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RESEARCH

Grandparental Support Varies Asymmetrically According to Family Socioeconomic Status, Parental Gender, and Lineage

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Abstract

Several studies have shown that (i) grandparental support varies according to gender and lineage, and (ii) differences in family relationships tend to exist between lower and higher socioeconomic status (SES). However, there is a lack of studies examining whether grandparents provide more support to grandchildren from lower- or higher-SES families in contemporary affluent societies, and whether this differs between maternal and paternal grandmothers and grandfathers. We used population-based data from Germany and applied generalized ordered logit models to examine how grandparental childcare and financial support vary with the SES of grandchildren's families, measured by parental education and household income. It was detected that grandparents provided frequent childcare help more often to grandchildren whose parents had higher levels of education and income. Specifically, frequent childcare help from maternal grandmothers increased as parental education levels rose. Additionally, paternal grandparents provided more financial support to families in the medium, high, and highest income classes compared to those in the lowest income class. These findings are more consistent with an accumulation pattern than a compensation pattern, suggesting that grandparental support may contribute to the persistence of socioeconomic inequalities between families.

Keywords Gender · Germany · Grandchildren · Grandparental investment · Lineage · Socioeconomic status

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Introduction

During the recent decades, the opportunities for grandparental involvement has increased due to better health and heightened longevity, leading to prolonged duration of shared lifespans among grandparents and grandchildren (Bengtson, 2001). Moreover, in numerous post-industrial countries, declining birth rates have led to fewer grandchildren for grandparents, potentially allowing them to provide more resources and attention to each individual grandchild (Alburez-Gutierrez et al., 2023). Grandparental involvement encompasses the range of resources grandparents offer to their grandchildren either directly or indirectly via the parents (Coall & Hertwig, 2010; Tanskanen & Danielsbacka, 2019), and it is well-known that in contemporary affluent societies, grandparents provide various resources in their descendants (e.g., Zanasi et al., 2023). In the present study, we investigate whether the socioeconomic status (SES) of grandchildren's families is associated with grandparental financial support and childcare.

Prior studies have detected grandparental involvement differences related to SES in various settings. First, a handful of prior investigations have examined the association between *the SES of grandparents* and grandparental support (Di Gessa et al., 2016, 2022; Igel & Szydlik, 2011; King & Elder, 1998; Zamberletti et al., 2018; Zanasi & Sieben, 2024). Second, several studies have examined grandparental childcare in relation to parental employment and socioeconomic characteristics in both single-country contexts (Dimova & Wolff, 2008; Kanji, 2018) and comparative welfare regime frameworks (Aassve et al., 2012; Arpino et al., 2014; Igel & Szydlik, 2011; Bordone et al., 2017). Third, some qualitative studies have suggested that differences in grandparental involvement may be shaped by the SES of the grandchildren's family (Airey et al., 2020; McGarrigle et al., 2018). Finally, although it did not directly measure the effect of parental SES on grandparental involvement, family economic hardship was included as one of factors (along with, e.g., parental unemployment, divorce, and drug or alcohol problems) in the family adversity index used in prior studies analyzing the association between family adversities and grandparental involvement (Griggs et al., 2010; Helle et al., 2022; Yang & Wild, 2022).

To summarize, to the best of our knowledge, few prior studies have directly examined how the SES of grandchildren's families is associated with differences in grandparental involvement across multiple forms of support. While some research has considered parental socioeconomic characteristics in the context of childcare use or maternal employment, these studies have typically not framed the association in terms of compensation versus accumulation mechanisms, nor have they simultaneously examined financial transfers and childcare support. One notable exception is Snopkowski and Sear (2015), who found that grandparents in Indonesia provided more financial support to grandchildren from poorer families than to those from wealthier families. However, as Indonesia is a middle-income country undergoing economic and demographic transitions, these findings may not be generalizable to affluent Western societies. Consequently, there remains a need for research examining socioeconomic differences in grandparental investment in contemporary Western settings, particularly research that integrates socioeconomic status, gender, lineage, and type of support within a unified theoretical framework.

Intergenerational Solidarity and Transfers

In prior research, grandparental involvement has often been conceptualized using the intergenerational solidarity model developed by Bengtson and colleagues (e.g., Bengtson, 2001; Bengtson & Roberts, 1991; Silverstein & Bengtson, 1997). The intergenerational solidarity model (Bengtson, 2001) identifies six dimensions of family relationships: affectual solidarity (e.g., emotional closeness), associational solidarity (e.g., contact frequency), consensual solidarity (e.g., shared values and beliefs), functional solidarity (e.g., financial and practical support), normative solidarity (e.g., sense of obligation), and structural solidarity (e.g., geographical proximity). The present study focuses on the dimension of functional solidarity and operationalizes it as financial support and childcare help provided by grandparents to their descendants.

