

Younger adults' nuclear and extended family relationships in Europe: A latent class analysis

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Abstract: The present study identifies and compares typical classes of relationship qualities in the nuclear and extended family ties of younger adults across nine European countries (Germany, Italy, the Netherlands, Poland, the United Kingdom, as well as the Nordic countries Denmark, Finland, Norway, and Sweden). We used KINMATRIX data that were collected online in 2022-23 from an ego-centric perspective of 7,375 respondents aged 25–35. Employing latent class analysis and multinomial logistic regression models, we identified five distinct types of relationship qualities, labelled as ‘tight-knit’, ‘connected-but-autonomous’, ‘disharmonious-but-supportive’, ‘intimate-but-distant’, and ‘detached’. The prevalence of these relationship types varied across the family system, showing a clear gradient from tight-knit relations being most prevalent in the nuclear family to distant-extended relations being dominated by detachment. This resulted in a high overall proportion of relatively ‘weak’ relationships within young adults’ family networks. The distribution of classes across countries confirmed the existence of a North-South gradient of increasingly close nuclear and extended family ties in Europe: ‘Weaker’ relationships were more (and ‘stronger’ ties less) common in the Nordic countries, compared to an ‘intermediate’ cluster of countries consisting of the Netherlands, Germany, Poland, as well as the United Kingdom, and – especially – compared to Italy. Our study demonstrates the applicability of common typologies of relationship qualities to assess kin relations beyond the nuclear family and it highlights the relevance of accounting for extended kin relations across a range of European countries.

Introduction

Across Europe, cultural characteristics, social norms, and preferences regarding family support vary and show a geographic pattern of intergenerational family relationships marked by a continuum of relatively ‘weak’ ties in Northern Europe and relatively ‘strong’ ties in Mediterranean countries (e.g., Szydlik, 2016; also see Reher, 1998, for a more general discussion). This is also reflected in ‘intergenerational policy regimes,’ with policies and legal obligations regulating the support of older parents or children in need along a ‘familialism/de-familialisation’ continuum (Saraceno & Keck, 2010; also see Dykstra, 2018). Accordingly, the prevalence of multidimensional types of adult parent-child relationships within families (such as amicable, detached, disharmonious, ambivalent) has also been shown to vary cross-nationally (Silverstein et al., 2010; also see Nauck & Arránz Becker, 2013).

Such typological analyses have the potential to provide nuanced insights into the heterogeneity of relationship qualities among various dyads within the family system. Yet, previous studies – in Europe and elsewhere – almost exclusively focussed on adult parent-child relationships (e.g., Silverstein et al., 2010; Steinbach, 2008; Van Galen & Dykstra, 2006), largely neglecting other nuclear and extended kin, such as siblings, grandparents and grandchildren, as well as aunts and uncles, cousins, or in-laws (for exceptions see Barrett & Gunderson, 2021; Nauck & Arránz Becker, 2013; Hessel, 2024). Providing a comprehensive account of a multitude of nuclear and extended family relations of younger adults in the United States, Hünteler et al. (2025) recently identified relationship types resembling those previously found in adult parent-child relations, ranging from ‘tight-knit’ to ‘detached’. Their relative distribution was, however, clearly driven by the inclusion of extended family ties, such as to cousins, resulting in an overall very high proportion of detached and a relatively small share of tight-knit relationships. However, considering absolute kin numbers revealed a substantial

‘relational reserve’ in extended family ties, thereby highlighting the relevance of kin relations beyond the nuclear family (also see Leopold et al., 2025).

