

## **Kinship in midlife: Evidence from a new survey on nuclear and extended kin solidarity in Italy**

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### **Abstract**

Scholarly interest in kinship has grown over the past decade, yet most studies have focused on the number of living relatives, often assuming that their existence guarantees support and cohesion. This paper examines kinship solidarity—encompassing geographical proximity, contact frequency, emotional closeness, and support exchanges—among middle-aged Italians, considering both nuclear (parents, children) and extended (siblings, nephews/nieces, uncles/aunts, cousins) ties. Using data from an ad-hoc web-based survey of 5,601 respondents aged 45–65, I apply multilevel random-intercept linear probability models to analyze patterns of kinship solidarity. Results show that solidarity declines with genealogical distance, with siblings occupying an intermediate position between nuclear and extended kin. Three exceptions modify this hierarchy: sibling conflict is common; cousins rank lowest on most dimensions but not in support exchanges; and while economic support typically flows from parents to children, practical support moves in the opposite direction. Moreover, the probability of receiving practical support from both nuclear and extended kin is higher among those with mental or physical limitations, whereas the economic support of needed adults is confined to parents, children, and siblings. The absence of parents is associated with stronger ties to uncles/aunts and cousins, while childlessness is associated with more frequent contact, closeness, and support exchanges with siblings and nephews. Overall, the findings highlight the compensatory role of extended family and the broader kinship network as a safety net in middle adulthood.

**Keywords:** Kinship; Solidarity; Extended family; Genealogy; Italy.

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## **Introduction**

Over the last decades, with declining fertility, mortality and union stability, family structures in Western countries have undergone profound transformations. Longer life expectancy has extended the period during which family generations share their lifespans, often exchanging emotional, practical, or financial support (Bengtson, 2001; Song & Mare, 2019). Concurrently, decreased fertility has reduced the number of descendants and horizontal kin, such as siblings and cousins (De Bel et al., 2025; Kolk et al., 2024), and kinship networks are projected to shrink globally by about 38% in the future (Alburez-Gutierrez et al., 2023). A growing body of research has raised concerns about the availability of informal support systems, especially for middle-aged and older individuals who have few or no kin alive and are at risk of “ageing alone” (Margolis et al., 2022; Mair, 2019; Verdery et al., 2019). In the U.S., for example, demographic projections estimate that the share of middle-aged and older adults facing a gap between the need for care and the ability to receive it due to the lack of available kin will rise by over 30% in the next two decades (Wu et al., 2023; 2024).

The study of kinship has a longstanding tradition in demography, with scholars typically estimating kin availability using administrative registers (e.g., Kolk, 2017), historical genealogical data (Minardi et al., 2024), survey data (e.g., van Damme et al., 2025), or formal demographic models and microsimulation techniques (e.g., Alburez-Gutierrez et al., 2023; Feng et al., 2024; Jiang et al., 2025; Murphy, 2011; Song & Casewell, 2022). However, most of these studies have focused on the mere count of living relatives, often assuming that their existence ensures support availability and kin cohesion. Only recently, in response to Furstenberg (2020)’s claim of kinship as a neglected topic, scholars have also examined the pattern of relationships that young adults have with their extend kin in the United States

(Cherlin, 2023) and Europe (Leopold et al., 2024; 2025). In this study I focus on middle-aged adults and analyze kinship solidarity – which includes the dimensions of geographical proximity, contact frequency, emotional closeness, conflict, and support exchanges (Bengtson & Silverstein, 1997). Beyond the size of kinship networks, the study of solidarity offers insights into the extent to which kinship functions as a supportive system that mobilizes to assist members in need and compensates for the absence of closer relatives. Three research questions are addressed: *To what extent does family solidarity extend beyond nuclear kin ties among middle-aged adults? Do nuclear and extended kin mobilize to support their needed members? Do extended kinship relationships partly compensate for the absence of nuclear family ties (i.e., partner, parents, and children)?*

This study presents results from a new online survey on the kinship networks of Italians aged 45–65, a group of middle-aged adults who are likely to have both ascending and descending kin alive and face important life-course transitions, such as entering older age. The kinship network of middle-aged adults has profound implications for wellbeing and health in later life, as studies show that social networks become mostly kin-based with age and having neither a partner nor children is associated with worse physical and mental health and a higher probability of reporting unmet needs (Margolis et al., 2022; Patterson & Margolis 2023; Tosi & van den Broek, 2025; Verdery et al., 2019). Therefore, examining kinship solidarity is particularly important for middle-aged adults approaching later life with practical and economic support needs, or when close kin, such as partner, children, or parents, are absent. More specifically, the contribution of this study is threefold. First, in line with Leopold (2025) and Cherlin (2023), kinship solidarity is analyzed across nuclear (i.e., parents and children) and extended kin (i.e., siblings, nephews/nieces, uncles/aunts, and cousins) relationships to test whether it decreases according to genealogical distance also among middle-aged individuals. Second, the role kinship network as safety net is tested by examining whether support patterns emerge among

middle-aged adults who have poor health or economic conditions. Third, the analysis focuses on differences in extended kinship solidarity between individuals with nuclear family ties and those who have no partner, children, or parents alive to examine the compensatory role of extended kin relationships.

## **Background**

### *Solidarity across nuclear and extended kin ties*

Intergenerational solidarity model has guided a large body of research on parent-child relationships (Bengtson, 2001; Silverstein & Bengtson, 1997). Solidarity across a larger set of kin relationships is seldom analyzed, because of the lack of available data on extended kin (Leopold et al., 2024) and the assumption that the nuclear family is a self-sufficient organization, isolated from the broader kinship network (Litwak, 1960). Solidarity is typically specified by six essential dimensions: opportunity structure (i.e., geographical proximity), association (i.e., contact), function (i.e., instrumental support), affection (i.e., closeness), conflict (i.e., disagreement), and family norms (i.e., obligations). The present study analyzes the first five dimensions, thus excluding norms, which are difficult to measure in standard surveys.

Historically, a distinction of family relationships within the nuclear and extended kinship networks has been conceptualized by evolutionary theory, which links the intensity of contact, closeness, and support to genetic relatedness. According to Hamilton's rule (1964), support is more likely between individuals with higher genetic overlap—such as parents and children or full siblings ( $r = 0.50$ )—than between those more distantly related, such as uncles/aunts and nieces/nephews ( $r = 0.25$ ) or cousins ( $r = 0.125$ ). This notion underlies that genetic relatedness may reflect the strength of kinship ties, because individuals enhance their reproductive fitness indirectly by contributing to the survival and reproductive success of kin through support

exchange and solidarity behaviors (Euler et al, 2001; Schriver et al., 2019; Stewart-Williams, 2007). A further distinction within this hierarchy has been proposed: if individuals aim to maximize their inclusive fitness, it is more effective to provide support to descending (e.g., nieces and nephews) or horizontal (e.g., siblings) kin rather than to ascending kin (Tanskanen, 2015). Consistent with the notion of inclusive fitness, Cherlin (2023) found that in the U.S., the amount of financial assistance is higher among parents and young adult children and among full siblings than among nieces and nephews or among cousins. The author suggests that in contemporary societies, marked by greater equity and fewer constraints than in the past, genetic relatedness, as a form of individual predisposition, plays a more significant role in shaping kin relationships and behaviors.

The evolutionary perspective on kinship roles does not imply a rejection of social and cultural influences. A classic framework on the broader kinship network is the genealogical mapping referring to the social position of individuals within their family trees, based on the number of links – produced by births and partnerships – that connect one relative to another (Farber, 1977; Rossi & Rossi, 1990; Schneider, 2014). This hierarchy is characterized by a primacy of nuclear kin and places siblings thereafter, followed by collateral relatives such as uncles, aunts, nephews, and nieces, with more distant kin, such as cousins, occupying lower ranks. Thus, vertical ties, between parents and children and between uncles/aunts and nephews/nieces, tend to be stronger than horizontal ties, between siblings and between cousins. Leopold et al. (2025) found some support to genealogical mapping among young adults, indicating that geographical proximity, contact, closeness and support exchanges are most frequent with parents and among siblings, and far less common with uncles, aunts, and cousins. The nuclear family plays a key role in this process, transmitting normative expectations around how to behave toward kin (e.g., De Vries et al., 2008; Kalmijn et al., 2019), feelings of obligations, and transmission of social behaviors and role models (e.g., Kornrich &

Furstenberg, 2013). As a result, the relationship between parents and their children appear as the strongest in the kinship system, involving frequent contact, emotional attachment, and support exchanges during adulthood (e.g., Hank, 2007). Within these parent–child ties, distinctions between ascending and descending relations have been observed: parents often report feeling emotionally closeness to their children than vice versa, and economic support typically flows from parents to adult children, while practical assistance tends to be provided by children to their older parents (Albertini et al., 2007; Albertini & Kohli, 2013; Giarrusso et al., 1995).

Next to parent-child relationships, siblings are found to have surprisingly strong emotional bonds because they have the longest lasting social tie in the kinship network (Cicirelli, 1995; Furstenberg, 2020). Studies indicate that siblings remain an important social resource throughout the life course, although their relationships are often marked by ambivalence and conflict, and, in some cases, by estrangement (Buchanan, 2021; Gilligan et al., 2020; Hank & Steinbach, 2018; 2023). Sibling relationships are ambivalent by nature, including both emotional closeness and conflicts, partly related to the competition over parental time and resources during adolescence (Pollet & Hoben, 2011). These conflicting feelings of solidarity and conflict may persist also in adulthood, while the horizontal nature of these relationships makes them resemble friendships or confidant ties, serving primarily as sources of companionship rather than involving obligations to provide support (Connidis, 1994; Ganjour & Widmer, 2016; Tosi et al., 2025; Voorpostel & Van der Lippe, 2007).

