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Grandparenting after divorce: Variations across countries

Zuzana Žilinčíková[a,*], Martin Kreidl[b]

[a] Faculty of Social Studies, Masaryk University, Jostova 10, 60200 Brno, Czech Republic
[b] Office for Population Research, Faculty of Social Studies, Masaryk University, Jostova 10, 60200 Brno, Czech Republic

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ABSTRACT

We analyze the effect of grandparental divorce on the odds of providing grandparental childcare and investigate the variation of this effect across countries. The analysis is based on three-level hierarchical linear models, using data collected between 2004 and 2011 in 18 European countries as a part of the SHARE project. Being divorced is clearly associated with a significant reduction in the odds of providing any grandparental childcare in the past 12 months as well as in the odds of providing intensive (at least once a week) childcare. There is, however, significant variation in the divorce effect across countries. Looking at any grandparental childcare, we see that the negative effect of divorce is significantly weaker at higher divorce rates. The disruptive effect of divorce declines by almost 30 per cent when crude divorce rate increases by one standard deviation. We conclude that the level of conflict typically associated with divorce is lower when family disruption is more common, and its disruptive effect is weaker: intergenerational contact is thus preserved more often, and grandparental childcare provision is more common. Moreover, social institutions related to divorce and post-divorce arrangements may be more developed in countries with a higher incidence of divorce and thus they partially mitigate the negative effect of divorce. We do not confirm the same pattern when studying intensive grandparental childcare. Despite the low statistical significance, the trend seems to be the opposite: the effect of divorce becomes stronger with growing incidence of divorce. We attribute this latter trend to a complex re-organization of the lives of the divorcees that constrain their availability for intensive caregiving.

1. Introduction: divorce and intergenerational caregiving

Two recent population trends – increasing longevity and increasing rates of family dissolution – accentuate the importance of intergenerational relations in advanced societies. Increasing longevity implies that grandparents and grandchildren have – on average – more years of shared lives (Bengtson, 2001; see also Connidis 2010; Suitor et al. 2011; Uhlenberg 2004). The significance of intergenerational bonds stands out especially when contrasted with increasingly fragile intra-generational ties (Bengtson et al., 2002). Grandparental childcare – the focus of this paper – is a prominent example of intergenerational help and it is an essential source of support for children (Gray, 2005). Hank and Buber (2009) found – in a sample of several European countries – that 58 percent of grandmothers and 49 percent of grandfathers provide some kind of care for their grandchildren. Other research has demonstrated that the availability of grandparental childcare, as well as other forms of childcare, may positively influence fertility (Aassve et al., 2012a,b; Brewster & Rindfuss, 2000; Del Boca, 2002; Hank & Kreyenfeld, 2003; Kaptijn et al., 2010) and maternal employment (Aassve et al., 2012a,b; Del Boca, 2002; Gray, 2005; Kaptijn et al., 2010).

This paper focuses on the effects of grandparental divorce on grandparental childcare in a comparative perspective. Detailed, context-sensitive analyses of the consequences of grandparental separation are needed not only because of the general increase in divorce rates, but because increasing family dissolution rates have been observed in older generations as well (Brown & Lin, 2012; Hammond & Muller, 1992; Wu & Penning, 1997). Thus, there is a growing need to better understand the effects of family dissolution on inter-generational relations and exchange. We know from existing research that parental break-up often leads to disruption of intergenerational ties with adult children and results in reduced levels of support between generations (Kalmijn, 2008; King, 2003; Lin 2008). It also lowers the odds of grandparent-grandchild contact, since members of the middle generation often serve as mediators and gatekeepers of inter-generational contact and caregiving (Crosnoe and Elder, 2004; Monserud, 2008; Mueller & Elder, 2003; Whitbeck et al., 1993). In addition, divorced parents tend to live farther from their adult children (Chan & Ermish, 2015) and geographic distance *per se* functions as a barrier to both contact and caregiving (Devine & Earle, 2011; Jappens & Van Bavel, 2012; Uhlenberg &

* Corresponding author.
E-mail addresses: zilincikova@mail.muni.cz (Z. Žilinčíková), kreidlm@fss.muni.cz (M. Kreidl).

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Hammill 1998).

We observe two contradictory demographic trends related to grandparenthood. Whereas increasing longevity means that there are – on the one hand – more grandparents available to provide grandparental childcare, growing family dissolution rates – on the other hand – imply that this resource may be utilized less frequently. With these two major population developments in mind, we investigate the disruptive effect of grandparental divorce on the odds of providing any (or intensive) grandparental childcare. We examine whether (and to what extent) the effect of grandparental divorce varies across societies. More specifically, we link the size of the divorce effect to the prevailing divorce rate. We argue that higher family dissolution rates are associated with more liberal divorce laws, less parental conflict, weaker self-selection into divorce, and more institutionalized post-divorce arrangements. These circumstances lead us to hypothesize that the disruptive effect of divorce on care provision should be weaker when divorce is more common. We test this innovative theoretical assertion using internationally harmonized data from SHARE (*Survey of Health, Ageing, and Retirement in Europe*) complemented by selected macro-variables taken from other data sources.

In agreement with earlier research, we show that grandparental divorce is indeed an important predictor of the odds of any (or intensive) grandchild care being provided. At the same time, we show that the effect varies in a predictable manner by the incidence of divorce in a country. Across countries, the effect of divorce on *any care provision* appears to be much weaker when divorce is more common; more precisely, the disruptive effect of divorce declines by almost 30 per cent when crude divorce rate increases by one standard deviation. However, contrary to our hypotheses, we also observe that the disruptive effect of divorce on providing *intensive grandchild care* becomes stronger at higher divorce rates. Generalizing from a cross-sectional comparison to within-country trends, we might foresee two somewhat contradicting trends: the disruptive effect of divorce on grandchild care provision should shrink as divorce rates increase, but the effect of divorce on intensive grandchild care might strengthen. That is, we might expect that divorced grandparents would be available more frequently to provide some care for their grandchildren in the coming decades, but will be less frequently available to provide intensive care.

2. Grandparents' marital status and grandparental childcare: theories and empirical evidence

On the theoretical level, the disruptive effect of divorce on intergenerational contact and caregiving may be explained with reference to high levels of stress and conflict associated with family dissolution. For instance, poor parental adjustment to divorce might interfere with parenting skills (Amato, 1993) and the parent-child relationship might bear lasting consequences. Moreover, conflicting relationships not only exist between the two divorcing individuals, but might develop also between parents and children. Children are often directly involved in parental quarrels and may also be forced to "choose sides", the parent-child relationship often deteriorating as a result (Amato, 1993, 2000). Divorce occurring earlier in life usually constrains contact between the child and one parent (in the case of a sole custody) or both parents (in the case of shared custody) with far-reaching implications for future patterns of inter-generational interaction (Bulcroft & Bulcroft, 1991; Westphal et al., 2015); for instance, affection – especially between the child and the non-resident parent – erodes (Amato & Booth, 1996). However, even divorce (and other partnership transitions) occurring at a later age might impact intergenerational relationships to a significant degree and may, for example, lead to feelings of shock and/or guilt and cause tension, conflict, and alienation (Ahrons, 2004; Aquilino, 1994; Cain 1989; Cooney 1994; Connidis 2010; Cooney et al., 1995; Danielsbacka & Tanskanen, 2016; Lin 2008; Reed et al., 2016; Schenk, & Dykstra 2012; White 1992).

