus, using data from the Survey of Health, Ageing and Retirement in Europe (SHARE), we investigate the longitudinal associations between becoming a grandparent and three important indicators of well-being (life satisfaction, positive affect, and depression) that account for the multidimensionality of this concept. Moreover, unlike the few previous studies on this topic (as reviewed below), we consider separately the first transition to grandparenthood and having an additional grandchild; we account for the length of time since the transition; and consider the role of socio-economic and demographic characteristics of the offspring who became a new parent (i.e., their gender, employment status, and marital status).

Background

In the aging literature, empirical evidence suggests that adult children's life-course transitions affect their parents' well-being (Pillemer, Fuller-Rowell, Reid, & Wells, 2010). Empirical evidence has shown that, for instance, negative events such as adult children's employment difficulties, illness, or marital disruption affect negatively parental well-being in later life, whereas children's marriage has positive effects (Kalmijn & De Graaf, 2012; Milkie, Bierman, & Schieman, 2008).

Adult children's parenthood is also likely to impact on parents' well-being, with both positive and negative effects. Evolutionary reasoning postulates that having grandchildren is associated with emotional benefits given the direct influence of grandparenting on genetic fitness (Hilbrand, Coall, Gerstorf, & Hertwig, 2017). Moreover, grandparents might welcome a grandchild already thinking of the opportunities subsequent to becoming a grandparent, such as interaction with, protection and nurturing of a grandchild, or passing on their knowledge to future generations. The transition into grandparenthood might also benefit older adults' well-being if it is considered as an avenue for improving upon the parenting they themselves provided or in the provision of emotional or financial support to their own child (Wells & Kendig, 1997). Furthermore, becoming a grandparent may also positively influence grandparents' well-being indirectly, that is through children's increased well-being due to their transition to parenthood (Batson & Powell, 2003). Evidence indeed suggests a positive effect of parenthood on well-being, particularly in the years around the childbirth (Balbo & Arpino, 2016; Myrskylä & Margolis, 2014). Finally, although childlessness has become more widely accepted (Noordhuizen, de Graaf, & Sieben, 2010), having (grand)children is still considered a more desirable state. As a result, parents could feel proud when their children become parents themselves, and this could positively affect their well-being (Kalmijn & De Graaf, 2012).

Despite the prevalence of theoretical arguments on the positive effect of grandparenthood on well-being, becoming a grandparent might also be associated with negative stereotypes of

ageing that might in turn negatively affect grandparents' well-being. Bordone and Arpino (2016), for example, found that grandparents felt older than non-grandparents if grandparenthood happened at ages when it is less common to be a grandparent. Furthermore, some of the above-mentioned perspectives, which postulate a positive effect of the transition into grandparenthood on well-being, rely on the assumption that positive life-course transitions of children would improve the parent-child relationship. Research on marriage, however, suggests that this may not always be the case (see Kalmijn and De Graaf (2012) for a discussion on this issue). The transition to grandparenthood may, for example, reactivate long-standing family conflicts, potentially resulting in loss of contact with the grandchild (Clarke, Preston, Raksin, & Bengtson, 1999) and negatively affecting grandparents' well-being (Neugarten & Weinstein, 1964).

Research to date on the relationship between becoming a grandparent and well-being is scarce and inconclusive. A few studies have examined the effect of *being* a grandparent on well-being, finding weak to no evidence that having grandchildren is associated with higher life satisfaction or happiness (Arpino, Bordone, & Balbo, 2018; Danielsbacka & Tanskanen, 2016). Given their cross-sectional nature, however, these studies did not consider the effect of *becoming* a grandparent on well-being. Studies that have investigated this issue using longitudinal data seem to suggest a positive effect of the transition into grandparenthood on well-being. An early longitudinal study for example found that new American grandparents who were re-surveyed one to two years after the birth of the grandchild reported that their "expected satisfaction of grandparenthood" was met, with grandmothers reporting greater satisfaction and overall meaning in grandparenthood than grandfathers (Somary & Strieker, 1998). Such findings, however, were based on a small non-nationally representative sample. Using two waves of a representative sample of the Dutch population and information on up to two randomly chosen children, Kalmijn and De Graaf (2012) found that parents whose adult children transitioned into parenthood had lower depression. More recently, Sheppard and Monden (2019), using a fixed-effects approach on SHARE data (the same used in here), found that becoming grandparents for the first time was

associated with fewer depressive symptoms (measured as a continuous variable) only among women. Our paper extends their work in several ways by explicitly considering the order of transition, the time since the birth of the grandchild, and the offspring's characteristics.

The few longitudinal studies which have considered the effect of grandparenthood on well-being so far have solely considered the first transition, i.e. the effect of becoming a grandparent. The implicit assumption is that, in line with the role theory, individuals would benefit from entering a new role. Therefore, although the grandparent role is multifaceted and it involves a number of expectations, obligations, behaviours, and meanings all of which contribute to well-being, it is argued that the relevance of the grandparent role is evaluated when the role is *first* acquired, that is when the *first* grandchild is born (Thiele & Whelan, 2006). Whereas findings on parents show that the transition to a second or third child has no effect on their level of life satisfaction (Pollmann-Schult, 2014), no previous studies have investigated whether also the effect of the birth of an additional grandchild on grandparents' well-being is indeed null. Moreover, studies on age identity –an important factor for well-being (Westerhof & Barrett, 2005)– found that the more grandchildren one has, the older an individual's age identity; however, having younger grandchildren is associated with a younger age identity (Barak & Stern, 1986; Kaufman & Elder, 2003), suggesting that an additional grandchild might affect individual's well-being in different ways.

