

The COVID-19 pandemic and changes in the level of contact between older parents and their non-coresident children: A European study

Jorik Vergauwen¹, Katrijn Delaruelle^{1,2}, Pearl A. Dykstra³, Piet Bracke², and Dimitri Mortelmans¹

¹ University of Antwerp, ² Ghent University, ³ Erasmus University Rotterdam

Address correspondence to: Jorik Vergauwen, University of Antwerp, Department of Sociology, Sint-Jacobstraat 2, 2000 Antwerpen (Belgium).

Email: Jorik.Vergauwen@UAntwerpen.be

Abstract

Objective: The present study aims to investigate changes in the frequency of parent-child contact among Europeans aged 65 years and over within the context of the COVID-19 pandemic, while recognizing heterogeneity within the group of older adults.

Background: Physical distancing measures have been implemented worldwide to curb the spread of the COVID-19 pandemic. Although this policy has proven to be effective in flattening the curve, it undoubtedly posed a serious challenge to intergenerational relations. Experts hinted that physical distancing measures may have reduced older adults' level of contact with their non-coresident children. However, empirical evidence is lacking.

Method: Data from the SHARE COVID-19 questionnaire and previous SHARE waves for 26,077 individuals from 26 European countries and Israel were used and analyzed using multilevel multinomial logistic regression analysis.

Results: The analysis revealed that older adults' level of intergenerational contact remained stable or even increased – rather than decreased – during the COVID-19 pandemic. Despite the overall positive outcome, some subgroups (i.e., older men, residents of nursing homes, less educated older adults and older adults living in countries with less stringent COVID-19 measures) were more likely to report reduced intergenerational contact.

Conclusion: Although variation was observed among older adults, the pandemic generally did not pose a threat to their level of intergenerational contact with non-coresident children.

Key words: COVID-19, intergenerational contact, physical distancing, cross-national research, Europe, SHARE



1. Introduction

In order to halt the spread of the COVID-19 virus, national governments worldwide implemented unprecedented measures to reduce in-person interactions (Hale & Webster 2020). While this policy was crucial to both reduce the death toll of the pandemic and avoid the over-burdening of healthcare systems, it may also have had severe drawbacks for adults older than 65 years of age, who in particular were told to shut themselves off from others because of their high risk profile (Settersten et al. 2020; Wortham 2020). To date, an emerging body of research has assessed the negative impact of the pandemic and subsequent restrictions on older adults' mental health (Arpino et al. 2020b; Kim & Jung 2021) and increased loneliness (Stolz, Mayerl, & Freidl 2021; Van Tilburg, et al. 2020), but substantially less attention has been devoted to its repercussions for intergenerational relations. At best, there is some anecdotal evidence that the physical distancing measures undermined older adults' relations with their children.

The present study focuses on changes in one specific aspect of intergenerational relations over the course of the COVID-19 pandemic: contact frequency between older parents (aged 65 years and over) and their non-coresident children. More specifically, it aims to empirically assess differences in older adults' overall level of intergenerational contact (i.e., including all modes of communication, such as in-person contact, telephone calls, text messages, e-mails, video calls, etc.) between pre-COVID-19 times and during the pandemic (that started in early 2020), using longitudinal and nationally representative data for 26 European countries plus Israel (hereinafter referred to as 'European countries'). Prior to the pandemic, studies demonstrated that the majority of older adults in Europe had at least weekly contact with their children living outside the parental home (Cooney & Dykstra 2013; Steinbach et al. 2020), but because of the physical distancing measures that isolated older adults from their children, one could expect that the level of intergenerational interaction has generally decreased during the pandemic. However, this study also develops the alternative hypothesis that, rather than being a threat to parent-child ties, older adults had more frequent contact with their non-coresident children during the pandemic than before, fuelled by a shift towards more non-physical modes of communication (e.g., telephone and video calls, text messages, ...) between generations (Arpino et al. 2020a), intensified patterns of instrumental support requiring in-person contact (Gilligan et al. 2020) and concerns over each other's health and wellbeing (Giovanis & Ozdamar 2020).

A further contribution of this study is to identify older adults who were most likely to experience reduced contact frequency. The analysis scrutinizes whether changes in the level of parent-child interaction differ by gender, living arrangements and educational attainment. These factors have been repeatedly related to pre-COVID levels of parent-child contact (Hank 2007; Kalmijn 2006; Shapiro 2003), but little is known about their association with changes in contact frequency within the context of the pandemic. In times of restricted possibilities for in-person contact, older men, divorced parents, and residents of nursing homes, who are generally less embedded in family networks (Bracke, Christiaens & Wauterickx 2008; Settersten et al. 2020), may have been most likely to report a reduction in their level of intergenerational contact. In addition, one might expect that less educated older adults were more at risk too, as this group is more often digitally disadvantaged

(Anderson & Perrin 2017) and consequently may have been less able to maintain contact when physical distancing is required.

Finally, the current study recognizes that European countries responded differently to the outbreak of COVID-19, with some countries having implemented more stringent pandemic policies than others. Drawing on these country differences, this study also investigates cross-national variation in the changed levels of intergenerational contact during the health crisis.

2. Background

2.1 *The COVID-19 pandemic and intergenerational contact*

Frequent contact between older parents and their grown-up children is an important component of what has been called ‘intergenerational solidarity’ (Bengtson & Roberts 1991). It both reflects and fosters cohesion and integration within families, while it also provides opportunities for the exchange of instrumental support (Tosi & Grundy 2019; Ward, Deane, & Spitze 2014). Contact can also be seen as a form of support in itself, because it may meet social or emotional needs (Cooney & Dykstra 2013). In fact, it constitutes an important buffer against later-life loneliness and social isolation, especially for older adults living alone (de Jong Gierveld, Van Tilburg, & Dykstra 2016).

The COVID-19 pandemic has undoubtedly posed a serious challenge to intergenerational interaction. Physical distancing measures to curtail the spread of the virus may have weakened family relations, because they restricted older adults’ opportunities to meet their non-coresident children in person. In addition, older adults might have been fearful of seeing their children, given their high risk profile (Settersten et al. 2020) and adult children, in their turn, may also have preferred to minimize physical contact with their older parents to protect them from infection (Gilligan et al. 2020). Also, mandated school and childcare closures meant that adult children experienced increased time demands at home (Del Boca et al. 2020), potentially leaving less time to spend with their older parents. In sum, these observations lead to the hypothesis that *the contact frequency between older adults and their non-coresident children decreased during the COVID-19 pandemic (Hypothesis 1a)*.

However, there are also reasons to expect the opposite pattern, that is, *older adults had more frequent contact with their non-coresident children during the pandemic than before (Hypothesis 1b)*. First, there are some studies showing that, given the need to reduce physical contact to a minimum, older adults looked for alternative ways to connect with relatives. Arpino and colleagues (2020a), for instance, revealed that older adults in France, Italy and Spain increased their use of video calls and instant messages during the crisis to maintain their intergenerational relations at a distance. Moreover, families may have turned to non-physical modes of communication, not only to compensate for the reduction in physical interactions, but also as a way to cope with their increased feelings of fear, worries and uncertainties (Settersten et al. 2020). For instance, adult children may have worried more about the health of their parents during the pandemic than ever before and, therefore, decided to call them more frequently. Second, in the COVID-19 era, grocery shopping,

accessing healthcare, and receiving home care all posed new risks to older adults' health (Henning-Smith 2020). Consequently, older parents – and the oldest old in particular – likely experienced a greater need to rely on their adult children for instrumental support (Gilligan et al. 2020), which requires in-person contact (Cooley & Dykstra 2013). Furthermore, the COVID-19 pandemic may not only have intensified the flows of support from adult children to their older parents, downward support patterns may have increased too (Gilligan et al. 2020). As a result of the school closures and mandatory teleworking in many countries, a larger number of adult children likely turned to their older parents for looking after their grandchildren, despite the risks that in-person intergenerational contact entails.

2.2 Heterogeneity within the group of older adults

Although we hypothesize that intergenerational contact could have evolved either way during the COVID-19 pandemic, a scan of the literature suggests that some older adults may have been more likely to experience a reduction, or at least no increase, in their level of intergenerational contact than others. First, the COVID-19 pandemic may have especially posed a threat to older men in maintaining their relations with non-coresident children, as they are not as involved in intergenerational ties (Bracke et al. 2008). Compared to their female counterparts, older men generally provide less emotional and instrumental support to (Hank & Buber 2009; Steinbach 2013), and receive less help from their grown-up children (Brandt, Haberkern, & Szydlik 2009; Vergauwen & Mortelmans 2021). Men are also less likely to use non-physical forms of communication in their contact with offspring (Kimbrough et al. 2013; Quadrello et al. 2005). It is therefore plausible that fathers particularly experienced a reduction in intergenerational contact during the pandemic.

