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Grandparents' Cognition and Caregiving for Grandchildren: Frequency, Type, and Variety of Activities

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Previous research has indicated that a higher frequency of grandchild care is associated with better cognition and slower cognitive decline in grandparents. However, we do not know if specific caregiving activities (e.g., engaging in leisure activities with grandchildren, cooking for them) or the variety thereof affect grandparents' cognition and whether these effects are gender specific. Using latent growth curve models on three waves of the English Longitudinal Study of Ageing (ELSA), which includes grandparents aged 50 and older ($N > 1{,}700$), we first compared caregiving grandparents to propensity score-matched noncaregiving grandparents. Then we examined the caregiving group specifically to understand if (a) caregiving frequency, (b) specific caregiving activities, or (c) the variety thereof predicted cognitive levels and decline. Both caregiving grandmothers and grandfathers showed higher levels of verbal fluency and episodic memory compared with matched controls, but only caregiving grandmothers showed less cognitive decline over time. Among caregiving grandparents, the frequency of caregiving did not predict cognitive functioning. However, grandparents with initially higher cognitive levels were more engaged in specific activities (e.g., spending leisure time with grandchildren, assisting them with homework) and participated in a wider variety of activities. Our findings reveal a link between grandchild care status and cognition among grandparents, while raising questions about the role of caregiving frequency and specific caregiving activities for cognitive level and decline.

Public Significance Statement

Grandparents who provide care for their grandchildren tend to show better cognitive functioning than those who do not. For grandmothers, these benefits also result in a slower cognitive decline later on. Only caregiving status in general, not the specific number of hours spent caregiving, mattered for cognitive health in this study.

Keywords: grandparenting, care, cognition, propensity score matching, gender differences

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The study was not preregistered. Data from completed waves of the English Longitudinal Study of Aging are available upon request (see https://www.elsa-project.ac.uk/data-and-documentation). The syntax of data preparation and models can be found at https://osf.io/vp56w. An abstract containing the aims of the present study has been submitted to Aging & Cognition Conference, European Cognitive Aging Society (2025). The authors have used the English Longitudinal Study of Ageing previously to investigate the effects of the transition to grandparenthood (and first-time grandchild care) on meaning in life (https://doi.org/10.1177/08902070241257667).

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Lifestyle engagement and participation in stimulating activities have gained increasing attention as potential factors in mitigating cognitive decline in older age (e.g., Deary et al., 2004; Ihle et al., 2019). These stimulating activities refer, among others, to social engagement, volunteering, and contact with family and friends (Amanollahi et al., 2021; Guiney et al., 2021; Ku et al., 2012; Stenling et al., 2021). Such social activities are common among older adults, as they prioritize satisfying and meaningful relationships as they age (see socioemotional selectivity theory; Carstensen, 1992). Yet, the impact of certain forms of meaningful social engagement on cognition, such as grandchild care, remains relatively unexplored (K. Burn & Szoeke, 2015). This is surprising, as grandchild care is a readily available and rewarding social activity in older age (Hank et al., 2018; Thiele & Whelan, 2008). In this study, we investigated the extent to which grandchild care could protect against cognitive decline and assessed the impact of specific caregiving activities on grandparents' cognition and cognitive decline.

Grandchild Care and Cognitive Functioning

The provision of supplementary (i.e., noncustodial) grandchild care is common among European grandparents (Glaser et al., 2014; Y. Luo et al., 2012). Generally, it is highly valued by grandparents, as it allows them to contribute to the development and personal growth of their grandchild without shouldering the full responsibilities of a parent (Tanskanen et al., 2019; Taubman–Ben-Ari et al., 2018). This role also aligns with the concept of generativity (Erikson, 1964), reflecting the concern and care for younger generations (Hebblethwaite & Norris, 2011; Villar et al., 2012).

Some studies suggest that grandchild care may also benefit grandparents' cognitive function. For instance, Sneed and Schulz (2019) found that American grandparents caring for their grandchildren showed better cognitive functioning and experienced slower rates of cognitive decline than their noncaregiving counterparts. Caputo et al. (2024), using the same sample as Sneed and Schulz, demonstrated that the effects were more pronounced among vulnerable groups (e.g., lower income, nonworking older adults). Positive effects of grandchild care on cognitive functioning were observed across various cultural contexts. Liao et al. (2021) found that grandchild care was cross-sectionally positively associated with cognitive functioning among Chinese grandparents. Jennings et al. (2021) reached similar conclusions among African grandparents. These findings are consistent with propositions of the role enhancement theory (Sieber, 1974). The theory advances that holding multiple productive roles, such as being a partner, worker, and grandparent, may enhance individuals' well-being by providing more opportunities for purposeful and meaningful social exchanges (Bünning & Huxhold, 2024; Taubman–Ben-Ari et al., 2018). These multiple roles, including caring for grandchildren, can promote a more active and purposeful lifestyle, which has a positive impact on cognitive functioning (Stine-Morrow et al., 2021).

However, there are also mixed findings. Henning et al. (2023) found that grandchild care did not buffer declines in processing speed and Chereches et al. (2025) reported that maintaining contact with grandchildren, either face-to-face or remotely, did not mitigate cognitive decline over 12 years, as measured by a composite score across multiple cognitive domains. Adverse effects of grandchild care on cognitive functioning have also been reported, as evidenced by performance on the Symbol-Digit Modalities Test, which measures working memory and processing speed (K. F. Burn et al., 2014). This suggests that, in addition to their existing roles, caregiving responsibilities for a grandchild may be also stressful and leave older adults feeling overwhelmed (see role strain theory; Goode, 1960).

Yet, to better understand the link between grandchild care and cognition, as well as the mixed findings in the literature, we need to consider the specific activities grandparents frequently engage in while providing care (Hank et al., 2018). Different caregiving activities may pose varying physical and cognitive demands, potentially impacting cognition in various ways (Arpino & Bordone, 2014; K. Burn & Szoeke, 2015). For example, the level of cognitive stimulation may vary for grandparents who actively provide instrumental support (e.g., doing leisure activities with the grandchild), compared with those who most frequently act as "passive caregivers," such as being available in case grandchildren need them (K. Burn & Szoeke, 2015; Thiele & Whelan, 2006).

While no research directly links specific caregiving activities to cognitive functioning in grandparents, studies on leisure activities suggest that various types of leisure engagement—cognitive, physical, or social—can help protect against cognitive decline in older age (Blondell et al., 2014; Köhncke et al., 2016; Stenling et al., 2021; Stine-Morrow et al., 2021). However, research findings are mixed on which leisure activities are most beneficial for later cognition. Some studies highlight the benefits of cognitive activities over social or physical ones (Bielak & Brydges, 2019; Moored et al., 2022; Sanz Simon et al., 2023), while others find that cognitive activities do not stand out as stronger predictors compared with other types of activities (Olaru et al., 2023). Categorizing leisure activities into physical, mental, or social clusters is challenging, as the same activity might fit multiple categories (e.g., team sports). The same activity may also be perceived as physically, mentally, or socially demanding by different people, depending on their cognitive and physical resources. Due to the lack of research on the impact of grandchild care activities, we aimed to investigate whether a higher frequency of involvement in *specific* grandchild caregiving activities is associated with better cognitive functioning later in life (see also B. Li et al., 2021, for a similar approach using a general set of activities).