Although financial support and childcare help are both forms of functional solidarity, they differ in important ways because they rely on distinct resources. Financial support primarily depends on the economic assets of grandparents, whereas childcare help is contingent upon time availability, geographical proximity, and grandparents' health. Because these forms of functional solidarity draw on different resources, they may also be differently associated with the SES of grandchildren's families. These differences suggest that financial support and childcare help may be shaped by different social and socioeconomic mechanisms.

The distribution of functional solidarity may also reflect broader patterns of social inequality. Examining whether grandparents provide more support to grandchildren from lower- or higher-SES families can therefore provide important insights into the intergenerational transmission of advantage and disadvantage. If grandparents provide more support to grandchildren from lower-SES families, they may compensate for limited resources within those families (the "compensation effect"). Conversely, if they provide more support to grandchildren from higher-SES families, they may contribute to the accumulation of family resources (the "accumulation effect"). In the former case, grandparental support may help reduce disparities between disadvantaged and advantaged children. In the latter case, such investments may reinforce and potentially widen existing socioeconomic inequalities. The compensation and accumulation effects represent competing mechanisms that may be expressed differently across the two forms of functional solidarity, as financial support and childcare help rely on distinct resources.

Whether grandparental involvement compensates for disadvantage or reinforces advantage may further depend on the gender of the grandparent and the lineage through which support is provided. Previous research has consistently shown that grandmothers typically provide more support to grandchildren than grandfathers, and maternal grandparents provide more support than paternal grandparents (e.g., Daly & Perry, 2017; Danielsbacka et al., 2015). These gender and lineage differences may stem from women's traditional role as "kin keepers," whereby societal, psychological, and biological factors make women more likely than men to maintain family relationships (Bracke et al., 2008). According to kin-keeper theory, women are generally more inclined to provide support to family members; accordingly, grandmothers are expected to provide more support to grandchildren than grandfathers (Dubas, 2001). Moreover, when mothers of young children assume the role of kin keepers,

this often results in greater involvement from maternal than paternal grandparents, as daughters tend to play a central role in childcare (Attar-Schwartz et al., 2009; Perry & Daly, 2017).

Given their higher baseline support and closer involvement in everyday family dynamics (e.g., Daly & Perry, 2017; Danielsbacka et al., 2015), grandmothers and maternal grandparents may be more responsive to socioeconomic differences in grandchildren's families, whether through compensatory or accumulation effects. If a compensation mechanism is at work, these grandparents may be particularly likely to increase their support to grandchildren from lower-SES families. Conversely, if an accumulation mechanism prevails, their greater involvement may result in stronger support for higher-SES families. Thus, socioeconomic differences in grandparental support may be stronger among grandmothers and maternal grandparents than among grandfathers and paternal grandparents.

When the potential compensation and accumulation effects are investigated, it is important to note that all grandparents may not have similar opportunities to provide support to their descendants. For instance, grandparents who are still working may not have as much time to be involved in their grandchildren's lives (Tanskanen et al., 2021), and partnership status may also shape grandparental behavior (Tambellini et al., 2026). In addition, when the geographical distance increases the opportunity for grandparental support decrease (Coall et al., 2014). When grandparents age, they become more fragile and thus older and less healthier grandparents may have fewer opportunities to provide help (Danielsbacka et al., 2022). Finally, socioeconomic resources may vary between grandparents influencing their opportunities to support their grandchildren (Di Gessa et al., 2022). Hence, it is important to take these factors into account in the empirical analyses.

Hypotheses

Taken together, the theoretical considerations outlined above lead to the following hypotheses:

H1 (Socioeconomic differences): Grandparental support varies by the SES of grandchildren's families, consistent with either a compensation effect (greater support to lower-SES families) or an accumulation effect (greater support to higher-SES families).

H2 (Socioeconomic differences by gender and lineage): The association between family SES and grandparental support differs by the gender and lineage of the grandparent, such that grandmothers and maternal grandparents exhibit the strongest SES gradient, whether compensatory (greater support to lower-SES families) or accumulative (greater support to higher-SES families).

H3 (Socioeconomic differences by type of support): The association between family SES and grandparental support differs by type of support, with accumulation dynamics expected to be more strongly reflected in financial transfers than in childcare help.

Methods

Data

We used survey data from the Panel Analysis of Intimate Relationships and Family Dynamics (pairfam), which offers information on intergenerational relations, socio-economic standing, and several other socio-ecological factors in Germany (Brüderl et al., 2019; Huinink et al., 2011). Pairfam provides data on three birth cohorts born in 1971–1973, 1981–1983, and 1991–1993. We used birth cohorts 1971–1973, 1981–1983 of wave 2 data collected from 2010 to 2011, when the cohort members were aged approximately 27–29 and 37–39 years, respectively. We omitted the youngest cohort (aged 17–19), as parenthood in this age group is rare. We included all respondents who had biological children and whose youngest child was 12 years or under.