The present study extends this prior research to the European context, using data from the KINMATRIX study (Leopold et al., 2024) collected online in 2022-23 from the ego-centric perspective of 7,375 younger adults in nine countries: Germany, Italy, the Netherlands, Poland, the United Kingdom, as well as the Nordic countries Denmark, Finland, Norway, and Sweden. Focusing on genealogical kinship, KINMATRIX offers comprehensive information on respondents’ relationships with members of the nuclear family (parents, siblings) and the extended family, comprising nuclear-extended (grandparents, halfsiblings) and distant-extended (aunts, uncles, cousins) ties. These categories capture distinctions in genetic relatedness and genealogical distance, which have been shown to be associated with specific relationship qualities in families (e.g., Tanskanen & Danielsbacka, 2019) and to be reflected in the distribution of relationship types (Hünteler et al., 2025).

Applying latent class and multinomial logistic regression analyses, we aim to answer three research questions: *First*, which classes of relationship qualities can be identified in younger adults’ nuclear and extended family relations in Europe? *Second*, how does the distribution of these relationship types vary across nuclear, nuclear-extend, and distant-extended kin ties? And, *third*, how do these distributions differ across countries?

Data & Methods

Data

In 2022-23, the KINMATRIX survey (Leopold et al., 2024) collected ego-centric kinship network data of individuals aged 25–35 in nine European countries (and the United States; see Hünteler et al., 2025). Respondents (that is, ‘egos’) were recruited from access panels with quotas for demographics (sex, age, education, region) and various quality controls during and

after data collection. Employing web-based tools, egos were invited to create their family trees and subsequently report about their relationship to, and attributes of, each kin. Visual aids and iterative updates ensured data accuracy and respondent engagement.

From the pooled European sample ($n = 138,581$ ego-kin dyads, $N = 7,433$ egos), we derived information on respondents' relationships with living biological kin ($n = 104,356$, $N = 7,410$), distinguishing a wide range of kin categories from three kin groups: (a) *nuclear kin* (parents and full-siblings), (b) *nuclear-extended kin* (grandparents and half-siblings), and (c) *distant-extended kin* (aunts and uncles as well as first-degree cousins), all of which were further broken down by gender. Excluding observations with missing information on the respondent's gender ($n = 476$, $N = 35$) resulted in an analytical sample of $n = 103,880$ ego-kin dyads clustered within $N = 7,375$ respondents reporting at least one living biological kin.

Variables

We employed six indicators of interpersonal relationship qualities, reflecting various dimensions of current and previous expressions of solidarity in family relations, including conflict (Hünteler et al., 2025; also see Szydlik, 2016, Chapter 2):

(a) *Geographic proximity* ('structural solidarity') to [kin] was measured as travel time distance with the usual mode of transportation on a five-point-scale ranging from 'lives in the same building' [1] to 'one hour or longer' [5]; (b) *frequency of contact* (adding up all visits, letters, phone calls, etc.; 'associational solidarity') with [kin] ranged from 'daily or several times per week' [1] to 'never' [6]; and (c) *emotional closeness* ('affectual solidarity') to [kin] ranged from 'not at all close' [1] to 'very close' [5]. 'Functional solidarity' was assessed accounting for social and financial support: (d) *Social support* was a binary indicator taking the value 1 if the answer to at least one of the following three items was positive: whether ego ever received good *advice* from [kin] when they had to make an important decision, was ever *comforted* by [kin] when they were sad, or could really *count on* [kin] if they needed help in the

future. (e) *Financial support* was a binary indicator taking the value 1, if [kin] had ever given or loaned a larger amount of money to ego. Finally, (f) *conflict* (including tension and disagreement) with [kin] was assessed on a four-point scale ranging from ‘none at all’ [1] to ‘a great deal’ [4].

In all regression models, we controlled for the respondent’s *gender* [male vs. female]. To answer our third research questions, we also stratified our models by *country*. Due to the small number of observations in each of the Nordic countries (see Leopold et al., 2024), we clustered observations from Denmark, Finland, Norway, and Sweden into one ‘Nordic’ group. A sensitivity analysis revealed only a few minor differences in the distribution of relationship classes between the Nordic countries, so treating them as a single region does not seem to obscure any important differences.

The socio-demographic composition of the sample and the distribution of relationship indicators by country is displayed in *Table 1*.