Variety in Caregiving Activities and Cognition

Most literature on leisure involvement focused on activity frequency, or in other words, on how often older adults engaged in one or more activities during a specific time. However, as previously suggested, increasing the frequency of a single activity (e.g., helping with homework) may benefit an individual's health only up to a certain point, after which no additional positive effects may be observed (M. Luo et al., 2023; see discussion on diminished returns). An alternative measure could be the diversity of activities performed or the variety of activities engaged in. Carlson et al. (2012) suggested that a larger variety of performed activities may be analogous to "cross-training," where one exercises multiple skills instead of restricting to frequent repetition of a particular activity to improve the current condition. In the context of leisure activities, research reports cognitive benefits from engaging in a broader range of activities (Bielak et al., 2019; Carlson et al., 2012; Jeon et al., 2022; Lee et al., 2021; M. Luo et al., 2023). However, in the context of grandparenthood, no prior research has investigated the impact of the variety of caregiving activities on cognitive function. Based on

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the literature on leisure involvement, a larger variety of caregiving activities may enable grandparents to engage in a mix of tasks that, while individually limited in their cognitive impact, would collectively provide stimulation and cognitive benefits over time (Carlson et al., 2012; M. Luo et al., 2023). Therefore, we also aimed to investigate the effect of the variety of caregiving activities on the cognitive functioning of caregiving grandparents.

The Role of Grandparents' Gender in Grandchild Care

Previous literature has noted gender differences in the frequency of involvement with grandchildren, with grandmothers providing more care than grandfathers. Regarding the current generation of grandparents, care work still appears to be viewed as a responsibility primarily associated with women (Leopold & Skopek, 2015; Winefield & Air, 2010). Grandmothers differ from grandfathers in the way they interact with their grandchildren. Grandmothers are more involved in physical and emotional care, while grandfathers are reported to mainly engage in leisure activities with their grandchildren (Horsfall & Dempsey, 2015). Qualitative interviews depicted grandmothers as nurturing figures who coordinate grandchild care, while grandfathers, although involved in care, can choose to opt out (Horsfall & Dempsey, 2015). Grandmothers are also more likely to provide care independently than grandfathers, who often engage in caregiving alongside their partners (Craig & Jenkins, 2016a).

Findings from existing research investigating potential gender differences in the effects of caregiving on grandparents' cognition are mixed. Most studies found no gender differences in the cognitive benefits of caregiving (Arpino & Bordone, 2014; Jennings et al., 2021; Liao et al., 2021; Sneed & Schulz, 2019). Others reported that light grandparenting (i.e., up to 499 hr during the past 2 years) protected grandmothers, while intensive grandparenting (i.e., over 500 hr in the previous 2 years) protected only grandfathers from developing dementia (Choi et al., 2024). These gender effects could arise from differences in what grandparents typically do with their grandchildren, how they do grandchild care (e.g., alone or with a partner; Craig & Jenkins, 2016a), and how they experience it (Choi et al., 2024; Xu, 2022). Thus, in this article, as a first step in our analysis, we test for potential gender differences.

Methodological Considerations for Investigating the Impact of Grandchild Caregiving on Cognition

Past research assessing whether grandchild care benefits grandparents' cognition mostly compared caregiving and noncaregiving grandparents. However, when comparing these groups, a key methodological concern is that caregiving grandparents are not randomly selected into this role; they may have specific characteristics that predispose them to provide care (see the "healthy caregiver" hypothesis; Fredman et al., 2010). They may have better (mental) health (Y. Luo et al., 2012), be more physically active (Fredman et al., 2006), or be in a relationship (Y. Luo et al., 2012). These factors influence the likelihood of becoming a caregiver and are also independently associated with better cognitive functioning and slower cognitive decline (Hülür, 2022; Stine-Morrow et al., 2021). To address these confounding factors, propensity-score matching can equate caregiving and noncaregiving grandparents on multiple background covariates that influence the likelihood of caregiving and cognitive function (e.g., health, partnership status, depression, number of children).

Furthermore, while some studies examined the effects of caregiving status on grandparents' cognition, often losing variability by assigning individuals to groups (Altman & Royston, 2006), other research has treated caregiving as a continuous variable, assessing whether the *frequency* of caregiving is linked to cognitive functioning (e.g., Silverstein & Zuo, 2021; Sneed & Schulz, 2019). Building on these two approaches, our study was structured in two parts. First, we compare caregiving grandparents to propensity score-matched noncaregiving grandparents in terms of their cognitive levels and cognitive decline. After that, we explore *caregiving* grandparents in more detail by examining (a) whether the frequency of their caregiving predicted cognitive levels and change, (b) the effect of specific caregiving activities, and (c) the variety of performed activities on cognition.

The Present Study

We utilized three assessment waves of the English Longitudinal Study of Ageing (ELSA) to examine the relationships between grandchild care and cognitive functioning, specifically episodic memory and verbal fluency. We focused on grandmothers and grandfathers providing supplementary grandchild care, and not grandparents from three generational households (who might also have custody over their grandchildren), as these represent a specific subpopulation for which the effects of caregiving might not be normative (e.g., due to low levels of health of grandparents; Danielsbacka et al., 2022). For each research question, we tested gender differences. However, we did not formulate gender-specific hypotheses due to the mixed findings of past research (Choi et al., 2024; Sneed & Schulz, 2019).

First, we compared caregiving grandparents with matched noncaregiving grandparents. Based on past literature (e.g., Zeng et al., 2021), we expected caregiving grandparents to demonstrate better cognitive functioning compared with matched noncaregiving grandparents and slower rates of cognitive decline.

Second, we further explored the group of caregiving grandparents. Based on past findings (e.g., Sneed & Schulz, 2019), we expected a higher frequency of grandchild care to be linked to better cognition and slower cognitive decline. However, given prior hypotheses suggesting that the link between caregiving and health may also be nonlinear (Coall & Hertwig, 2010), we also explored a potential nonlinear relationship between caregiving frequency and cognition.

Third, among caregiving grandparents, we investigated the associations between the frequency of each type of caregiving activity and the variety of performed caregiving activities on cognitive levels and decline. However, due to limited past research, we did not formulate any hypotheses.

Method

Transparency and Openness

This study was a reanalysis of a publicly available and anonymous data set. The analysis codes and Supplemental Materials are available on the Open Science Framework repository (https://osf.io/vp56w). This project was not preregistered. All analyses were run in R Version 4.1.3 (R Core Team, 2022) with the R-packages psych v2.2.3 (Revelle,

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2020), lavaan v0.6.11 (Rosseel, 2012), MatchIt v4.5.3 (Ho et al., 2011), and mice v3.15 (van Buuren & Groothuis-Oudshoorn, 2011).

Sample

To investigate our research question, we used Waves 8 (2016/2017) to 10 (2021/2022) from ELSA, as these are the only waves that currently provide detailed information on caregiving activities and the frequency of care (Banks et al., 2024). The ELSA study received ethical approval from the South Central—Berkshire Research Ethics Committee.