The literature on extended kin – which is almost entirely qualitative – suggests that the role of secondary kin, including uncles/aunts and nephews/nieces, is “circumstantial and incidental”, seldom involving frequent contact, mutual aid, and strong affectional ties (Milardo, 2005; p. 1233). In some circumstances, aunts and uncles are described as mentors, offering experiences, advice, and guidance to their nieces and nephews, and their support appears to be

voluntary, determined by emotional attachment rather than guided by normative obligations (Milardo, 2005; 2010; Wenger & Burholdt, 2001). Similarly, relationships between cousins are almost absent in the literature (Furstenberg, 2020), due to the perception that their role is virtually absent for a large part of people or is less consequential compared to other kin. Qualitative studies show that cousins tend to report emotional ties that are “close but not too close,” suggesting a form of companionship that does not typically involve frequent contact or material assistance but is characterized by moderate emotional attachment (Hessel & Christiansen, 2025; Schneider, 2014). Relationships between cousins are often discretionary, like between friends or confidants. Thus, drawing on genealogical mapping and previous research findings on kinship ties, I hypothesize a hierarchy of kinship solidarity, with the strongest ties between parents and children, followed by siblings, then uncles/aunts and nieces/nephews, and the weakest between cousins (*Kin hierarchy hypothesis*).

### *Kinship as a safety net*

Kinship networks are widely viewed as latent systems of support that are activated in times of need, safeguarding their members throughout the life course (Antonucci et al., 2014; Riley & Riley, 1993). Several studies show that support exchanges are contingent on recipients’ needs, with parents providing economic assistance to unemployed or lower-income children in young adulthood, and adult children offering care and assistance to older parents in poor health (Albertini & Kohli, 2007; Hays & Fomby, 2025; Fingerman et al., 2009; Pezzin & Schone, 1999). However, most previous studies focus solely on a small part of the kinship network, examining support exchanges between older parents and their adult children, or between grandparents and grandchildren. Thus, I examine kinship support within both nuclear and extended family networks. On the one hand, the nuclear family typically represents the primary source of support and protection, while feelings of obligation to assist in times of need tend to

be weaker among siblings and extended kin (Leopold et al., 2025; Rossi & Rossi, 1990). On the other hand, the concept of the latent kin network suggests that extended kin relations can be activated in response to members' health or economic difficulties (Riley & Riley, 1993). Accordingly, the guiding expectation is that both nuclear and extended kin are more likely to provide support to relatives in need than to those who are not (*Safety net hypothesis*).

### *The compensatory role of the extended kinship*

Family systems theory suggests that individuals seek to mitigate or offset negative experiences or deficiencies in one family subsystem – produced, for example, by the absence of nuclear family ties – through increased positive experiences in another family subsystem (Gilligan et al., 2020; Johnson et al., 2020). For instance, there is evidence that adult siblings increase the quality of their relationship and the frequency of contact and support when they have poor relationships with their parents (Hank & Steinbach, 2018; Voorpostel & Blieszner, 2008). Similarly, the hierarchical compensatory model (Cantor, 1979) contends that the role of close kin, as primary sources of support, can be partly compensated by extended kin and non-kin, such as friends and neighbors, and formal organizations when the support does not imply long-term commitments or is provided through contact and emotional connection (Messeri et al., 1993). Here, the compensatory role of the extended kinship network is analyzed with regard to the effects of the absence of a partner, parents, or children on kinship solidarity dimensions.

Partnership, particularly marriage, is often considered as an exclusive relationship that weakens other relationships, a “greedy institution” that lowers the contact frequency and solidarity with close kin (Merrill, 2011; Sarkisian & Gerstel 2008). This is due to a complex interplay between structural factors, such as time constraints, resources, and cultural factors regarding the idea of marriage as a self-sufficient unit (Yahirun & Hamplová, 2014). Additionally, middle-aged and older adults without a partner are often at risk of having unmet

needs and developing cognitive issues, which makes them more likely to look for support and companionship from other relationship types such as siblings (Grundy et al., 2019; Tosi & van den Broek, 2025). Sibling relationships may be particularly important for unpartnered adults, given the horizontal nature of both partnerships and siblingship.

Parents, partially mothers, are kin collectors in ritual occasions and family reunions (Furstenberg, 2020). When parents died, it might more difficult to maintain relationships with siblings, nephews, uncles, and cousins, because of the lack of organized rituals and reunions. Particularly sibling relations are found to change after parental death, with siblings' closeness and support declining after later-life parental death (Spitze & Trent, 2018; Khodyakov & Carr, 2009). However, other studies show that sibling relationships are "linked in life and death", as parental death is associated with increases in sibling contact frequency as well as in emotional closeness and conflict (Hank, 2021; Kalmijn & Leopold, 2019). Additionally, qualitative studies suggest that aunts and uncles function as mentors or "fictive parents", offering advice and support and having intense emotional ties, for those who have no parents alive (Milardo, 2005; 2010). Given the vertical nature of parent-child and uncle/ aunt-nephew/ niece ties, the absence of parents may reinforce the relationships that middle-aged adults have with their uncles/ aunts.

Research on childlessness consistently show that the childless are more likely to seek companionship with friends and other relatives than are parents (Connidis & Mc Mullin, 1992). Fewer studies identify specific kin ties that partly compensate for the lack of children. In her qualitative study, Wenger (2009) suggest that childless older adults adapt to their situation expectations consistent with being childfree, developing closer relationships with collateral kin and friends. Childless adults may be more likely to have frequent contact, close relationships and exchange support with nephews and nieces who are direct substitutes of children (Pollet et al., 2006; Tanskanen, 2015). Hence, it can be hypothesized a compensatory role of the extended

kinship network, which suggests that middle-aged adults with no partner, children and parents alive tend to have stronger relationships with extended kin, particularly with siblings, nephews/nieces and uncles/ aunts respectively (*Compensation hypothesis*).

## **Data and Methods**

### *The KINHEALTH online survey*

The data used in this study come from an ad-hoc online survey on middle-aged Italians, asking about many aspects of the respondents' relationships with their relatives, namely with their parents, children, siblings, uncles/aunts, nephews, and cousins. The survey is a cross-sectional web-based survey (CAWI) and took place between November 2024 and January 2025 on a sample of 5,601 respondents aged 45-65. The data collection method involves a self-reported online questionnaire, which was distributed via email to a selected sample extracted from a panel and completed through an online platform provided by the professional agency 'Demetra'. To ensure a close match with marginal population distributions on crucial characteristics as well as sufficient case numbers for subgroup analyses, the recruitment procedure used sampling quotas for Italian regions (NUTS-3), education, age, and gender (see Table A1 in Appendix). The estimates were adjusted for deviations from the benchmark population statistics by using post-stratification weights.

Non-probability data based on quota sampling have been employed to collect information on kinship networks, yielding reliable results, particularly in the Italian context (Leopold et al., 2024). The robustness of multivariate estimates from non-probability data has been shown to depend primarily on quality controls, and is less sensitive to deviations from population parameters than descriptive statistics (Peer et al., 2022). In KINHEALTH, data quality was enhanced through attention checks and targeted re-sampling strategies to replace respondents who failed these checks and were therefore excluded from the survey. During data cleaning,

the estimates were compared with external sources, such as the European Social Survey (ESS), revealing some alignment in key indicators (e.g., number of children, siblings, living parents; Table A2 in Appendix). Finally, a comparison between KINHEALTH and nationally representative ISTAT Family and Social Subject Survey data showed close correspondence in multivariate estimates (Figures 1A, 2A and 3A in Appendix). This underlines the importance of focusing on differences in probabilities between groups (or average marginal effects) rather than estimating the average number of living kin or the level of kinship solidarity when using non-probabilistic samples.

The sample selected for this study includes middle-aged individuals with at least one kin aged 18 or over at the time of the interview with non-missing information on kin characteristics. Kin younger than 18 years old are excluded, as their relationships with ego-respondents are likely to reflect their parents' connections rather than their own. The questionnaire collects information on both household composition and non-resident kin by asking respondents to provide pseudonyms for each relative. One kin member per type (i.e., a child, sibling, nephew/niece, uncle/ aunt, and a cousin) is, then, randomly selected for further questions on kinship relationships (similar to question on a random child in the ESS survey). For respondents unable to report the date of birth or the age of the randomly selected kin, an additional randomization within each kin type was implemented to ensure information on at least one relative per kinship category. Information about older parent are collected separately for mothers and fathers; here, one parent has been randomly selected to have a comparable unit of analysis with other more distant kin. Therefore, the unit of the analysis is the ego-kin dyad, referring to the relationship between the respondent and one randomly selected parent, child, sibling, nephew/niece, uncle/aunt, and cousin – which are considered representative of each kin-specific type. The final sample includes 21,545 ego-kin dyads and 5,445 respondents (on average 4.0 kin types per respondent).