Method

We employed latent class analysis (LCA) to identify typical patterns of relationship qualities using dyadic ego-kin relationships as units of analysis. We conducted the LCA with the *R* package ‘poLCA’, version 1.6.0.1 (Linzer & Lewis, 2011), identifying multiple class solutions, starting with one class and increasing the number of classes stepwise up to seven. Following Bauer (2022), we based the selection of the best class solution on model fit measures, relative entropy, average posterior class probabilities for classification accuracy, and the substantive interpretability of the results.

We opted for the overall medians as cut-off thresholds to dichotomize variables, with [1] indicating a stronger relationship quality compared to [0] (*Supplementary Figure S1*; also see Hünteler et al., 2025). We thus distinguished relationships (a) with less than vs. at least 30 minutes travel time distance for *geographic proximity*, (b) with at least monthly vs. fewer

Table 1: Descriptive sample statistics, by respondents' country of residence (means, weighted)

	Italy	Netherlands	Germany	Poland	United Kingdom	Nordic countries	Total
Ego's age	30.44 ^b	30.05 ^{a, b}	30.16 ^{a, b}	30.27 ^b	30.40 ^b	29.90 ^a	30.26
Female egos	0.49 ^a	0.49 ^a	0.48 ^a	0.49 ^a	0.50 ^a	0.49 ^a	0.49
<i>Ego's number of living kin</i>							
<i>Nuclear kin</i>							
Father	0.91 ^a	0.90 ^a	0.88 ^a	0.81	0.89 ^a	0.89 ^a	0.88
Mother	0.95 ^a	0.95 ^a	0.94 ^a	0.95 ^a	0.96 ^a	0.96 ^a	0.95
Brother	0.61 ^a	0.66 ^{a, b}	0.62 ^a	0.75 ^{b, c}	0.77 ^{b, c}	0.86 ^c	0.70
Sister	0.56 ^a	0.74 ^b	0.58 ^a	0.74 ^b	0.75 ^b	0.74 ^b	0.67
<i>Nuclear-extended kin</i>							
Paternal grandfather	0.17 ^{a, b}	0.27 ^d	0.25 ^d	0.17 ^a	0.20 ^{b, c}	0.22 ^{c, d}	0.20
Maternal grandfather	0.22 ^{a, b}	0.29 ^{c, d}	0.32 ^d	0.20 ^a	0.26 ^{b, c}	0.33 ^d	0.25
Paternal grandmother	0.31 ^a	0.34 ^{a, b, c}	0.39 ^c	0.34 ^{a, b}	0.33 ^{a, b}	0.37 ^{b, c}	0.34
Maternal grandmother	0.42 ^a	0.44 ^a	0.47 ^a	0.44 ^a	0.44 ^a	0.48 ^a	0.44
Paternal halfsibling	0.09 ^a	0.22 ^b	0.19 ^b	0.11 ^a	0.22 ^b	0.36	0.17
Maternal halfsibling	0.04 ^a	0.10 ^{b, c}	0.13 ^c	0.07 ^{a, b}	0.11 ^{b, c}	0.21	0.10
<i>Distant-extended kin</i>							
Paternal uncle	0.99 ^b	1.18	0.73	0.83 ^a	0.96 ^b	0.87 ^{a, b}	0.90
Maternal uncle	0.95 ^b	0.87 ^{a, b}	0.66	0.80 ^a	0.86 ^{a, b}	0.81 ^a	0.83
Paternal aunt	1.01 ^b	1.05 ^{a, b}	0.74	0.91 ^{a, b}	1.01 ^{a, b}	0.88 ^a	0.93
Maternal aunt	0.93 ^b	0.83 ^{a, b}	0.70 ^a	0.88 ^b	0.87 ^b	0.84 ^{a, b}	0.86
Paternal cousin	3.49 ^a	3.26 ^a	2.12	3.19 ^a	3.45 ^a	3.21 ^a	3.15
Maternal cousin	3.05 ^a	2.75 ^a	2.05	3.05 ^a	3.32 ^a	3.09 ^a	2.92
Ego's total number of kin	14.70 ^{a, b}	14.84 ^{a, b}	11.76	14.22 ^a	15.39 ^b	15.12 ^{a, b}	14.29
<i>Relationship quality (dyad-level)¹</i>							
Geographic proximity (< 1 hour)	0.42	0.36	0.33 ^a	0.33 ^a	0.23	0.24	0.32
Frequency of contact ($\geq$ monthly)	0.43	0.38 ^b	0.40	0.37 ^b	0.32 ^a	0.31 ^a	0.38
Emotional closeness ($\geq$ pretty close)	0.39	0.30 ^{a, b}	0.36	0.27	0.29 ^a	0.31 ^b	0.33