Moreover, previous studies on the effect of the transition to grandparenthood on well-being often considered short follow-up periods of time (ranging between a few months to 1 year) and selected samples of respondents who were already aware at baseline that they would become grandparents (Condon, Luszcz, & McKee, 2018; Shlomo, Taubman, Findler, Sivan, & Dolizki, 2010; Somary & Strieker, 1998). It is therefore likely that the transition had no or little effect on their well-being as these individuals had, in a psychological sense, already undergone the transition at the time when they were informed about the pregnancy, possibly resulting in an anticipated increased well-being at baseline. Moreover, recent studies have shown that the positive

effect of childbirth on parents' well-being is stronger immediately before and after the transition to parenthood to then disappear (Balbo & Arpino, 2016; Myrskylä & Margolis, 2014). This short-term effect of parenthood is consistent with the set-point theory which postulates that individuals' well-being may change transiently in response to life events, but then returns to its baseline level as people habituate to those events (Headey & Wearing, 1989). A similar pattern may therefore also exist for grandparenthood.

Finally, although research on parenthood suggests an association between work and family domains on the one hand and well-being on the other, and points to a differential effect of having children on parents' well-being by gender, marital status, and employment (Nomaguchi & Milkie, 2003), none of the reviewed studies has explored whether these characteristics also moderate the well-being of those who transition into grandparenthood. In particular, both gender and lineage might potentially influence the interplay between the positive and negative aspects of the transition to grandparenthood (Jamieson, Ribe, & Warner, 2018; Shlomo et al., 2010). The extensive literature on domestic divisions of labour of parents suggests that women typically do more of the caring work than men, and that grandmothers provide more emotional support, grandchild care, and report greater contact with their grandchildren than grandfathers (Kaufman & Elder, 2003; Stelle, Fruhauf, Orel, & Landry-Meyer, 2010; Winefield & Air, 2010). Several researchers have put forward the idea of 'matrilineal advantage', with maternal grandparents (and particularly grandmothers) having closer and more privileged relationships with their daughters' children than the paternal grandparents (Chan & Elder, 2000; Jamieson et al., 2018). For instance, a study by Tanskanen (2017) using the German Panel Analysis of Intimate Relationships and Family Dynamics found that entry into parenthood was associated with increased contact frequency only among daughters and their own mothers (but not fathers) and a decreased emotional closeness and intimacy between sons and their own mothers. Among the reasons for maternal grandmothers' advantage are the gendered interconnections across generations, with mothers more likely to reach out for their own mothers who are often identified as the front line of a reserve army of childcarers,

providing flexible care for working mothers (Arber & Timonen, 2012; Di Gessa, Glaser, Price, et al., 2016). Indeed, studies which have investigated grandparent–grandchild relationships following marital disruptions of the middle generation tend to confirm the dominance of matrilineal kin and maternal grandmothers in particular (Dench & Ogg, 2002; Timonen, Doyle, & O'Dwyer, 2009). So far, the only two studies which have considered lineage in the effect of the transition to grandparenthood yielded mixed findings. Condon et al. (2018), using a convenience sample of Australian grandparents contacted during the pregnancy with the first grandchild and re-interviewed over the first year, found no differential effect by the gender of the offspring who became a new parent. Somary and Stricker (1998), instead, found higher satisfaction among a convenience sample of maternal grandparents. To our knowledge, moreover, no previous studies have also accounted for other socio-demographic characteristics of the new parent.

In summary, using a large and nationally representative longitudinal dataset, our study adds to the literature on grandparenthood and well-being in several respects. First, unlike previous studies, we investigate whether the effect is largest when older people take on the new role of grandparents for the first time by distinguishing first transitions from additional ones. Second, we investigate whether the potential effects on well-being are stronger closer to the birth of the grandchild. Third, we test the ‘matrilineal advantage’ that is if the effect of becoming a grandparent on well-being is higher among maternal grandmothers compared to paternal grandmothers. Finally, we assess if the effect of the transition is modified by other characteristics of the offspring who became parent, such as their marital and employment status.

Methods

Study Population

We based our study on SHARE, a multidisciplinary longitudinal survey of individuals aged 50 and over. Details of the survey’s sampling frames and methodology, weighting strategies and questionnaires have been reported elsewhere (<http://www.share-project.org/>). The first wave of

SHARE took place in 2004/05 with later waves conducted biennially. For our analyses, data were drawn from Waves 4, 5, and 6 of the survey. We restricted the sample to respondents who had at least one child and therefore were exposed to the “risk” of becoming a grandparent. Also, we only considered one observation for each respondent with available data for two subsequent waves (that is waves 4 and 5, or 5 and 6). In particular, we either used data from wave 4 and wave 5 or from wave 5 and wave 6 depending on the interval in which the first/additional grandchild was born. This way, for all respondents the time for the potential transition into grandparenthood is about 2 years. For respondents who took part in all three waves and experienced no transitions, we considered waves 4 and 5. We did not use previous waves because Wave 3 only collected information about respondents’ life history, and the initial two waves did not collect consistently information on life satisfaction (Wave 1) and positive affect (two of the outcome measures considered in this study – see below). Also, had we considered Wave 2 and Wave 4, the gap between interviews would have not been consistent and comparable to the one between following Waves. Our working sample consisted of N= 37,942 parents from Austria, Belgium, Switzerland, Germany, Denmark, Spain, France, Italy, the Netherlands, Sweden, Check Republic, Estonia, and Slovenia.