### *Kinship solidarity measures*

The dependent variables used in this study refer to indicators of kinship solidarity including geographical proximity, contact frequency, emotional closeness, conflict, and support exchanges between respondents (egos) and their kin, including one randomly selected parent, child, sibling, nephew/niece, uncle/aunt and cousin (Bengtson, 2001). These indicators are coded into dichotomous variables, capturing respondents living within 25km from their kin, having contact at least once a week, reporting a high level of closeness, having conflict, and giving and receiving economic or practical support during the last three months. Financial support is defined as providing or receiving monetary transfers intended to assist with daily expenses, such as bill or mortgage payments. Practical support includes assistance with personal care (e.g., dressing and bathing), domestic tasks (e.g., cooking and house cleaning), legal or bureaucratic activities (e.g., paying taxes or managing paperwork), and childcare for kin with young children. High levels of closeness capture close or very close connection with kin, originally measured in a five-point Likert scale. Conflictual relationships are coded as one, when respondents report “some” or “a lot” tensions in a four-point Likert scale. Contact frequency refers to the highest contact type across face-to-face, phone and digital contact, which were originally collected separately. Geographical proximity captures opportunities for interaction and the exchange of practical support within kinship networks, and co-residence is considered a form of close living arrangement. 58% of children and 12.5% of older parents live in the same household as the respondent, whereas co-residence is far less common among siblings (3.8%) and extended kin (2.6% for nephews/nieces, 0.5% for uncles/aunts, and 0.2% for cousins).

Table 1 presents ego-kin relationships, including solidarity indicators for each kin type: geographical proximity, contact, closeness, conflict, and support appear to be higher in parent-

child relationships, followed by sibling relationships and those with nephews/nieces, aunts/aunts and cousins.

### *Ego's and kin characteristics*

The analysis considers a set of ego's characteristics as control variables, including those related to sampling quotas: age categories (45-49; 50-54; 55-59; 60-64), gender, macro-region (North, Centre, South), and education (lower, upper secondary, tertiary). Other variables capture the size of kinship network through a dummy for living with a partner and the number of living parents, children, siblings, nephews/ nieces, uncles/ aunts, cousins, and in-laws.

With regards of the studied moderating effects, indicators of economic and health needs are created to analyze how the probability of receiving help from kin depends on these circumstances. Economic needs are defined through unemployment or inactive (including homemakers and those physically unable to work) vs. others (employed or pensioners), and the lowest quintile of the net personal labor income distribution – reflecting a salary between 0 and 800 euro in the last month. Health needs are measured through physical or mental health limitations that hamper daily activities in the last four weeks. The original questions asked whether respondents had any physical health limitations that hinder daily activities requiring moderate physical effort, and whether they experienced reduced performance in daily or work activities due to emotional conditions. Furthermore, three dichotomous indicators are created to study the moderating effect of having no partner, children, or parents on kinship solidarity. These variables are summarized and compared with other survey data in Table A2 in Supplementary Materials.

Kin characteristics included in the analysis are gender, age, respondents' perception of the kin's health status ("poor" or "very poor" on a five-point Likert scale), and education level (up to secondary, upper secondary, and tertiary). Table 1 presents how these characteristics vary

across kinship types. For instance, average age ranges from 27 and 29 years for children and nephews/nieces, respectively, to 80 and 78 years for parents and uncles/aunts, with siblings and cousins occupying an intermediate position (54 and 55 years on average).

**Table 1.** Descriptive statistics on ego-kin relationships and kin characteristics.

	Kinship ties					
	Parent %	Child %	Sibling %	Nephew/ Niece %	Uncle/ Aunt %	Cousin %
N. of kin (mean, S.D.)	1.5 (0.4)	1.3 (1.0)	1.4 (1.4)	2.0 (2.5)	3.9 (4.3)	7.4 (6.1)
<i>Kinship solidarity</i>						
Geographical proximity	77.9	82.3	64.2	55.6	49.8	42.6
Contact frequency	91.7	96.8	69.0	34.1	20.8	17.8
Closeness	67.4	89.0	54.6	44.2	28.4	24.4
Conflict	61.3	58.7	58.0	20.2	24.2	17.6
Economic support received	20.5	13.5	6.1	1.5	1.8	1.1
Economic support given	15.0	36.2	6.4	2.7	1.6	0.8
Practical support received	20.8	37.9	12.1	3.7	3.3	3.2
Practical support given	65.1	58.6	17.4	5.0	6.8	3.5
<i>Kin characteristics</i>						
Non-biological kin	0.0	11.7	2.6	20.4	29.4	23.7
Kin's Gender (women)	67.2	49.8	48.5	47.9	58.2	76.2
Kin's age ( <i>mean, S.D.</i> )	80.3 (6.9)	26.8 (6.3)	54.4 (8.7)	28.9 (10.4)	77.9 (8.2)	53.7 (9.1)
Kin's poor health	17.2	2.0	4.6	0.9	16.4	3.3
Kin's education						
Up to secondary	75.5	14.3	36.0	24.0	73.5	29.5
Upper secondary	20.1	57.4	46.4	54.2	20.9	51.0
Tertiary	4.5	28.4	17.5	21.8	5.6	19.5
N	3,518	2,629	4,163	2,425	3,929	4,520

### *Analytical Strategy*

I employ multilevel random-intercept linear regression models to analyze how the six dimensions of kinship solidarity – geographical proximity, contact frequency, emotional closeness, conflict, and the giving and receiving of economic and practical support – vary across kinship types. The multilevel structure accounts for the nesting of ego–kin dyads within respondents. Average marginal effects (AMEs) are then estimated and presented in Figures 1, 2, and 3 (full estimates are reported in Appendix B). Figure 1 displays differences in the probability of exhibiting high levels of kinship solidarity across kinship types, thereby testing the *kin hierarchy hypothesis*.

Figure 2 reports estimates from interactions between kinship types and indicators of health (i.e., physical health limitations and emotional problems that restrict daily activities) and economic needs (i.e., unemployment and lowest income quintile) on the likelihood of receiving practical and economic support. This analysis tests the *safety net hypothesis*, focusing on support receipt, as the effective needs of close and distant relatives are more difficult to measure from ego's perspective.

Finally, Figure 3 presents results from interactions between extended kinship types (i.e., siblings, nephews/nieces, uncles/aunts, and cousins) and the presence or absence of nuclear ties (i.e., parents and children) and a partner. Thus, the analysis focuses on a subsample of respondents having at least one relationship in the extended family (93%, N = 5,074) and on their relationships with siblings, nephews/ nieces, uncles/ aunts and cousins (N= 15,324 ego-kin dyads). The outcomes analyzed include contact frequency, emotional closeness, and support exchanges, while geographical proximity and conflict are excluded as they are less relevant for assessing compensatory dynamics. For instance, it is less meaningful to hypothesize that the absence of children is associated with a higher likelihood of living closer to, or experiencing more conflict with, nephews or nieces, since residential decisions are typically made earlier in life and conflict may either reflect frequent interaction or underlying tension. The results on contact, closeness, and support are interpreted in light of the *compensation hypothesis*. All models apply post-stratification weights to correct for sampling quota representativeness.

## **Results**

### *Kinship Hierarchy*

Figure 1 shows average marginal effects of kinship types (compared to parents) on solidarity dimensions – i.e. geographical proximity, contact frequency, closeness, conflict and practical and economic support exchanges. Regarding the relationships that respondents have with their

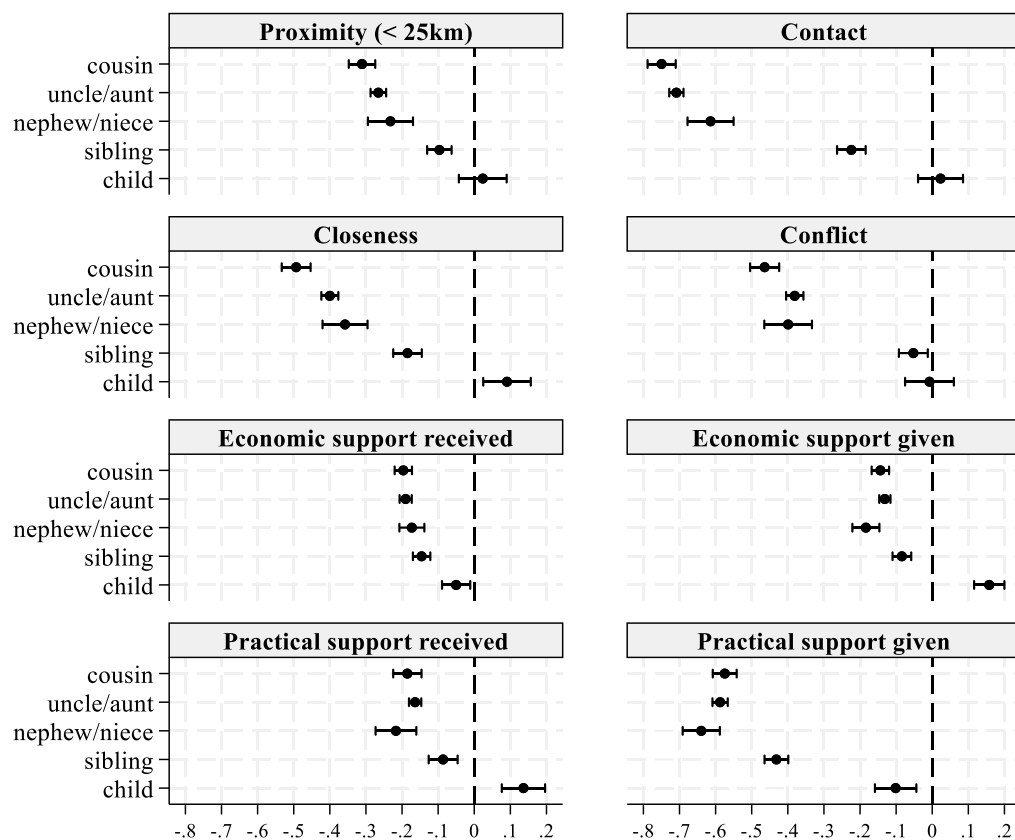
adult children and older parents, no significant differences emerge in terms of geographical proximity, contact frequency, or conflict. Conversely, middle-aged adults report closer relationships with their children than with their parents (AME = 0.09; CI = 0.02, 0.15). The probabilities of receiving practical support (AME = 0.14; CI = 0.08, 0.20) and providing economic support (AME = 0.16; CI = 0.11, 0.20) are higher for children than for older parents, whereas the probabilities of receiving economic support (AME = -0.05; CI = -0.09, -0.01) and providing practical support (AME = -0.10; CI = -0.16, -0.04) are lower for children than for parents.