Measures

Grandparental investment, the dependent variable, was taken from the intergenerational relations section of the pairfam questionnaire. Respondents (i.e., parents) were asked about questions of their relationships with their own parents (i.e., grandparents). Throughout the paper, we call respondents' parents as 'grandparents' to signify these different generations. The questionnaire included two questions that measure grandparental support. These questions were asked from the respondents who had a child that is a biological child or lives with the respondent in the same household, and is under 15 years of age. **Financial support** was based on a question for each parent: 'During the past 12 months, did you receive from parent substantial gifts or financial support for your children?' This response ranged from (0) never, (1) seldom, (2) sometimes, (3) often, (4) to very often. **Help in childcare** was based on a question for each parent: 'During the past 12 months, how often did you receive help from parent in looking after or taking care of your children?' This response scale was identical to that for financial support. For analytical purposes and to ensure adequate sample sizes for interactions of interest, we combined seldom (1) and sometimes (2) to one category *sometimes* and often (3) and very often (4) to one category *often*, resulting in three final categories: never, sometimes, and often, for both financial support and childcare help. Our main interest lies in frequent grandparental support (category: *often*), as it can be interpreted as indicating stronger and more effective involvement in grandchildren's lives compared to less frequent grandparental support (Coall & Hertwig, 2010).

Because grandmothers and grandfathers, as well as maternal and paternal grandparents, often provide support differently, we divided grandparents into four groups based on gender and lineage. The four categories are: maternal grandmothers (MGMs), maternal grandfathers (MGFs), paternal grandmothers (PGMs), and paternal grandfathers (PGFs). We use these abbreviations throughout this paper.

Parental education was measured using the International Standard Classification of Education Index (ISCED) (UNESCO, 2006), which was recoded into three groups based on the highest educational level achieved at the time of the survey: (1) low, (2) medium, and (3) high. First, no degree (1b), lower secondary education (2a),

and lower secondary education (2b) were recoded into *low* education. Second, upper secondary education (3a), upper secondary education vocational (3b), and post-secondary non-tertiary education (4a) were recoded into *medium* education. Third, first stage of tertiary education (5) and second stage of tertiary education (6) were recoded into *high* education. **Household income** in pairfam was collected by asking the respondents to report the total net household income of the last month. This was coded as five groups: (1) lowest (less than €1000), (2) low (€1001–€2000), (3) medium (€2001–€3000), (4) high (€3001–€4000), and (5) highest (more that €4000).

We analysed whether grandparental support varied according to family SES measured as parental education and household income. Therefore, we ran 4 models for both financial support and help in childcare each with parental education and household income. First, we ran these models with SES variables to see general patterns of grandparental support according to family SES without distinguishing grandparental type (gender or lineage). Second, we added interaction term of grandparent type and SES variable to see if different grandparents adjust their support differently according to family SES.

Other factors potentially influencing grandparental support, included as control variables in the models, were: the age of the middle generation (continuous), ethnicity (two categories: German native and other background), cohabitation status (cohabiting or not cohabiting), number of siblings (continuous), number of biological children (continuous), and the age of the youngest child in months (continuous). Descriptive information for the middle generation is provided in Table 1. For the analysis, we reshaped the data into long format from the grandparent's perspective, with each grandparent representing an observation. Variables related to grandparents include grandparental age (continuous), grandparent's education (low, medium, high), travel distance to the grandparent's residence (0 = same household, 1 = less than 10 min, 2 = 10–30 min, 3 = 30 min to 1 h, 4 = 1–3 h, 5 = more than 3 h), and grandparental cohabitation status (cohabiting or not cohabiting). Descriptive statistics for grandparents are presented in Table 2. Supplementary Table 1 shows a cross-tabulation of parental and grandparental education.

Our sample includes missing data, for instance, household income was missing for 9% of respondents (Table 1) and age of the grandparent was missing for 6% and grandparental education for 20% (Table 2). Dropping observations with missing values can cause bias, and multiple imputation is seen as better option than listwise deletion (Van Ginkel et al., 2020). We applied multiple imputation for missing variables (see Tables 1 and 2) prior to fitting the main models, and we imputed 30 datasets using Multiple Imputation by Chained Equations (MICE) (White et al., 2011; von Hippel, 2020).

Data Analysis

The response variables (i.e., grandparental childcare help and financial support) were ordinal in nature. However, since the proportionality assumption, i.e., the assumption that the distance between each outcome category is proportionate, was violated, we used the generalized ordered logit/partial proportional odds model (gologit2), which selectively relaxes the assumptions of the ordered logit model as needed (Williams,

Table 1 Descriptive statistics of parents (n = 2,472)

variables	%/mean	SD	missing%
Gender			0
Male	34.7		
Female	64.3		
Cohort			0
1981–1983	29.7		
1971–1973	70.3		
Education			0.3
Low	9.9		
Medium	59.3		
High	30.8		
Income			9.3
Lowest	4.2		
Low	27.8		
Medium	37.8		
High	18.7		
Highest	11.5		
Ethnicity			2.3
German native	74.3		
other	25.7		
Age	34.2	4.61	0
Cohabitation status			1.3
Not cohabiting	23.5		
Cohabiting	76.5		
Number of siblings	1.9	1.67	1.2
Number of biological children	1.9	0.89	0
Age of youngest child (months)	53.5	37.53	0