Measures

Outcome

Our key measures of well-being were life satisfaction, positive affect, and depressive symptoms. Life satisfaction was 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 & Diener, 1993). Positive affect was measured using the pleasure subcomponent of the CASP quality of life questionnaire (Pressman & Cohen, 2005). An example of a typical item would be “I enjoy the things I do” with response options *Never*, *Not often*, *Sometimes* and *Often*. Responses were summed up to form the enjoyment of life scale with

scores ranging from 0 to 12, where 12 indicated highest enjoyment of life. This variable was then dichotomised into maximum (i.e., 12 points; for about a quarter of respondents) versus submaximum positive affect (Vanhoutte & Nazroo, 2014). Finally, depressive symptoms were measured using the EURO-D 12-item scale, whose validity and reliability has been demonstrated in cross-cultural context (Prince et al., 1999). Respondents were asked whether they had experienced any depressive symptoms, such as being unhappy or having trouble sleeping, recently or in the month prior to interview. We classified those who reported four or more depressive symptoms on the EURO-D scale as reporting depressive symptoms. The cut-off of a score of 4 or more as an indicator of depressive symptomatology has previously been validated against a variety of relevant clinical assessments in Europe (Prince et al., 1999).

Measures of grandparenthood and offspring's characteristics

In all waves under study, respondents who had at least one child were asked whether they had any grandchildren. To a positive answer, followed questions on the total number of grandchildren and the number of grandchildren for each child. At follow-up, they were asked to report whether and which of their children had become parents of a new child between the two waves and the year the new grandchild was born. Triangulating these pieces of information, we were able to distinguish between those who were grandchildless at baseline and did not experience the transition into grandparenthood in the subsequent 2 years; those who became grandparents for the first time; those who were already grandparents and had no additional grandchildren; and those who had at least an additional grandchild by follow-up.

We were also able to create variables which summarised the characteristics of the child(ren) who had become parents of a new child, including their gender and their geographical distance (within 25 km vs farther away) from the respondent. The subset of analyses using this information was restricted to respondents who became grandparents for the first time and who had only 1 grandchild over the period of observation (that is about 83% of those who transitioned into grandparenthood or had an additional grandchild between Waves).

Finally, exploiting the information on interview date and year of birth of the grandchild, we created a measure of time since transition into grandparenthood. Initially, we distinguished between those whose grandchild was born in the same year as the interview and those whose grandchild was born earlier. However, given that half of the follow-up interview took place between January and April, we then decided that for these grandparents we would consider also births up to the year before the interview. This way we broadly distinguish between those who became grandparents between 0 and 16 months prior to the follow-up survey and those who transitioned between 16 and 24 months before the follow-up interview.

Other covariates

Previous studies have shown life satisfaction, positive affect, and depressive symptoms to be associated with demographic, socio-economic and health characteristics (Dolan, Peasgood, & White, 2008; Vink, Aartsen, & Schoevers, 2008). In addition, given widely documented differences in well-being and transitions to grandparenthood/role of grandparents across Europe, we also included country fixed effects in our analyses (Bordone et al., 2016; Di Gessa, Glaser, Price, et al., 2016; Leopold & Skopek, 2015).

We captured respondents' employment status as being in paid work, retired or 'other' (i.e. 'unemployed', 'permanently sick or disabled', 'homemaker' or 'other'). We measured wealth using tertiles based on the harmonized sum of the net value of properties, non-housing financial wealth and business assets. We also considered the harmonised after-tax total household income as a continuous variable. Both harmonised wealth and income variables were created by the RAND Corporation (for further details see <https://g2aging.org>). We re-coded educational qualifications into three categories using the International Standard Classification of Education where a low educational level is defined as below secondary education, and high educational level refers to a university education or above (<http://www.uis.unesco.org/>). We measured living arrangements using a dichotomous variable distinguishing between respondents who lived alone and those in other types of living arrangements (i.e. mostly living with a spouse or partner only).

We also controlled for both age and age squared as continuous variables (centred around 50) to account for the non-linear relationship between age and changes in well-being.

In addition to the three measures of well-being used as outcomes, we also assessed health at baseline using self-reports of doctor-diagnosed conditions such as heart disease and stroke (dichotomised as having no conditions versus at least one condition at baseline), and a categorical variable indicating the presence of longstanding illness (LSI), and whether this severely limited daily activities or not.

Statistical Analyses

Following descriptive analyses to explore the baseline characteristics of the study population, we used conditional change multiple regression models to examine associations between changes in grandparental status and the three measures of well-being at follow-up, adjusting for the relevant well-being at baseline (Howel, 2012) as well as for baseline socio-economic and health covariates, as listed above. Under this approach, the regression coefficients indicate how the explanatory variables are associated with changes in well-being over time, since the initial score was controlled for (Twisk, 2007). Due to the nature of the dependent variables, we used linear regression models when we analysed life satisfaction, and logistic regression models for positive affect and depression.