If any harm is done to parent-child relationships in splitting families, it is likely to have persistent implications for intergenerational contact and caregiving (including grandparent-grandchild interaction), because the middle generation (children) usually serves as mediators of contact between grandparents and grandchildren (Hodgson, 1998; King & Elder, 1995; Rossi & Rossi, 1990; Uhlenberg & Hammill, 1998). Indeed, several studies (Jappens & Van Bavel, 2016; King, 2003; Uhlenberg and Hammill, 1998) have found that the quality of the relationship between the oldest and the middle generation mediates grandparental care. Caregiving by divorced grandparents is, we argue, often impeded by the poor quality of the relationship between the older (grandparents) and the middle (children) generation that results from a grandparental divorce.

Consistent with the theoretical argument presented above, previous studies have shown that the marital status of grandparents is an important predictor of grandparent-grandchild contact (Albertini & Garriga, 2011; Jappens & Van Bavel, 2012; King, 2003; Silverstein & Marenco, 2001; Uhlenberg & Hammill, 1998) or care provision by grandparents (Baydar & Brooks-Gunn, 1998; Danielsbacka & Tanskanen, 2016; Hank & Buber, 2009; Knudsen, 2012; Luo et al., 2012; Fuller-Thomson & Marenco, 2001; Thomson & Minkler, 2001; Musil et al., 2006). Focusing more specifically on the difference between married and divorced grandparents, the literature indicates that married grandparents are more likely than unmarried grandparents to have contact with grandchildren (Albertini & Garriga, 2011; Danielsbacka & Tanskanen, 2016; Jappens and Van Bavel, 2012; King, 2003; Uhlenberg & Hammill, 1998), to provide care for grandchildren (Danielsbacka & Tanskanen, 2016; Fuller-Thomson & Minkler, 2001; Luo et al., 2012; Silverstein & Marenco, 2001), and are – in general – more likely to engage in intergenerational support (Daatland, 2007; White, 1992). For example, King (2003) found that the odds of ever-divorced grandparents having frequent contact with their grandchildren are 40 percent lower than those of never-divorced grandparents. Silverstein and Marenco (2001) found a similar pattern – unmarried grandparents had approximately 50 percent lower odds of babysitting their grandchildren than their married counterparts. Whereas the majority of empirical studies consistently report a negative association between divorce and intergenerational ties and support, a recent Dutch study by Geurts et al. (2015) did not find any such association, highlighting the need to investigate this association across contexts and explore its macro-social prerequisites and correlates, i.e. something this analysis attempts.

Divorce typically brings greater restrictions on, and a greater weakening of the father-child relationship than the mother-child relationship (King, 2003). Women are not only more likely to have custody of their children after divorce, but are in general more strongly involved in maintaining relationships with family members (Bracke et al., 2008). Thus, it is likely that divorced grandfathers are less likely than divorced grandmothers to have intensive contact and a strong relationship with their children and grandchildren. Empirical research renders strong empirical support to this argument. While the negative effect of divorce has been shown to exist for both men and women, it tends to be much stronger among grandfathers (Baydar & Brooks-Gunn, 1998, Danielsbacka & Tanskanen, 2016; Hank & Buber, 2009; King, 2003; Uhlenberg & Hammill, 1998; White, 1992).

Divorce also impacts the geographic proximity of children and grandchildren (Cherlin & Furstenberg, 1985; Chan & Ermisch, 2015); divorced grandparents – especially grandfathers – tend to live farther away from their children and grandchildren (Chan & Ermisch, 2015; King, 2003). Closer geographic proximity correlates with a higher frequency of inter-generational contact (Uhlenberg & Hammill 1998; Barnett et al. 2010; Cherlin & Furstenberg, 1985) and greater odds of the existence of intergenerational caregiving (Jappens & Van Bavel, 2012; Devine & Earle, 2011). Geographic proximity, as well as contact with children (and grandchildren), might be influenced by the timing of a divorce. If the divorce occurs when the children are young the harm to intergenerational ties tends to be more severe, especially for the non-

resident parent (Bulcroft & Bulcroft, 1991).

3. Marital status and grandparental childcare across countries

Married grandparents are, as we know from existing research, more likely than unmarried grandparents to provide care for grandchildren. Most of the studies reporting this finding employ data collected in the United States and only some have a European focus (Albertini & Garriga, 2011; Danielsbacka & Tanskanen, 2016; Hank & Buber, 2009; Jappens & Van Bavel, 2012; Knudsen, 2012). Some other studies (Chen et al., 2011; Ko & Hank, 2013; Lee & Bauer, 2010) investigated grandparental caregiving in Asia, but a systematic comparative analysis of the disruptive effect of grandparental divorce on grandparental childcare is lacking in the literature.

While divorce may disrupt inter-generational ties in any society, we argue that the disruptive effect may vary in size across contexts, reflecting, for instance, how common divorce is in a country. Albertini & Garriga (2011) proposed a "collective declining effect hypothesis", stating that the negative effect of divorce declines with the rising divorce rate in society (see also Dronkers et al. 2006; Goode, 1993; Kalmijn & Uunk, 2007; Wolfinger 1999). The authors argue that there are three main underlying mechanisms behind the hypothesis. First, the more common divorce is, the lower the stigma associated with divorce. Second, people are better aware of the possible negative consequences of divorce and develop (and later institutionalize) strategies to mitigate them. Third, in contexts where divorce is more common, there are a smaller proportion of high-conflict couples among those who divorce. The level of within-family conflict associated with divorce has declined over cohorts (Amato & Hohmann-Marriott, 2007; Gähler & Palmtag, 2015), while divorce rates have increased over the same periods. Since there is less conflict associated with family dissolution at higher family dissolution rates, the disruptive effect of divorce should be less severe and the potential for grandparent-grandchild contact should be more likely to persist.

This conclusion might appear to be in contrast with findings from several studies that have suggested that divorce of low-conflict families might result in worse outcomes for children than dissolution of high-conflict families (Amato et al., 1995; Booth & Amato, 2001; Hanson, 1999; Jekielek, 1998, Kreidl et al., 2017). Yet, research focusing more specifically on parent-child involvement suggest the opposite. With rising levels of parental conflict, the post-divorce involvement between father and child deteriorates (Kalmijn, 2010; Riggio, 2004). Thus, with declining average levels of conflict in splitting families, one should also expect higher post-divorce involvement of fathers. Indeed, this assertion has been supported empirically. For instance, Gähler and Palmtag (2015) have shown – using Swedish data – that it was very uncommon for children in earlier birth cohorts to have contact with their non-custodial parent after parental separation: only less than 20% of children born between 1925–1949 report to have had contact with the absent parent at least once a month. Children born between 1980–1991 do report such contact in 80% of cases (Gähler & Palmtag, 2015: 612).