We selected participants (i.e., grandparents/caregiving grandparents) who were not residing in a nursing home during the study period, reported to be cognitively healthy (i.e., without dementia, as self-reported), and participated in the interviews themselves. We first identified 2,887 grandparents (M_{age} = 67.46, SD_{age} = 6.72, 56.70% grandmothers) who provided care for their grandchildren at any of the three waves. This sample was used to examine whether the frequency and variety of caregiving activities impacted cognitive functioning. For the comparison of caregiving grandparents with propensity score–matched controls, we selected from this initial group those participants with complete data at Wave 8. Participants who provided grandchild care at Wave 8 were matched with grandparents who did not provide care at the same wave, using multiple covariates (see the subsection on propensity score matching below). We anchored the matching at Wave 8 to ensure a consistent baseline for both covariates and caregiving status. Both groups could have missing data at later waves; however, when data were available, the noncaregiving group maintained their noncaregiving status (although they might have provided care before Wave 8). This resulted in a sample size of N_{care} = 2,465 caregiving grandparents at the first wave (M_{age} = 67.56, SD_{age} = 6.67) and $N_{noncare}$ = 7,395 matched noncaregiving controls (M_{age} = 67.11, SD_{age} = 7.89).[1] For both caregiving and noncaregiving grandparents, 58.21% of the sample consisted of grandmothers. For our second research aim, we examined whether the frequency and variety of caregiving activities impacted cognitive functioning. We defined caregiving grandparents as those caring for at least one of the three waves, N_{care} = 2,887 (M_{age} = 67.46, SD_{age} = 6.72, 56.70% grandmothers). For both subsamples, 96% and 95% reported being White.

Attrition Analysis

On average, participants completed 2.39 waves out of the three waves considered here. The number of waves in which grandparents participated was positively associated with episodic memory (r = .22, p < .001), verbal fluency (r = .15, p < .001), subjective health (r = .21, p < .001), having higher education (r = .13, p < .001), and being married (r = .08, p < .001). At the same time, it was negatively related to age (r = −.03, p = .008) and working (r = −.03, p = .004) at the first wave. However, these associations were small.

Instruments

Grandchild Care

Frequency of Caregiving Activities. ELSA participants were asked every 2 years if they had looked after their grandchildren without parents present in the past 12 months (yes/no). Grandparents who reported providing care for their grandchildren (without the grandchild's parents being present) were asked when they typically offer care (e.g., during school holidays, weekends, weekdays, throughout the whole year). Among these caregivers, 56% reported providing care "throughout the whole year" and were subsequently asked how frequently this occurred (4 to 7 days a week; 2 to 3 days a week; 1 day a week; up to a few days a month but not each week; less often than once a month). The remaining 44% of caregiving grandparents selected other options, such as providing care only during school holidays or on weekends. The follow-up questions for these participants differed from those asked for grandparents who provided care "throughout the whole year." Since the response options referred to days of care, we converted all responses into the annual number of care days, taking into account the number of school days in the British education system. This approach ensured that data from participants who did not provide care throughout the year was retained. Detailed descriptions of the transformations are available on the Open Science Framework (see subtitle "Conversion number of days").

For activities performed with grandchildren, caregiving grandparents were asked if they (a) had grandchildren overnight; (b) looked after ill grandchildren; (c) played or engaged in leisure activities; (d) prepared meals; (e) helped with homework; (f) took grandchildren to or picked them up from nursery, playgroup, or school; and (g) were simply present if their grandchildren needed them for anything. They were asked how often this occurred if they replied with "yes" to any of the seven categories. The response options did not refer to days but were on a 3-point Likert scale (1 = *rarely*, 2 = *occasionally*, 3 = *frequently*). If they responded that they did not engage in that activity but reported caregiving earlier, we coded that as a frequency of 0.

Variety of Caregiving Activities. For the variety of caregiving activities, we created a sum score of the number of activities (see above) that grandparents reported doing with their grandchildren (i.e., up to 7 of the listed activities).

Cognitive Assessments

Verbal Fluency. Verbal (semantic) fluency was assessed by asking participants to name as many animals as possible within 1 min (Canning et al., 2004). The total number of named animals represented a continuous score, with items considered correct if they were not repetitions of animals.

Episodic Memory. Participants listened to a list of 10 words, one word at a time. Then, they recalled these words immediately (immediate recall) and again after a 5-min interval (delayed recall). Given past research on panel data suggesting that the two recall conditions load on a common latent factor (Lachman et al., 2014; McArdle et al., 2007), we averaged the immediate and delayed recall scores to generate a total episodic memory score.

To facilitate interpretation of both episodic memory and verbal fluency, we worked with T standardized scores (with a mean of 50 and a standard deviation of 10) for each measurement occasion,

[1] Sample sizes are inflated for the matched control groups because we matched with replacements, and thus some participants are included several times. This approach reduces the risk of matching caregiving grandparents to controls (noncaregiving grandparents) that are different in their propensity scores (Dehejia & Wahba, 2002).

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based on the mean and standard deviation of the first measurement occasion within men and women, separately (as there might be gender differences).

Propensity Score Matching

For the question about differences in caregiving and noncaregiving grandparents for cognitive levels and decline, we matched the two groups on covariates covering sociodemographic characteristics (i.e., age, education, work status, partnership status, number of children and grandchildren, age of youngest grandchild) and health (i.e., functional limitations, subjective health, and depression). These variables are known to be linked with cognition (Stine-Morrow et al., 2021) and involvement in grandchild care (Zamberletti et al., 2018; see Supplemental Table S1 for more details, as well as for differences between caregiving and noncaregiving grandparents before propensity-score matching).

As it is necessary to have complete data on the covariates for propensity-score matching, we used multiple imputation with the *mice* package in *R* before matching, with imputation conducted 10 times. Using these data sets, we predicted grandparents' caregiving status with a logistic regression with a logit link function. We used all covariates (for most cases, at wave eight or earlier/later waves when unavailable) as predictors and gender for exact matching (see Krämer et al., 2022, for a similar approach). We computed the average of the propensity scores across the 10 imputed data sets and used it for matching (see Mitra & Reiter, 2016).

We chose to run matching with replacement (1:3) to ensure that we could identify similar matches for (nearly) all caregiving grandparents (Dehejia & Wahba, 2002). We used the nearest neighbor method and a caliper of .2 (Austin, 2011). Covariate balance was adequate, with standardized mean differences below 0.10 and variance ratios below 1.25 (Austin, 2011; Rubin, 2001). Detailed matching results for each covariate are presented in Supplemental Table S1.

Statistical Analyses

Latent Growth Curve Models

We used latent growth curve models to investigate if grandchild care protects against cognitive decline (LGM; McArdle, 2009). The cognitive level factor was specified by constraining all loadings at each assessment wave to a value of 1. The cognitive slope was determined by constraining loadings at each measurement occasion to an increasing order ($\lambda = 0$ to 2 at the third wave, or Wave 10). We tested each research question separately.

First, to compare the cognitive trajectories of matched caregiving and noncaregiving grandparents, we included caregiving status at the first wave (0 = no; 1 = yes) as a predictor for the level and slope factors. Second, to examine whether there was an association between the number of days spent caregiving and cognitive levels or decline, we conducted the latent growth curve model only on caregiving grandparents, using the number of days of caregiving as predictors for cognitive level and slope.

Finally, to test whether the actual activities or the variety of activities mattered, we ran models on the same caregiving sample, including the frequency (i.e., 0 to 3) of engaging in different activities and an estimate of activity variety (i.e., score up to 7 activities) as predictors of the level and slope factor. For these questions, we worked with the average across the three waves for the caregiving frequency, the involvement frequency in each activity and the variety of activities performed. We ran separate models for each activity to avoid controlling for involvement in other activities. In the model that included variety, we added the general frequency of caregiving (i.e., average number of days spent caregiving during the study period) as an additional control to ensure that any potential effects were due to variety and not frequency. As the number of tests increases, the number of false positives also increases; therefore, we accounted for the false discovery rate (FDR; Benjamini & Hochberg, 1995). When presenting the results, unless specified otherwise, the reported results remained significant after the FDR correction.