Sibling relationships occupy an intermediate position between those with parents/children and those with extended family members. The probabilities of living nearby (AME = -0.10; CI = -0.13, -0.06), having frequent contact (AME = -0.22; CI = -0.26, -0.18), and reporting close relationships (AME = -0.18; CI = -0.22, -0.14) with siblings are lower compared to parents and children. Similarly, siblings are less likely to exchange practical and economic support compared to both older parents and adult children. An exception is the dimension of conflict, showing levels that are comparable to those that middle-aged respondents report with their children.

Extended family ties with nephews/nieces, uncles/aunts, and cousins occupy the lowest position in the hierarchy of kinship solidarity. Compared to parents, nephews/nieces (AME = -0.23; CI = -0.29, 0.17) and uncles/aunts (AME = -0.26; CI = -0.29, -0.24) are less likely to live within a 25 km radius. They are also less likely to have at least weekly contact (AME = -0.61; CI = -0.68, -0.55 for nephews/nieces; AME = -0.71; CI = -0.73, -0.69 for uncles/aunts) and to report close or conflictual relationships (AME = -0.23; CI = -0.29, -0.17 for conflict with nephews/nieces; AME = -0.26; CI = -0.29, -0.24 for conflict with uncles/aunts). Cousins rank lowest in the kinship hierarchy, with substantially reduced probabilities of living nearby (AME = -0.41; CI = -0.43, -0.39), having frequent contact (AME = -0.75; CI = -0.79, -0.71), and

reporting close (AME = -0.49; CI = -0.53, -0.45) or conflictual (AME = -0.46; CI = -0.50, -0.42) relationships, relative to older parents. Changing reference category, the results confirm that cousins tend to have lower levels of geographical proximity, contact frequency, closeness and conflict compared to uncles/aunts and nephews/nieces. Conversely, no significant differences emerge with regard to support exchanges between extended family members, while they clearly differ from parents, children and siblings. For instance, the probabilities of giving or receiving economic support are 17 (C.I. = -21, -14) and 18 p.p. (C.I. = -0.22, -0.15) lower for nephews and nieces than for parents.

**Figure 1.** Average marginal effects of kinship types (compared to parent) on solidarity dimensions.



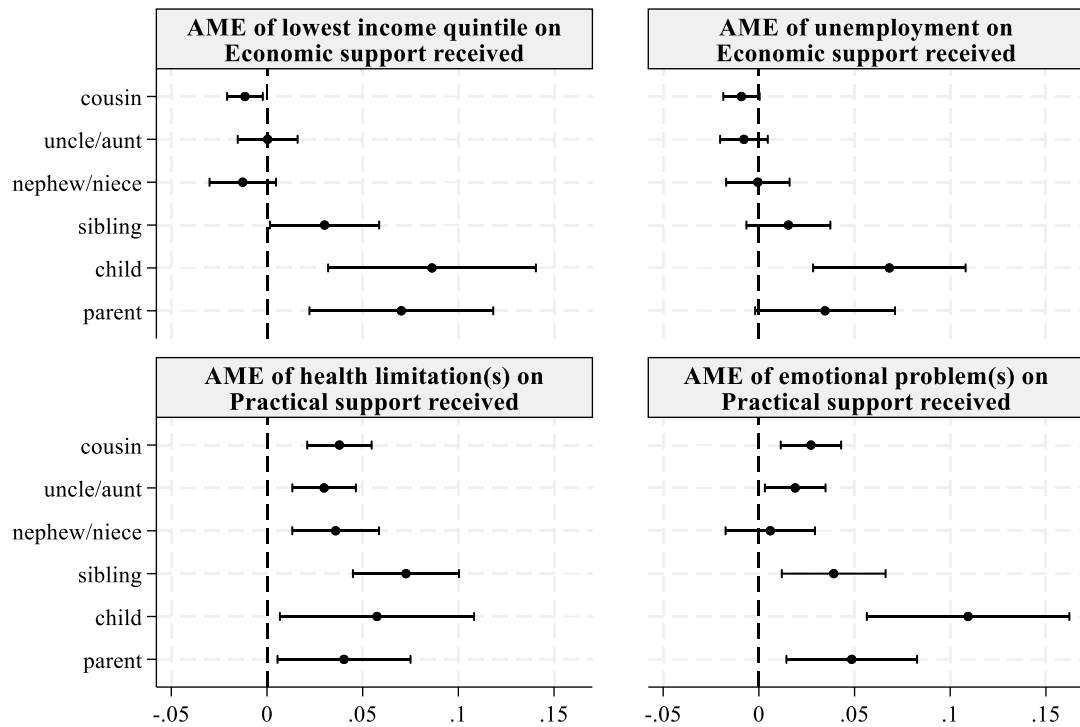
### *The kinship safety net*

To examine the safety net hypothesis, interactions between kinship types and indicators of economic and health needs were added to the models. Figure 2 presents the average marginal

effects of these needs on the probability of receiving economic and practical support. The probability of receiving a financial transfer of €250 or more from parents (AME = 0.07; CI = 0.02, 0.12), children (AME = 0.09; CI = 0.03, 0.14), and siblings (AME = 0.03; CI = 0.01, 0.06) is higher for those who are unemployed than for those who are employed or out of the labor market (top-right panel). Similarly, parents and children are more likely to provide economic support to middle-aged adults in the lowest income quintile (top-left panel) compared to those in higher income groups. By contrast, the probability of receiving economic support from extended kin members is not significantly associated with unemployment or financial need.

Regarding the probability of receiving practical support from kin, middle-aged adults with health limitations or emotional problems are more likely to receive such support than those without these conditions. Respondents who report emotional problems that limit their daily activities have a higher probability of receiving practical support from cousins (AME = 0.03; CI = 0.01, 0.04), uncles/aunts (AME = 0.02; CI = 0.00, 0.04), siblings (AME = 0.04; CI = 0.01, 0.07), and parents (AME = 0.05; CI = 0.01, 0.08) compared to those without emotional problems. The difference is even greater for support received from children, with a probability 10.9 percentage points higher (CI = 1.4, 8.3) among those reporting emotional problems. Focusing on physical health limitations (bottom-left panel), differences between nuclear and extended family ties are neither statistically nor substantively significant, indicating a generally higher propensity to receive practical support from kin when health needs arise. The AMEs range from 3.0 p.p. for uncles/aunts to 7.3 p.p. for siblings.

**Figure 2.** Average Marginal Effects (AME) of health and economic needs on the probability of receiving practical and economic support.



*The compensatory role of the extended family*

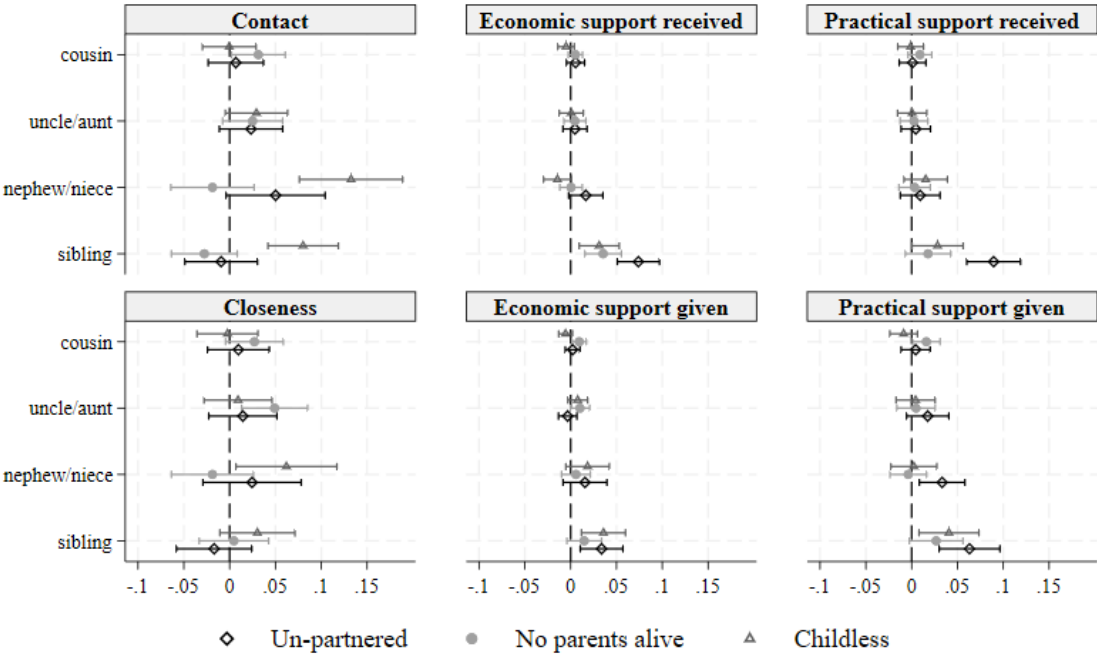
Figure 3 presents the results for the compensatory role of the extended family by showing the average marginal effects of the absence of nuclear family ties (i.e., partner, parents, and children) on different dimension of kinship solidarity. Un-partnered middle-aged adults are more likely to give and receive economic and practical support to/from their siblings compared to their partnered counterparts. This difference in probabilities is particularly large for receiving practical and economic support, with AMEs equal to 8.9 (CI = 6.0, 11.9) and 7.4 p.p. (CI = 5.1, 9.7) respectively. Conversely no significant differences between partnered and un-partnered adults are found with respect of support exchange from/to other kin.