The logic of the "collective declining effect" (Albertini & Garriga, 2011) can also be applied to intergenerational relations and grandparental caregiving. Lower stigma might mean – on the one hand – greater acceptance of divorce in society, but also – on the other hand – among children of divorce, who would be less inclined to disrupt their relationships with parents on account of feelings of guilt, blame, and/or alienation. Similarly, better developed institutions related to post-divorce interactions between former spouses and between parents and children (e.g. shared custody and the system of visitation rights, alimony payments, but also less formalized institutions related to the role of the non-coresident parent etc.) to cope with the consequences of divorce can help parents and children maintain a closer post-divorce relationship. Lastly, less conflict within the family provides a better basis for the post-divorce interaction between parents and children: when there are less conflict, tension and stress, intergenerational relations are more likely to persist undisturbed and intergenerational contact is more frequent thus creating a stronger foundation for future intergenerational support and exchange. Overall, it appears that divorced grandparents should be more frequently available *to provide care for their grandchildren under conditions of higher family dissolution rates.*

So far, empirical evidence on the "collective declining effect hypothesis" is not congruent across a wide range of outcomes (Kalmijn, 2010; Kreidl et al., 2017; Sigle-Rushton et al., 2005; Wagner & Weiß, 2006) including intergenerational ties (Albertini & Garriga, 2011; Daatland, 2007; Kalmijn, 2008). While Albertini and Garriga (2011) and Daatland (2007) observed no significant variation in intergenerational ties across contexts with varying incidences of divorce, Kalmijn (2008) observed a significant variation in the frequency of contact between divorced fathers and their children. However, none of these studies explored the effect of divorce on grandparental childcare.

One theoretical as well as methodological puzzle concerning the "collective declining effect" argument relates to the timing of divorce, of the measurement of the outcome variable, and of the measurement of the incidence of divorce. While there may be considerable time gap between family dissolution and the measurement of the dependent variable (e.g. grandparental childcare, in our case), analysts wanting to test the "collective declining effect" face a difficult choice regarding the best moment for the measurement of the contextual variable (i.e. incidence of divorce, most of often in the form of the crude divorce rate, CDR). CDR can refer to the period when the divorce occurred, or it can refer to the period when the value of the outcome variable was ascertained. Each option seems to highlight a different element of the "collective declining effect" theory and is likely to affect the outcome differently in a multivariate statistical analysis. While CDR measurement at the time of divorce is conceptually more strongly linked to the circumstances immediately surrounding divorce (such as typical levels of within-family conflict, or divorce-inflicted stigma), CDR measurement referring to the period when the outcome variable was measured will probably more strongly reflect social context at that later moment, such as values, norms, and institutions governing the lives of divorcees and their interaction with children and other kin. These circumstances can inspire a change in inter-generational relationships regardless of the conditions immediately preceding or following after divorce.

This consideration is of a particular importance in countries such as Portugal or Belgium, where divorce rates developed dramatically (Eurostat, 2013): divorcees who divorced at times of low divorce rates probably experienced high levels of conflict and stigma (with serious immediate implications for their lives and those of their children), but present conditions of relative tolerance and prevailing emphasis on post-divorce cooperation in the family network (i.e. new social institutions) may help them overcome past conflict and reorganize patterns of interaction with their ex-spouses and children. Thus, it remains to be shown if the effect of divorce on patterns of grandparental childcare interacts at all (or more strongly) with past or present measures of CDR. If the former is the case, our interpretation should focus more on the change in circumstances surrounding the time of separation (such as conflict and stigma). If the latter is the case, we should shift our interpretation more towards current circumstances (such as the more cooperative post-divorce arrangements in the family).

For this purpose of evaluating past levels of conflict and stigma (and their effect on intergenerational exchange), it may be useful to use a CDR measure that would cover several years, not only the year of the actual divorce. It is because this argument is conceptually rooted in the process theory of divorce (Morrison & Cherlin, 1995; Sun, 2001), which highlights a longer-term perspective on what happens before, during, and after separation: conflict in the couple might begin several years before actual separation/divorce. If children's exposure to conflict matters (and if the level of conflict varies by divorce rate), for instance, it will be more adequately captured by a composite measure covering several years surrounding family dissolution.

To summarize, we build on existing literature that has shown that

grandparental divorce decreases the odds of providing grandparental childcare. We argue, however, that this effect varies across countries. In accordance with the declining divorce effect hypothesis, we formulate our central hypothesis as follows:

Hypothesis: the disruptive effect of divorce on grandchild care provision is weaker (i.e. closer to zero) in societies where family separation is more common.

In addition, we want to explore if the variation in the disruptive effect of divorce is the same for any care and intensive care. It is a common practice to differentiate any care and intensive care in this field (Hank & Buber, 2009) and it has been documented that their correlates differ to some degree (Hank & Buber, 2009). Furthermore, it has been shown repeatedly, that patterns of intergenerational caregiving vary significantly across countries and regions (Hank & Buber, 2009; Igel & Szydlik, 2011): grandparental childcare is more common (but typically less intensive) in Nordic countries, whereas in more traditional southern countries childcare is, in general, less common, but when it occurs, it tends to be more intensive. Since family dissolution rates correlate also with the north-south family typology (as well as with the strength of family values) examining any care and intensive care separately is warranted.

4. Data, variables, and method

4.1. Data sources

The main data source is the Survey of Health, Ageing, and Retirement in Europe (SHARE) from 2004, 2006, and 2011, i.e. waves 1, 2, or 4, respectively (wave 3 – also known as SHARELIFE – could not be used as it employed a different questionnaire focusing on the retrospective mapping of life-course events). Survey data are complemented by country-level variables (divorce rates, levels of familism, and religiosity) taken from external sources (details are presented below). SHARE is a cross-national panel survey targeting the 50+ non-institutionalized population in each country. Our sample consists of 18 European countries: Austria, Germany, Sweden, the Netherlands, Spain, Italy, France, Denmark, Greece, Switzerland, Belgium, the Czech Republic, Poland, Ireland, Hungary, Portugal, Slovenia, and Estonia. We only utilized data from the first data collection in each country.

A total of 49,688 respondents were interviewed in selected countries/waves. Our sample was restricted to family respondents (i.e. those who were asked questions about children and grandchildren). Furthermore, the sample was limited to grandparents, i.e. respondents with at least one grandchild (the "child of a child" in the terminology of the SHARE questionnaire). In the first two waves of SHARE, some questions on children's characteristics were asked only for a maximum of four children. If a respondent (a grandparent) had more than four children, several selection criteria were applied so that only four children were reported on (with a preference for non-minor children, close geographical proximity, and earlier year of birth). To make use of all children's characteristics we restricted our sample to these four children and applied the same selection criteria for the children interviewed in the fourth wave (if a country joined SHARE at a later stage and wave 4 happened to be the first data collection in a given country).

We reshaped the initial dataset from wide to long format; thus, every child of a grandparent constituted one line in the data matrix. After omitting cases with missing or not applicable values in key variables and applying the condition that the youngest grandchildren of a particular child had to be younger than 16 years, our final ("full") dataset consisted of 24,286 entries ("children of a child") and 15,845 grandparents; this sample was used to investigate correlates on any grandparent childcare provision (a smaller sample, however, was used to investigate intensity of care if any care was provided; number of grandchildren in this "reduced" sample is 11,404, number of grandparents is 8991).

We see the data as hierarchically structured (and methods of multi-level analysis are employed to reflect this clustering): multiple children are nested within one primary respondent (grandparent) and care is provided (and reported) with reference to the "child of the focal child". The child – or more precisely, the pair of the child and child of that child – is treated as a level-1 observation, whereas grandparents are level-2 observations. Grandparents are further nested in the countries that are considered as level-3 units. We investigate the data employing standard multi-level techniques that may incorporate variables measured at all three levels.