In all models except for the first, which was run on the propensity-score-matched pairs of caregiving and noncaregiving grandparents, we controlled for age in years, educational level (higher or lower educated, as defined by Weber, 2016), and work and marital status (time-varying covariates to account for transitions in and out of work and partnership; see Table 1 for a description of these covariates over time). Although previous research often included health and social involvement as additional control variables (e.g., Caputo et al., 2024; Henning et al., 2023), we opted not to do so in the present study, as health and social involvement might represent mediators of the effects of grandchild care on cognitive functioning (e.g., better health due to active engagement with grandchildren). We did not include controls in the initial analysis, as the groups were already

Table 1
Covariates Included in the Models Investigating Caregiving Grandparents

Variable	Wave 8	Wave 9	Wave 10
Age: *M (SD)*	67.50 (6.71)	69.44 (6.60)	72.58 (6.16)
$N_{available\ observations\ for\ age}$	2,807	2,580	1,929
% sample working	26.91%	22.06%	12.71%
$N_{available\ observations\ for\ work}$	2,783	2,551	1,911
% sample in a relationship	79.16%	77.43%	76.93%
$N_{available\ observations\ for\ partnership}$	2,783	2,553	1,920
% highly educated	80.56%		
$N_{available\ observations\ for\ education}$	2,354		

Note. *N* refers to available observations for that variable (e.g., age, work) within that wave. Working and relationship status are modeled as time-varying covariates, while age and education are time invariant.

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matched on these variables, and we were primarily interested in the unadjusted factor means for cognitive levels and decline. Note that we used z standardized scores for all covariates, as well as for the frequency of caregiving, frequency of each specific caregiving activity, and the variety of performed activities (z transformed for each gender group separately), ensuring that values of 0 for all covariates have a meaningful interpretation.

To account for the differences in effects (i.e., care status, care frequency, frequency of each care activity, and variety of care activities), we ran multigroup models with grandmothers and grandfathers as separate groups. Using a χ^2 test, we compared the model in which all parameters could vary between men and women with the model in which the effect of care on the intercept and slope was constrained to be equal across the two groups. If there were significant differences between the models, we reported the effects separately for each gender. Otherwise, we reported the main effect. Model fit indices indicated acceptable fit for all LGM models (comparative fit index = .983–.999; root-mean-square error of approximation = .017–.077; standardized root-mean-square residual = .007–.022; see the Open Science Framework Supplemental Tables S2–S6).

Sensitivity Analyses. We conducted several sensitivity analyses, which we report in more detail in the Supplemental Materials. First, we re-ran all analyses using a subsample of grandparents aged 75 years and younger, aligning with the age range when grandparents typically provide the most active grandchild care (Glaser et al., 2014). Distinguishing old–old grandparents is not possible due to the low sample size. Second, we also controlled for potential practice effects by including the number of waves in which participants performed the cognitive task since their entry in the study. Third, we also controlled for whether participants were part of the original cohort or a later refresher sample for similar reasons. Finally, for the research questions pertaining only to caregiving grandparents (i.e., investigating the impact of frequency of care on cognition), we reran the analyses on caregiving grandparents with only those who maintained their caregiving status across all three waves, and hence had complete data—in contrast to only being selected based on providing care at least once during the three waves. We did not apply this stricter selection criterion in the main analysis, as we did not want to restrict the sample to only potentially more motivated and healthier participants with complete data. This approach allows us to disentangle potential effects driven by those who started or stopped caregiving during the study period from the effects of frequency itself. Within the results section, unless otherwise specified, results of sensitivity analyses largely replicated the original results (for more details, see Supplemental Materials).

Results

Descriptive Results

We present the mean values of our predictors in Table 2 and the Supplemental Materials, along with all associations between the study variables. Among the sample including caregiving and matched noncaregiving grandparents, we found small positive associations between caregiving status and episodic memory and verbal fluency at all three assessments (rs between .04 and .14, all ps < .001). Being a caregiver was therefore linked to higher verbal fluency and episodic memory. Among the sample of caregiving grandparents, there were no significant associations between frequency of caregiving and cognition. There were, however, small positive associations between each specific caregiving activity and episodic memory, as well as verbal fluency (see Supplemental Table S7 and S8 for all results). In Supplemental Table S9, we also report t tests for potential gender differences in the frequency of each grandchild care activity, as well as the overall frequency of care. We found gender differences in the frequency of performing each activity, with grandmothers engaging in all activities more often than grandfathers (all ps < .001).

Changes in Cognitive Abilities Over the Study Period

Before predicting declines in verbal fluency and episodic memory, we first checked the extent of cognitive decline and individual differences in cognitive decline in the samples using univariate growth curve models. In the sample of RQ1, including both caregiving and noncaregiving grandparents, verbal fluency and episodic memory decreased on average by 1.35 ($p < .001$) and 3.03 ($p < .001$) T points, respectively, across the study. There were significant individual differences in verbal fluency change (SD = 2.17; $p < .001$) and episodic memory change ($SD = 2.13$; $p < .001$). In the sample of RQ2, including only caregiving grandparents, verbal fluency decreased on average by 0.78 T points ($p < .001$), and there was significant variance in the slope of verbal fluency (SD = 2.46; $p = .001$). Episodic memory decreased on average by 3.02 ($p < .001$) T points and significant individual differences in episodic memory change were observed ($SD = 2.97$; $p < .001$).

RQ1: Caregiving and Matched Noncaregiving Grandparents: Model Results

Associations between caregiving status and episodic memory and verbal fluency could not be constrained to equality across gender (verbal fluency: $\Delta\chi^2(2) = 44.62$; $p < .001$; the constrained model for episodic memory did not converge). Hence, we report the effects for men and women separately. Compared with grandmothers who do not provide grandchild care, caregiving grandmothers had higher levels of episodic memory ($\beta = .17$; $p < .001$) and verbal fluency ($\beta = .19$; $p < .001$), as well as slower declines in episodic memory ($\beta = .09$; $p = .006$) and verbal fluency ($\beta = .14$; $p < .001$). Caregiving grandfathers had better verbal fluency ($\beta = .10$; $p < .001$) and better episodic memory ($\beta = .08$; $p < .001$) compared with noncaregiving grandfathers. However, they did not differ from matched noncaregiving grandfathers in decline in verbal fluency ($\beta = -.10$; $p = .473$) and decline in episodic memory ($\beta = -.54$; $p = .634$). For a depiction of cognitive trajectories in each group, see Figure 1. In the sensitivity analyses, similar effects were generally observed. However, in the sensitivity analyses focusing on grandparents younger than 75 years, we found more decline in verbal fluency in caregiving grandfathers compared with matched controls ($\beta = -.14$; $p = .004$), while no differences were observed in decline in verbal fluency in caregiving grandmothers compared with matched controls (see Supplemental Material).