We run a series of separate models. First, restricting analyses to those who were not grandparents at baseline, we assessed whether becoming a grandparent for the first time had any effects on their well-being. Second, among those who were already grandparents, we tested if having an additional grandchild would affect their well-being. Third, we investigated whether the characteristics of the child who became a parent (for the first time or of an additional child) –such as their gender, marital and employment statuses, or geographical distance –would have a differential impact on the grandparents' well-being. Finally, we tested the effect of the time since the birth of the (first or additional) grandchild on the relationship between the transition to grandparenthood and well-being.

We carried out analyses separately for men and women. It is well known that grandparenting is a gendered experience carrying different expectations for behaviours and responsibilities for men and women (Stelle et al., 2010). It is therefore also likely that the transition into grandparenthood may have different effects on well-being.

Models were initially estimated using complete case analyses (not shown). However, given that about 15% of the sample had at least one missing value in the covariates, we used the MI approach assuming that data are missing at random (MAR) in order to increase the statistical power of our analyses. We created 20 imputed datasets separately by gender using chained equations. The results of these analyses were then combined using Rubin's rules (Little & Rubin, 2002). Since the results for the complete case and the imputed data sets were broadly similar, in this paper we present models for the imputed data sets restricted to respondents who had complete information for the outcomes considered. Although attrition is an issue in longitudinal studies and ignoring this could lead to biased results particularly when the outcome of interest is likely to be a key factor associated with both attrition and the main variable of interest (Di Gessa, Glaser, & Tinker, 2016), in this paper attrition is likely not to be selective as we focus on the transition into grandparenthood, which depends on adult-child's decision rather than on grandparent's own. All analyses were performed using Stata 15.

Results

Descriptive statistics

Table 1 shows the unadjusted well-being at follow-up for both men and women by sample characteristics. Overall, about 3% of the whole sample (or about 11% of those who were not grandparents at baseline) became grandparents, and about 12% had at least an additional grandchild. Table 1 also shows that among men there was no clear pattern of association between grandparental status and well-being, although those who had the first or an additional grandchild reported higher positive affect at follow-up. Among women, however, those who became

grandmothers for the first time or who had an additional grandchild reported higher life satisfaction, higher positive affect, and lower depression at follow-up than those who did not experience these transitions. Overall, as shown on the supplementary Tables S.1 and S.2, respondents in paid work, in the highest wealth tertile, not living alone, with high level of education, and who had better health at baseline were more likely to report higher well-being at follow-up.

Associations between transition into grandparenthood for the *first time* and well-being at follow-up

Table 2 and Table 3 show results from logistic and linear regression models which investigated associations between becoming respectively a grandfather and a grandmother for the first time and life satisfaction, positive affect, and depression at follow-up, controlling for baseline socio-economic and demographic characteristics and health.

Overall, for both men and women, no significant differences (at the 5% level) were observed between those who became grandparents for the first time and those who did not experience this transition. Associations with other baseline covariates were as expected: older respondents, not in paid work, in the lowest wealth tertile and with long-standing illness and chronic conditions were generally more likely to report poorer well-being at follow-up.

Table 4 shows selected results obtained when the above-mentioned characteristics of the child who became parent for the first time were considered. In particular, of the characteristics described above and summarised in supplementary Table S.3, we now focus on the gender and on the time since transition into grandparenthood as these were the only characteristics of the offspring significantly associated with measures of well-being (Results of all analyses which also consider marital status, employment status, and geographical distance of the offspring who became a parent are available from authors on request). Table 4 shows that the time since transition had a significant effect only on women's well-being: first-time grandmothers report significantly

higher life satisfaction ($b=0.19$, $p=0.02$) and lower odds of depression than grandchildless mothers ($OR=0.73$, $p=0.05$) if the grandchild was born within the previous 16 months. For both grandmothers and grandfathers who experienced the transition to this new role between 16 and 24 months before the follow-up interview, however, no beneficial effects on well-being were observed. Table 4 also shows the gendered effect of the first-ever transition into grandparenthood: mothers who became grandmothers for the first time via their daughter reported significantly higher life satisfaction score ($b=0.21$, $p < 0.01$) and lower depression ($OR=0.70$, $p = 0.03$). No such effects were observed among women who became grandmothers via their son, and among men regardless of the gender of the child who became a parent.

Associations between having additional grandchildren and well-being at follow-up

Table 5 shows the relationship between selected characteristics of the ‘new parent’ and subsequent well-being among grandfathers and grandmothers who had an additional grandchild once baseline socio-economic, demographic, and health characteristics were taken into account. For all three outcomes, and both for grandmothers and grandfathers, having an additional grandchild was not associated with subsequent well-being. Analyses suggest that the gender of the child who became parent; whether the child became a parent for the first time or had already at least one child; as well as the time since the (youngest) additional grandchild was born do not seem to affect any of the measures of well-being considered in this study.

Robustness checks

A number of robustness checks were conducted to test the robustness of our models. In particular, we repeated our analyses (i) restricting the sample to those who had had only 1 (first or additional) grandchild; (ii) using a stricter definition of time since birth of the youngest grandchild, limiting analyses to those whose grandchild was born in the same year of the interview; (iii) considering parent-child dyads as well as (iv) restricting the sample to parents of an only child in order to better assess the role of offspring's gender in the relationship between first-time grandparenthood and well-being; (v) as well as taking into account changes in respondents' employment, marital status, wealth, and health instead of considering these variables only at baseline. The results obtained excluding multiple births and using a stricter definition of time since grandchild's birth were broadly similar to the ones presented above. Similarly, in the analyses restricted to parents of an only child, we still found that becoming a grandmother via the daughter was associated with higher life satisfaction (statistically significant at the 5% level); the direction of association with the other two measures of interest was also similar to the one presented above (OR=1.19 for positive affect, and OR=0.69 for depression) though the estimates were not statistically significant ($p > 10\%$), most likely because of the smaller sample size. Repeating the analyses using dyads also showed that becoming a grandmother via their daughter was associated with increased life satisfaction and positive affect (results of all analyses available from authors on request).