4.2. Dependent variables

There are two questions on child care from which we derived our dependent variables. First, the respondents were asked whether they had provided care for a child or children of a particular child in the past 12 months: a binary indicator (0-no, 1- yes) of caregiving is, thus, our first dependent variable.[1] Taken across all level-1 observations the full sample (i.e. "children of children") in our analysis, we see that 47 per cent of them had been recipients of some grandparental childcare in the previous year. This percentage varies from a low of 38 per cent (in Italy, Portugal, and Spain, see Table A1 in the Appendix for details) to a high of 56 per cent (in Belgium). A binary variable indicating whether or not a particular child received any grandparental childcare in the year prior to the interview is our first dependent variable.

Further, if the respondent answered positively, she/he was asked about the frequency of care using a 4-point scale: almost daily, almost every week, almost every month, and less often. We dichotomized the frequency scale to differentiate between intensive ("almost daily" and "almost every week") and non-intensive care.[2] Among grandchildren receiving any care, one half received intensive care (see Table A1 in the Appendix). Prevalence of intensive care among care recipients ranges from 21 per cent in Denmark and 25 per cent in Sweden to 77 per cent in Italy, 69 per cent in Portugal and Greece, and 67 per cent in Poland (see Table A1 in the Appendix).

4.3. Main explanatory variable: marital status of grandparents

The marital status of the grandparent at the time of interview is our main explanatory variable. We follow the recent trend and employ a detailed measure of marital status (see e.g. Albertini & Garriga, 2011; Uhlenberg & Hammill, 1998; Danielsbacka & Tanskanen, 2016) using four categories[3] (1) *married or in a registered partnership* (with the condition that spouses live together), (2) *divorced or separated*, (3) *widowed*, and (4) *never married*. Unfortunately, information about the timing of divorce and multiple partnership transitions was not recorded in the SHARE questionnaire in our respective waves, and thus, we were not

[1] The exact wording of the question reads as follows: "During the last twelve months, have you regularly or occasionally looked after (your grandchild/your grandchildren) without the presence of the parents?"

[2] We chose to use two dependent variables, as some recent research suggests that a simple binary indicator of care provision may be insufficient to capture the complexities of inter-generational caregiving (see e.g. Hank & Buber, 2009).

[3] Marital status typically used to be represented by two categories (such as married/unmarried or with/without a coresidential partner) in research on intergenerational contact/caregiving (Fuller-Thomson & Minkler, 2001; Silverstein & Marenco, 2001). Often, the primary focus was on living arrangements such as living with a partner/living without a partner (Baydar & Brooks-Gunn, 1998; Hank & Buber, 2009; Knudsen, 2012; Luo et al., 2012; Musil et al., 2006). King (2003) and Jappens and Van Bavel (2012) also worked with two categories but distinguished between ever-divorced and never-divorced grandparents. Similarly, Geurts et al. (2015) distinguished between divorced or not divorced grandparents, while White (1992) controlled for being divorced or remarried. This prevailing simplification of the measurement is increasingly unsatisfactory, considering that contemporary grandparents have more complex family and partnership histories than previous generations (Manning & Brown, 2011).

able to employ a more nuanced categorization of the marital/partnership status (e.g. differentiate continuously married and re-married respondents).[4] Nevertheless, the current categorization of marital status enables us to differentiate currently divorced grandparents from other marital statuses and provide a lower bound estimate of the true disruptive effect of divorce: we believe that re-married grandparents would – on average – provide grandchild care less frequently and would thus drive the average frequency of caregiving among presently married grandparents down (for further discussion see Conclusion), close to the caregiving pattern among divorced grandparents.

The descriptive results (presented in Table 1) show that approximately 68 percent of all grandparents in the full sample were married, 11 percent divorced or separated, almost 20 percent widowed, and slightly below 2 percent never married (percentage distribution of marital status in the "reduced" sample of grandparents providing some childcare is also shown in Table 1, last column). The proportion of divorced individuals differed across countries, with the largest proportion of divorced grandparents in countries with traditionally high divorce rates (19% in Denmark and Estonia and 18% in the Czech Republic when measured in the "full" sample) and the smallest proportion in countries where divorce is quite rare (2% in Italy and 3% in Spain). A detailed percentage distribution of marital status by country is reported in Table A1 in the appendix for both the "full" and the "reduced" samples.

4.4. Level-1 and level-2 control variables

The analysis employs independent variables that characterize (1) the grandparents, and (2) the children (and by extension grandchildren), thus allowing for covariates at all levels to be controlled. While some of these variables require little explanation, the inclusion of some others should perhaps be more explicitly justified. Within each group of covariates, we first discuss variables that appear to be exogenous with respect to the divorce-childcare relationship and then we turn our attention to other covariates, which are more likely to function as mediating variables. The former group is utilized in the main analysis, whereas the latter is only employed in supplementary models reported in the appendices.[5] The distribution of the independent variables is reported in Table 1 (Table A2 presents their distribution according to marital status).

Grandparents' exogenous characteristics include: sex, age (3 categories: 50–59, 60–69, 70+; some earlier analyses suggested that the effect of age is non-linear and that grandparents are most likely to provide childcare at around the age of 67 (Baydar & Brooks-Gunn, 1998)), and education (4 categories: none or primary, lower secondary, upper- or post-secondary, tertiary; Baydar and Brooks-Gunn (1998) as well as Silverstein and Marenco (2001) found that better educated grandparents are more likely to provide childcare. Controlling for education is especially important given historical changes in the socio-economic gradient of divorce (Härkönen & Dronkers, 2006).

The following variables are also controlled in the complementary models: subjective perception of health (a dichotomous variable - excellent or good vs. fair or poor; a grandparent's poor health can reduce the probability of providing childcare (Hank & Buber, 2009)), total number of grandchildren (the more sets of grandchildren a grandparent has, the lower the probability of having frequent contact with a particular set (Uhlenberg & Hammill, 1998)), employment (3 categories: non-working, working, and unemployed; working grandparents are – all else being equal – less likely to provide care, see Hank & Buber, 2009; Lakomý & Kreidl 2015).

From the characteristics of children, we utilized child's sex as an exogenous variable and included it in the main analysis. The rest of the characteristics were employed in complementary analyses: child's employment status (working, non-working, and unemployed; full-time employment of mothers is positively associated with the probability of grandparental childcare being provided (Vandell et al., 2003; Hank & Buber, 2009)), and age of the youngest child of a particular child (categories 0–2, 3–5, 6–10, 11–16 years; the likelihood of grandparental childcare provision also declines with the increasing age of the youngest grandchild in a given set (Hank & Buber, 2009; Silverstein & Marenco, 2001)). Child's marital status is measured using the same four categories utilized for grandparents (married, divorced/separated, widowed, and never married).

Table 1
Descriptive statistics of variables used in the analysis. Selected SHARE countries in.2004–2011.