RQ2: Frequency of Caregiving: Model Results

Associations between the frequency of caregiving (including the squared term of caregiving) and the two cognitive outcomes could

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Table 2
Descriptive Information on Predictors and Outcomes Over Time

Variable	Wave 8 *M* (*SD*)	Wave 9 *M* (*SD*)	Wave 10 *M* (*SD*)
Caregiving grandparents			
Memory	5.68 (1.68)	5.58 (1.68)	5.31 (1.67)
N	2,807	2,581	1,907
Verbal fluency	22.86 (6.74)	23.01 (6.96)	22.73 (7.30)
N	2,807	2,581	1,932
Care frequency	56.40 (69.73)	55.33 (71.04)	42.24 (65.41)
N	2,791	2,580	1,929
Frequency overnight stay	1.37(1.09)	1.35 (1.08)	1.28 (1.06)
N	2,471	2,116	1,271
Frequency Care Ill	0.61 (0.91)	0.66 (0.93)	0.61 (0.91)
N	2,471	2,116	1,271
Frequency leisure	1.99 (1.06)	2.00 (1.05)	1.93 (1.04)
N	2,471	2,116	1,271
Frequency prepare meals	1.89 (1.14)	1.94 (1.12)	1.85 (1.10)
N	2,471	2,116	1,271
Frequency help homework	0.88 (1.14)	0.91 (1.16)	0.88 (1.13)
N	2,471	2,116	1,271
Frequency collecting	1.31 (1.26)	1.41 (1.27)	1.34 (1.24)
N	2,471	2,116	1,273
Frequency being around	1.52 (1.30)	1.62 (1.29)	1.63 (1.27)
N	2,471	2,116	1,271
Variety	3.76 (2.23)	2.88 (2.54)	2.88 (2.54)
N	2,793	2,581	1,930
Noncaregiving grandparents			
Memory	5.41 (1.86)	5.02 (1.84)	5.18 (1.61)
N	7,395	5,984	3,963
Verbal fluency	21.21 (6.84)	21.05 (6.97)	20.49 (7.06)
N	7,395	5,984	4,069

Note. *N* refers to available observations for that variable. All descriptive statistics are based on observed data only. The apparent increase in episodic memory at Wave 10 is likely due to participants with lower cognitive functioning leaving the study (Cohen's $d = 0.40$, $p < .001$). Care frequency refers to number of days; Frequency of each activity is coded from 0 to 3 (never to frequently); overnight stay refers to "had grandchildren to stay overnight without parents"; care ill refers to "looked after grandchildren when they are ill"; leisure refers to "played with your grandchildren and/or took part in leisure activities with them"; prepare meals refers to "prepared meals for your grandchildren"; help homework refers to "helped grandchildren with their homework"; collecting refers to "taken your grandchildren to, or collected them from nursey, playgroup, or school"; being around refers to "Just been around in case they need me for anything"; variety represents the number of different caregiving activities grandparents engage in; memory refers to episodic memory, fluency refers to verbal fluency.

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be set equal for men and women without a significant loss in model fit, verbal fluency: $\Delta\chi^2(4) = 4.09$; $p = .393$, and episodic memory: $\Delta\chi^2(4) = 4.05$; $p = .398$, suggesting no gender differences.

We found no associations between frequency of caregiving and levels of verbal fluency (linear: $\beta = .04$; $p = .238$; nonlinear: $\beta = -.05$; $p = .105$), levels of episodic memory (linear: $\beta = -.01$; $p = .622$; nonlinear: $\beta = -.03$; $p = .294$), the slope of verbal fluency (linear: $\beta = -.08$; $p = .267$; nonlinear: $\beta = .04$; $p = .590$), and slope of episodic memory (linear $\beta = .04$; $p = .616$; nonlinear: $\beta = -.01$; $p = .824$). Thus, among caregiving grandparents, the frequency of grandchild care was not associated with cognitive levels or decline. Similar effects were observed in the sensitivity analyses (see Supplemental Material).

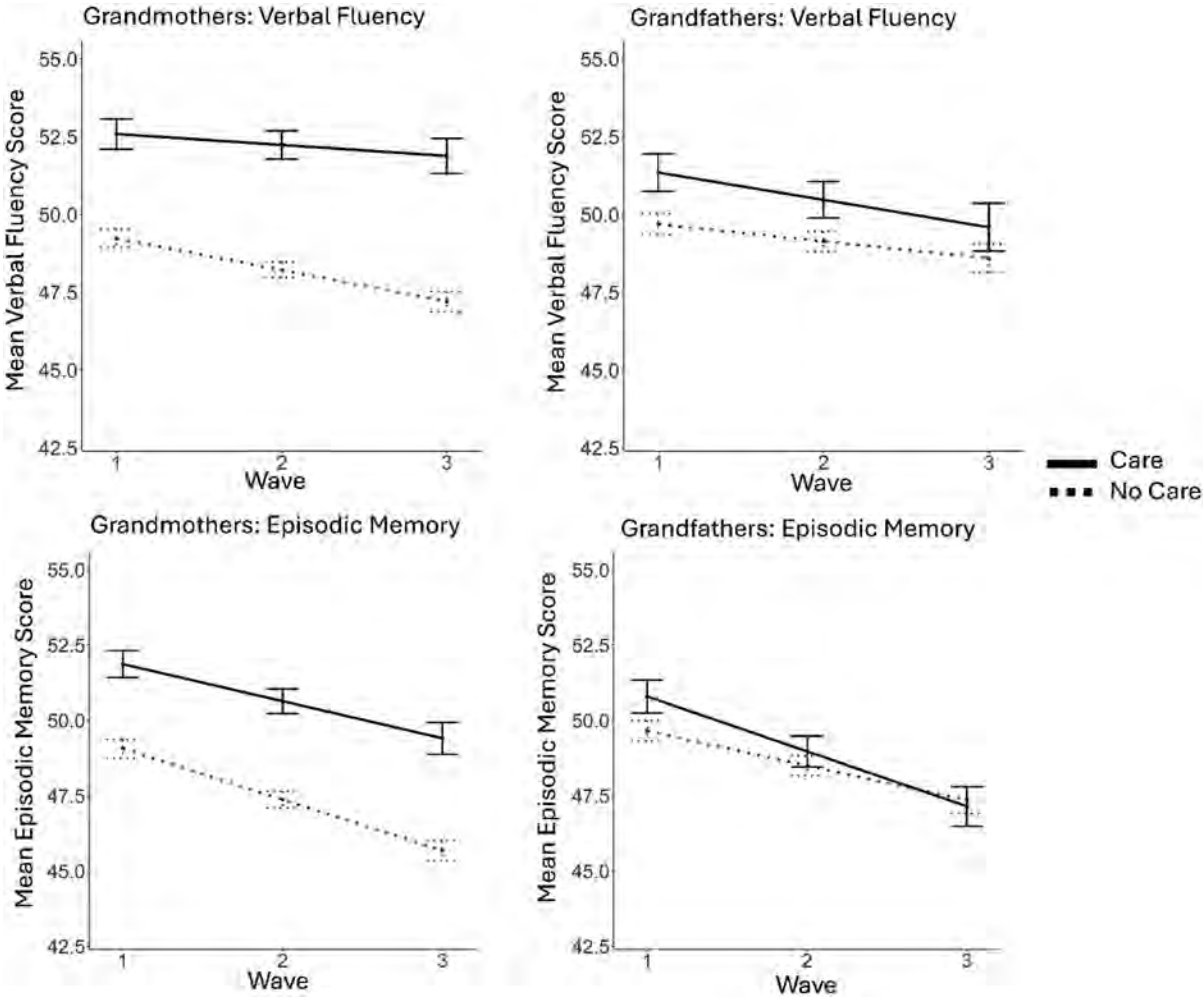
Associations With the Activities Performed With Grandchildren

Associations of (a) frequency of each caregiving activity and (b) variety of caregiving activities and cognition could be set equal for both genders without a significant loss in model fit (see the Open Science Framework Supplemental Tables S5 and–S6 for the χ^2 difference tests for each model). We thus proceeded by interpreting the effects of caregiving across grandmothers and grandfathers.