Discussion

The transition to grandparenthood is one of the most common events in later life. Given that becoming a grandparent may be beneficial as well as induce negative health outcomes, it is important to study whether and how becoming a grandparent affects well-being. Our aim was therefore to assess the impact of becoming a grandparent on three measures of well-being, namely

life satisfaction, positive affect, and depression among older parents in Europe. Moreover, we accounted for the order of the transition, time since the event, lineage, and other socio-economic characteristics of parents when investigating the relationship between transitioning into grandparenthood and well-being.

Our longitudinal analyses showed that overall becoming a grandparent for the first time does not confer any well-being advantages or disadvantages to grandparents. Our results are similar to the ones found by Sheppard and Monden (2019), which only found a small reduction in depression symptoms (analysed as a continuous variable). Our study, therefore, refutes the central argument of role theory according to which the role individuals acquire when they become grandparents might –per se– be beneficial to their well-being. This is in line with a study by Muller and Litwin (2011) which found that, overall, the grandparent role centrality was not related to well-being and that respondents who had only the social role of a grandparent scored lower on well-being than those with multiple roles. Our results also confirm that having additional grandchildren does not affect well-being of grandfathers and grandmothers, even when the gender, time, as well as whether the additional grandchild was born to a childless offspring, are taken into account.

Our results suggest that, if anything, the first transition matters only among women who become grandmothers via their daughter. This is consistent with the literature suggesting a matrilineal advantage in the quality of parent–child bonds (Chan & Elder, 2000; Jamieson et al., 2018) and with recent studies which found that parenthood improves emotional closeness and contact rate only between daughter and mother (Tanskanen, 2017). However, the beneficial effect of becoming a first-time grandmother tends to be confined to a short period of time. Compared to grandchildless mothers, those who became first-time grandmothers in roughly the previous year reported higher life satisfaction and lower depression, whereas those who transitioned earlier reported similar well-being. This is consistent with the set-point theory (Headey & Wearing, 1989) and with what has been observed among parents, that is that the positive effect of life events tends

to be stronger around the time of the transition to then wash out (Balbo & Arpino, 2016; Myrskylä & Margolis, 2014). Overall, then, our findings suggest that –for women who become grandmothers via their daughter –it is the event itself of the birth of the first grandchild which affects (short-term) well-being rather than acquiring the role of grandparent.

Strengths and limitations

We investigated longitudinal associations between becoming a grandparent and well-being using large scale nationally representative European data. Given that the majority of older people experience this transition, our finding that becoming a grandparent might be associated with better well-being but only for first-time grandmothers and temporarily is noteworthy. Our study, for the first time to our knowledge, considered a number of characteristics (including the order of and time since the transition as well as the demographic and socio-economic characteristics of the offspring who became a new parent) which may mediate the effect of the transition to grandparenthood on well-being.

Our analyses, however, also have some limitations. First, the measurements of well-being considered rely on self-reports, which may be sensitive to cultural norms and differences in definitions. Moreover, the three measures of well-being considered in this study are related (with an estimated correlation at baseline of 0.4) and future studies shall consider methods which investigate variable relationships for the multidimensional complex nature of this concept. Second, we acknowledge that our measure of time since birth of the grandchild is a broad approximation, but it would have been necessary to know the month of birth to have a better understanding of to what extent the effect fades away with time. Given the distance between waves (about 24 months), it is possible that those whose grandchild was born closer to the baseline interview were already aware of the pregnancy and had reported higher well-being at baseline in view of their imminent transition. Also, it is possible that the effect of becoming a grandparent on well-being might take longer to emerge than the timeframe considered as benefits of grandparenthood may set in later when grandparents interact with older grandchildren. Future research should investigate longer-

term effects of this transition. Third, in our study we were not able to control for the quality of the relationship between grandparents and parents; this information could shed light on the mechanisms behind the matrilineal advantage found in our study. Similarly, SHARE does not collect information on the sex of the new grandchild, which would be useful to test if the matrilineal advantage extends to all three generations. Fourth, although in our analyses we took country-level differences into account by adjusting for country dummies, we did not investigate cross-national differences in the relationship between transitioning into grandparenthood and subsequent well-being. However, we acknowledge that this relationship may vary across countries and future studies using country-specific datasets with larger sample sizes are encouraged to explore this aspect. In particular, although this paper was based on European data, it would be useful to investigate whether some of the findings would also hold in different contexts. For instance, in East Asian countries where a patrilineal family system that privileges children and grandchildren in the male line of descent prevails (Raymo, Park, Xie, & Yeung, 2015), the observed gender dynamics might favour those who became grandparents via their sons. Furthermore, future studies might investigate age variability in the association between grandparenthood and well-being of on- or off-time grandparents. Although it is known that the transition into grandparenthood occurs at different ages and that this might overlap with different other roles and transitions, this was beyond the scope of this paper. Further work is also needed to better understand the causal mechanisms behind the gender differences observed in the relationship between the first transition into grandparenthood and well-being.