Level-3 variables			
Crude Divorce Rate (mean before standardization)			0.27
Familialism (mean before standardization)			2.04
Religiosity (mean before standardization)			0.46
N			18
Level-2 variables		**Any care**	**Intensive care**
Respondent male		42.7 %	39.3 %
Respondent's marital status	Married or registered partnership	68.1 %	73.1 %
	Divorced or separated	10.7 %	9.9 %
	Widowed	19.6 %	15.8 %
	Never married	1.6 %	1.2 %
Age	50-59	29.2 %	34.8 %
	60-69	41.5 %	45.2 %
	70+	29.3 %	20.1 %
Employment status	Out of the labor force	74 %	70.3 %
	Employed	22.3 %	25.7 %
	Unemployed	3.8 %	4 %
Education	None or primary	29 %	25.5 %
	Lower, upper or post-secondary	52.4 %	54.1 %
	Tertiary	18.6 %	20.4 %
Health	Excellent or good	57.4 %	62.7 %
	Fair or poor	42.6 %	37.4 %
Number of grandchildren (mean)		3.9	3.6
Age of the youngest grandchild	0 to 2	25.8 %	29 %
	3 to 5	22.3 %	28 %
	6 to 10	28.3 %	29.4 %
	11 to 16	23.6 %	13.6 %
N		15,845	8991
Level-1 variables		**Any care**	**Intensive care**
Child´s marital status	Married or registered partnership	81.5 %	81.3 %
	Divorced or separated	8.1 %	7.6 %
	Widowed	0.6 %	0.5 %
	Never married	9.8 %	10.6 %
Child male		47.9 %	42.6 %
Child´s employment status	Employed	81.4 %	81.7 %
	Out of the labor force	13.3 %	13.2 %
	Unemployed	5.3 %	5.1 %
N		24,286	11,404

[4] Merging responses from the standard SHARE questionnaire with data from the retrospective SHARELIFE interview proved unfeasible due to a high proportion of missing responses resulting from panel attrition.

[5] Several covariates might be seen to play a dual role in determining grandparental childcare (for instance grandparental employment status may constrain caregiving, but can also be changed when a grandchild is in need of care, see e.g. Lakomý & Kreidl, 2015). It is not our goal to adjudicate arguments about the precise position of each covariate in the model, we simply present several differently specified models to show that our results are robust vis-à-vis partial model re-specification.

4.5. Level-3 (country) variables

Three variables – crude divorce rate (CDR), familism, and religiosity – are used to capture important country-level characteristics that might shape patterns of inter-generational interaction. The main country-level explanatory variable is crude divorce rate, which was proposed by Albertini and Garriga (2011) to be the centerpiece of the "collective declining effect hypothesis" (see Section 3 above for an explanation), and, it has been argued, divorce effects should vary systematically with the incidence of divorce in society. Thus, CDR is also used in interactions with the individual-level measure of divorce. We use several alternative CDR definitions all of which are based on the data from Eurostat (2013). First, CDR corresponds to the year of SHARE data collection (i.e. the year when the outcome variable was measured). When SHARE interviews spanned a two-year interval in a given country, CDR for the first year was taken. However, for theoretical reasons explained above, we also use two other CDR measures that refer to earlier periods preceding the measurement of the outcome variable. Since we were not able to use the standard SHARE database[6] data to find out the exact year of respondents' divorce for a significant proportion of our sample (mostly due to panel attrition), we can only approximate CDR around the most typical divorce years using the following procedures:

a For all SHARELIFE respondents, who belong to our sample of divorced respondents, we computed the mean and median year of divorce (both were 1988). Then, we use a country's CDR for 1988[7] in our models. The correlation of this CDR measure with CDR measured at the interview is 0.79.
b For all SHARELIFE respondents, who belong to our sample of divorced respondents, we ascertained the range of divorce years. We found out that 95% of all divorces took place between 1970 and 2005 and we computed the average CDR for this entire period. The correlation of this mean CDR variable with CDR measured at the interview is 0.75.

Some of our models also contain two other country-level controls, namely familialism and religiosity. They were chosen to capture important differences in prevailing patterns of family life in Europe, which are reflected, for instance, in the distinction between weak and strong family systems (e.g. Reher 1998; Kohli et al., 2005; Bolin et al., 2008; Hank 2007; Kalmijn 2008). Reher (1998) associates weak family ties with Central and Northern Europe (for example Scandinavia, Great Britain, Benelux, Germany, and Austria), and strong family ties with Mediterranean countries (see also Kohli et al., 2005; Hank, 2007). Strongly familialistic countries are more conservative, have lower rates of divorce or extramarital pregnancy (Reher 1998), and are also associated with low gender equity in the family and in public provisions for the family (Kohli et al., 2005). A similar gradient is also associated with different patterns of childcare. Hank and Buber (2009) found that the probability of grandparents providing care for their grandchildren is higher in northern Europe (the highest probability was found in Denmark, the Netherlands, France, and Sweden) and lowest in Mediterranean countries (Italy and Spain). However, when the intensity of care was considered, the relationship was reversed: grandparents in southern Europe tended to provide very intensive care. Moreover, Kalmijn (2010) showed that some effects of divorce vary with the level of familialism (members of the family network mobilize, for instance, to help overcome some negative consequences of family dissolution) and religiosity (the negative effect of divorce on well-being is stronger in traditional societies, but only for religious individuals).

Measures of familism and religiosity were derived from European Social Surveys from the years 2004–2010 (either ESS Round 2, 2004; ESS Round 3, 2006; or ESS Round 5, 2010). We chose the ESS year that was closest to the year of SHARE data collection in a given country. Similarly to Kalmijn (2010), we measured familism as the percentage of unmarried people aged 18–50 living with parents, and religiosity as the percentage of Christians attending church at least once a month. All country-level variables were standardized (the mean value was subtracted and the result was divided by the standard deviation) in order to make the estimated coefficients in our analysis more readily interpretable. Descriptive statistics of all level-3 variables are presented in Table A1 in the Appendix.

4.6. Analytical strategy

We employ random-intercept three-level hierarchical linear models with binary response variables. We chose to estimate linear probability models (rather than multi-level logistic regressions) for computational feasibility, stability of estimates, ease of interpretation, and to avoid problems when comparing effect sizes across differently specified logistic models (Mood 2010). We estimated the parameters of these models using STATA 14 M P (using the "mixed" procedure).

Our analysis of both dependent variables relied on the same procedure. We started by utilizing all above-mentioned level-1 exogenous explanatory variables in an additive model. Then we proceeded to add the interaction between respondent's (grandparent's) divorced status and current crude divorce rate, which corresponds to the "collective declining effect hypothesis" as proposed by Albertini and Garriga (2011). We then evaluated this interaction using both the criteria of classical statistical inference (likelihood ratio test) and Bayesian statistics (AIC). We evaluated the nature of the (statistically) significant interactions and determined the size of the divorce effect for various levels of CDR. All models were estimated jointly for men and women; however, we also report the results of some robustness checks to confirm whether (and to what extent) parameter estimates are similar for both genders.

5. Results

5.1. Models of any grandparental childcare

First, we model a binary variable to show which grandparents provide (any) care for grandchildren. Model 1 (estimated parameters are shown in Table 2) shows that the probability of care provision, with all independent variables held constant, is 63 per cent. Divorce is clearly associated with lower odds of grandparental caregiving. The probability of grandparental childcare being provided – net of other variables in the model – is more than 11 percentage points lower among divorced grandparents than among married grandparents. The other parameters of Model 1 are consistent with earlier research. For instance, the odds of grandparental childcare being provided decline with increasing age (by 22 percentage points in the 70 + category) and increase with education (grandparents with tertiary education are by 12.3 percentage points more likely to provide care than grandparents with elementary education). Care is provided more often to children of daughters than to children of sons – when the child is male, the probability of his children receiving grandparental childcare is lower by almost 8.9 percentage points. Current CDR level has – net of other predictors – only a very weak and insignificant effect.