2006, 2016). In Tables 3, 4, 5 and 6, the results from proportional odds models are presented as a series of cumulative logit models. The original ordinal variable was collapsed into two categories, and a series of binary logistic regressions were run. First, it compares the category 'never' to the categories 'sometimes' and 'often'; then it compares 'never' and 'sometimes' to 'often.' In each dichotomization, the lower values are recoded as zero, and the higher values are recoded as one. A positive coefficient indicates that increases in the explanatory variable lead to a higher category of support or help, while a negative coefficient indicates that increases in the explanatory variable increase the likelihood of remaining in the current or a lower category (Williams, 2012). If the explanatory variable meets the proportional odds assumption, the coefficients are identical, and only one set of coefficients is presented for clarity. We determined which parameters met the proportionality assumptions from analysis with unimputed data. Since the data are clustered within individuals, the standard errors of the estimates were corrected for clustering within individuals. To aid interpretation and visualization of the results, we calculated predictive margins from the regression models (Williams, 2012). All statistical analyses were performed using Stata 18 (StataCorp, 2023). Generative AI tool (ChatGPT-5) has been used for language improvement.

Table 2 Descriptive statistics of grandparents (n = 4,198). Percentages show the distribution within grandparental type (MGM = maternal grandmother, MGF = maternal grandfather, PGM = paternal grandmother, PGF = paternal grandfather)

	MGM	MGF	PGM	PGF	
	M ± SD/%	M ± SD/%	M ± SD/%	M ± SD/%	missing%
Number of observations	35.3	28.7	19.8	16.1	
Age	59.3 ± 7.7	62.1 ± 7.8	61.0 ± 7.5	63.7 ± 7.7	6.05
Financial support					
Never	27.4	30.7	25.0	26.0	
Sometimes	52.3	51.2	51.2	56.0	
Often	20.3	18.1	19.2	18.0	
Help in taking care of children					
Never	22.3	33.3	25.4	34.0	
Sometimes	37.8	38.6	44.4	44.9	
Often	39.9	28.1	30.3	21.1	
Education					20.3
Low	10.4	9.6	8.4	9.2	
Medium	61.4	61.0	56.0	53.8	
High	28.2	29.5	35.5	39.3	
Distance to parent's home					0.6%
live in the same house	8.7	7.1	12.4	13.0	
Less than 10 min	29.8	28.4	31.2	30.4	
10–30 min	22.5	22.1	21.1	20.3	
30–60 min	9.7	10.7	9.4	8.5	
1–3 h	10.4	12.1	9.3	10.4	
3 h or more	18.8	19.6	16.4	17.4	
Cohabitation status					0.14
not cohabiting	27.7	13.6	25.3	11.1	
cohabiting	72.3	86.4	74.7	88.9	

Results

We investigated whether family SES is associated with frequent grandparental support using generalized ordered logit/partial proportional odds models, as some variables indicated non-proportionality. Table 3 shows a general pattern: grandparents are more likely to provide frequent childcare help as SES increases, measured by both parental education level and family net income. For childcare, the greatest increase is from never helping to helping sometimes or often, particularly among highly educated parents and those with the highest household income. However, family SES was not correlated with grandparental financial support. Full models with covariates are shown in the supplementary materials (Supplementary Tables 2, 3, 4 and 5). Covariates related to financial support and childcare provision varied. Financial support from grandparents was more common among immigrant families than among native German families, and from cohabiting grandparents than from non-cohabiting grandparents. Less financial support was received from grandparents when the youngest child was older, when there were more children in the family, when the parent had more siblings, and when the family lived more than three hours away. Financial support was also received less often when the parent had a partner

Table 3 Summary of results from four partial proportional odds models investigating the association between overall grandparental investment (measured as financial support and childcare provision) and family socioeconomic status (measured by parents' educational level and household income) (n = 4,198). Full models are presented in Supplementary Tables 2, 3 and 4

		never vs. sometimes & often			never & sometimes vs. often		
Investment	Explanatory variables	*B*	SE	p	*B*	SE	p
Financial support	Education (Low)						
	Medium	0.12	0.16	0.358			
	High	0.27	0.17	0.120			
Childcare	Education (Low)						
	Medium	0.59	0.16	<0.0001	0.56	0.17	<0.001
	High	1.34	0.19	<0.0001	0.79	0.19	<0.0001
Financial support	Income (Lowest)						
	Low	0.15	0.21	0.478			
	Medium	0.20	0.22	0.360			
	High	0.19	0.23	0.419			
	Highest	0.19	0.24	0.431			
Childcare	Income (Lowest)						
	Low	0.25	0.23	0.280	0.40	0.24	0.100
	Medium	0.65	0.24	<0.01	0.64	0.25	<0.01
	High	0.96	0.26	<0.0001	0.79	0.27	<0.01
	Highest	1.53	0.29	<0.0001	0.85	0.28	<0.01