We believe that, as most older people transition into grandparenthood, our results showing that this common life event has no detrimental effects on the well-being of older people and might also have (temporarily) positive effects on grandmothers' well-being are of high relevance in order to understand (changes in) well-being in later life. This study motivates further investigations that could help us better understand if other aspects triggered by this common transition (such as

closeness, interactions, and relationships with children and grandchildren) might further boost grandparents' well-being.

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Tables

Table 1. Unadjusted measures of well-being at follow-up by grandparenthood status for fathers and mothers (all sample)

FATHERS		Follow-up				
		life satisfaction score [Mean (SD)]	Experienced positive affect at follow-up [%]	Experienced depression at follow-up [%]		
Grandparenthood status						
Still not a grandfather	4	,349	6.5	7.8 (0.02)	30.7	14.8
Became a grandfather	5					
Was already a grandfather, no additional grandchild	9	52	.4	7.7 (0.06)	32.3	17.1
		,466	7.8	7.7 (0.02)	24.8	20.0

Was already a grandfather, had additional grandchildren	2 ,019	2.3	7.7 (0.04)	31.9	15.7
<hr/>					
Follow-up					
M O T H E R S					
	N		life satisfaction score [Mean (SD)]	Experienc ed positive affect at follow-up [%]	Experienc ed depression at follow-up [%]
<hr/>					
Grandparenthood status					
Still not a grandmother	4 ,564	1.2	7.7 (0.03)	31.4	28.1
Became a grandmother	6 52	.0	7.8 (0.06)	33.4	24.1
Was already a grandmother, no additional grandchild	1 3,834	4.2	7.5 (0.02)	22.3	33.3

Was already a	2			
grandmother,		7.6 (0.04)	29.9	29.1
had additional grandchildren	,506	1.6		

Source: SHARE Waves 4-6. Own calculations

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Table 2. Fully adjusted beta coefficients, odds ratios (with 95% CIs), and p values for the conditional change model of three measures of life satisfaction at follow-up. Results for fathers. Analyses restricted to fathers who were not grandparents at baseline.

	Life satisfaction		Positive affect		Depression	
	<i>B</i> (95% CI)	P value	OR (95% CI)	P value	OR (95% CI)	P value
Still not a grandparent	-- REF --		-- REF --		-- REF --	
Became a grandparent	0.03 (-0.09; 0.15)	0.663	1.03 (0.83; 1.27)	0.808	1.07 (0.81; 1.41)	0.487
Baseline well-being measure	0.39 (0.36; 0.41)	< 0.001	4.25 (3.67; 4.91)	< 0.001	6.00 (4.94; 7.28)	< 0.001
Age (centred at 50)	0.09 (0.03; 0.16)	0.006	1.18 (1.03; 1.35)	0.014	0.832 (0.72; 0.97)	0.016
Age squared	-0.00 (-0.00; -0.00)	0.012	0.99 (0.99; 0.99)	0.016	1.00 (1.00; 1.00)	0.027

Living arrangements:	-0.23 (-0.35;	<	0.80 (0.63;	0	1.14 (0.87;	0
Alone ^a	-0.10)	0.001	1.02)	.074	1.49)	.350
Working status: Retired	-0.29 (-0.44;	<	1.05 (0.81;	0	1.26 (0.90;	0
^b	-0.15)	0.001	1.36)	.728	1.76)	.181
Other ^b	-0.19 (-0.30;	0	0.87 (0.70;	0	1.35 (1.05;	0
	-0.08)	.001	1.07)	.185	1.75)	.019
Education: Middle ^c	-0.01 (-0.10;	0	0.94 (0.80;	0	1.12 (0.90;	0
	0.08)	.879	1.10)	.455	1.40)	.317
Low ^c	-0.03 (-0.15;	0	0.78 (0.63;	0	1.16 (0.89;	0
	0.08)	.546	0.97)	.026	1.53)	.265
Wealth: 2 nd tertile ^d	-0.11 (-0.20;	0	0.93 (0.79;	0	0.86 (0.68;	0
	-0.02)	.016	1.09)	.345	1.07)	.177
3 rd tertile ^d	-0.38 (-0.48;	<	0.60 (0.49;	<	1.27 (1.01;	0
	-0.28)	0.001	0.73)	0.001	1.60)	.040
Income (€10,000)	0.00 (-0.01;	0	1.00 (0.99;	0	0.98 (0.96;	0
	0.01)	.673	1.02)	.761	1.00)	.108

With LSI ^e	-0.15 (-0.24; -0.05)	0 .002	0.78 (0.66; 0.93)	0 .005	1.52 (1.23; 1.88)	< 0.001
With limiting LSI ^e	-0.44 (-0.59; -0.30)	< 0.001	0.51 (0.37; 0.69)	< 0.001	2.68 (2.01; 3.57)	< 0.001
With 1+ diagnosed condition ^f	-0.13 (-0.21; -0.05)	0 .001	0.94 (0.81; 1.08)	0 .367	1.50 (1.24; 1.82)	< 0.001
Constant	2.17 (0.09; 4.25)	0 .041				
N	4,901		4,901		4,901	
R Squared	32.6		16.0		17.8	

Source: SHARE Waves 4-6. Reference categories: a) Not living alone; b) In paid work; c) High Education; d) In the highest wealth tertile; e) No long-standing illness (LSI); f) with no diagnosed conditions. Note: All analyses also control for country dummies (not shown).