Second, older adults living without a partner may have been more likely to report decreased parent-child contact too. A consistent finding in the literature is that divorced parents generally experience less support exchange with – (Pezzin, Pollak, & Schone 2008; Shapiro 2003) and live further away from their children (Michielin, Mulder, & Zorlu 2008). They also report lower levels of parent-child relationship quality (Kalmijn 2013). In addition, adult children from divorced parents are required to divide their time and efforts between two individual parents, with fathers being more likely to fall short of contact and support as they have been less inclined to invest in their children (Kalmijn 2007; Shapiro 2003). In times of restricted possibilities for interpersonal contact, one could expect that children choose to trim down their contact with one of both divorced parents or, compared to married parents, to partition their scant contact between both parents. This may not hold for widowed parents as adult children tend to be highly responsive to the contact and support needs of widowed parent (Ha 2008; Kalmijn 2007).

Third, some researchers argue that less educated older adults have been less able to understand the complex and rapidly changing information about the virus (Thomeer, Yahirun, & Colón-López 2020), and consequently have been less likely to adhere to precautionary behaviours, such as physical distancing (Jehn & Zajacova 2020). The implication might be that less educated older adults' level of intergenerational contact hardly changed. Nevertheless, there are good reasons to assume that older adults with lower levels of education were more likely to experience reduced parent-child interactions during

the pandemic than their higher-educated counterparts: older adults with lower levels of education are more often digitally disadvantaged (Anderson & Perrin 2017), leading to fewer opportunities to maintain their intergenerational relations at a distance. In addition, they likely faced a greater need to minimize in-person interactions with their non-coresident children, given that underlying health conditions for severe COVID-19 infection – such as diabetes, chronic lung disease, and cardiovascular disease – are more prevalent than among older adults with higher educational degrees (Mikolai, Keenan, & Kulu 2020).

Last, older adults living in nursing homes may have been disproportionately affected. Because of the high COVID-19 death toll in nursing homes (Barnett & Grabowski 2020), almost all European countries implemented policies to restrict visits (Miralles et al. 2021). Countries such as Belgium, France, Germany and the Netherlands imposed a strict ‘no-visitor’ policy since mid-March, forcing nursing homes to close their doors for visits from relatives (Verbeek et al. 2020). As a result, institutionalized older adults – typically belonging to the oldest-old group – did not have the agency to decide for themselves whether maintaining intergenerational support exchanges are worth the risk of potential exposure to COVID-19 (Kemp 2021). One might therefore assume that older adults living in nursing homes were highly likely to experience decreased intergenerational contact, despite the testing of multiple alternatives to stay connected (e.g., window visits, video calls, separate secured meeting places, etc.).

Summing up the arguments developed above, the following hypotheses can be derived:

Hypothesis 2: During the COVID-19 pandemic, older men were more likely to experience a reduction, or at least no increase, in their level of intergenerational contact than their female counterparts.

Hypothesis 3: During the COVID-19 pandemic, divorced older adults were more likely to experience a reduction, or at least no increase, in their level of intergenerational contact than their married or widowed counterparts.

Hypothesis 4: During the COVID-19 pandemic, less educated older adults were more likely to experience a reduction, or at least no increase, in their level of intergenerational contact than their higher-educated counterparts.

Hypothesis 5: During the COVID-19 pandemic, institutionalized elderly were especially likely to experience a reduction in their level of intergenerational contact.

2.3 Cross-national differences

Changes in intergenerational relations within the context of the COVID-19 pandemic may not only relate to individual factors, but are also likely to be intertwined with broader societal factors, such as local policy responses to the pandemic.

Although all European countries implemented a range of measures to curb the spread of infections, there has been substantial variation in the level of stringency (Hale & Webster 2020). While some countries enacted strict suppression methods (e.g., generalized lockdown and mandated school and workplace closures), other countries – such as Sweden – established a milder mitigation approach. Because harsh distancing policies made physical intergenerational interactions (and window visits in the case of institutionalized older adults) almost impossible, we assume that *older adults living in countries with more stringent measures were more likely to experience a reduction, or at least no increase, in their level*

of intergenerational contact during the COVID-19 pandemic than those living in countries with less restrictive measures (Hypothesis 6).

3. Methods

3.1 Data and sample

To test our research hypotheses, we use data from the Survey of Health, Ageing and Retirement in Europe (SHARE) (Börsch-Supan et al. 2013). SHARE is a multidisciplinary and cross-national panel survey covering 28 European countries and Israel. The targeted sample involves respondents aged 50 and older (together with their cohabiting partners), yielding representative and internationally comparable micro-data for various fields of research. In response to the COVID-19 crisis of 2020, SHARE changed its data collection mode to interviewing longitudinal respondents by telephone, using a harmonized COVID-19-tailored questionnaire for 27 countries (Scherpenzeel et al. 2020)¹. This add-on COVID-19 fieldwork provides data for 52,310 longitudinal respondents (collected between early June and late July 2020) (Börsch-Supan 2020c). The specific questionnaire pertains to different life domains and includes questions referring to the period since the virus outbreak, allowing an in-depth examination on how older Europeans coped with the first impact of the pandemic.

The present analysis requires parent-child contact information recorded in both the COVID-19 interviews and the last regular SHARE interviews before this occasion. Given the particular focus of the COVID-19 questionnaire on potential infections and changes in life during the lockdown, the study also leans on the previous interviews to factor in respondents' socio-demographics, health status and children. As a result, 3963 newly-sampled respondents – who did not participate in any regular SHARE wave – were omitted from the sample. Moreover, to avoid the use of outdated longitudinal information, the selection of the last available regular interview was limited to SHARE waves 8 (2019-2020), 7 (2017) and 6 (2015) (Börsch-Supan 2020a, 2020b, 2020d), resulting in an additional exclusion of 1509 respondents with an earlier preceding interview (between 2004 and 2011). From the remaining sample of 46,838 observations, only parents with at least one child living no longer at home were extracted, given that restrictions on in-person contact primarily targeted between-household interactions (Arpino et al. 2020b). This led to the reduced number of 37,916 respondents. The final preparatory step was to select all respondents aged 65 and older as this group appeared most vulnerable to severe health complications as a consequence of a COVID-19 infection (Wortham 2020; Yanez et al. 2020). This translated into a subsample of 28,464 respondents clustered in 20,820 partnerships. The final selected sample includes 26,077 complete cases (91.6%). 8.4% of all observations showed a missing value on at least one variable of the analysis.

¹ Although Austria and Ireland previously participated in SHARE, those countries were not involved in the COVID-19 data collection.

3.2 Measures

3.2.1 Dependent variable

To examine how intergenerational contact has changed within the context of the COVID-19 crisis in Europe, the outcome variable of this study compares older adults' level of parent-child contact before the pandemic to their level of parent-child contact during the first months of the outbreak in 2020. The pre-COVID-19 measurement stems from the child questionnaire module of a regular SHARE interview. In this module, the respondent indicated how often there was contact during the year preceding the interview for each child separately, either in person or by electronic means. Response categories included: "daily", "several times a week", "about once a week", "about every two weeks", "about once a month", "less than once a month" and "never". In the COVID-19 questionnaire, however, the frequency of intergenerational contact was assessed differently. Respondents were asked: (i) "Since the outbreak of Corona, how often did you have personal contact, that is, face to face, with your own children from outside your home?" and (ii) "Since the outbreak of Corona, how often did you have contact by phone, email or any other electronic means with your own children from outside your home?" Respondents could answer: "daily", "several times a week", "about once a week", "less often", "never". The pre-COVID-19 and COVID-19 questions on intergenerational contact differ from each other in two important ways, requiring us to make adjustments to warrant comparability. First, the COVID-19 questionnaire contains separate measures for the frequency of in-person contact and contact by electronic means, whereas pre-COVID-19 interviews did not make this distinction. We therefore selected the most frequently used mode of contact in the COVID-19 questionnaire to achieve comparability. Second, unlike the pre-COVID-19 interviews, the COVID-19 survey includes a crude assessment of parent-child contact by considering the frequency of all non-coresident children together. To address this difference in question wording, we examined the validity of using either the average level of contact across all non-coresident children or the level of contact for the non-coresident child with whom they most frequently interacted as the pre-COVID-19 measure. Based on additional testing, we decided to use the former². These adjustments yielded two comparable variables measuring the level of intergenerational contact pre- and during COVID-19, with response values ranging from "never" to "daily".

Changes in the frequency of parent-child interactions were assessed by subtracting the pre-COVID-19 score from the COVID-19 score. These scores were then categorized into three groups: i) no change ('zero' score; ref. category), ii) a decrease (negative score), iii) an increase (positive score) in the level of intergenerational contact.

2 Analysis shows that pre-COVID-19 average and most frequent contact are oppositely related to the number of non-coresident children. A higher number of children leads to a lower average, while the highest contact frequency increases with more children. Considering that the number of non-coresident children also relates negatively to the COVID-19 frequency of contact with all children, we concluded that the COVID-19 variable resembles the average pre-COVID-19 the closest.

3.2.2 Independent variable

The analysis includes independent variables at three levels: i) individual, ii) household, and iii) country to uncover the correlates of changing intergenerational contact during the European COVID-19 crisis.

Individual and household level

Gender reflects whether respondents are male or female (ref. category). *Living arrangement* depicts the household composition of the respondent, indicating if a respondent i) lives together with a partner (ref. category), ii) lives alone as a widowed person, iii) lives alone as a divorced person, iv) lives alone but is not divorced or widowed (e.g. never married) or v) lives together with additional household members (e.g. children or other relatives), either as a single or with a partner. Furthermore, a dichotomy expresses whether the respondent lives in a *nursing home* or a residential care facility (no = ref. category). The *level of education* is assessed as a recode of the ISCED 1997 classification: low, middle and high educational attainment (ref. category).