In terms of the impact of each activity on cognitive levels, we found that grandparents who did more *leisure* activities with their grandchildren and who *helped* their grandchildren more often with *homework* had better verbal fluency and better episodic memory than those doing these activities less frequently ($\beta = .09$ to $.13$; all ps $< .001$). Grandparents who more regularly *prepared meals* for their grandchildren, *collected* them from/to school/nursery and *were around* in case they were needed had higher verbal fluency than grandparents doing these activities less often ($\beta = .06$ to $.07$; all ps $< .01$). No other effects were observed for the slope of verbal fluency and episodic memory (see Figure 2 for all results). For the variety of activities, we found that a larger variety of grandchild care activities was associated with better episodic memory performance ($\beta = .14$; $p < .001$) and higher verbal fluency levels ($\beta = .18$; $p < .001$).

Figure 1

Episodic Memory and Verbal Fluency Scores Over Time for Caregiving and Noncaregiving Grandmothers and Grandfathers



Note. Care refers to the caregiving group; no care refers to the matched noncaregiving group. Note that these values reflect *T* score means estimated from latent growth models using all available data, with missing data handled via full information maximum likelihood.

Discussion

In this study, we examined the link between grandchild care and cognition by (a) comparing caregiving grandparents to matched noncaregiving grandparents and (b) focusing on caregiving grandparents to understand if frequency of care, activities performed while caregiving, and variety of activities performed are linked to grandparents' cognitive levels and decline, specifically, verbal fluency and episodic memory. Additionally, we assessed whether these associations differ between grandmothers and grandfathers.

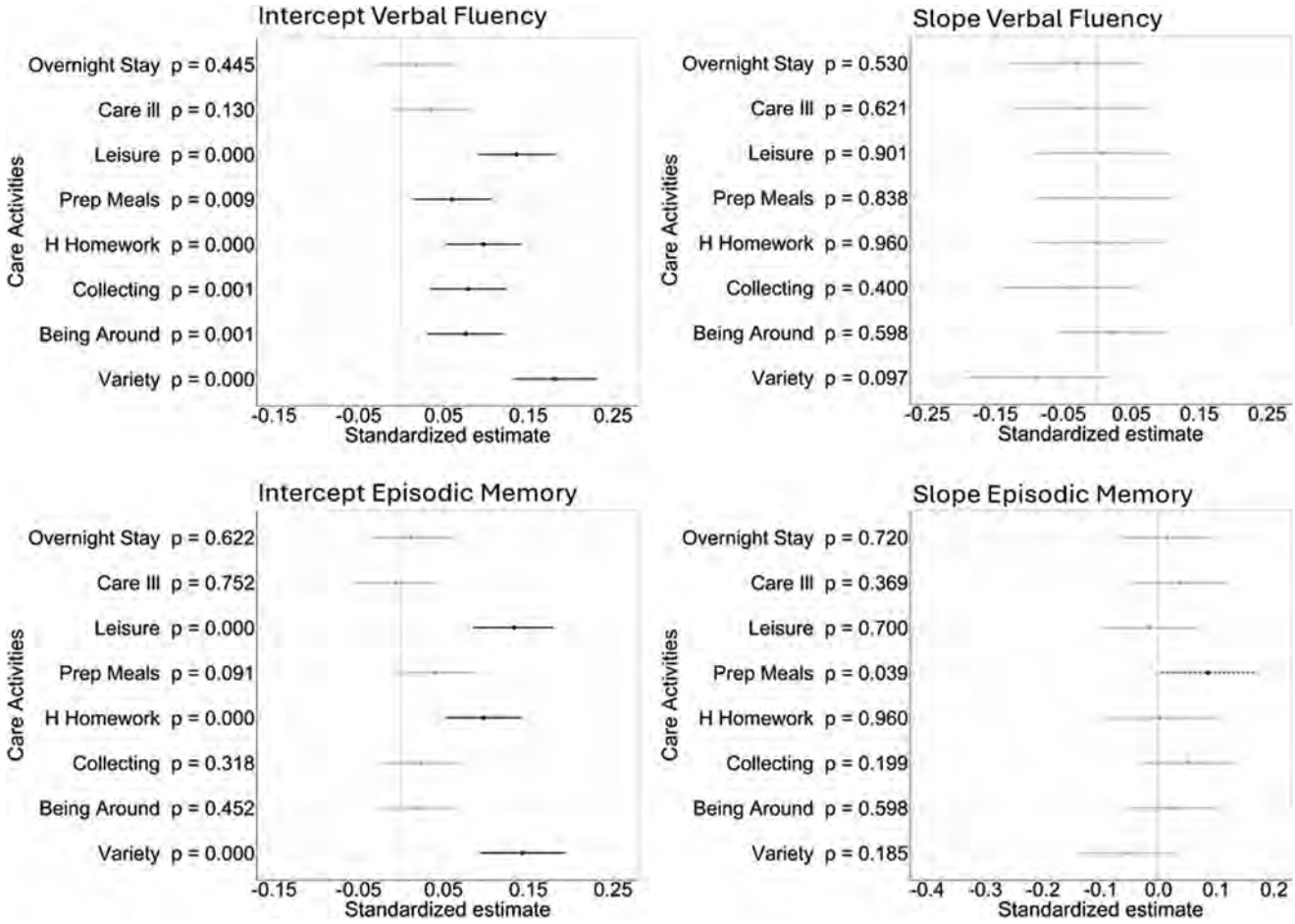
Caregiving Grandparents and Matched Noncaregiving Grandparents

We found some gender differences in the effect of caregiving (yes vs. no) on cognition. Caregiving grandmothers exhibited higher cognitive levels and a slower decline in episodic memory and verbal fluency than matched noncaregiving controls. Grandfathers also had higher cognitive levels compared with the matched noncaregiving controls. However, in the main analysis, no differences were observed in cognitive decline among grandfathers and matched controls—except in the sensitivity analysis. Here, the group of younger caregiving grandfathers showed a faster decline in verbal fluency compared with their matched controls. The positive longitudinal findings for grandmothers align with past research suggesting that (light) grandparenting is linked to better cognitive functioning over time only in grandmothers (Ahn & Choi, 2019; Choi et al., 2024). For example, Ahn and Choi (2019) found that, in a sample of Korean grandparents, grandchild care improved global cognitive functioning, delayed recall, orientation, and language ability only in grandmothers, while no effects were observed in grandfathers. The authors speculated that grandfathers, who may be unfamiliar with caregiving tasks, might view caregiving as demanding, which could diminish any potential beneficial effects or stimulation arising from grandchild care. We also do not know to what extent grandchild care was voluntary or perceived as

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Figure 2

Individual Associations Between Frequency of Each Caregiving Activity, Variety of Caregiving Activities, and Cognition



Note. Each effect originates from a separate model, where the frequency and variety of caregiving activities are predicted to influence episodic memory and verbal fluency. Models that included variety additionally controlled for the frequency of caregiving. Overnight stay refers to having grandchildren stay overnight; care ill refers to looking after grandchildren when they are ill; leisure refers to playing or engaging in leisure activities with grandchildren; prepare meals refers to preparing meals for grandchildren; H homework refers to helping grandchildren with homework; collecting refers to taking grandchildren to, or from nursery playgroup or school; being around refers to just being around in case grandchildren need them; variety refers to the number of different activities performed with grandchildren; dark lines mark $p < .05$. Dotted lines mark values that are no longer significant after FDR correction, while full dark lines denote effects that are still significant after FDR correction. FDR = false discovery rate.

demanding in the present study. Caring out of obligation may not evoke the same positive emotions as caring by personal choice and may lead to feelings of loss of autonomy over one's time (McGarrigle et al., 2018; Neuberger & Haberkern, 2014). Research should aim to assess grandparents' reasons for caregiving, considering past findings that suggest grandfathers are more likely than grandmothers to feel obligated to provide care for their grandchildren (Grünwald et al., 2024).