Own calculations

Table 3. Fully adjusted beta coefficients, odds ratios (with 95% CIs), and p values for the conditional change model of three measures of life satisfaction at follow-up. Results for mothers. Analyses restricted to mothers who were not grandparents at baseline.

	Life satisfaction		Positive affect		Depression	
	<i>B</i> (95% CI)	P value	OR (95% CI)	P value	OR (95% CI)	P value
Still not a grandparent	-- REF --		-- REF --		-- REF --	
Became a grandparent	0.10 (-0.01; 0.22)	0.071	1.02 (0.83; 1.25)	0.830	0.85 (0.68; 1.03)	0.130
Baseline well-being measure	0.46 (0.43; 0.48)	< 0.001	4.95 (4.30; 5.71)	< 0.001	4.57 (3.95; 5.27)	< 0.001
Age (centred at 50)	0.07 (0.01; 0.13)	0.032	1.12 (0.99; 1.27)	0.057	0.87 (0.78; 0.97)	0.013
Age squared	-0.00 (-0.00; -0.00)	0.036	0.99 (0.99; 1.00)	0.046	1.00 (1.00; 1.00)	0.015

Living arrangements:	-0.07 (-0.17;	0	0.81 (0.67;	0	1.06 (0.87;	0
Alone ^a	0.04)	.213	0.99)	.044	1.28)	.572
Working status: Retired	-0.12 (-0.27;	0	1.05 (0.80;	0	1.42 (1.07;	0
^b	0.03)	.122	1.38)	.705	1.89)	.015
Other ^b	-0.14 (-0.24;	0	0.79 (0.66;	0	1.19 (0.99;	0
	-0.04)	.006	0.95)	.013	1.43)	.061
Education: Middle ^c	-0.05 (-0.14;	0	-0.95 (0.81;	0	0.97 (0.82;	0
	0.04)	.297	1.12)	.571	1.16)	.758
Low ^c	-0.09 (-0.20;	0	0.82 (0.67;	0	1.21 (0.99;	0
	0.02)	.111	1.00)	.054	1.48)	.061
Wealth: 2 nd tertile ^d	-0.14 (-0.23;	0	0.82 (0.70;	0	1.14 (0.96;	0
	-0.05)	.002	0.96)	.016	1.35)	.134
3 rd tertile ^d	-0.34 (-0.44;	<	0.59 (0.49;	<	1.46 (1.22;	<
	-0.24)	0.001	0.71)	0.001	1.75)	0.001
Income (€10,000)	0.01 (-0.00;	0	1.01 (0.99;	0	1.00 (0.98;	0
	0.01)	.130	1.02)	.322	1.02)	.589

With LSI ^e	-0.23 (-0.32; -0.14)	< 0.001	0.71 (0.60; 0.84)	< 0.001	1.77 (1.51; 2.07)	< 0.001
With limiting LSI ^e	-0.57 (-0.70; -0.43)	< 0.001	0.52 (0.40; 0.68)	< 0.001	2.37 (1.89; 2.98)	< 0.001
With 1+ diagnosed condition ^f	-0.05 (-0.13; 0.03)	0 .214	1.00 (0.87; 1.16)	0 .962	1.30 (1.12; 1.50)	0 .001
Constant	2.56 (0.67; 4.45)	0 .008				
N	5,216		5,216		5,216	
R Squared	38.2		20.1		15.9	

Source: SHARE Waves 4-6. Reference categories: a) Not living alone; b) In paid work; c) High Education; d) In the highest wealth tertile; e) No long-standing illness (LSI); f) with no diagnosed conditions. Note: All analyses also control for country dummies (not shown).

Own calculations

Table 4. Fully adjusted beta coefficients, odds ratios (with 95% CIs), and p values for the relationship between selected characteristics of the ‘new parent’ and well-being among fathers and mothers who became grandparents for the first time. Analyses restricted to fathers and mothers who were not grandparents at baseline.

	Life satisfaction		Positive affect		Depressio		
					n		
	<i>B</i> (95% CI)	<i>P</i> value	<i>OR</i> (95% CI)	<i>P</i> value	<i>OR</i> (95% CI)	<i>P</i> value	
FATHERS	Still not a grandparent	-- REF --	--	-- REF --	--	-- REF --	--
			REF --		REF --		REF --
	Became grandparent via son	-0.03 (- 0.21; 0.14)	0. 691	1.21 (0.89; 1.65)	0. 220	0.89 (0.59; 1.33)	0. 565
	Became grandparent via daughter	0.03 (- 0.13; 0.20)	0. 684	0.94 (0.70; 1.26)	0. 696	1.24 (0.85; 1.79)	0. 259
	Still not a grandparent	-- REF --	--	-- REF --	--	-- REF --	--
		REF --		REF --		REF --	

	Became grandparent ≤16 months	0.15 (-0.02; 0.31)	080	1.02 (0.75; 1.37)	909	0.79 (0.53; 1.18)	261
	Became grandparent >16 months	-0.07 (-0.23; 0.09)	402	1.05 (0.78; 1.41)	725	1.35 (0.93; 1.95)	107
	N		4,901		4,901		4,901
	Still not a grandparent	-- REF --	--	-- REF --	--	-- REF --	--
			REF --		REF --		REF --
	Became grandparent via son	-0.02 (-0.17; 0.14)	854	0.78 (0.58; 1.05)	130	1.03 (0.77; 1.38)	840
	Became grandparent via daughter	0.21 (0.04; 0.36)	009	1.28 (0.98; 1.68)	083	0.70 (0.51; 0.96)	027
	Still not a grandparent	-- REF --	--	-- REF --	--	-- REF --	--
			REF --		REF --		REF --
	Became grandparent ≤16 months	0.19 (0.03; 0.34)	020	1.13 (0.86; 1.49)	385	0.73 (0.53; 0.99)	049