The analyses control for well-known correlates of intergenerational contact at the individual and household level. First, as did previous research (Knoester, Petts, & Eggebeen 2007; Kroska & Elman 2009), we include a measure of *baseline contact frequency* to account for potential floor and ceiling effects, as well as to correct for confounding effects of initial contact frequency on the association between the key independent variables and changes in parent-child interactions (Allison 1990; Dalecki & Willits 1991). It is measured continuously (as days of contact in a year), by taking the average contact frequency across all non-resident children in the pre-COVID-19 questionnaires. Second, given that intergenerational care is closely related to the frequency of parent-child contact (Kalmijn & Dykstra 2006), we control for the respondents' age, physical limitations and changes in health since the virus outbreak. *Age* is categorized as follows: aged i) 65-74 (ref. category), ii) 75-84, and iii) 85 or older. Health is measured by the pre-COVID-19 *number of limitations with instrumental activities of daily living* (e.g., difficulties with eating, getting out of bed, shopping) (iADL) on the one hand and *subjective health changes since the virus outbreak* (i.e. health is improved = ref. category, worsened or about the same) on the other. Third, we take into consideration that older adults' housing situation might have had an impact on how the COVID-19 context has affected intergenerational interactions. As the oldest age categories are more likely to live in smaller dwellings (Abramsson & Andersson 2016), they may have had less opportunities for facilitating face-to-face intergenerational contact in accordance with physical distancing requirements (e.g., meeting in the garden). *Dwelling type* is introduced as a categorical variable that identifies the housing situation of the respondent, comprising of three categories: i) a free standing house (ref. category), ii) a row or double house, and iii) a multiple-dwelling building. Finally, child characteristics are included in the models as previous research has shown that older adults generally have more frequent contact with their daughters than sons (Fingerman, Huo, & Birditt 2020) and that parents living close to their children see their children more often than parents living further away (Hank 2007). Also, there is empirical evidence showing that the frequency of intergenerational contact depends on the number of children the parent has (Van der Pas, Van Tilburg, & Knipscheer 2007). Although the total amount of intergenerational contact is likely to increase with the number of children, it is plausible

that parents interact less frequently with each of them. The *gender composition of the set of children* is measured as a dummy variable indicating whether a respondent has at least one daughter or not (ref. category). *Parent-child proximity* takes the mean of the geographic parent-child distances for all individual non-coresident children and, hence, expresses how far the group of elsewhere-living children resides on average as a continuous measure³. The *number of children* is a continuous variable that reflects the total number, considering both coresident and non-coresident children.

Country level

The first variable to explain country variation is *the country's stringency index*, capturing the strictness of the policies that confined people's behavior during the first months of the COVID-19 crisis in Europe (Hale & Webster 2020). This indicator quantifies governments' immediate policy measures to reduce in-person interactions, taking multiple targeted domains into account (e.g. school and workplace closings, stay-at-home requirements, etc.), with higher scores referring to more restrictive measures. The stringency index provides time-series data with detailed day-by-day policy scores for all 27 countries in the year 2020. To select a comparable and representative measure of the stringency index for all countries, the scores were averaged from the day a country registered 10 confirmed infections or more (varying between the 2nd of February and 15th of March 2020 among all countries) until the start of the COVID-19 fieldwork (1st of June). Robustness checks showed that measures using the maximum or median scores (rather than the means) for this period yield comparable results for the analysis⁴. The models are controlled for the *maximum excess mortality* since the COVID-19 outbreak, as the population's contact patterns may have been influenced by the severity of the health crisis (or vice versa). This country factor is introduced as a harmonized measure of the severity of the health crisis prior to the interview period in a given country, considering that the COVID-19 pandemic induced excess mortality in many countries in spring 2020 (Kontis et al. 2020). For each country the maximum percentage of the excess mortality for the 2020 months of March, April and May was selected (Central Bureau of Statistics Israel 2021; Eurostat 2021).

3.3 Statistical analysis

The multilevel structure nests 26,077 respondents (level 1) in 19,205 partnerships (level 2), living in 27 countries (level 3). In this manner, we take into account the clustering of respondents in partnerships, as well as the shared national context of respondents from the same country. The main analysis uses multinomial logistic regressions to accommodate our categorical outcome and consists of five models. The null model only includes the intercept and allows us to assess the changes in the level of intergenerational contact during the COVID-19 pandemic (*Hypothesis 1*). Model 1 includes the key correlates relating to *Hypothesis 2 to 5*. Individual- and household level control variables are added in Model 2 and

3 The geographic distance categories are replaced by interval means: "less than 1km away": 0.5, "1-5km away": 3, "5-25km away": 15, "25-100km away": 62.5, "100-500km away": 300 and "500+ km away": 750.

4 The alternative measures of maximum and median stringency correlate 0.78 and 0.86 with the average respectively.

Model 3, respectively. Model 4 introduces the country level variables to test *Hypothesis 6*. Note that all models are controlled for baseline contact frequency and assessed using the Markov Chain Monte Carlo (MCMC) estimation procedure to ensure model convergence.

In addition to the main analysis, we estimate a set of multilevel binary logistic regression models (Models 4b) that examine differences between maintaining high/low levels of intergenerational contact and substantial changes during the COVID-19 pandemic (from high to low contact frequency, or vice versa). A high contact frequency reflects an average between once a week and daily, whereas a low contact frequency is a recode of an average of less than weekly and never⁵. Given the implementation of policy measures that abruptly discouraged or even prevented in-person contact, it is deemed insightful to test such considerable jumps in contact levels as a robustness check. Moreover, this set of models allows us, to a certain extent, to account once more for potential floor and ceiling effects, as changes in contact frequency are measured conditionally on pre-COVID-19 levels of intergenerational contact.

4. Results

4.1 Descriptive results

The descriptive characteristics of the sample are presented in Table 1. It reveals that, in general, 51.6% of the respondents increased their intergenerational contact, as compared to 11.7% of the respondents who had less frequent contact with their non-coresident children during the pandemic than before. Another 36.8% of the respondents did not experience any change in their level of parent-child contact after the COVID-19 outbreak. Furthermore, when contact change is measured conditionally on the level of contact pre-COVID-19, the descriptive statistics show that 82.5% of the older adults who had less than weekly contact with their non-coresident children before the outbreak of the pandemic, reported an increase to having at least weekly contact.

Table 2 presents an overview of the country-level characteristics. The countries are ranked by the proportion of respondents who experienced a reduction in their level of intergenerational contact. We observe more older adults with increased levels of parent-child interactions than decreased levels in all countries. The proportions for reduced contact frequency are largest in Cyprus (19.7%), Romania (16.5%) and Lithuania and Poland (15.4%), while smallest in France (6.9%), Switzerland (8%) and Slovakia and Sweden (8.9%).

5 “once a week” is used as cut-off value, as studies prior to the pandemic have shown that the majority of older adults see their children weekly or more. The SHARE data supports this observation: a substantial number of older adults had at least weekly contact with their non-coresident children before (88.6%) and during COVID-19 (94.3%).

Table 1: Descriptive statistics of variables for selected sample of parents (aged 65 or older) with at least 1 non-coresident child

| Variables | Range | % | Mean (S.D.) |
|--|--------|------|---------------|
| Outcome variables | | | |
| Stable parent-child contact ^{1a} | 0-1 | 36.8 | |
| Decreasing | 0-1 | 11.7 | |
| Increasing | 0-1 | 51.6 | |
| Contact changes from at least weekly to less often ^{1b} | 0-1 | 3.7 | |
| From less often than weekly to at least weekly | 0-1 | 82.5 | |
| Characteristics of respondents | | | |
| Male | 0-1 | 42.8 | |
| Age 65-74 | 0-1 | 53.5 | |
| 75-84 | 0-1 | 35.2 | |
| 85+ | 0-1 | 11.3 | |
| Living with partner only | 0-1 | 58.3 | |
| alone widowed | 0-1 | 17.9 | |
| alone divorced | 0-1 | 5.7 | |
| alone other | 0-1 | 3.8 | |
| with other household members | 0-1 | 14.3 | |
| Living in a nursing home | 0-1 | 1.1 | |
| Low educational attainment | 0-1 | 39.6 | |
| Middle | 0-1 | 38.3 | |
| High | 0-1 | 22.1 | |
| Number limitations with instrumental ADL | 0-15 | | 0.9 (2.4) |
| About the same health since outbreak ¹ | 0-1 | 87.4 | |
| Improved since outbreak ¹ | 0-1 | 2.9 | |
| Worsened since outbreak ¹ | 0-1 | 9.7 | |
| Residing in a free standing house | 0-1 | 54.5 | |
| In a row house | 0-1 | 11.0 | |
| In a multiple-dwelling building | 0-1 | 34.5 | |
| Characteristics of children | | | |
| Baseline parent-child contact freq. (number days) | 0-365 | | 163.7 (124.2) |
| Total number of children | 1-16 | | 2.5 (1.2) |
| Average parent-child geographic distance (per 10km) | 0.1-75 | | 12.7 (18.8) |
| At least one daughter (no daughter(s) ref.) | 0-1 | 72.4 | |
| Country characteristics | | | |
| Average stringency policy | 50-85 | | 67.1 (8.2) |
| Maximum excess mortality since outbreak | -2-79 | | 21.7 (24.4) |

Notes: Descriptive information for 26,077 complete observations included in the multivariate analysis, clustered in 19,205 partnerships (some variables are measured at the household level). ¹ Variable entirely or partly measured during SHARE add-on COVID-19-questionnaire. ^a Used as outcome variable in Model 0 to 4. ^b Used as outcome variable in Models 4b.