When we add the interaction between grandparental divorce and CDR into Model 1 to test our main hypothesis, we obtain Model 2 (goodness of fit statistics for both models are presented in Table 2). Statistical comparison of these two models reveals that the interaction

[6] Wave three of SHARE (known as SHARELIFE) was a survey that mapped retrospectively life course event of SHARE respondents. It was conducted in 2008-2009 in SHARE countries, typically as the third round of survey interviews.

[7] The only exception to this rule was Ireland, where divorce was not legal until 1997; we took CDR for 1997 instead of 1988.

Table 2
Estimated parameters of selected multi-level linear probability models of any grandparental childcare provision. Selected SHARE countries.2004–2011.

	M1	M2
Level-3 variables		
Crude Divorce Rate	−0.002	−0.004
Level-2 variables		
Respondent male	−0.093***	−0.093***
Respondent's marital status (married is reference category)		
Divorced	−0.114***	−0.126***
Widowed	−0.097***	−0.097***
Never married	−0.136***	−0.136***
Age (50-59 is reference category)		
60-69	−0.059***	−0.059***
70+	−0.222***	−0.222***
Education (none or primary is reference category)		
Lower, upper or post-secondary	0.062***	0.062***
Tertiary	0.123***	0.123***
Level-1 variables		
Child male	−0.089***	−0.089***
Interaction		
Divorced x CDR		0.032*
Constant	0.632***	0.632***
Goodness-of-fit statistics		
Log-likelihood	−16,212.73	−16,210.39
d.f	14	15
p-value	< 0.00005	< 0.00005
AIC	32,453.45	32,450.78
Contrast M2-M1		
Likelihood-ratio test		4.67
d.f.		1
p-value		0.0306

Note: Number of level-3 units (countries) = 18, level-2 units (grandparents) = 15,845, number of level-1 units (grandchildren) = 24,286.

should not be omitted from Model 2 (L^2 for comparing these two models is 4.67 with 1° of freedom, which implies p = 0.0306, see Table 2). AIC for Model 2 is lower (32,450.78) than for Model 1 (32,453.45) also indicating superiority of Model 2. Thus, on the basis of both the criteria of classical inference and Bayesian model comparison, we should conclude that the size of the divorce effect varies by current divorce rate. The estimated parameters of Model 2 are presented in Table 2. We see that the main effect of divorce is negative (i.e. being divorced reduces the probability of grandparental childcare provision), while the interaction between divorce and CDR is positive, thus indicating that the negative effect of being divorced is reduced (i.e. closer to zero) at higher CDR levels. Whereas divorce seems to reduce the probability of grandparental childcare provision by 12.6 percentage points at the average CDR level, this effect is reduced to 9.4 percentage points when CDR increases by one standard deviation (see Fig. 1). On the other hand, the divorce effect increases to 15.8 percentage points when CDR is one standard deviation below its mean (this corresponds to an increase of 25 percent).

Table 3
Estimated parameters of selected multi-level linear probability models of intensive grandparental childcare provision. Selected SHARE countries.2004–2011.

	M3	M4
Level-3 variables		
Crude Divorce Rate	−0.073*	−0.070*
Level-2 variables		
Respondent male	−0.047***	−0.047***
Respondent's marital status (married is reference category)		
Divorced	−0.063***	−0.048*
Widowed	−0.017	−0.017
Never married	0.010	0.010
Age (50-59 is reference category)		
60-69	0.001	0.001
70+	−0.034*	−0.033*
Education (none or primary is reference category)		
Lower, upper or post-secondary	−0.029*	−0.029*
Tertiary	−0.064***	−0.064***
Level-1 variables		
Child male	−0.053***	−0.053***
Interaction		
Divorced x CDR		−0.039+
Constant	0.609***	0.609***
Goodness-of-fit statistics		
Log-likelihood	−7,467.56	−7,465.84
d.f	14	15
p-value	< 0.00005	< 0.00005
AIC	14,963.12	14,961.69
Contrast M2-M1		
Likelihood-ratio test		3.43
d.f.		1
p-value		0.0640

Note: Number of level-3 units (countries) = 18, level-2 units (grandparents) = 8991, number of level-1 units (grandchildren) = 11,404.

5.2. Models of intensive grandparental childcare

Our analysis of intensive grandparental childcare follows the same logic as the analysis of any care presented above; we again present and compare 2 multi-level linear probability models, but these are estimated on a smaller sample of those grandparents, who provided some care in the last year (there are 8991 such grandparents – i.e. level-2 units – in our sample with 11,404 grandchildren). The estimated parameters of these models are presented in Table 3. Model 3 shows that when all independent variables are held constant, the probability

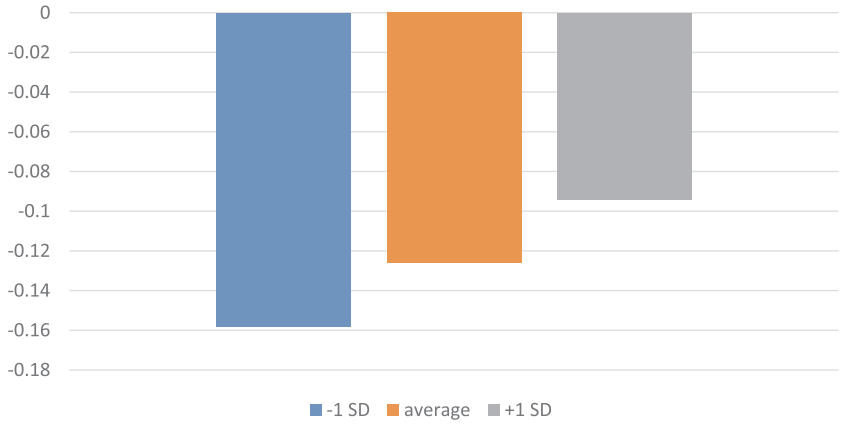

Fig. 1. Estimated net effect of divorce on the probability of any grandparental childcare by level of crude divorce rate. Selected SHARE countries.2004–2011.
Note: estimates are based on Model 2.

of intensive care provision is 61 per cent. Divorced grandparents are by 6.3 percentage points less likely to provide intensive childcare than married grandparents. Interestingly, married, widowed, and never married grandparents are equally likely to provide intensive childcare. We furthermore observe a significant influence of gender – grandfathers tend to provide care less frequently than grandmothers and intensive grandchild care is provided more often to the children of daughters than to the children of sons. The effect of age in Model 3 agrees with the findings of the previous models of any care provision: intensive care is – everything else being equal – by 3.4 percentage points less likely among grandparents aged over 70. The effect of education goes, however, in the opposite direction: in Model 3 we see that higher education associates with a lower probability of intensive grandchild care. For instance, the probability that a grandparent with tertiary education will provide intensive grandchild care is by 6.4 percentage points lower than among grandparents with elementary education; the education effect in Model 3 most likely reflects stronger labor market attachment and resulting constraints among educated grandparents.