The observed gender difference might also stem from differences in how grandparents engage in caregiving. Grandmothers are often viewed as the primary coordinators of childcare, with a greater emphasis on family support (Craig & Jenkins, 2016b; Horsfall & Dempsey, 2015). Grandfathers, in contrast, are reported to provide grandchild care more often in the presence of their spouse compared with grandmothers (Craig & Jenkins 2016a), suggesting a more peripheral and supportive role. Consequently, the level of cognitive stimulation from caregiving may be lower for grandfathers, which could explain the absence of consistent evidence in this group. However, further research is needed to replicate these effects and explore whether, as suggested by Ahn and Choi (2019), caregiving does not benefit grandfathers because it may be too demanding for them, or because their caregiving role is more peripheral than that of grandmothers. This is particularly important in light of our results in the sensitivity analysis, showing that caregiving grandfathers under the age of 75 experienced a greater decline in verbal fluency compared with matched controls.

When comparing caregiving grandparents to noncaregiving grandparents, we extended past research by using a propensity score-matched group of noncaregiving controls, which allowed for a more rigorous group comparison as we accounted for specific characteristics that might differ between grandparents who do and do not provide grandchild care (Roth et al., 2013; Sneed & Schulz, 2019). Literature

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using propensity score matching to investigate the effects of care on (cognitive) health is limited, except for Zeng et al. (2021), who used propensity score matching to compare grandparents providing different intensities of care (no care, low, moderate, and high care) on (mental) health and cognition over time. They concluded that grandparents who provided moderate amounts of care (i.e., a couple of hours to 24 hr a week) had higher cognitive functioning than those who did not. However, in the follow-up analysis, unlike our findings, they reported that these positive effects were only present for grandfathers (Zeng et al., 2021). Note that this sample represents Chinese grandparents, highlighting potential cultural differences in the experience of grandparenting (Danielsbacka et al., 2022).

Exploring Caregiving Grandparents

Among caregiving grandparents, we found no gender differences in the association between caregiving frequency and cognitive functioning, nor were there any associations between caregiving frequency and the levels or slopes of cognitive functioning. This contrasts with our earlier findings on caregiving status, where grandmothers and grandfathers showed differences in cognitive levels compared with noncaregivers, and only caregiving grandmothers benefited in terms of slower cognitive decline. Our findings on frequency of care align with recent research by Chereches et al. (2025), which reported no effect of grandchild contact frequency—whether face-to-face or remote—on grandparents' cognitive decline (as measured by a composite cognitive score), and only a few baseline positive associations between frequency of contact with grandchildren and cognition.

Yet, our findings diverge from other results, which have linked more caregiving to better cognition and slower cognitive decline over time, as seen in, for example, panel studies using similar measures of episodic memory (Caputo et al., 2024; Sneed & Schulz, 2019). However, within both of these studies, the authors included noncaregiving (e.g., 0 hr of care) within the definition of caregiving frequency. Including 0 hr (reflecting no care) makes it unclear whether differences between caregiving and noncaregiving grandparents drive the observed positive effects, or if, among those who provide care, the amount of caregiving matters for the observed effects on cognitive functioning. In contrast, our analyses focused exclusively on grandparents who provided care at some point during the study period (and across all waves in our sensitivity analyses). This allowed for a more focused examination of the effect of caregiving frequency on cognition, rather than potential differences between caregivers and noncaregivers. In other words, the absence of consistent associations between caregiving frequency and cognition in our findings raises the question of whether the positive associations observed in prior research may be influenced, at least in part, by between-person differences in who takes on caregiving roles, rather than by caregiving frequency itself (see similar discussion in Chereches et al., 2024; Glaser & Di Gessa, 2025).

It is also possible that we did not find an effect of frequency of caregiving on cognitive levels and decline because frequency of care is not important, but other characteristics of the interaction with grandchildren may better predict cognition and general functioning (Wenzel et al., 2024). For example, in a recent study, Kochli-Hailovski et al. (2021) found that the frequency of grandchild care was not associated with heart rate variability, an objective measure of health, but perceived role overload was (i.e., burden of caregiving). Potentially, caregiving frequency (i.e., how often care is provided) may not be linked to cognition, but caregiving intensity (i.e., how demanding or burdensome care is) might be related. However, like the present study, much of the literature examining the impact of grandparenting on health or well-being predominantly uses caregiving frequency as a predictor. This is partly due to the reliance on existing panel data, which, although valuable for following cognition over long periods, often provides limited information on the context of grandparenting (Hank et al., 2018). Further, we also lack information on whether grandparents feel supported in their caregiving role, the broader family context, and the quality of relationships that shape the caregiving environment. Understanding these nuances is essential for future research to determine if, and under which conditions, caregiving frequency influences cognitive functioning, or if other aspects of grandchild care, such as intensity of care, emotional support, and relationship quality, are better predictors of cognitive or other health outcomes (Noriega et al., 2022).

The Role of Caregiving Activities and the Variety of Performed Activities

Prior research has highlighted a need to understand not just *whether* grandparents provide care but also *what* they do with their grandchildren and how these activities may differentially impact cognitive functioning (K. Burn & Szoeke, 2015; Di Gessa et al., 2016). Thus, this study explored the impact of seven caregiving activities on cognitive levels and decline. We started by descriptively investigating whether there are gender differences in what grandparents do with their grandchildren, as it was previously suggested (Horsfall & Dempsey, 2015). In line with past research (Di Gessa et al., 2020), we found that grandmothers performed caregiving activities more frequently than grandfathers. However, most of the observed effects were small (on average, d of 0.18), except for preparing meals ($d = 0.61$), which showed large gender differences.

We found no gender differences in the effects of specific caregiving activities on cognition, suggesting that the link between caregiving activities and cognition may be similar for both grandmothers and grandfathers. For both, involvement in leisure activities with grandchildren and helping with homework were associated with higher levels of cognitive functioning, specifically episodic memory and verbal fluency, even after correcting for multiple comparisons. These were the only activities related to both cognitive outcomes. The frequency of preparing meals, picking up grandchildren from/to school, and being available when needed was positively related only to levels of verbal fluency, suggesting that grandparents who engaged in these activities more frequently also tended to have better verbal fluency.

However, none of the specific activities were found to be associated with changes in cognitive functioning over time (following multiple testing correction). Glaser and Di Gessa (2025) using two waves of the ELSA sample, found limited support for an effect of the frequency of involvement in certain caregiving activities over time, albeit for subjective well-being. The authors found mainly significant between-person rather than within-person associations. They concluded that the apparent benefits of grandchild care may derive more from preexisting differences between grandparents than from the activities themselves. We also observed only level–level associations and cannot exclude the possibility of

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reverse causality—those with better verbal fluency and episodic memory are more capable of engaging in these activities more often (see similar discussion, Chereches et al., 2025).

Further, to our knowledge, this data set is unique in that it repeatedly asks participants about the specific activities they engage in with their grandchildren across multiple waves. However, while it captures *what* grandparents do, it does not assess *how* they experience these activities—for example, as cognitively/emotionally/physically demanding, novel, or routine. Some activities may be predictable and embedded in routine, requiring limited effort, whereas others may involve greater cognitive engagement and novelty. The cognitive impact of caregiving is likely shaped less by the specific activity or its frequency and more by how the activity is perceived. Asking grandparents how challenging, novel, or burdensome their caregiving activities are may provide more insight than simply cataloguing what they do. Future research could therefore benefit from assessing subjective perceptions of caregiving tasks, especially since past work, for example, has linked the novelty of activities to cognitive functioning (Oltmanns et al., 2017). Future studies should also consider the ages of grandchildren (in interaction with the grandparents' ages), as the level of involvement and enjoyment that grandparents derive from caregiving activities may depend on both the grandchildren's and grandparents' ages (Danielsbacka et al., 2019). For example, regarding the age of grandchildren, some research reports that caring for older grandchildren is less rewarding for grandparents than caring for younger grandchildren (Triadó et al., 2014).