Table 2: Aggregate characteristics of selected countries in the sample

| Country | Share of sample (%) | (Changes in) parent-child contact (%) | | | Average stringency policy (index 100) | Max. excess mortality (%) |
|--------------------|---------------------|---------------------------------------|------|------|---------------------------------------|---------------------------|
| | | Stable | ↓ | ↑ | | |
| France | 4.9 | 30.5 | 6.9 | 62.7 | 65.3 | 36.4 |
| Switzerland | 4.3 | 30.9 | 8.0 | 61.1 | 60.7 | 24.9 |
| Slovakia | 1.2 | 21.4 | 8.9 | 69.7 | 73.6 | 2.0 |
| Sweden | 3.8 | 32.4 | 8.9 | 58.7 | 51.1 | 38.4 |
| Malta | 1.2 | 39.2 | 9.0 | 51.9 | 81.8 | 16.7 |
| Israel | 3.0 | 47.2 | 9.0 | 43.8 | 75.5 | 7.5 |
| Denmark | 4.4 | 35.3 | 9.5 | 55.3 | 63.8 | 6.4 |
| Germany | 5.6 | 33.1 | 9.5 | 57.4 | 50.7 | 9.0 |
| Spain | 4.4 | 45.4 | 11.0 | 43.6 | 69.2 | 78.9 |
| Italy | 6.9 | 48.4 | 11.5 | 40.2 | 79.2 | 48.9 |
| Greece | 6.8 | 46.2 | 11.5 | 42.3 | 72.0 | 7.6 |
| The Czech Republic | 6.9 | 32.8 | 11.6 | 55.6 | 62.0 | 2.8 |
| Latvia | 1.2 | 31.0 | 11.6 | 57.4 | 64.3 | 2.5 |
| The Netherlands | 1.2 | 34.8 | 11.8 | 53.4 | 65.2 | 53.6 |
| Belgium | 7.7 | 33.3 | 12.0 | 54.7 | 70.2 | 72.8 |
| Croatia | 3.0 | 38.8 | 12.0 | 49.2 | 74.6 | 2.2 |
| Finland | 2.2 | 33.4 | 12.2 | 54.5 | 56.5 | 8.1 |
| Bulgaria | 1.4 | 29.2 | 12.5 | 58.3 | 66.8 | -2.2 |
| Estonia | 9.2 | 31.4 | 12.8 | 55.8 | 60.1 | 6.4 |
| Hungary | 1.2 | 34.5 | 13.7 | 51.8 | 70.4 | 1.0 |
| Luxembourg | 1.6 | 36.4 | 14.4 | 49.3 | 68.2 | 18.9 |
| Slovenia | 6.6 | 39.1 | 14.9 | 46.0 | 68.4 | 5.3 |
| Portugal | 2.1 | 45.7 | 15.0 | 39.3 | 71.6 | 15.6 |
| Lithuania | 2.2 | 35.7 | 15.4 | 49.0 | 78.1 | 5.5 |
| Poland | 4.1 | 33.1 | 15.4 | 51.5 | 73.2 | 4.2 |
| Romania | 2.0 | 39.0 | 16.5 | 44.5 | 77.7 | 2.0 |
| Cyprus | 1.0 | 44.0 | 19.7 | 36.3 | 85.0 | 22.5 |

Notes: Presents country and parent-child contact proportions for 26,077 complete observations included in the multivariate analysis.

4.2 Multivariate results

Table 3 presents the results of the multivariate analysis, with ‘unchanged frequency of intergenerational contact’ as the reference category of the outcome variable. The null model estimates the variation in the outcome variable at the individual, the household and the country level. It confirms that, taking into account variation between countries, older adults were most likely to report increased levels of parent-child contact. Model 1 includes the independent variables of interest and adjusts for baseline contact frequency, the latter

indicating that older adults with high levels of intergenerational interaction prior to the pandemic were more prone to reduced contact frequency and less likely to report increased contact with their non-coresident children. This result reflects that contact change is tied to the initial contact frequency before the virus outbreak (e.g. parents with a daily contact pre-COVID-19 can only keep or decrease their contact frequency during COVID-19) and thus provides evidence for both a floor and ceiling effect. More crucially, we observe that older men were more likely to report a decrease and less likely to report an increase in their level of intergenerational interaction than their female counterparts. In addition, less educated older adults were more likely to experience a reduction in the frequency of parent-child contact than higher-educated older adults, while also less likely to increase their contact frequency. Furthermore, as expected, living in a nursing home was positively related with reduced levels of intergenerational contact, while negatively associated with increased contact. The results for living arrangements are as follows: widowed older adults were less likely to report a decrease and more likely to report an increase in their level of parent-child contact than older adults living with their partner. In contrast, we observe no significant differences between divorced older adults and partnered older adults as regards reduced contact frequency. The results, however, show that divorced older adults were less likely to experience increased levels of intergenerational interaction after the COVID-19 outbreak than their partnered counterparts.

Respondent and child characteristics are introduced as control variables in Model 2 and 3, respectively. Some of these are significantly related to changes in the frequency of parent-child contact. First, older adults aged 75 and over tended to have more frequent contact with their non-coresident children during the pandemic than before, as compared to older adults in the age group 65-74. Second, having more severe functional limitations is found to be positively related to reduced levels of intergenerational contact, while negatively associated with increased contact. Third, significant differences are observed with regard to dwelling type: older adults living in a row house or a multiple-dwelling building were less likely to report decreased parent-child interactions than older adults living in a free standing house. Fourth, having more children protected against a reduction and simultaneously promoted an increase in the level of intergenerational contact. Fifth, parent-child proximity is observed to be a correlate of changes in the frequency of intergenerational interaction: the further away their children live, the less likely older adults were to report increased contact. Sixth, older adults with at least one daughter were less likely to experience reduced intergenerational contact, and more likely to experience an increase in parent-child interaction. The inclusion of the control variables did not alter any significant key finding.

Model 4 adds the country-level factors. It shows a significant association between the stringency of the implemented COVID-19 measures and changes in the frequency of parent-child contact. In contrast to what was expected, older adults' level of intergenerational interaction was less likely to reduce and more likely to increase in countries with more restrictive measures. Furthermore, we find that older adults living in countries with higher excess mortality rates were less likely to report a decrease in their level of intergenerational contact compared to older adults living in countries with lower excess mortality rates.

Table 3: Regression coefficients of three-level multinomial logistic regression analysis of parent-child contact changes (no change ref.) (Model 1-5) and three-level binomial logistic regression analysis of substantial parent-child contact changes conditional on pre-COVID-19 level (varying ref. category) (Models 5b).