Regarding the presence or absence of parents, Figure 3 shows that middle-aged adults with no living parents are more likely to frequently interact with their cousins (AME = 0.03; CI = 0.00, 0.06) and to report emotionally close relationships with their uncles/aunts (AME = 0.05; CI = 0.01, 0.08). The absence of parents is also associated with a slightly higher likelihood of

providing economic (AME = 0.01; CI = 0.00, 0.02) and practical (AME = 0.02; CI = 0.01, 0.03) support to cousins. In addition, those without parents are more likely to receive financial transfers from siblings compared to those with at least one living parent.

Childlessness is positively associated with several dimensions of solidarity in relationships with siblings and nephews. Childless adults are more likely to have frequent contact with their siblings (AME = 0.08; CI = 0.04, 0.12) and nephews (AME = 0.13; CI = 0.08, 0.18), and to report greater emotional closeness with their nephews (AME = 0.06; CI = 0.00, 0.12), compared to middle-aged parents. The probability of both giving and receiving support to or from siblings is higher among childless individuals than among parents, with AMEs ranging from 2.8 p.p. (CI = 0.0, 5.6) for practical support received to 4.1 p.p. (CI = 0.8, 7.3) for practical support provided.

**Figure 3.** Average marginal effects of having no partner (vs. partnered), no parents alive (vs. at least one parent alive), and no children (vs. at least one child) on the probability of having frequent contact, close relationships, and economic and practical support exchanges.



## Discussion

In this study, I examined kinship solidarity among middle-aged Italians, addressing whether solidarity extends beyond the nuclear family. The results show that solidarity declines with genealogical distance, reaching its lowest levels among cousins, who, for instance, display about 75 percentage points lower probabilities of frequent contact compared to parents and children. Consistent with previous studies on young adults (Cherlin, 2023; Leopold et al., 2025), extended kin play a marginal role in current family networks, suggesting that having a large kinship network of distant relatives does not necessarily translate into greater cohesion or support availability. The decreasing number of living kin resulting from demographic changes in fertility and longevity appears less consequential for middle-aged adults' safety nets when it mainly alters the structure and composition of extended kinship networks. Conversely, closer family ties – namely, parents, children, and siblings – are characterized by higher levels of solidarity, with siblings occupying an intermediate position between nuclear and extended kin. This pattern aligns with the notion of a genealogical hierarchy that, unlike genetic relatedness (Hamilton, 1964), posits stronger obligations between generations (i.e., parents and children, and uncles/aunts and nephews/nieces) than within the same generation (i.e., siblings and cousins), with horizontal ties resembling friendships and entailing fewer commitments to provide support compared to vertical ties (Ganjour & Widmer, 2016; Tosi et al., 2025; Voorpostel & Van der Lippe, 2007).

Three exceptions qualify this kinship hierarchy. First, sibling conflict is more common than expected, reaching levels similar to those observed with parents and children. This finding supports previous evidence on the ambivalent nature of sibling ties, which often combine emotional closeness with tension (Gilligan et al., 2020; Hank & Steinbach, 2018; 2023). Second, cousins rank lowest on most dimensions but not in support exchanges, likely due to the overall low probability of providing or receiving support within the extended kinship network.

Third, the type of support matters in parent–child relationships: economic transfers typically flow from parents to children, while practical support tends to move in the opposite direction. Consistent with studies on intergenerational transfers of money and time (e.g., Albertini & Kohli, 2013), older parents appear more likely to invest in their children’s success through financial assistance, whereas adult children help their parents navigate later life through various forms of practical aid. Furthermore, in line with the “generational stake” (Giarrusso et al., 1995) parents tend to report emotionally closer relationships with children than adult children do with their older parents.

The second hypothesis tested in this study posits that both nuclear and extended kin mobilize to support their members in need. The results show that middle-aged adults experiencing economic hardship—due to lower income or unemployment—are more likely to receive support from their parents, adult children, and siblings, but not from more distant relatives. Thus, only closer family members appear responsive to economic needs in their supportive behaviors. In contrast, physical or mental health limitations are associated with higher probabilities of receiving practical help from both nuclear and extended kin, suggesting that extended family members also activate in response to health-related needs, even though the magnitude of these effects remains modest (below 5 percentage points).

Finally, the compensatory role of extended kinship is examined by focusing on individuals lacking nuclear family ties. The absence of parents is linked to stronger relationships with uncles, aunts, and cousins, while childlessness is associated with more frequent contact, greater emotional closeness, and higher support exchanges with siblings and nephews. These findings are consistent with qualitative research showing that aunts and uncles often serve as emotional substitutes for parents (Milardo, 2005; 2010), and that childless adults tend to form closer bonds with nephews and nieces (Wenger, 2009). Overall, extended kin appear to play a compensatory role that follows genealogical logics—ascending and descending ties (e.g., parents and

uncles/aunts; children and nephews/nieces) tend to substitute for one another—while siblings remain key supportive figures, particularly in the absence of nuclear family members.

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## Supplementary Materials

### Appendix A. Validation of KINHEALTH Online Survey Data

Table 1A shows the KinHealth quota sampling compared to the population national statistics. Like other online surveys (e.g., see Leopold et al., 2024), lower educated respondents, those lacking digital skills, and those with less commitment (e.g., family duty) are less represented. Thus, post-stratification weights are used to correct for these differences.

**Table 1A.** Sampling quotas

	KINHEALTH survey		Population National Statistics	
	Men	Women	Men	Women
Age				
45-49	25.2	24.5	25.2	24.7
50-54	27.4	28.6	26.5	26.2
55-59	24.5	26.4	26.1	26.2
60-64	22.8	20.5	22.2	22.9
Education				
Up to upper secondary	17.0	18.1	47.3	42.9
Upper secondary	64.9	65.1	38.5	40.1
Tertiary	18.1	16.8	14.2	17.0
Region				
North	47.4	49.2	47.0	48.1
Centre	21.6	21.9	20.2	21.5
South	31.0	28.8	32.8	30.4
Total	46.2	53.8	47.2	52.8

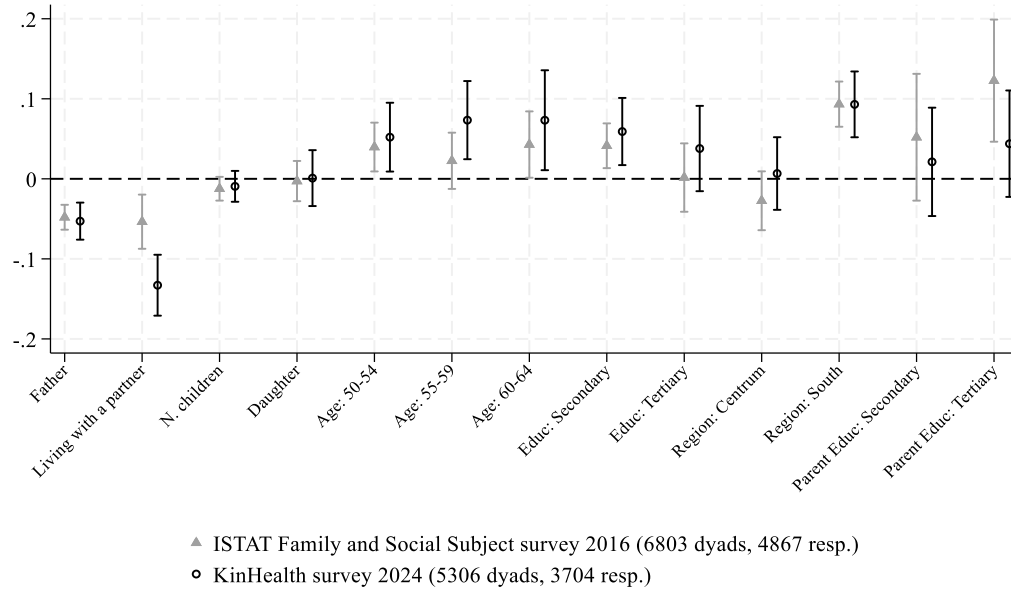
**Table 2A.** Comparison between KINHEALTH sample statistics and other regular surveys.