Adjusted with age of the parent, ethnicity, age of the youngest child, parental cohabitation status, number of children, parent's number of siblings, grandparental age, grandparental education, distance to grandparent, and grandparent's cohabitation status

When the proportionality assumption holds, only one set of estimates is presented, because the estimates are identical between categories

(Supplementary Tables 2 and 4). Grandparents living with someone was positively associated with grandparent-provided childcare. On the other hand, older age of the youngest grandchild, a higher number of children, and greater distance between grandparents and families were associated with receiving less childcare (Supplementary Tables 3 and 5). Additionally, grandparents with an immigrant background were more likely to provide childcare often rather than never or sometimes (Supplementary Table 3). Grandparents' level of education was not correlated with either form of support (Supplementary Tables 2, 3, 4 and 5).

Because grandparents often differ in their involvement according to gender and lineage, we conducted analysis by adding interaction term between grandparent type and SES measure. It was detected that different grandparent types did not vary in their financial support based on parents' educational level, as the interaction terms were not statistically significant (Table 5). However, there was significant interaction effect between grandparental type and level of education when grandparental support was measured as help in childcare (Table 6; Fig. 1). Maternal grandmothers were more likely to provide frequent childcare to families with highly educated parents than to families with low-educated parents (47% vs. 25%) (Fig. 1a).

When family SES was measured as household income, we found a significant interaction between grandparental type in financial support (Table 4) but not in help in childcare (Table 7). Figure 2 illustrates that PGMs and PGFs provide frequent finan-

Table 4 Results from a partial proportional odds model investigating the association between grandparental financial support and household income (n = 4,198). Reference categories are shown in parentheses

Explanatory variables	never vs. sometimes & often			never & sometimes vs. often		
	B	SE	p	B	SE	p
Grandparent (MGM)						
MGF	−0.56	0.25	0.029			
PGM	−0.85	0.54	0.113			
PGF	−1.42	0.55	0.010			
Parent's income (Lowest)						
Low	−0.02	0.25	0.938			
Medium	−0.25	0.26	0.328			
High	−0.17	0.28	0.541			
Highest	−0.22	0.29	0.457			
GP*Parent's income						
MGF*Low	0.28	0.28	0.311			
MGF*Medium	0.35	0.26	0.181			
MGF*High	0.27	0.28	0.336			
MGF*Highest	0.35	0.29	0.225			
PGM*Low	0.35	0.57	0.538			
PGM*Medium	1.18	0.56	0.034			
PGM*High	0.93	0.57	0.103			
PGM*Highest	1.07	0.59	0.072			
PGF*Low	0.84	0.59	0.152			
PGF*Medium	1.58	0.57	<0.001			
PGF*High	1.34	0.59	0.022			
PGF*Highest	1.36	0.61	0.025			
Parent's age	−0.03	0.01	0.018			
Ethnicity (German)						
Other	0.25	0.10	0.014			
Age of the youngest child	−0.003	0.001	<0.001			
Parent's cohabitation status (no partner)						
have partner	0.12	0.12	0.314	−0.42	0.13	<0.01
Number of children	−0.19	0.05	<0.0001			
Number of siblings	−0.18	0.03	<0.0001			
GP age	0.01	0.01	0.04			
GP education level (low)						
Medium	−0.03	0.12	0.80			
High	0.14	0.14	0.30			
Distance to GP						
Less than 10 min	0.11	0.14	0.44			
10 to 30 min	−0.16	0.15	0.28			
30 to 60 min	−0.21	0.18	0.25			
1 to 3 h	−0.27	0.18	0.12			
3 h or more	−0.73	0.16	<0.0001			
GP cohabitation status (not cohabiting)	0.30	0.09	<0.0001			

When the proportionality assumption holds, only one set of estimates is presented, because the estimates are identical between categories

Table 5 Results from a partial proportional odds model investigating the association between grandparental financial support and parents' educational level (n=4,198). Reference categories are shown in parentheses