| Contrast | Model 0 | | Model 1 | | Model 2 | | Model 3 | | Model 4 | | Models 4b | |
|--|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|------------|------------|
| | Increase | Decrease | High→low 1 | Low→high 2 |
| Intercept | 0.435*** | -2.044*** | 4.988*** | -4.539*** | 4.856*** | -4.145*** | 4.430*** | -2.535*** | 0.078 | -3.754*** | 0.825*** | -1.019*** |
| Baseline parent-child contact frequency | 0.007*** | 0.856*** | -0.027*** | 0.007*** | -0.027*** | 0.006*** | -0.027*** | 0.007*** | -0.027*** | 0.007*** | -0.423*** | -0.647*** |
| Male (female ref.) | -0.415*** | 0.853*** | 0.341*** | -0.464*** | 0.306*** | -0.457*** | 0.307*** | -0.471*** | 0.304*** | -0.471*** | 0.193 | -1.492*** |
| Living alone widowed (living partnered ref.) | -0.060 | -0.374* | -0.262** | -0.018 | -0.423*** | -0.035 | -0.362** | -0.020 | -0.359** | -0.067 | 0.140 | -1.050** |
| Living alone other | -0.075 | 0.211* | -0.062 | -0.387* | -0.077 | -0.384* | -0.072 | -0.369** | 0.140 | 0.140 | 0.197* | 0.059 |
| Living with other household members | -0.075 | 0.211* | -0.062 | -0.387* | -0.077 | -0.384* | -0.072 | -0.369** | 0.140 | 0.140 | 0.197* | 0.059 |
| Living in nursing home (not ref.) | 1.817*** | -1.160*** | 1.220*** | -0.838** | 1.215*** | -0.853*** | 1.256*** | -0.844*** | 0.666** | 0.666** | 0.666** | -0.755 |
| Low educational attainment (high ref.) | 0.552*** | -0.188* | 0.467*** | -0.140* | 0.484*** | -0.219** | 0.511*** | -0.202** | 0.514*** | -0.202** | 0.514*** | -0.375 |
| Middle | 0.265** | -0.040 | 0.241** | -0.009 | 0.234*** | -0.038 | 0.248** | -0.028 | 0.273** | -0.028 | 0.273** | 0.099 |
| Age 75-84 (65-74 ref.) | 0.068 | 0.126* | 0.068 | 0.126* | 0.077 | 0.117* | 0.088 | 0.118* | 0.125 | 0.118* | 0.125 | 0.451* |
| 85+ | 0.109*** | -0.067*** | 0.109*** | -0.067*** | 0.110*** | -0.068*** | 0.113*** | -0.069*** | 0.134*** | -0.069*** | 0.134*** | -0.162*** |
| Number limitations with instrumental ADL | 0.003 | 0.033 | 0.003 | 0.033 | 0.003 | 0.033 | 0.003 | 0.033 | 0.014 | 0.014 | 0.131 | -0.234 |
| Health improved since outbreak (same ref.) | 0.047 | -0.219* | 0.047 | -0.219* | 0.040 | -0.222* | 0.049 | -0.205* | 0.118 | -0.019 | 0.118 | -0.545* |
| Worsened | 0.047 | -0.219* | 0.047 | -0.219* | 0.040 | -0.222* | 0.049 | -0.205* | 0.118 | -0.019 | 0.118 | -0.545* |
| Residing in a row house (free standing ref.) | -0.138* | 0.029 | -0.138* | 0.029 | -0.163* | 0.059 | -0.155* | 0.064 | 0.064 | 0.064 | -0.030 | 0.033 |
| A multiple-dwelling building | -0.138* | 0.029 | -0.138* | 0.029 | -0.163* | 0.059 | -0.155* | 0.064 | 0.064 | 0.064 | -0.030 | 0.033 |
| Number of children | -0.082* | 0.000 | -0.082* | 0.000 | -0.082* | 0.000 | -0.070* | 0.001 | 0.213*** | -0.078*** | 0.213*** | 0.339*** |
| Average parent-child geographic distance | -0.005*** | 0.000 | -0.005*** | 0.000 | -0.005*** | 0.000 | -0.005*** | 0.001 | -0.005*** | 0.001 | 0.002 | -0.006 |
| At least one daughter (no daughter(s) ref.) | -0.226** | 0.150* | -0.226** | 0.150* | -0.226** | 0.150* | -0.226** | 0.154* | 0.154* | 0.154* | -0.040 | -0.358* |
| Average stringency policy | -0.026*** | 0.064*** | -0.026*** | 0.064*** | -0.026*** | 0.064*** | -0.026*** | 0.064*** | 0.064*** | 0.064*** | -0.003 | 0.035*** |
| Maximum excess mortality since outbreak | -0.007* | 0.000 | -0.007* | 0.000 | -0.007* | 0.000 | -0.007* | 0.000 | 0.000 | 0.000 | -0.009* | 0.005 |
| Random intercept: variance in country | 0.097 | 0.438 | 0.337 | 0.821 | 0.334 | 0.816 | 0.305 | 0.807 | 0.421 | 0.421 | 0.303 | 0.241 |
| Random intercept: variance in household | 3.382 | 9.201 | 4.688 | 5.395 | 4.955 | 5.366 | 5.072 | 5.326 | 5.399 | 5.391 | 0.001 | 6.843 |

Notes: N = 26 077; * p < 0.05, ** p < 0.01, *** p < 0.001. ¹ Contact changes from at least weekly to less often (ref. continued at least weekly). ² Contact changes from less often than weekly to at least weekly (ref. continued less often than weekly).

Models 4b assess considerable jumps in contact levels in relation to the independent variables. The associations between the individual-level key factors and the likelihood of decreased parent-child interactions are similar to those observed in Model 4. This implies that older men, less educated older adults and residents from nursing homes were not only more likely to report any decrease, but also tended to report substantial reductions in their level of intergenerational contact (from at least weekly to less than weekly contact). In contrast, the results for increased contact frequency differ from those shown in Model 4, except for gender and living alone divorced. We find that while widowed older adults were more likely to report any increase in the frequency of parent-child interactions than their partnered counterparts, they had a significantly lower likelihood to report considerable increases (from less than weekly to at least weekly contact). This might be due to a ceiling effect. Widowed parents generally have a high baseline level of parent-child contact, hence the group with pre-COVID-19 infrequent contact might be selective. In addition, the results show no statistically significant relations between educational attainment and living in a nursing home on the one hand and substantial increases in contact frequency on the other, potentially as a consequence of selecting the small group of parents with a pre-COVID-19 low contact.

4.3 *Sensitivity checks*

We performed several sensitivity checks (available upon request) to assess the robustness of our results. First, we calculated descriptive statistics and estimated multilevel models with an outcome variable using the most frequent contact – instead of the average contact frequency across all children – as the pre-COVID-19 measure. We found that the proportion of older adults reporting decreased levels of intergenerational interaction was substantially higher when using this alternative operationalization: 20.3% (most frequent pre-COVID-19 contact level) compared to 11.7% (average pre-COVID-19 contact level). In addition, similar multivariate results were obtained, except for the intercept model. The alternative null model indicated that older adults were more likely to report unaltered levels of parent-child contact than increased levels, and least likely to report decreased contact frequency in this case. Second, to further rule out differences between average and most frequent pre-COVID-19 contact, also a subsample including parents with only one non-coresident child was tested. The estimated parameters tentatively confirmed our main conclusions as the statistical power was more limited due to the small sample size ($N = 7453$). Third, our results may partially be driven by unobserved heterogeneity. Certain events, other than the COVID-19 pandemic, may have occurred in a person's life during the observation period (e.g., widowhood, grandparenthood, ...). These events can also be the driving force behind within-person changes in intergenerational contact. To address this issue, we conducted a sensitivity check with a sample restricted to participants for which information on intergenerational contact was available in the most recent pre-COVID-19 interview in 2019 or 2020 (i.e., Wave 8). In doing so, we minimized the risk that respondents had experienced events other than the COVID-19 pandemic during the observation period. Similar results were obtained.

5. Conclusion

The present study aimed to investigate changes in older adults' level of intergenerational contact with non-coresident children within the context of the COVID-19 pandemic, using data from 26,077 European respondents aged 65 years and over. Overall, the results revealed that the frequency of parent-child interactions did not reduce after the outbreak of the pandemic, but rather remained stable or even increased. Despite this overall positive picture, some older adults were more likely to report reduced contact frequency than others. We discuss these findings in greater detail below.

First, in the absence of empirical evidence, experts raised concerns about the detrimental effects of the implemented physical distancing measures to contain COVID-19 transmission on family relations. They hinted that people's restricted opportunities to meet in person may have resulted in decreased parent-non-coresident child interactions. Our findings, however, do not corroborate these concerns. We found that older adults were generally more likely to experience no change or an increase in contact frequency with their children than a decrease. Given that the results suggest that antecedents of upwards support exchanges (i.e., age, functional limitations, COVID-19 related health problems) are not the sole drivers of the observed changes in contact frequency, explanations other than older adults' increased care need to be considered. Two potential mechanisms are: (i) older adults' increased reliance on digital communication to compensate for the reduction in physical interactions (Arpino et al. 2020a) and as a way to deal with uncertainties, fear experiences and worries during the pandemic (Settersten et al. 2020), and (ii) the intensification of downwards support patterns, such as grandparental care (Gilligan et al. 2020).

Second, our findings suggest that changes in intergenerational interactions after the outbreak in the COVID-19 pandemic vary between different socio-demographic groups. In line with our expectations, the analysis revealed that older men, less educated older adults and adults living in nursing homes were more likely to report decreased parent-child contact than their counterparts. This finding underscores the stratifying role of the health crisis. Earlier studies already showed that the pandemic exacerbated existing gender roles in the labor market and household (Fisher & Ryan 2021; Reichelt, Makovi, & Sargsyan 2020). Our study adds to this body of knowledge by showing that COVID-19 has strengthened women's traditional role as kin-keeper and further challenged men's embeddedness in intergenerational ties. In addition, it complements recent research on COVID-19 and inequality by demonstrating that not only the risks of becoming infected (Niedzwiedz et al. 2020), but also the risks of being indirectly affected by the crisis were unequally distributed along educational lines. Potential reasons why older adults with lower levels of educational attainment were more prone to reduced parent-child interactions are as follows: they tend to be more often digitally disadvantaged (Anderson & Perrin 2017), which left them fewer opportunities to maintain their intergenerational relations at a distance. In addition, they might have been more reluctant to meet their children in person because of their disproportionately higher risk of complications from COVID-19 (Mikolai et al. 2020). Furthermore, the pandemic has exposed the vulnerable position of nursing home residents. Several researchers have already identified the prolonged isolation as another threat to the health of the institutionalized elderly (Abbasi 2020; Simard & Volicer 2020). Our study contributes to this picture, by showing that older adults living in nursing homes were far

more likely to report decreased parent-child interactions than community-dwelling older adults.