	KinHealth 2024		FSS 2016				ESS 2020-2023		AVQ 2021	
	Age		Age		Cohort		Age		Age	
	45-54	55-64	45-54	55-64	1970/ 79	1960/ 69	45-54	55-64	45-54	55-64
Living with a partner	67.6	72.5	66.6	71.9			68.5	67.8	61.3	68.9
Divorced/separated	13.3	14.7	10.1	9.5			14.5	16.0	13.4	13.6
widowed	0.9	3.7	1.6	5.8			1.6	3.9	1.7	5.6
childless	33.9	27.2	23.2	16.4	29.3	22.1	30.3	29.7		
N. of children	1.2 (1.2)	1.4 (1.4)	1.5 (1.1)	1.7 (1.1)	1.3 (1.1)	1.5 (1.1)	1.2 (1.1)	1.3 (1.0)*		
N. of siblings	1.4 (1.9)	1.6 (1.6)	1.5 (1.7)	1.6 (1.8)	1.3 (1.6)	1.5 (1.7)				
Both parents deceased	21.5	52.3	19.8	56.0			22.9	55.1+		
Both parents alive	40.2	12.6	39.8	9.6			45.8	15.1+		
Living < 1km from mother	38.9	36.4	44.3	44.5						
Meeting mother at least once a week	74.8	77.3	75.8	77.6			73.5	77.8		
Living < 1km from a child	85.4	65.1	82.1	56.4						
Meeting a child at least once a week	91.8	80.5	92.1	83.9			91.5	80.9		
In the labor market	69.5	52.6	75.3	53.4			77.5	61.1	72.2	54.2
Unemployed	10.6	7.5	8.2	5.1			8.3	8.1	11.3	8.8
N	2,963	2,638	4,744	4,075	4,396	4,563	952	982	7,320	7,302

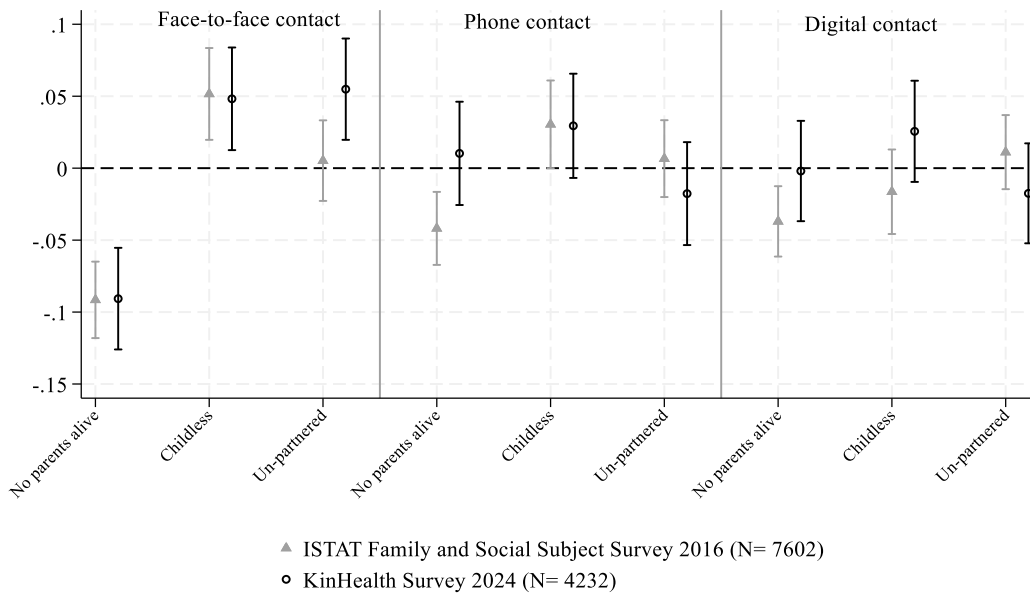
\*in ESS the number of children under 12 is not directly measured but can be approximated by using information on parenthood status and household size.

+ information is available only on wave 10 in 2020-2022 (N =913)

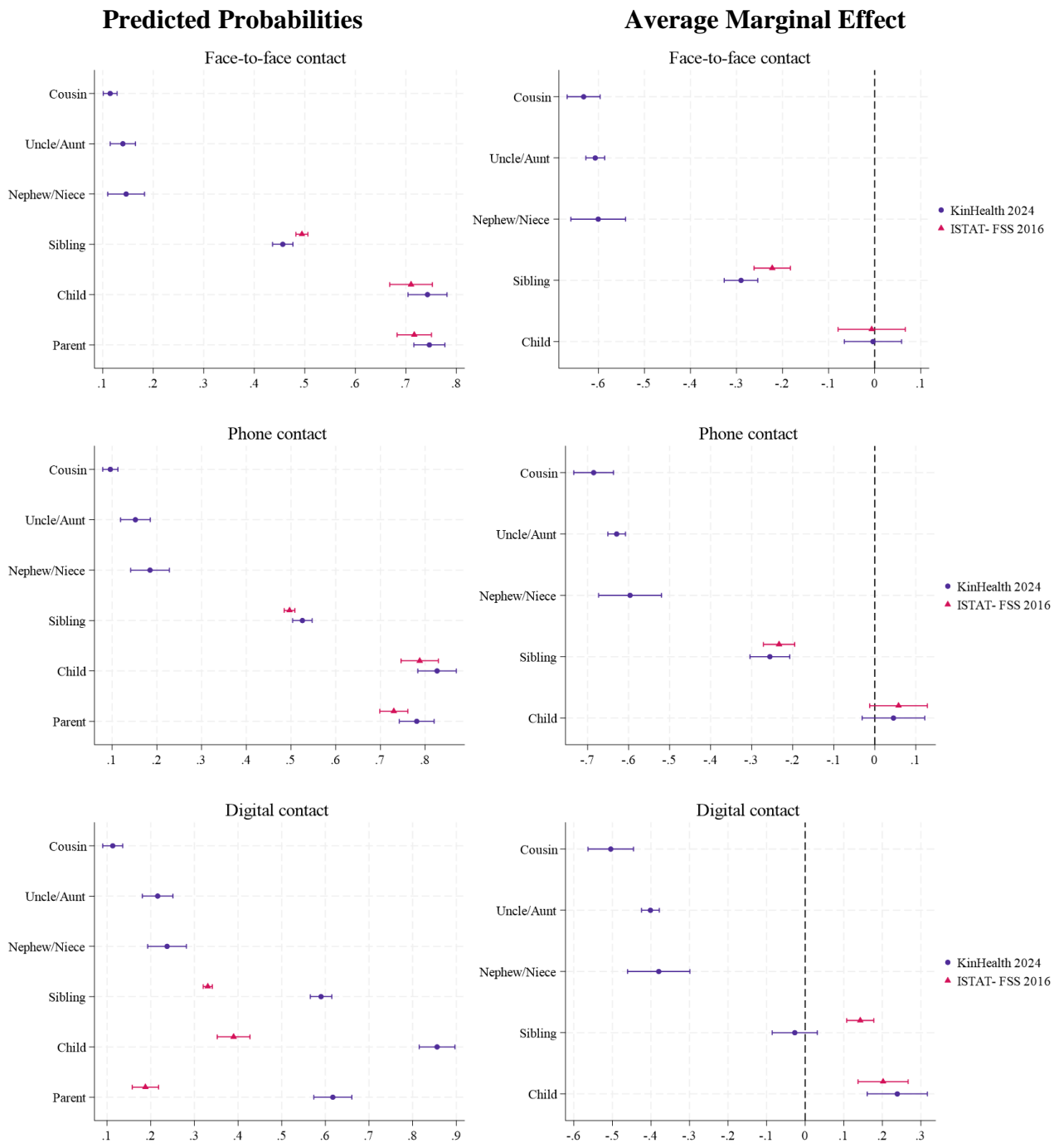
**Figure 1A.** Average Marginal Effects on the probability of having weekly or more frequent face-to-face contact with mothers and fathers. Estimates from linear probability models with clustered standard errors for parent-child dyads nested in respondents. Data from Family and Social Subject survey and KINHEALTH survey.



**Figure 2A.** Average marginal effects of having no parents, children or partner alive on the probability of having frequent contact with siblings



**Figure 3A.** Average marginal effects of kinship types (vs. parents) on the probability of having frequent contact. Estimates using KinHealth online survey data and ISTAT regular survey data.



**Appendix B. Full Models**

Table 1B. Random Intercept linear probability models on kinship solidarity dimensions