Explanatory variables	never vs. sometimes & often			never & sometimes vs. often		
	B	SE	p	B	SE	p
Grandparent (MGM)						
MGF	−0.47	0.17	<0.001			
PGM	−0.36	0.31	0.263			
PGF	−0.37	0.35	0.070			
Parent's education (Low)						
Medium	−0.03	0.19	0.880			
High	0.01	0.20	0.950			
GP*Parent's education						
MGF*Medium	0.26	0.17	0.132			
MGF*High	0.20	0.18	0.257			
PGM*Medium	0.28	0.33	0.392			
PGM*High	0.62	0.34	0.072			
PGF*Medium	0.15	0.37	0.677			
PGF*High	0.38	0.37	0.303			
Parent's age	−0.03	0.01	0.016			
Ethnicity (German)						
Other	0.26	0.10	0.011			
Age of the youngest child	−0.003	0.001	0.012			
Parent's cohabitation status (no partner)						
have partner	0.11	0.11	0.310	−0.43	0.12	<0.0001
Number of children	−0.19	0.05	<0.0001			
Number of siblings	−0.17	0.03	<0.0001			
GP age	0.01	0.01	0.055			
GP education level (low)						
Medium	−0.04	0.12	0.715			
High	0.10	0.14	0.490			
Distance to GP						
Less than 10 min	0.09	0.14	0.522			
10 to 30 min	−0.17	0.15	0.229			
30 to 60 min	−0.21	0.18	0.231			
1 to 3 h	−0.32	0.17	0.069			
3 h or more	−0.75	0.16	<0.0001			
GP cohabitation status (not cohabiting)	0.30	0.09	<0.0001			

When the proportionality assumption holds, only one set of estimates is presented, because the estimates are identical between categories

cial support when parental income falls into the 'medium,' 'high,' or 'highest' classes compared to the 'lowest' class. For example, paternal grandfathers were more likely to give financial help often to parents of the highest income class and medium income class than lowest income class (19% and 22% vs. 7%) (Fig. 2d). Paternal grandmothers were more likely to give financial support often to parents in the medium income class than those in the lowest income class (23% vs. 11%) (Fig. 2c). However, financial support from MGMs and MGFs remained similar across all household income classes.

Table 6 Results from a partial proportional odds model investigating the association between grandparental childcare and parents' educational level (n=4,198). Reference categories are shown in parentheses

Explanatory variables	never vs. sometimes & often			never & sometimes vs. often		
	B	SE	p	B	SE	p
Grandparent (MGM)						
MGF	−0.91	0.21	<0.0001	−0.14	0.22	0.531
PGM	−0.24	0.35	0.500	−0.21	0.37	0.563
PGF	−0.66	0.40	0.094	−1.33	0.55	0.015
Parent's education (Low)						
Medium	0.65	0.21	<0.01	0.79	0.22	<0.0001
High	1.27	0.25	<0.0001	1.21	0.25	<0.0001
GP*Parent's education						
MGF*Medium	0.18	0.23	0.434	−0.52	0.23	0.025
MGF*High	0.16	0.25	0.527	−0.80	0.25	0.001
PGM*Medium	−0.35	0.38	0.358	−0.50	0.39	0.202
PGM*High	0.15	0.41	0.708	−0.74	0.41	0.074
PGF*Medium	−0.53	0.43	0.218	−0.03	0.57	0.955
PGF*High	−0.28	0.45	0.527	−0.22	0.58	0.703
Parent's age	−0.02	0.01	0.140			
Ethnicity (German)						
Other	−0.03	0.11	0.793	0.25	0.11	0.026
Age of the youngest child	−0.003	0.001	0.008			
Parent's cohabitation status (no partner)						
have partner	0.07	0.10	0.481			
Number of children	−0.13	0.05	0.011			
Number of siblings	−0.19	0.03	<0.0001			
GP age	0.01	0.01	0.154			
GP education level (low)						
Medium	−0.03	0.12	0.816			
High	0.01	0.15	0.949			
Distance to GP						
Less than 10 min	−0.89	0.16	<0.0001			
10 to 30 min	−1.67	0.17	<0.0001			
30 to 60 min	−2.32	0.19	<0.0001			
1 to 3 h	−3.00	0.19	<0.0001			
3 h or more	−3.54	0.19	<0.0001			
GP cohabitation status (not cohabiting)	0.40	0.09	<0.0001			

When the proportionality assumption holds, only one set of estimates is presented, because the estimates are identical between categories

As a sensitivity analysis, we included both parental education and household income in models of grandparental financial support and childcare provision. The results were very similar to those from models using each SES measure separately, suggesting that education and income are independently associated with the outcomes (Supplementary Tables 6 and 7).