Third, contrary to what was expected, divorced older adults living alone were not more likely to experience decreased parent-child contact than those living with a partner. At the same time, divorced parents were less likely to report increased contact. In contrast, widowed older adults appeared to be better protected against reduced contact frequency and were more likely to report increased contact than their partnered counterparts. This might result from widowed partners relying more on their children for emotional and instrumental support (Ha & Ingersoll-Dayton 2008). Also, children may have been more attentive to, and worried about their parents' social wellbeing when their parents were lacking an intimate partner to talk to.

Fourth, the results did not support our hypothesis that older adults living in countries with more stringent measures were more likely to report reduced parent-child interactions. Instead, the opposite was observed. We see three potential explanations for this. First, it could be that more stringent policies (such as childcare and school closures at all levels, and mandatory teleworking) brought adult children to turn to their parents more often for grandchild care (Gilligan et al. 2020), which requires in-person contact. Similarly, the restricted availability of formal care services in countries with more stringent measures may have been a reason for adult children to visit their parents more frequently than before. Also, individuals living in countries that enacted strict suppression methods may have been more aware of the severity of the pandemic and more confronted with its fatal consequences (Sabat et al. 2020). As a result, they may have worried more about the health of their family members and have called them more frequently as a way to deal with these concerns. In addition, adult children may have been easier to contact in countries with harsh anti-COVID-19 measures, as mandatory teleworking provided them with flexibility.

This study is not without limitations. First, pre-COVID-19 SHARE questionnaires did not make a distinction between physical and non-physical forms of intergenerational contact. Our analyses were therefore by necessity restricted to contact changes in the overall level of parent-child interactions. This restriction is unfortunate, given that the pandemic probably affected the two forms of intergenerational contact in opposite ways (i.e., a drop in physical contacts versus an increase in non-physical contacts). In this regard, Arpino et al. (2020a) showed that about 40% of the 65+ population from France, Spain and Italy reduced their physical contacts with their children, while more than 50% indicated that they had more frequent non-physical intergenerational interactions during the pandemic than before. Moreover, the distinction between the two kinds of contact would have allowed us to scrutinize different dimensions of intergenerational ties (Cooley & Dykstra 2013), as physical contact is more strongly related to instrumental support exchanges while non-physical contact is possibly a better predictor of emotional support in times of physical distancing. Second, the COVID-19 SHARE questionnaire asked respondents about the contact frequency with all their non-coresident children together, while regular SHARE interviews yielded a separate measure for each child. Sensitivity analyses revealed that the difference in question wording had little bearing on our multivariate results, yet it made it difficult to analyze the impact of the pandemic in a descriptive way. The estimates of the proportions were actually dependent on the operationalization of the outcome variable. Moreover, it hindered us to make reliable cross-national comparisons, as cultural

differences could impact older adults' response to the question in the COVID-19 questionnaire. While in some countries older adults may have the tendency to answer this question in terms of average levels of parent-child interactions, older adults from other countries may inform their response with reference to the child with whom they have the strongest connection. Our descriptive results should therefore be interpreted with caution. Third, SHARE does not collect information on normative solidarity, which refers to people's beliefs about family obligations and responsibilities (Bengtson & Roberts 1991) and which is generally considered an important predictor of parent-child interactions (Cooley & Dykstra 2013). Future empirical studies should account for measures of perceived family responsibilities, as the pandemic may have yielded different effects on the level of intergenerational contact for older adults who more strongly endorse obligations towards their (grand)children. Fourth, the sample includes only a small number of respondents living in nursing homes, challenging the correct representation of the European institutionalized population. Considering that we are looking at a rather selective part of interviewed nursing home residents with intact cognition (or less hearing problems, given the mode of interviewing), our estimates may present a conservative picture of the true negative contact repercussions of the pandemic for the institutionalized elderly. More generally, given that non-physical forms of communication were key for maintaining contact during the pandemic, the impossibility of carrying out face-to-face interviews may have biased the representation of the most frail and old respondents in particular, leading to an underestimation of decreased intergenerational contact. Last, although longitudinal data was used, we should be careful with interpreting our findings in causal terms. Events other than the COVID-19 pandemic may have occurred in older adults' lives (e.g., widowhood, grandparenthood). These might be the driving forces behind within-person changes too. By conducting sensitivity checks, in which the sample was restricted to respondents for which the most recent pre-COVID information dated back to wave 8, we aimed to control to a certain extent for this unobserved heterogeneity.

Despite these limitations, our findings serve as a starting point for future research into the consequences of the pandemic on older adults' level of parent-child relations. This study shows the importance of drawing distinctions within the group of older adults. Although the pandemic generally did not pose a threat to older adults' contact frequency with their non-coresident children, some subgroups nevertheless experienced reduced intergenerational interactions. Future research should pay closer attention to these subgroups and dig deeper into potential causes of this heterogeneity. In addition, it would be interesting to study these subgroups from an intersectional perspective. For instance, one may examine whether "being male" and "being divorced" have a cumulative effect on reduced contact frequency, given that divorced fathers are generally less embedded in family relations than their partnered counterparts (Kalmijn 2007). Furthermore, data needs to be collected that allows for further analysis on older adults who are difficult to reach (e.g. nursing home residents). We propose two potential research questions in this regard: (i) has the institutionalized elderly living in countries with more limiting nursing home restrictions been hit hardest by the pandemic? and (ii) could the observed gender and educational differences in the impact of the pandemic on parent-child interactions also be observed among a subpopulation that had little agency to disregard the physical distancing measures? Finally, future research should study the significance of our results in relation

to the negative effects that the pandemic had on older adults' feelings of loneliness and mental health. At first glance, it might seem contradictory that the pandemic resulted in increased loneliness and depression in older adults, while their level of intergenerational contact remained fairly stable or even increased. However, three observations need to be kept in mind. First, older adults' social relations are not restricted to intergenerational relations. Most of them also maintain relations with siblings, friends, neighbors, etc. (Litwin & Landau 2000). To date, little is known about the impact of the pandemic on these types of relations. Second, increased intergenerational contact may also have been a source of tension during the pandemic (Gilligan et al. 2020). For instance, older adults' greater risk of developing serious complaints from the virus may have intensified emotional or physical withdrawal from offering grandparental care. Third, assuming that the increase in intergenerational contact has particularly been driven by an increased reliance on non-physical forms of communication, it could be that older adults were reminded of the physical social interactions they were missing during the pandemic (Fingerman et al. 2021), with obvious negative consequences for loneliness and mental health.

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References

- Abbasi, J. (2020). Social isolation—the other COVID-19 threat in nursing homes. *Jama*, 324(7), 619-620.
<https://doi.org/10.1001/jama.2020.13484>
- Abramsson, M., & Andersson, E. (2016). Changing preferences with ageing—housing choices and housing plans of older people. *Housing, Theory and Society*, 33(2), 217-241.
<https://doi.org/10.1080/14036096.2015.1104385>

- Anderson, M., & Perrin, A. (2017). *Technology use among seniors*. Washington, DC: Pew Research Center for Internet & Technology.
- Arpino, B., Pasqualini, M., Bordone, V., & Solé-Auró, A. (2020a). Indirect consequences of COVID-19 on people's lives. Findings from an on-line survey in France, Italy and Spain. <https://doi.org/10.31235/osf.io/4sfv9>
- Arpino, B., Pasqualini, M., Bordone, V., & Solé-Auró, A. (2020b). Older people's nonphysical contacts and depression during the COVID-19 lockdown. *The Gerontologist*, 61(2), 176-186. <https://doi.org/10.1093/geront/gnaa144>
- Barnett, M. L., & Grabowski, D. C. (2020). Nursing homes are ground zero for COVID-19 pandemic. *JAMA Health Forum*, 1(3), e200369-e200369. <https://doi.org/10.1001/jamahealthforum.2020.0369>
- Bengtson, V. L., & Roberts, R. E. (1991). Intergenerational solidarity in aging families: An example of formal theory construction. *Journal of Marriage and the Family*, 53(4), 856-870. <https://doi.org/10.2307/352993>
- Börsch-Supan, A. (2020a). Survey of Health, Ageing and Retirement in Europe (SHARE) Wave 6. Release version: 7.1.0. In SHARE-ERIC (Ed.), (Release version: 6.0.0. ed.).
- Börsch-Supan, A. (2020b). Survey of Health, Ageing and Retirement in Europe (SHARE) Wave 7. Release version: 7.1.0. In SHARE-ERIC (Ed.), (Release version: 6.0.0. ed.).
- Börsch-Supan, A. (2020c). Survey of Health, Ageing and Retirement in Europe (SHARE) Wave 8. COVID-19 Survey 1. Release version: 0.0.1. beta. In SHARE-ERIC (Ed.), (Release version: 6.0.0. ed.).
- Börsch-Supan, A. (2020d). Survey of Health, Ageing and Retirement in Europe (SHARE) Wave 8. Release version: 0.0.1. beta. In SHARE-ERIC (Ed.), (Release version: 6.0.0. ed.).
- Börsch-Supan, A., Brandt, M., Hunkler, C., Kneip, T., Korbmacher, J., Malter, F., . . . Zuber, S. (2013). Data Resource Profile: The Survey of Health, Ageing and Retirement in Europe (SHARE). *International Journal of Epidemiology*, 42(4), 992-1001. doi:10.1093/ije/dyt088
- Bracke, P., Christiaens, W., & Wauterickx, N. (2008). The pivotal role of women in informal care. *Journal of Family Issues*, 29(10), 1348-1378. <https://doi.org/10.1177%2F0192513X08316115>
- Brandt, M., Haberkern, K., & Szydlik, M. (2009). Intergenerational help and care in Europe. *European sociological review*, 25(5), 585-601. <https://doi.org/10.1093/esr/jcn076>
- Central Bureau of Statistics Israel. (2021). *Excess deaths during the coronavirus pandemic*. <https://github.com/nytimes/covid-19-data/tree/master/excess-deaths> [retrieved March 17, 2021]
- Cooney, T. M., & Dykstra, P. A. (2013). Theories and their empirical support in the study of intergenerational family relationships in adulthood. In M.A. Fine & F.D. Fincham (Eds.), *Handbook of family theories: A content-based approach*. New York: Routledge/Taylor and Francis, 356-378.
- De Jong Gierveld, J., Van Tilburg, T., & Dykstra, P. A. (2018). Loneliness and social isolation: New ways of theorizing and conducting research. In A. L. Vangelisti & D. Perlman (Eds.), *Cambridge handbook of personal relationships*, 2nd Ed. New York: Cambridge University Press, 391-404. <https://doi.org/10.1017/9781316417867.031>
- Dalecki, M., & Willits, F. K. (1991). Examining change using regression analysis: Three approaches compared. *Sociological Spectrum*, 11(2), 127-145. <https://doi.org/10.1080/02732173.1991.9981960>