Model 4 (see Table 3) adds the interaction between grandparental divorce and crude divorce rate. A comparison of Model 3 and Model 4 (see lower panel of Table 3) gives only weak evidence that the interaction is statistically significant. When we compare these two models using criteria of classical inference, we obtain $L^2 = 3.43$ with 1° of freedom ($p = 0.064$). AIC suggests that we should prefer the more parsimonious model, i.e. Model 3 (AIC for Model 4 is only 1.43 points lower than AIC for Model 3; see Table 3).

Since the interaction is borderline statistically significant, we present estimated parameters of Model 4 (in Table 3) to also assess its substantive significance. We can see that – at average CDR – divorce reduces the probability of intensive caregiving by 4.8 percentage points. However, the divorce effect increases in size with growing CDR. For instance, one standard deviation increase in CDR results in an increase of 3.9 percentage points in the size of the negative divorce effect, which is an increase of about 81 percent. When CDR declines one standard deviation, the divorce effect is trivial (only 0.9 percent). These comparisons are visualized in Fig. 2 and suggest that the divorce*CDR interaction is substantively important.

5.3. Differences in the effects of divorce by gender of the grandparent

As numerous previous studies, also our results (not shown) confirmed that the provision of childcare is more restricted by divorce for men than for women. Our reading of the literature also suggests that trends in the size of the disruptive effect of divorce on grandparental childcare might differ by grandparental gender. Divorced non-custodial parents (typically fathers) tend to stay in closer contact with children in more recent cohorts than used to be the case in cohorts born in the first half of the 20th century (Gähler & Palmtag, 2015). Therefore, patterns of grandparental childcare provided by divorced grandparents may converge. We made an effort to test for three-way interactions between grandparental gender, grandparental divorce, and incidence of divorce in society (CDR) to scrutinize this assertion. We found no (statistically) significant interactions. Yet, the pattern in estimated parameters suggested that the divorce effect might change with CDR differently in grandfathers and grandmothers (the divorce*CDR interaction appears to be stronger among women than among men). As it was quite difficult to obtain stable robust estimates (with only 18 level-3 units, i.e. countries, and a complex model structure), it is little surprise that the results were insignificant.

5.4. Sensitivity tests

We present several sensitivity tests to show the robustness of our statistical models and to answer ancillary research questions. Our discussion in this section focuses on three issues: 1) inclusion of other level-1 and level-2 covariates, 2) inclusion of additional level-3 covariates, and 3) utilization of alternative divorce rate measures.

First, we explore how an expansion of the set of level-1 (child) and level-2 (grandparent) covariates alters the results. We add the following variables to the model: respondent employment status, respondent's health, number of grandchildren, age of the youngest grandchild, child's marital status, and child's employment status. We add these variables to Models 1–4 to create Models 5–8 (see Table A3 in the Appendix for parameter estimates). Then we contrast Models 5 and 6 to see if grandparental divorce interacts with CDR in determining any grandparental childcare. Similarly, we contrast Models 7 and 8 to test the interaction in modelling intensive childcare. Comparison of Models 5 and 6 suggest that the divorce*CDR interaction should not be omitted from Model 6 by criteria of classical inference ($L^2 = 4.18$ with 1 d.f., $p = 0.04$). Also AIC favors Model 6 over Model 5 (respective AIC values are 31,216.76 and 31,218.94, i.e. the difference is 2.18, which agrees with the likelihood ratio test). Similarly, comparison of Models 7 and 8 confirms – albeit less decisively – that grandparental divorce and CDR interact in determining intensive grandparental childcare ($L^2 = 3.46$ with 1 d.f., $p = 0.06$; difference in AIC for Models 7 and 8 is 1.46, see Table A3 in the Appendix). Thus, we conclude that we can confirm the existence of the divorce*CDR interaction even with a much larger set of covariates.

Second, we expand our models to include two additional macro-level controls – level of familialism and religiosity in society. Familialism and religiosity are obviously correlated with divorce rate and it is not clear which of the three variables causally precedes the

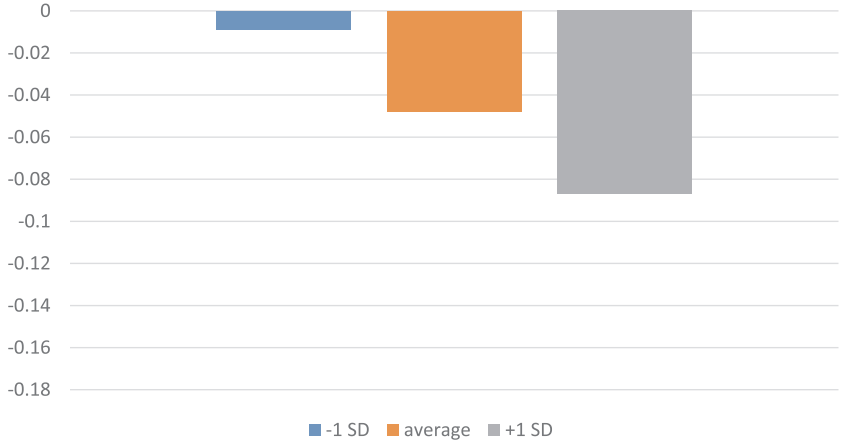

Fig. 2. Estimated net effect of divorce on the probability of intensive grandparental childcare by level of crude divorce rate. Selected SHARE countries.2004–2011. Note: estimates are based on Model 4.

other two (and it is actually likely that they mutually reinforce each other in the course of the modernization process). We add familialism and religiosity to Models 2 (model for any care) and 4 (model for intensive care) and create Models 9 and 12 (see Table A4 in the Appendix). In both models, the main effect of divorce as well as the divorce*CDR interaction remain almost unchanged. While the divorce*CDR interaction was 0.032 in Model 2, it is 0.033 in Model 9 (both effects are statistically significant at the 0.05 level). Similarly, the interaction was -0.039 (significant at the 0.1 level) in Model 4 and it is -0.042 (significant at the 0.05 level) in Model 12 (see Table A4 in the Appendix). So, the effect of divorce changes with CDR level even when we control for country level of familialism and religiosity.

Third, we employ alternative definitions of CDR referring to historical periods preceding the survey interview. CDR from 1988 is used in Models 10 and 13 (see Table A4), which are otherwise identical to Models 2 and 4, and mean CDR for the 1970–2005 period is used in Models 11 and 14. When the CDR definition changes, the divorce*CDR interaction weakens and is no longer statistically significant (see Table A4); it is 0.018, 0.017, 0.008, and 0.012 in Models 10, 11, 13, and 14, respectively. Whereas it is somewhat problematic to draw robust conclusions from these alternative CDR measures (because they only very roughly approximate the timing of divorce among divorced grandparents), we might tentatively conclude that the effect of grandparental divorce on grandparental childcare seems to change with current CDR levels (i.e. divorce rates that reflect the situation when the outcome variable is measured) more than it does with historical CDR measures (which describe the situation around the time of divorce). While the former level-3 variable is associated with existing social institutions (e.g. contemporary social institutions and prevailing family organization in divorced families), the latter is more likely to relate to the typical level of conflict and the strength of the stigma that existed when grandparents divorced.