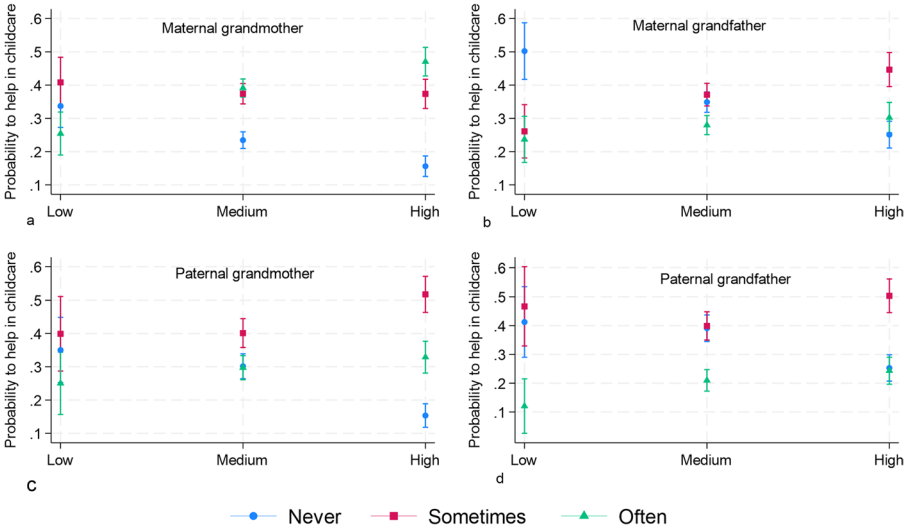

Fig. 1 Predicted probabilities (with 95% confidence intervals) of grandparents providing childcare at three levels (never, sometimes, often), by middle-generation educational level and grandparent type (a–d) (n = 4,198)

Discussion

In the present study, we investigated whether the SES of grandchildren's family is associated with grandparental involvement. Overall, we found that grandparents provided more frequent childcare support to grandchildren whose parents had higher levels of education and income. This was evident even after controlling for the educational level of the grandparents and several other factors. Therefore, our findings support the accumulation effect (greater support to higher-SES families) more than the compensation effect (greater support to lower-SES families).

It is important to note that the observed SES differences may partly reflect intergenerational continuity in socioeconomic resources, as higher-SES adult children are more likely to have higher-SES parents with greater financial capacity. Although our models control for grandparents' education, this measure does not fully capture broader intergenerational socioeconomic continuity. In addition, differences in parental demand for support or in the coordination of childcare may contribute to the observed patterns. For example, higher-SES parents may be more likely to request grandparental support or may be more effective at organizing such support.

When distinguishing grandparents by gender and lineage, we found that frequent childcare support from MGMs increased with higher parental education. This finding provides some support for both the "grandmaternal accumulation effect" and the "matrilateral accumulation effect". Additionally, it was observed that paternal grandparents provided more financial support to families in the medium, high, and highest income classes compared to those in the lowest income class. This result did not align with any of our predictions, but instead indicated the existence of a "patrilateral accumulation effect" in the context of grandparental financial support.

Table 7 Results from a partial proportional odds model investigating the association between grandparental childcare and household income (n=4,198)

Explanatory variables	never vs. sometimes & often			never & sometimes vs. often		
	B	SE	p	B	SE	p
Grandparent (MGM)						
MGF	−0.77	0.24	<0.0001			
PGM	−0.99	0.61	0.109			
PGF	−1.67	0.62	<0.001			
Parent's income (Lowest)						
Low	0.22	0.27	0.430	0.41	0.27	0.134
Medium	0.53	0.28	0.056	0.57	0.28	0.041
High	1.05	0.31	<0.001	0.87	0.31	<0.01
Highest	1.41	0.34	<0.0001	0.73	0.33	0.024
GP*Parent's income						
MGF*Low	0.05	0.27	0.864			
MGF*Medium	0.01	0.26	0.979			
MGF*High	−0.14	0.30	0.631			
MGF*Highest	0.23	0.30	0.451			
PGM*Low	0.17	0.64	0.790			
PGM*Medium	0.58	0.63	0.358			
PGM*High	0.21	0.65	0.751			
PGM*Highest	0.44	0.66	0.507			
PGF*Low	0.31	0.64	0.634			
PGF*Medium	0.53	0.64	0.403			
PGF*High	0.28	0.65	0.665			
PGF*Highest	0.53	0.68	0.439			
Parent's age	−0.02	0.01	0.097			
Ethnicity (German)						
Other	0.03	0.12	0.808	0.28	0.11	0.013
Age of the youngest child	−0.004	0.00	<0.001			
Parent's cohabitation status (no partner)						
have partner	−0.08	0.11	0.471			
Number of children	−0.17	0.05	<0.0001			
Number of siblings	−0.20	0.03	<0.0001			
GP age	0.01	0.01	0.100			
GP education level (low)						
Medium	0.01	0.12	0.909			
High	0.13	0.15	0.374			
Distance to GP						
Less than 10 min	−0.84	0.16	<0.0001			
10 to 30 min	−1.64	0.16	<0.0001			
30 to 60 min	−2.29	0.19	<0.0001			
1 to 3 h	−2.95	0.19	<0.0001			
3 h or more	−3.48	0.18	<0.0001			
GP cohabitation status (not cohabiting)	0.40	0.09	<0.0001			

When the proportionality assumption holds, only one set of estimates is presented, because the estimates are identical between categories