- Del Boca, D., Oggero, N., Profeta, P., & Rossi, M. (2020). Women's and men's work, housework and childcare, before and during COVID-19. *Review of Economics of the Household*, 18(4), 1001-1017.
<https://doi.org/10.1007/s11150-020-09502-1>
- Eurostat. (2021). Excess mortality - monthly data.
https://ec.europa.eu/eurostat/databrowser/view/demo_mexrt/default/table?lang=en [retrieved March 17, 2021]
- Fingerman, K. L., Huo, M., & Birditt, K. S. (2020). Mothers, fathers, daughters, and sons: Gender differences in adults' intergenerational ties. *Journal of Family Issues*, 41(9), 1597-1625.
<https://doi.org/10.1177%2F0192513X19894369>
- Fingerman, K. L., Ng, Y. T., Zhang, S., Britt, K., Colera, G., Birditt, K. S., & Charles, S. T. (2021). Living alone during COVID-19: Social contact and emotional well-being among older adults. *The Journals of Gerontology: Series B*, 76(3), e116-e121.
<https://doi.org/10.1093/geronb/gbaa200>
- Fisher, A. N., & Ryan, M. K. (2021). Gender inequalities during COVID-19. *Group Processes & Intergroup Relations*, 24(2), 237-245.
<https://doi.org/10.1177%2F1368430220984248>
- Gilligan, M., Sutor, J. J., Rurka, M., & Silverstein, M. (2020). Multigenerational social support in the face of the COVID-19 pandemic. *Journal of Family Theory & Review*.
<https://doi.org/10.1111/jftr.12397>
- Giovanis, E., & Ozdamar, O. (2020). Who is left behind? Altruism of giving, happiness and mental health during the Covid-19 period in the UK. *Applied research in quality of life*, 1-26.
<https://doi.org/10.1007/s11482-020-09900-8>
- Ha, J.-H. (2008). Changes in support from confidants, children, and friends following widowhood. *Journal of Marriage and Family*, 70(2), 306-318.
<https://doi.org/10.1111/j.1741-3737.2008.00483.x>
- Ha, J.-H., & Ingersoll-Dayton, B. (2008). The effect of widowhood on intergenerational ambivalence. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, 63(1), S49-S58.
<https://doi.org/10.1093/geronb/63.1.S49>
- Hale, T., & Webster, S. (2020). *Oxford COVID-19 government response tracker*. Blavatnik School of Government Working Paper.
- Hank, K. (2007). Proximity and contacts between older parents and their children: A European comparison. *Journal of Marriage and Family*, 69(1), 157-173.
<https://doi.org/10.1111/j.1741-3737.2006.00351.x>
- Hank, K., & Buber, I. (2009). Grandparents caring for their grandchildren: Findings from the 2004 Survey of Health, Ageing, and Retirement in Europe. *Journal of Family Issues*, 30(1), 53-73.
<https://doi.org/10.1177%2F0192513X08322627>
- Henning-Smith, C. (2020). The unique impact of COVID-19 on older adults in rural areas. *Journal of Aging & Social Policy*, 32(4-5), 396-402.
<https://doi.org/10.1080/08959420.2020.1770036>
- Jehn, A., & Zajacova, A. (2020). COVID-19 health precautions: Examining demographic and socioeconomic disparities.
<https://doi.org/10.31235/osf.io/fdswk>
- Kalmijn, M. (2006). Educational inequality and family relationships: Influences on contact and proximity. *European sociological review*, 22(1), 1-16.
<https://doi.org/10.1093/esr/jci036>
- Kalmijn, M., & Dykstra, P. A. (2006). Differentials in face-to-face contact between parents and their grown-up children. In P. A. Dykstra, M. Kalmijn, T. C. M. Knijn, A. Komter,

- A. C. Liefbroer & C. H. Mulder (Eds.), *Family solidarity in the Netherlands*. Amsterdam: Dutch University Press, 63-88.
- Kalmijn, M. (2007). Gender differences in the effects of divorce, widowhood and remarriage on intergenerational support: Does marriage protect fathers? *Social forces*, 85(3), 1079-1104.
<https://doi.org/10.1353/sof.2007.0043>
- Kalmijn, M. (2013). Long-term effects of divorce on parent-child relationships: Within-family comparisons of fathers and mothers. *European sociological review*, 29(5), 888-898.
<https://doi.org/10.1093/esr/jcs066>
- Kemp, C. L. (2021). # MoreThanAVisitor: Families as “essential” care partners during COVID-19. *The Gerontologist*, 61(2), 145-151.
<https://doi.org/10.1093/geront/gnaa161>
- Kim, H. H.-s., & Jung, J. H. (2021). Social isolation and psychological distress during the COVID-19 pandemic: A cross-national analysis. *The Gerontologist*, 61(1), 103-113.
<https://doi.org/10.1093/geront/gnaa168>
- Kimbrough, A. M., Guadagno, R. E., Muscanell, N. L., & Dill, J. (2013). Gender differences in mediated communication: Women connect more than do men. *Computers in Human Behavior*, 29(3), 896-900.
<https://doi.org/10.1016/j.chb.2012.12.005>
- Knoester, C., Petts, R. J., & Eggebeen, D. J. (2007). Commitments to fathering and the well-being and social participation of new, disadvantaged fathers. *Journal of Marriage and Family*, 69(4), 991-1004.
<https://doi.org/10.1111/j.1741-3737.2007.00426.x>
- Kontis, V., Bennett, J. E., Rashid, T., Parks, R. M., Pearson-Stuttard, J., Guillot, M., . . . Ezzati, M. (2020). Magnitude, demographics and dynamics of the effect of the first wave of the COVID-19 pandemic on all-cause mortality in 21 industrialized countries. *Nature Medicine*, 26(12), 1919-1928.
<https://doi.org/10.1038/s41591-020-1112-0>
- Kroska, A., & Elman, C. (2009). Change in attitudes about employed mothers: Exposure, interests, and gender ideology discrepancies. *Social Science Research*, 38(2), 366-382.
<https://doi.org/10.1016/j.ssresearch.2008.12.004>
- Litwin, H., & Landau, R. (2000). Social network type and social support among the old-old. *Journal of Aging Studies*, 14(2), 213-228.
[https://doi.org/10.1016/S0890-4065\(00\)80012-2](https://doi.org/10.1016/S0890-4065(00)80012-2)
- Michielin, F., Mulder, C. H., & Zorlu, A. (2008). Distance to parents and geographical mobility. *Population, space and place*, 14(4), 327-345.
<https://doi.org/10.1002/psp.509>
- Mikolai, J., Keenan, K., & Kulu, H. (2020). Intersecting household-level health and socio-economic vulnerabilities and the COVID-19 crisis: An analysis from the UK. *SSM-Population Health*, 12, 100628.
<https://doi.org/10.1016/j.ssmph.2020.100628>
- Miralles, O., Sanchez-Rodriguez, D., Marco, E., Annweiler, C., Baztan, A., Betancor, É., . . . Vall-Ilosera, E. (2021). Unmet needs, health policies, and actions during the COVID-19 pandemic: a report from six European countries. *European Geriatric Medicine*, 12, 193-204.
<https://doi.org/10.1007/s41999-021-00476-6>
- Nguyen, M. H., Gruber, J., Fuchs, J., Marler, W., Hunsaker, A., & Hargittai, E. (2020). Changes in digital communication during the COVID-19 global pandemic: Implications for digital inequality and future research. *Social Media+ Society*, 6(3), 1-6.
<https://doi.org/10.1177%2F2056305120948255>