6. Conclusions and discussion

Our analyses show that the marital status of grandparents is a significant predictor of grandchild care provision. Consistent with previous research, we found that divorced or separated grandparents tend to provide both any and intensive care for their grandchildren with a lower probability than married grandparents. We provide evidence that divorce in the oldest generation is, in general, associated with the disruption of intergenerational ties, and might deprive the middle generation of an important source of childcare. Using multilevel data for 18 countries, we show that the effect of divorce varies significantly with the overall incidence of divorce in a country. Consistent with our expectations, *the disruptive effect of divorce on provision of any grandparental childcare is significantly weaker when divorce occurs more frequently*. In fact, it declines by almost 30 per cent when crude divorce rate increases by one standard deviation. Yet, contrary to our expectations, the effect of divorce on intensive grandparental childcare seems to follow an opposite trend – it becomes stronger (i.e. more negative) when divorce is more common.

A weaker divorce effect on any care provision under conditions of higher divorce rates may result from three circumstances. 1) Family dissolution is associated with less stigma and consequently, inter-generational relationships continue to function more smoothly after divorce. Good parent-child relationships are more likely to persist and grandparents are therefore more likely to interact with and care for grandchildren. 2) Patterns of post-divorce interaction that involve regular contact among family members become more institutionalized (Thompson & Amato, 1999) and non-custodial parents lose contact with their children to a lesser degree (see e.g. Gähler & Palmtag, 2015). Regular intergenerational contact is, as we know from earlier research, an important prerequisite for grandparental childcare provision (Dykstra & Fokkema, 2011). 3) When divorce is more common, a higher proportion of low-conflict families split up (see e.g. Amato & Hohmann-Marriott, 2007; Gähler & Palmtag, 2015), which also creates greater potential for uninterrupted inter-generational interaction, including the provision of inter-generational care, be it grandparental childcare (as in our analysis) or other kinds of care.

While the "collective declining effect" operate with all 3 above-mentioned arguments, our ancillary analyses indicated that the divorce effect changes with current CDR levels rather than with past CDR levels. This finding (despite all reservations that we have regarding the measurement of historical CDR levels and their alignment with the timing of grandparental divorce) suggests that especially current social institutions (rather than past levels of stigma and conflict) governing post-divorce interaction between family members (ex-spouses, parents and children, but also involvement of other relatives) are responsible for observed trends in the size of the divorce effect. If patterns of post-divorce interaction become more strongly institutionalized in society, they may initiate change in inter-generational interaction even among grandparents who have been divorced for a long time and experienced stigma and conflict at the time they were divorcing.

Our results indicating a declining negative effect of divorce on intergenerational caregiving appear consistent with other analyses that have examined changes in the divorce effect over time or variations in the size of the divorce effect across societies with varying divorce rates. (Kalmijn, 2008; Kalmijn, 2010; Dronkers & Härkönen, 2008). In short, we confirm the "collective declining effect hypothesis" as proposed by Albertini and Garriga (2011) in the case of grandparental involvement in childcare. Yet, it needs to be pointed out that the negative effect of family dissolution only appears to decline for some outcomes, but not for others. For instance, Kreidl, Štípková, and Hubatková (2017) have shown that the negative effect of parental breakup on children's probability of completing a college education has increased over time and is stronger when divorce is more common.

Our analysis of intensive grandparental childcare shows that *the effect of divorce on intensive childcare seems to increase under conditions of high family dissolution rates*. We interpret this result with caution, as the statistical significance of the effect was relatively low. Nevertheless, it is a puzzling result. It suggests that the "collective declining effect" thesis does not apply to intensive grandparental childcare (here defined as care provided at least once a week without the presence of the child's parents) to the same extent as it does to *any* care provision. This might result from the fact that intensive care is much more demanding logistically and requires a higher level of personal resolution and more favourable circumstances (i.e. in terms of geographic proximity, family complexity, labor market attachment etc.). For instance, divorce correlates rather strongly with values and behaviors that engage people outside of the original family (this evidenced, for instance, by higher repartnering rates, stronger labor market attachment as well as more individualistic values of the divorcees that partly result from the divorce experience, see e.g. Amato & Booth, 1991; Cunningham & Thornton, 2006) and these engagements create additional obstacles for and reduce interest in intensive caregiving. Thus, the observed trend might stem from a complex re-organization of people's post-divorce lives and also from increased levels of post-divorce individualism and lower commitment to the family. When family dissolution is common and tolerance towards non-traditional family forms prevails, individual experience of divorce (and the resulting shift towards more individualistic attitudes) may result in a stronger disengagement from the family and thus represent a particularly strong impediment to intensive intergenerational caregiving. However, it is also possible that our CDR measure captures some additional cross-country differences in the analysis of intensive grandparental care. While we made an effort to measure other relevant macro-level variables, given the small sample of countries, these controls are far from perfect.

To the extent that we can predict trends over time on the basis of a cross-sectional analysis, our results indicate that increasing divorce rates (which have been witnessed in many western countries over the last few decades, see e.g. Spijker, 2012; Kennedy & Ruggles, 2014) may

not *per se* imply that grandparents are providing childcare less frequently to their grandchildren. In fact, it appears that families cope with divorce more successfully when family dissolution is more common. Consequently, grandparental caregiving will likely continue to be a valuable resource for both children and grandchildren, not to speak of the satisfaction it brings to grandparents themselves (Hughes et al., 2007; Pruchno & McKenney, 2002). They will, not, however, become more frequently available for intensive grandchild care. Our results indicate rather the contrary – intensive care is most likely to be less commonly provided under conditions of elevated family dissolution rates.

While we identified no difference in the interaction between being divorced and CDR by gender, we still believe that this is a promising topic for further research. We suggest that it should be revisited when more data accumulate. In particular, a larger sample of countries is desirable in order to obtain more robust estimates of the three-way interaction between divorce, CDR, and gender.

There are some limitations of our study which stem from the availability of the measures in the SHARE data. First, despite improvements, our indicator of marital status is imperfect. SHARE only measures marital status at the time of the interview; thus, we can only distinguish currently divorced and currently married respondents. The latter group, therefore, combines several categories of respondents including continuously married and re-married (after divorce) respondents. For this reason, we believe that our estimate of the disruptive effect of divorce upon intergenerational caregiving is only a lower bound estimate of the true effect. This is because parental remarriage tends to intensify conflict over personal issues between adult children and their parents and lowers the probability of support exchange (Schenk & Dykstra, 2012). If we were able to separate continuously married and re-married respondents, the difference in the frequency of intergenerational caregiving between the former group and divorced respondents would very likely be significantly larger than is reported in this paper. Another promising extension of this research would differentiate between married and cohabiting grandparents. Whereas the effect of adult children's union status (married, cohabiting, single) upon contact with parents has already been examined (Yahirun & Hamplová, 2014) and significant differences have been found, an analogous analysis by parental union status has not been carried out.

Second, we were not able to retrieve sufficiently detailed information about the timing of divorce as this was not part of the standard SHARE questionnaire. By not differentiating the timing of divorce, which is shown to be an important covariate in the intensity of the disruption of intergenerational support (Seltzer, 1991), the results represent an averaged effect of family dissolution on intergenerational support. Future research may explore the effect of more complex partnership trajectories on intergenerational support. However, this cannot be done – as we have pointed out – without losing a considerable number of observations. This shortcoming may be overcome in the future as the SHARE database increases in size and more respondents are added.

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Appendix A. Supplementary data

Supplementary material related to this article can be found, in the online version, at doi:https://doi.org/10.1016/j.alcr.2018.08.003.

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