	Proximity		Contact		Closeness		Conflict		Economic received		Economic given		Practical received		Practical given	
	Coef.	(S.E.)	Coef.	(S.E.)	Coef.	(S.E.)	Coef.	(S.E.)	Coef.	(S.E.)	Coef.	(S.E.)	Coef.	(S.E.)	Coef.	(S.E.)
Kinship Type (Ref. Parent)																
Child	0.02	(0.03)	0.02	(0.03)	0.09*	(0.03)	-0.01	(0.03)	-0.05+	(0.02)	0.16**	(0.02)	0.14**	(0.03)	-0.10**	(0.03)
Sibling	-0.10**	(0.02)	-0.22**	(0.02)	-0.18**	(0.02)	-0.05+	(0.02)	-0.15**	(0.01)	-0.08**	(0.01)	-0.09**	(0.02)	-0.43**	(0.02)
Nephew/ niece	-0.23**	(0.03)	-0.61**	(0.03)	-0.36**	(0.03)	-0.40**	(0.03)	-0.17**	(0.02)	-0.18**	(0.02)	-0.22**	(0.03)	-0.64**	(0.03)
Uncle/ aunt	-0.27**	(0.01)	-0.71**	(0.01)	-0.40**	(0.01)	-0.38**	(0.01)	-0.19**	(0.01)	-0.13**	(0.01)	-0.16**	(0.01)	-0.59**	(0.01)
Cousin	-0.31**	(0.02)	-0.75**	(0.02)	-0.49**	(0.02)	-0.46**	(0.02)	-0.20**	(0.01)	-0.14**	(0.01)	-0.19**	(0.02)	-0.57**	(0.02)
<i>Kin Characteristics</i>																
Non-biological	-0.00	(0.01)	0.02	(0.01)	-0.05**	(0.01)	0.01	(0.01)	0.00	(0.01)	0.00	(0.01)	-0.00	(0.01)	-0.00	(0.01)
Gender: Women	0.00	(0.01)	0.03**	(0.01)	0.03**	(0.01)	0.00	(0.01)	-0.00	(0.00)	0.01+	(0.00)	0.02**	(0.01)	0.02*	(0.01)
Age	-0.01**	(0.00)	-0.00*	(0.00)	-0.01**	(0.00)	0.00*	(0.00)	0.00+	(0.00)	-0.01**	(0.00)	-0.00**	(0.00)	-0.01**	(0.00)
Age^2	0.00**	(0.00)	0.00+	(0.00)	0.00*	(0.00)	-0.00**	(0.00)	-0.00	(0.00)	0.00**	(0.00)	0.00*	(0.00)	0.00**	(0.00)
<i>Education</i>																
Upper secondary	-0.03*	(0.01)	0.00	(0.01)	0.05**	(0.01)	-0.01	(0.01)	0.01	(0.01)	-0.02**	(0.01)	0.02*	(0.01)	-0.02*	(0.01)
Tertiary	-0.09**	(0.01)	-0.00	(0.01)	0.07**	(0.01)	-0.05**	(0.01)	-0.00	(0.01)	-0.03**	(0.01)	0.01	(0.01)	-0.02*	(0.01)
Health limitations	-0.01	(0.01)	-0.03+	(0.01)	0.02	(0.01)	0.01	(0.01)	-0.00	(0.01)	0.02*	(0.01)	-0.04**	(0.01)	0.06**	(0.01)
<i>Ego Characteristics</i>																
Gender: Women	0.00	(0.01)	0.02**	(0.01)	0.02	(0.01)	0.01	(0.01)	-0.01	(0.00)	-0.02**	(0.00)	-0.01	(0.01)	0.01	(0.01)
Living with a partner	-0.04**	(0.01)	-0.02+	(0.01)	-0.01	(0.01)	-0.01	(0.01)	-0.05**	(0.01)	-0.03**	(0.01)	-0.04**	(0.01)	-0.03**	(0.01)
<i>Region (North)</i>																
Centre	-0.03*	(0.01)	0.03**	(0.01)	0.02	(0.01)	0.01	(0.01)	0.01+	(0.01)	0.02*	(0.01)	0.01	(0.01)	0.01	(0.01)
South	0.08**	(0.01)	0.09**	(0.01)	-0.00	(0.01)	0.00	(0.01)	0.02*	(0.01)	0.01	(0.01)	0.03**	(0.01)	0.02*	(0.01)
<i>Education (Lower)</i>																
Upper secondary	-0.01	(0.01)	0.00	(0.01)	0.03*	(0.01)	0.01	(0.01)	-0.02*	(0.01)	0.02*	(0.01)	0.00	(0.01)	0.03**	(0.01)
Tertiary	-0.05*	(0.02)	0.01	(0.01)	0.08**	(0.02)	0.05**	(0.01)	-0.02*	(0.01)	0.03**	(0.01)	0.03*	(0.01)	0.08**	(0.01)
<i>Age (45-49)</i>																
50-54	0.02	(0.01)	-0.01	(0.01)	0.01	(0.01)	0.00	(0.01)	-0.01	(0.01)	-0.01	(0.01)	-0.01	(0.01)	0.01	(0.01)
55-59	0.02	(0.01)	-0.01	(0.01)	0.04*	(0.01)	-0.02	(0.01)	-0.01	(0.01)	-0.01	(0.01)	-0.03*	(0.01)	0.01	(0.01)
60-64	0.02	(0.02)	-0.02	(0.01)	0.04*	(0.02)	-0.06**	(0.01)	-0.04**	(0.01)	-0.02*	(0.01)	-0.06**	(0.01)	-0.02+	(0.01)
N. of living parents	0.02*	(0.01)	-0.00	(0.01)	-0.00	(0.01)	-0.02**	(0.01)	-0.02**	(0.00)	-0.01**	(0.00)	-0.01*	(0.00)	-0.02**	(0.00)
N. of children	-0.01	(0.01)	-0.02**	(0.00)	-0.01	(0.01)	-0.02**	(0.00)	-0.00	(0.00)	-0.01**	(0.00)	-0.01**	(0.00)	-0.01	(0.00)
N. of siblings	-0.01+	(0.00)	-0.00	(0.00)	-0.01*	(0.00)	-0.01*	(0.00)	-0.00+	(0.00)	0.00	(0.00)	0.00	(0.00)	-0.00	(0.00)
N. of grandparents	-0.01+	(0.00)	0.01**	(0.00)	-0.00	(0.00)	0.01+	(0.00)	0.01*	(0.00)	0.00	(0.00)	0.01+	(0.00)	0.00	(0.00)
N. of nephews/ nieces	-0.00+	(0.00)	-0.00	(0.00)	0.01**	(0.00)	-0.01*	(0.00)	-0.00+	(0.00)	-0.00	(0.00)	-0.00	(0.00)	-0.00	(0.00)
N. of uncles/ aunts	-0.00	(0.00)	-0.00	(0.00)	0.00*	(0.00)	-0.00	(0.00)	-0.00	(0.00)	-0.00	(0.00)	-0.00	(0.00)	-0.00	(0.00)
N. of cousins	-0.00	(0.00)	-0.00	(0.00)	0.00*	(0.00)	-0.00	(0.00)	0.00	(0.00)	0.00	(0.00)	-0.00	(0.00)	0.00	(0.00)
N. of parents in-law	0.00	(0.01)	-0.00	(0.01)	0.01	(0.01)	0.00	(0.01)	-0.00	(0.00)	-0.00	(0.00)	-0.01	(0.00)	-0.00	(0.00)
Constant	1.04**	(0.06)	1.03**	(0.05)	0.79**	(0.05)	0.64**	(0.06)	0.23**	(0.03)	0.40**	(0.04)	0.40**	(0.04)	0.96**	(0.05)
N. of ego-kin dyads	21,545		21,545		21,545		21,545		21,545		21,545		21,545		21,545	
N. of ego	5,445		5,445		5,445		5,445		5,445		5,445		5,445		5,445	

Note: \*\* p<0.001, \* p<0.01, + p<0.05

Table 2B. Random Intercept linear probability models on kinship support received.

	Economy support received				Practical support received			
	Coef.	(S.E.)	Coef.	(S.E.)	Coef.	Coef.	Coef.	Coef.
Kinship Type (Ref. Parent)								
Child	-0.05*	(0.02)	-0.07*	(0.02)	0.13**	(0.03)	0.12**	(0.03)
Sibling	-0.14**	(0.01)	-0.14**	(0.01)	-0.09**	(0.02)	-0.08**	(0.02)
Nephew/ niece	-0.16**	(0.02)	-0.17**	(0.02)	-0.21**	(0.03)	-0.21**	(0.03)
Uncle/ aunt	-0.18**	(0.01)	-0.18**	(0.01)	-0.16**	(0.01)	-0.16**	(0.01)
Cousin	-0.18**	(0.01)	-0.19**	(0.01)	-0.18**	(0.02)	-0.18**	(0.02)
Lowest income quintile								
Child X Lowest quintile	0.07*	(0.02)						
Sibling X Lowest quintile	0.02	(0.04)						
Nephew/ niece X Lowest quintile	-0.04	(0.03)						
Uncle/ aunt X Lowest quintile	-0.08*	(0.03)						
Cousin X Lowest quintile	-0.07*	(0.03)						
Cousin X Lowest quintile	-0.08*	(0.03)						
Unemployed or inactive								
Child X Unemployed			0.03	(0.02)				
Sibling X Unemployed			0.03	(0.03)				
Nephew/ niece X Unemployed			-0.02	(0.02)				
Uncle/ aunt X Unemployed			-0.04+	(0.02)				
Cousin X Unemployed			-0.04+	(0.02)				
Physical health limitations								
Child X Physical limitations					0.04*	(0.02)		
Sibling X Physical limitations					0.02	(0.03)		
Nephew/ niece X Physical limitations					0.03	(0.02)		
Uncle/ aunt X Physical limitations					-0.00	(0.02)		
Cousin X Physical limitations					-0.01	(0.02)		
Mental health limitation(s)								
Child X Mental limitations							0.05*	(0.02)
Sibling X Mental limitations							0.06	(0.03)
Nephew/ niece X Mental limitations							-0.01	(0.02)
Uncle/ aunt X Mental limitations							-0.04+	(0.02)
Cousin X Mental limitations							-0.03	(0.02)
Cousin X Mental limitations							-0.02	(0.02)
<i>Kin Characteristics</i>								
Non-biological	0.00	(0.01)	0.00	(0.01)	-0.00	(0.01)	-0.00	(0.01)
Gender: Women	-0.00	(0.00)	-0.00	(0.00)	0.03**	(0.01)	0.03**	(0.01)
Age	0.00+	(0.00)	0.00	(0.00)	-0.00**	(0.00)	-0.00**	(0.00)
Age^2	-0.00	(0.00)	-0.00	(0.00)	0.00*	(0.00)	0.00*	(0.00)
Education								
Upper secondary	0.01	(0.01)	0.01	(0.01)	0.02*	(0.01)	0.02*	(0.01)
Tertiary	-0.00	(0.01)	-0.00	(0.01)	0.01	(0.01)	0.01	(0.01)
Health limitations	-0.00	(0.01)	-0.00	(0.01)	-0.04**	(0.01)	-0.04**	(0.01)
<i>Ego Characteristics</i>								
Gender: Women	-0.01	(0.00)	-0.01+	(0.00)	-0.01+	(0.01)	-0.01+	(0.01)
Living with a partner	-0.05**	(0.01)	-0.05**	(0.01)	-0.04**	(0.01)	-0.04**	(0.01)
Region (North)								
Centre	0.01+	(0.01)	0.01+	(0.01)	0.01	(0.01)	0.01	(0.01)
South	0.01*	(0.01)	0.01*	(0.01)	0.02**	(0.01)	0.03**	(0.01)
Education (Lower)								
Upper secondary	-0.01+	(0.01)	-0.01+	(0.01)	0.01	(0.01)	0.00	(0.01)
Tertiary	-0.02+	(0.01)	-0.01+	(0.01)	0.03**	(0.01)	0.03*	(0.01)
Age (45-49)								
50-54	-0.01	(0.01)	-0.00	(0.01)	-0.01	(0.01)	-0.01	(0.01)
55-59	-0.01	(0.01)	-0.01	(0.01)	-0.03*	(0.01)	-0.03*	(0.01)
60-64	-0.04**	(0.01)	-0.04**	(0.01)	-0.06**	(0.01)	-0.06**	(0.01)
N. of living parents	-0.02**	(0.00)	-0.02**	(0.00)	-0.01*	(0.00)	-0.01**	(0.00)
N. of children	-0.00	(0.00)	-0.00	(0.00)	-0.01**	(0.00)	-0.01**	(0.00)
N. of siblings	-0.00+	(0.00)	-0.00+	(0.00)	0.00	(0.00)	0.00	(0.00)
N. of grandparents	0.01*	(0.00)	0.01*	(0.00)	0.01+	(0.00)	0.01+	(0.00)
N. of nephews/ nieces	-0.00	(0.00)	-0.00+	(0.00)	-0.00	(0.00)	-0.00	(0.00)
N. of uncles/ aunts	-0.00	(0.00)	-0.00	(0.00)	-0.00	(0.00)	-0.00	(0.00)
N. of cousins	0.00	(0.00)	0.00	(0.00)	-0.00	(0.00)	-0.00	(0.00)
N. of parents in-law	-0.00	(0.00)	-0.00	(0.00)	-0.01	(0.00)	-0.01	(0.00)
Constant	0.22**	(0.03)	0.22**	(0.03)	0.39**	(0.04)	0.39**	(0.04)
N. of ego-kin dyads	21,545		21,545		21,545		21,545	
N. of ego	5,445		5,445		5,445		5,445	