- Niedzwiedz, C., O'Donnell, C., Jani, B., Demou, E., Ho, F., Celis-Morales, C., . . . Katikireddi, S. (2020). Ethnic and socioeconomic differences in SARS-CoV-2 infection: prospective cohort study using UK Biobank. *BMC Medicine*, 18, 160.
<https://doi.org/10.1186/s12916-020-01640-8>
- Pezzin, L. E., Pollak, R. A., & Schone, B. S. (2008). Parental marital disruption, family type, and transfers to disabled elderly parents. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, 63(6), S349-S358.
<https://doi.org/10.1093/geronb/63.6.S349>
- Quadrello, T., Hurme, H., Menzinger, J., Smith, P. K., Veisson, M., Vidal, S., & Westerback, S. (2005). Grandparents use of new communication technologies in a European perspective. *European Journal of Ageing*, 2(3), 200-207.
<https://doi.org/10.1007/s10433-005-0004-y>
- Reichelt, M., Makovi, K., & Sargsyan, A. (2020). The impact of COVID-19 on gender inequality in the labor market and gender-role attitudes. *European Societies*, 23, S228-S245.
<https://doi.org/10.1080/14616696.2020.1823010>
- Sabat, I., Neuman-Böhme, S., Varghese, N. E., Barros, P. P., Brouwer, W., van Exel, J., . . . Stargardt, T. (2020). United but divided: Policy responses and people's perceptions in the EU during the COVID-19 outbreak. *Health Policy*, 124(9), 909-918.
<https://doi.org/10.1016/j.healthpol.2020.06.009>
- Scherpenzeel, A., Axt, K., Bergmann, M., Douhou, S., Oepen, A., Sand, G., . . . Börsch-Supan, A. (2020). Collecting survey data among the 50+ population during the COVID-19 outbreak: The Survey of Health, Ageing and Retirement in Europe (SHARE). *Survey Research Methods*, 14(2), 217-221.
<https://doi.org/10.18148/srm/2020.v14i2.7738>
- Settersten, R. A., Bernardi, L., Härkönen, J., Antonucci, T. C., . . . Mortimer, J. T. (2020). Understanding the effects of Covid-19 through a life course lens. *Advances in Life Course Research*, 45, 100360.
<https://doi.org/10.1016/j.alcr.2020.100360>
- Shapiro, A. (2003). Later-life divorce and parent-adult child contact and proximity: A longitudinal analysis. *Journal of Family Issues*, 24(2), 264-285.
<https://doi.org/10.1177%2F0192513X02250099>
- Simard, J., & Volicer, L. (2020). Loneliness and isolation in long-term care and the COVID-19 pandemic. *Journal of the American Medical Directors Association*, 21(7), 966-967.
<https://doi.org/10.1016/j.jamda.2020.05.006>
- Steinbach, A. (2013). Family structure and parent-child contact: A comparison of native and migrant families. *Journal of Marriage and Family*, 75(5), 1114-1129.
<https://doi.org/10.1111/jomf.12060>
- Steinbach, A., Mahne, K., Klaus, D., & Hank, K. (2020). Stability and change in intergenerational family relations across two decades: Findings from the German ageing survey, 1996-2014. *The Journals of Gerontology: Series B*, 75(4), 899-906.
<https://doi.org/10.1093/geronb/gbz027>
- Stolz, E., Mayerl, H., & Freidl, W. (2021). The impact of COVID-19 restriction measures on loneliness among older adults in Austria. *European journal of public health*, 31(1), 44-49.
<https://doi.org/10.1093/eurpub/ckaa238>
- Thomeer, M. B., Yahirun, J., & Colón-López, A. (2020). How families matter for health inequality during the COVID-19 pandemic. *Journal of Family Theory & Review*, 12(4), 448-463.
<https://doi.org/10.1111/jftr.12398>
- Tosi, M., & Grundy, E. (2019). Intergenerational contacts and depressive symptoms among older parents in Eastern Europe. *Ageing & mental health*, 23(6), 686-692.
<https://doi.org/10.1080/13607863.2018.1442412>

- Van der Pas, S., Van Tilburg, T., & Knipscheer, K. (2007). Changes in contact and support within intergenerational relationships in the Netherlands: A cohort and time-sequential perspective. *Advances in Life Course Research, 12*, 243-274.
[https://doi.org/10.1016/S1040-2608\(07\)12009-8](https://doi.org/10.1016/S1040-2608(07)12009-8)
- Van Tilburg, T. G., Steinmetz, S., Stolte, E., van der Roest, H., & de Vries, D. H. (2020). Loneliness and mental health during the COVID-19 pandemic: A study among Dutch older adults. *The Journals of Gerontology: Series B*.
<https://doi.org/10.1093/geronb/gbaa111>
- Verbeek, H., Gerritsen, D. L., Backhaus, R., de Boer, B. S., Koopmans, R. T., & Hamers, J. P. (2020). Allowing visitors back in the nursing home during the COVID-19 crisis: A Dutch national study into first experiences and impact on well-being. *Journal of the American Medical Directors Association, 21*(7), 900-904.
<https://doi.org/10.1016/j.jamda.2020.06.020>
- Vergauwen, J., & Mortelmans, D. (2021). An integrative analysis of sibling influences on adult children's care-giving for parents. *Ageing & Society, 41*(3), 536-560.
<https://doi.org/10.1017/S0144686X19001156>
- Ward, R., Deane, G., & Spitze, G. (2014). Life-course changes and parent-adult child contact. *Research on aging, 36*(5), 568-602.
<https://doi.org/10.1177%2F0164027513510325>
- Wortham, J. M. (2020). *Characteristics of persons who died with COVID-19—United States, February 12–May 18, 2020*.
<https://www.cdc.gov/mmwr/volumes/69/wr/mm6928e1.htm> [retrieved March 5, 2021]
- Yanez, N. D., Weiss, N. S., Romand, J.-A., & Treggiari, M. M. (2020). COVID-19 mortality risk for older men and women. *BMC Public Health, 20*(1), 1-7.
<https://doi.org/10.1186/s12889-020-09826-8>

Information in German

Deutscher Titel

Die COVID-19-Pandemie und Veränderungen in der Kontakthäufigkeit zwischen älteren Eltern und ihren nicht zusammenwohnenden Kindern: Eine europäische Studie

Zusammenfassung

Fragestellung: Die vorliegende Studie untersucht die Veränderungen im Umfang des Eltern-Kind Kontakts von Personen im Alter von 65 Jahren und älter in Europa im Verlauf der Corona-Pandemie, wobei „Heterogenitäten“ zwischen den verschiedenen Gruppen der älteren Befragten analysiert wurden.

Hintergrund: Die Abstandsregeln, die im Rahmen der COVID-19-Pandemie implementiert wurden, hatten zum Ziel, die Verbreitung des Virus einzudämmen. Auch wenn diese Maßnahmen unter Infektionsschutzgesichtspunkten effektiv und sinnvoll gewesen sein mögen, wurden Vermutungen laut, dass sie die intergenerationalen Beziehungen stark beeinträchtigt haben und u.a. der Kontakt zwischen der älteren Bevölkerung und ihren nicht im Haushalt lebenden Kindern im Zuge der Pandemie stark zurück gegangen ist. Bislang fehlten dazu belastbare empirische Daten.

Methode: Daten der SHARE COVID-19-Befragungen, die mit vorherigen Wellen der SHARE-Studie verknüpft wurden, liegen dieser Untersuchung zu Grunde, in der 26.077 Personen aus 26 europäischen Ländern (plus Israel) eingingen. Als Methode wurden Mehrebenen multinomiale logistische Regressionsmodelle verwendet.

Ergebnisse: Die Analysen zeigen, dass die intergenerationalen Beziehungen während der Pandemie eher stabil geblieben sind oder sich sogar verstärkt haben – und sich nicht gelockert haben. Trotz dieser positiven Befunde offenbaren sich Unterschiede zwischen den Untergruppen. In einigen Gruppen zeigt sich ein Rückgang der Stärke der intergenerationalen Beziehungen, bspw. bei älteren Männern, Bewohnern und Bewohnerinnen von Pflegeheimen, älteren Personen mit niedrigem Schulabschluss und älteren Befragten, die in Ländern mit weniger strengen COVID-19 Auflagen leben.

Schlussfolgerung: Obwohl Variationen zwischen verschiedenen Gruppen existieren, finden wir keine Belege dafür, dass die Pandemie die intergenerationalen Kontakte zwischen der älteren Bevölkerung und den Kindern, die nicht im selben Haushalt leben, negativ beeinflusst hat.

Schlagwörter: COVID-19; Kontakt zwischen den Generationen; Abstandsregelungen; Länderübergreifende Studie; Europa; SHARE

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Jorik Vergauwen: <https://orcid.org/0000-0003-4305-7149>

Katrijn Delaruelle: <https://orcid.org/0000-0001-6726-6952>

Pearl A. Dykstra: <https://orcid.org/0000-0003-1518-1476>

Piet Bracke: <https://orcid.org/0000-0002-9477-3236>

Dimitri Mortelmans: <https://orcid.org/0000-0003-3285-8223>



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