MOTHERS

Became grandparent >16 months	0.03 (-	0.	0.93	0.	0.98	0.
	0.12; 0.18)	713	(0.70; 1.23)	611	(0.74; 1.29)	871
N		5,216		5,216		5,216

Source: SHARE Waves 4-6. Notes: The fully adjusted model controls for demographic and socio-economic characteristics (age, age squared, education, employment status, wealth tertiles, income, living arrangements, long-standing illness, and diagnosed conditions). All analyses also control for country dummies (not shown). Own calculations.

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Table 5. Fully adjusted beta coefficients, odds ratios (with 95% CIs), and p values for the relationship between selected characteristics of the ‘new parent’ and well-being among grandfathers and grandmothers who had an additional grandchild. Analyses restricted to fathers and mothers who were already grandparents at baseline.

	Life satisfaction		Positive affect		Depression		
	<i>B</i> (95% CI)	P value	OR (95% CI)	P value	OR (95% CI)	P value	
GRANDFATHERS	Already a grandparent	-- REF --	--	-- REF --	--	-- REF --	--
	Had an additional grandchild	-0.01 (-0.08; 0.07)	0.848	1.07 (0.94; 1.21)	0.300	0.88 (0.75; 1.03)	0.115
	Already a grandparent	-- REF --	--	-- REF --	--	-- REF --	--
	Had an additional grandchild via a child who already had children	-0.26 (-0.11; 0.06)	0.566	1.04 (0.89; 1.20)	0.637	0.91 (0.75; 1.08)	0.280
Had an additional grandchild via a child who had no prior child	0.03 (-0.08; 0.14)	0.587	1.05 (0.88; 1.27)	0.74	0.91 (0.73; 1.14)	0.427	

Already a grandparent	-- REF --	--	-- REF --	--	-- REF --	--
		REF --		REF --		REF --
Had an additional grandchild ≤ 16 months	-0.05 (-	0.	1.09	0.3	0.94	0.
	0.15; 0.05)	355	(0.92; 1.29)	22	(0.81; 1.22)	962
Had an additional grandchild > 16 months	0.03 (-0.06;	0.	1.06	0.4	0.86	0.
	0.13)	513	(0.90; 1.25)	77	(0.67; 1.10)	247
Already a grandparent	-- REF --	--	-- REF --	--	-- REF --	--
		REF --		REF --		REF --
Had an additional grandchild via son	0.03 (-0.05;	0.	1.10	0.1	0.88	0.
	0.11)	483	(0.65; 1.27)	76	(0.75; 1.08)	151
Had an additional grandchild via daughter	-0.01 (-	0.	1.04	0.6	0.92	0.
	0.09; 0.08)	868	(0.90; 1.20)	03	(1.76; 1.11)	381
N		11,485		11,485		11,485
☞ Already a grandparent	-- REF --	--	-- REF --	--	-- REF --	--
		REF --		REF --		REF --

Had an additional grandchild	0.01 (-0.06; 0.08)	0. 821	1.00 (0.89; 1.13)	0.9 24	0.99 (0.89; 1.12)	0. 935
Already a grandparent	-- REF --	--	-- REF --	--	-- REF --	--
		REF --		REF --		REF --
Had an additional grandchild via a child who already had children	0.01 (-0.07; 0.09)	0. 792	0.97 (0.85; 1.12)	0.7 08	1.04 (0.91; 1.18)	0. 622
Had an additional grandchild via a child who had no prior child	0.00 (-0.10; 0.11)	0. 951	1.01 (0.85; 1.20)	0.9 11	0.93 (0.79; 1.11)	0. 422
Already a grandparent	-- REF --	--	-- REF --	--	-- REF --	--
		REF --		REF --		REF --
Had an additional grandchild ≤16 months	0.00 (-0.09; 0.10)	0. 910	1.02 (0.87; 1.19)	0.7 87	0.88 (0.75; 1.03)	0. 122
Had an additional grandchild >16 months	0.02 (-0.08; 0.11)	0. 743	0.98 (0.84; 1.14)	0.7 78	1.12 (0.97; 1.29)	0. 120
Already a grandparent	-- REF --	--	-- REF --	--	-- REF --	--
		REF --		REF --		REF --

Had an additional grandchild via son	-0.03 (-0.13; 0.07)	0.609	0.93 (0.81; 1.06)	0.266	1.03 (0.90; 1.16)	0.702
Had an additional grandchild via daughter	0.03 (-0.08; 0.14)	0.645	1.06 (0.93; 1.21)	0.365	0.93 (0.78; 1.12)	0.461
N		16,340		16,340		16,340

Source: SHARE Waves 4-6. Note: The fully adjusted model controls for demographic and socio-economic characteristics (age, age squared, education, employment status, wealth tertiles, income, living arrangements, long-standing illness, diagnosed conditions, and number of grandchildren). All analyses also control for country dummies (not shown). Own calculations.

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