Note: \*\* p<0.001, \* p<0.01, + p<0.05

Table 3B. Random Intercept linear probability models on kinship solidarity in the extended family.

	Contact		Closeness		Practical received		Practical given		Economic received		Economic given	
	Coef.	(S.E.)	Coef.	(S.E.)	Coef.	(S.E.)	Coef.	Coef.	Coef.	Coef.	Coef.	Coef.
<i>Kinship Type (Sibling)</i>												
Nephew/ niece	-0.41**	(0.03)	-0.19**	(0.03)	-0.06**	(0.02)	-0.09**	(0.02)	0.01	(0.01)	-0.03+	(0.01)
Uncle/ aunt	-0.49**	(0.02)	-0.24**	(0.03)	-0.07**	(0.02)	-0.10**	(0.02)	-0.01	(0.01)	-0.03*	(0.01)
Cousin	-0.52**	(0.02)	-0.33**	(0.02)	-0.05**	(0.01)	-0.10**	(0.01)	-0.01	(0.01)	-0.03**	(0.01)
<i>Unpartnered</i>												
Nephew/ niece X Unpartnered	0.06	(0.03)	0.04	(0.03)	-0.08**	(0.02)	-0.03	(0.02)	-0.06**	(0.02)	-0.02	(0.02)
Uncle/ aunt X Unpartnered	0.03	(0.03)	0.03	(0.03)	-0.08**	(0.02)	-0.05+	(0.02)	-0.07**	(0.01)	-0.04*	(0.01)
Cousin X Unpartnered	0.02	(0.03)	0.03	(0.03)	-0.09**	(0.02)	-0.06*	(0.02)	-0.07**	(0.01)	-0.03+	(0.01)
<i>No parents alive</i>												
Nephew/ niece X No parents	0.01	(0.03)	-0.02	(0.02)	-0.01	(0.01)	-0.03	(0.02)	-0.04*	(0.01)	-0.01	(0.01)
Uncle/ aunt X No parents	0.05+	(0.02)	0.04+	(0.02)	-0.02	(0.01)	-0.02	(0.02)	-0.03*	(0.01)	-0.00	(0.01)
Cousin X No parents	0.06+	(0.02)	0.02	(0.02)	-0.01	(0.01)	-0.01	(0.02)	-0.03*	(0.01)	-0.01	(0.01)
<i>Childless</i>												
Nephew/ niece X Childless	0.08**	(0.02)	0.03	(0.02)	0.03+	(0.01)	0.04+	(0.02)	0.03*	(0.01)	0.04*	(0.01)
Uncle/ aunt X Childless	0.05	(0.03)	0.03	(0.03)	-0.01	(0.02)	-0.04	(0.02)	-0.05**	(0.01)	-0.02	(0.02)
Cousin X Childless	-0.05+	(0.03)	-0.02	(0.03)	-0.03	(0.02)	-0.04	(0.02)	-0.03+	(0.01)	-0.03+	(0.01)
	-0.08*	(0.02)	-0.03	(0.03)	-0.03	(0.02)	-0.05*	(0.02)	-0.04*	(0.01)	-0.04*	(0.01)
<i>Kin Characteristics</i>												
Gender: Women	0.03**	(0.01)	0.03*	(0.01)	0.01+	(0.00)	0.01	(0.01)	0.00	(0.00)	0.00	(0.00)
Age	-0.00	(0.00)	-0.01*	(0.00)	-0.00+	(0.00)	-0.00	(0.00)	0.00	(0.00)	-0.00	(0.00)
Age^2	0.00	(0.00)	0.00	(0.00)	0.00+	(0.00)	0.00+	(0.00)	-0.00	(0.00)	0.00	(0.00)
<i>Education</i>												
Upper secondary	-0.00	(0.01)	0.05**	(0.01)	0.01	(0.01)	-0.01+	(0.01)	0.00	(0.00)	-0.01+	(0.00)
Tertiary	-0.01	(0.01)	0.08**	(0.01)	0.02*	(0.01)	-0.01	(0.01)	0.00	(0.01)	-0.02**	(0.00)
Health limitations	-0.05*	(0.02)	0.02	(0.02)	-0.01	(0.01)	0.03*	(0.01)	0.01	(0.01)	0.01	(0.01)
<i>Ego Characteristics</i>												
Gender: Women	0.03**	(0.01)	0.02	(0.01)	-0.02**	(0.00)	-0.01	(0.01)	-0.01*	(0.00)	-0.01	(0.00)
<i>Region (North)</i>												
Centre	0.05**	(0.01)	0.02	(0.01)	0.00	(0.01)	0.01	(0.01)	0.01	(0.00)	0.01+	(0.00)
South	0.14**	(0.01)	0.02	(0.01)	0.03**	(0.01)	0.03**	(0.01)	0.01**	(0.00)	0.02**	(0.00)
<i>Education (Lower)</i>												
Upper secondary	-0.01	(0.01)	0.03+	(0.01)	-0.01	(0.01)	0.01	(0.01)	-0.01+	(0.00)	0.00	(0.00)
Tertiary	-0.01	(0.02)	0.07**	(0.02)	0.01	(0.01)	0.04**	(0.01)	-0.01	(0.01)	0.01	(0.01)
<i>Age (45-49)</i>												
50-54	-0.01	(0.01)	-0.00	(0.01)	-0.00	(0.01)	-0.01	(0.01)	-0.01	(0.01)	-0.01+	(0.00)
55-59	-0.03	(0.01)	0.04+	(0.01)	-0.01	(0.01)	-0.01	(0.01)	-0.01	(0.01)	-0.01+	(0.01)
60-64	-0.03	(0.02)	0.04+	(0.02)	-0.03**	(0.01)	-0.04**	(0.01)	-0.02**	(0.01)	-0.02**	(0.01)
N. of grandparents	-0.01	(0.00)	-0.01*	(0.00)	0.00	(0.00)	0.00	(0.00)	0.00	(0.00)	-0.00	(0.00)
N. of nephews/ nieces	0.01**	(0.00)	-0.00	(0.00)	0.01**	(0.00)	0.01+	(0.00)	0.01*	(0.00)	0.00	(0.00)
N. of uncles/ aunts	-0.00	(0.00)	0.01**	(0.00)	-0.00+	(0.00)	-0.01**	(0.00)	-0.00*	(0.00)	-0.00**	(0.00)
N. of cousins	-0.00	(0.00)	0.00+	(0.00)	-0.00	(0.00)	-0.00	(0.00)	-0.00	(0.00)	-0.00	(0.00)
N. of parents in-law	-0.00	(0.00)	0.00+	(0.00)	-0.00	(0.00)	-0.00	(0.00)	-0.00	(0.00)	-0.00	(0.00)
Constant	0.77**	(0.06)	0.59**	(0.06)	0.17**	(0.04)	0.23**	(0.04)	0.01	(0.02)	0.11**	(0.03)

N. of ego-kin dyads	15,324	15,324	15,324	15,324	15,324	15,324
N. of ego	5,074	5,074	5,074	5,074	5,074	5,074

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Note: \*\* p<0.001, \* p<0.01, + p<0.05

*Appendix C. Robustness checks*