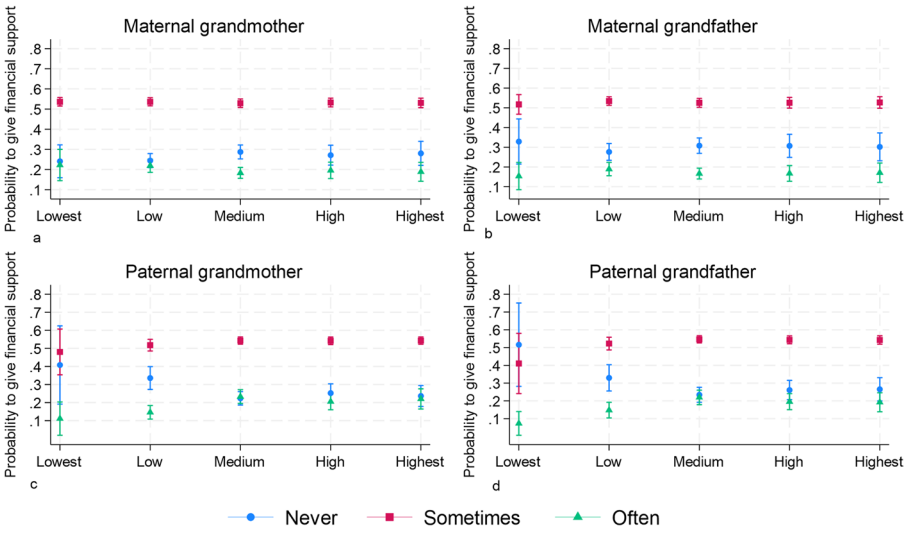

Fig. 2 Predicted probabilities (with 95% confidence intervals) of grandparents providing financial support to grandchildren, by parental household net income and grandparent type (**a–d**) ($n = 4{,}198$)

Prior studies have shown that grandparental support may improve the cognitive skills, well-being, and development of grandchildren (e.g., Helle et al., 2024; Sear & Coall, 2011). Consequently, asymmetrical patterns of grandparental support are consistent with the possibility that intergenerational inequalities may be reproduced through family-based transfers. However, because our study does not examine grandchildren's long-term socioeconomic outcomes or causal mechanisms, the findings should be interpreted as descriptive evidence of socioeconomic differences in support rather than as direct proof of increasing inequality. Future research should investigate whether such patterns translate into differences in socioeconomic attainment across generations.

It remains unclear why grandparents provide more support to grandchildren from higher-SES families. One possible explanation is that families with higher SES generally have more resources, which may enable greater levels of intergenerational support. It has been argued that intergenerational transfers are often part of broader patterns of exchange and reciprocity within families (Friedman et al., 2008). Families with higher SES may also have stronger intergenerational relationships or more resources available to share, which could be associated with higher levels of support. However, because our study does not measure grandparents' motivations, expectations, or perceptions of reciprocity, these explanations remain speculative. Further research is needed to better understand the mechanisms underlying socioeconomic differences in grandparental support.

The present study has several strengths. We used population-based data and sophisticated statistical methods to investigate the association between family SES and grandparental investment, separating grandparents by gender and lineage. We measured both grandparental childcare help and financial support because they rep-

resent different forms of functional solidarity. Finally, we investigated family SES through both parental education and household income.

Our study also has some limitations. The pairfam dataset lacks information on grandparents' health and income, which could be important factors to control for. However, we were able to control for grandparents' education, which is known to correlate with income, and their age, which tends to correlate with health. While we interpret the findings through compensation and accumulation frameworks, the data do not allow us to directly assess grandparents' motivations or perceptions of need. Additionally, we cannot establish causality. To investigate more causal relationships, future studies could assess the association between family SES and grandparental support by using data that includes multiple children from the same families. Furthermore, the grandparents in the present study were relatively young (with a mean age between 59 and 64 years), which may influence the amount of support they provide to their descendants. As age increases, health typically declines, and older grandparents may provide less support than younger ones (Di Gessa et al., 2016). Moreover, the need for reciprocal support may rise with age, potentially affecting grandparental involvement. Lastly, we used data from Germany, so it remains unclear whether similar results would be found in other countries. Future research should examine whether differences in grandparental investment based on family SES exist across other countries and diverse cultural contexts.

In conclusion, the present study shows that grandparental support varies by the socioeconomic status of grandchildren's families, with higher-SES families receiving more support. These patterns are consistent with the possibility that family-based transfers may reflect and potentially reinforce existing socioeconomic differences. However, because our study does not assess long-term outcomes or causal mechanisms, the findings should be interpreted as descriptive evidence of socioeconomic variation in grandparental support.

Supplementary Information The online version contains supplementary material available at https://doi.org/10.1007/s12062-026-09575-3.

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Author contributions A.O.T. wrote the main manuscript text with the help of J.P. and M.D. J.P. conducted the statistical analyses. A.O.T., J.P., and M.D. reviewed the manuscript.

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Data Availability The data that support the findings of this study were provided by the German Family Panel. The data are available at https://www.pairfam.de/en/data/data-access/forscholarlyanalysis.

Declarations

Ethical Approval Pairfam study was approved by the ethics committee of the Faculty of Management, Economics and Social Sciences of the University of Cologne (see https://www.pairfam.de/en/study/ethic-approval/).

Competing interests The authors declare no competing interests.

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