Yet, although we did not find a direct link between specific activities and cognition, we found that a greater variety of caregiving activities was associated with better verbal fluency and episodic memory functioning (a level–level association). Engaging in diverse activities likely stimulates multiple cognitive domains, as different tasks can involve unique cognitive processes, such as planning or problem-solving (Carlson et al., 2012). Our findings on the variety of caregiving activities align with past cross-sectional research examining the effects of the array of activities on cognition (Jackson et al., 2020). Yet, unlike past longitudinal research (Carlson et al., 2012), we do not find a link between the variety of caregiving activities and cognitive decline. This is possibly due to the shorter timeframe we examine—five years, compared with 9 years in previous research.

Further Limitations and Recommendations for Future Research

This study has some limitations that can guide future research. First, we do not know whether grandparents want to provide care or under what conditions they would do so. Past research suggests that high involvement in grandchild care may divert time that grandparents typically allocate to other forms of social involvement (Arpino & Bordone, 2017). When care replaces other meaningful occupations, grandparents might feel distressed (Ludwig et al., 2007). Future research should aim to collect more information on the perceived burden associated with caregiving, as well as grandparents' preferences for how caregiving should be conducted and how frequently it should occur. This would allow to capture a potential "role captivity" among grandparents—that is, a discrepancy between what they must do (i.e., the responsibilities of grandparents as defined by social and cultural norms) and what they want to do (i.e., their preferences; Grünwald et al., 2024).

Further, when selecting the caregiving sample, we focused only on grandparents who provided care in at least one assessment during the study period. We averaged the frequency over the three waves. In a separate sensitivity analysis, we reran the models investigating caregiving grandparents, restricting them to caregiving across all three assessment waves and excluding those who moved in and out of caregiving roles. Yet, transitions in and out of caregiving warrant a more detailed investigation in future research (Chereches et al., 2024; Condon et al., 2018; Di Gessa et al., 2023).

In addition, despite using propensity score matching to address selection into grandparenting, we still observed baseline cognitive differences between caregiving and noncaregiving grandparents. These differences may stem from unaccounted factors, as research suggests that experiences earlier in life, such as work conditions (Künzi et al., 2021, 2023; Sindi et al., 2023), leisure activities in middle adulthood (Gow et al., 2017), or even physical activity in younger adulthood could shape cognitive functioning later in life (Hoang et al., 2016). We therefore cannot exclude the possibility of reverse causality, where factors from earlier in one's life may support an individual in reaching an older age with a higher cognitive ability level and the capacity to engage in more grandchild care.

For the comparison of caregiving and propensity-scored matched noncaregiving grandparents, caregiving status was determined at Wave 8, with participants allowed to have missing data afterward. There is hence a possibility that missing data coincided with transitions in and out of care, which could have biased our results. As a sensitivity analysis, we tried comparing caregiving grandparents who maintained their caregiving status to noncaring grandparents who also maintained their status across the three waves (and hence had complete data), but these models did not converge. Furthermore, the noncaregiving group had to maintain their noncaregiving status at any nonmissing wave, while caregiving grandparents could have transitioned out of care later on.

We also had only three waves of data, spanning over 4 years, from the moment detailed caregiving questions were introduced in the ELSA survey. Although this is the first study to investigate the impact of specific caregiving activities (and their variety) on cognition, future research should examine the link between care and cognition across multiple assessment waves, allowing for a more comprehensive capture of cognitive decline. Ideally, research would also investigate the link between care and cognition in various data sets, using the same methodology and covariates, for example, through a coordinated data analysis (Weston et al., 2020). Regarding the included covariates, most past grandparenthood research has included a greater number of controls, which differ from one study to another and may likely influence the observed results. There is an increasing call to pay more attention to the covariates included in analyses and how the overzealous use of covariates might bias the obtained estimates (for a discussion specifically on cognitive functioning and panel data, see Stine-Morrow et al., 2021).

Due to sample size limitations, we were unable to formally test whether caregiving effects differed between young–old and old–old grandparents. However, we acknowledge the role that age may play in shaping the experience and impact of grandchild care. In later life, caregiving may become less common due to the lower physical health of grandparents and older grandchildren, who may no longer require care, even as intergenerational contact continues

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(Barrett & Gunderson, 2021; Kemp, 2005). Future work should explore age-related differences in grandparent involvement and cognitive correlates, examining the effects of caregiving versus general grandchild contact, as well as comparing grandchild contact with and without care. In addition, future work should aim to also investigate the interaction between gender, age, and care status, as for certain groups of grandparents (e.g., caregiving grandfathers younger than 75 in our sensitivity analysis), caregiving might be detrimental. Potentially, young–old grandfathers might still be highly involved in other productive activities (e.g., work, volunteering), and the additional caregiving responsibilities might lead to role overload (H. Li et al., 2022).

This study does not consider the family context in which grandchild care occurs. Parents often act as "gatekeepers," influencing the extent and nature of contact and care between grandparents and grandchildren (Doyle et al., 2010) and potentially shaping the types of activities grandparents engage in with their grandchildren. Providing care within a supportive family environment may have different cognitive effects than caregiving in a more stressful context, where grandparents might feel unsupported by the parents, spouse, or friends. Furthermore, between the second and last assessments, the COVID-19 pandemic occurred. Therefore, we cannot exclude the possibility that the restriction measures might have affected both grandparents' cognition and the way family care was provided.

Finally, we would like to emphasize that these results are specific to the sample we examined. Caregiving is an activity highly influenced by the culture, norms, and values within the family (Neuberger & Haberkern, 2014) and may be subject to societal changes in the future. Similarly, the gender differences observed when comparing caregiving to noncaregiving grandparents might be sample specific and driven by norms in the investigated cohort that we could not account for. A growing body of literature is investigating gender differences in the impact of caregiving on various outcomes for grandparents (Choi et al., 2024; Notter, 2022). However, it may be that investigating gender is less informative than addressing other questions, for example, whether grandparenting is beneficial for grandparents' cognition (or health in general) when it is not voluntary, and when it is perceived as a burden. One could expect that, irrespective of gender, grandparents would benefit differently from caregiving depending on the reasons and emotions they experience toward care.

Conclusion

This study found that caregiving grandmothers and grandfathers had better cognitive functioning than matched noncaregiving grandparents. Grandmothers had slower decline in cognitive functioning compared with matched controls. In contrast, caregiving grandfathers did not differ from matched noncaregiving grandfathers in terms of changes in verbal fluency and episodic memory. Among caregiving grandparents, we found no association between the number of days spent caregiving per year and cognitive decline. Furthermore, regarding the activities grandparents engage in with their grandchildren while caregiving, we found that only the frequency of involvement in leisure activities, helping with homework, and the variety of activities performed were positively associated with both cognitive functioning levels, but not with cognitive decline. Taken together, these findings support the protective effect of grandchild care on grandmothers' cognitive functioning over time, while highlighting some associations between specific and the variety of caregiving activities with grandparents' cognitive levels.

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