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	Italy	Netherlands	Germany	Poland	United Kingdom	Nordic countries	Total
Social support (<i>received from kin</i>)	0.28 ^{a, b}	0.30 ^c	0.35	0.29 ^{b, c}	0.27 ^a	0.29 ^{b, c}	0.29
Financial support (<i>received from kin</i>)	0.07 ^a	0.08 ^a	0.12 ^c	0.10 ^b	0.10 ^b	0.11 ^c	0.10
Conflict ($\geq a$ little)	0.31	0.25 ^a	0.43	0.22	0.26 ^a	0.25 ^a	0.28
Number of relationships (n, weighted)	27,143	5,906	14,221	24,756	19,165	12,689	103,880
Number of egos (N, weighted)	1,887	393	1,200	1,734	1,299	863	7,375
Percentage of total egos (weighted)	26.32	5.53	13.39	23.40	18.98	12.38	100

Note: Superscripts (^{a, b, c, d}) indicate statistically significant group differences at $p < 0.05$. Groups sharing a letter are not significantly different.

¹ Based on all respondent-kin dyads with missing values due to missing relative's names imputed.

contacts for *frequency of contact*, and (c) feeling pretty or very close vs. less than pretty close for *emotional closeness*. These dichotomies captured relationships with a pronounced emotional bond, regular contact, and within physical reach. For the skewed distribution of *conflict*, we contrasted those reporting no conflict, tension, or disagreement at all with those exhibiting at least a little. When respondents did not know a relative's name, the relationship indicators were not assessed. We imputed these missing values (~3%) in our analytic sample with the below-median cut-off values, that is, with those representing greater detachment (e.g., 'less than monthly contact'). Geographic proximity was the only variable respondents were allowed to skip by indicating 'don't know', resulting in a larger share of missing values (13%), which were imputed with a value representing greater distance ('at least 30 minutes').

To predict class membership by kin category and country, we ran multivariate multinomial regressions following the LCA, using Stata's 'mlogit' command with clustered standard errors to account for the dependence of relationships within egos, 'margins' to obtain predicted probabilities of the class types for each kin category by country, and 'coefplot' for visualization (Jann, 2014). This analytical strategy mirrors Hünteler et al.'s (2025) for the United States to ensure comparability and enable a cross-national perspective. All analytical code is available at <https://github.com/huentelb/RelTypEur>.

Results

Classes of relationship qualities

Of all LCA-produced cluster solutions, we identified the five-class solution of typical patterns of relationship qualities to be optimal (additional information on the LCA, that is, statistical model fit measures and average posterior class membership probabilities, is provided in the *Supplementary Tables S1 and S2*). *Figure 1* displays the item response probabilities for each of our six relational indicators, conditional on the relationship's class membership, where higher

values indicate a higher likelihood of responses equalling 1 (that is, greater proximity, more frequent contact, greater emotional closeness, greater propensity to receive emotional and/or financial support, more conflict).

The five classes identified in the European KINMATRIX data very much resembled those found in Hünteler et al.’s (2025) analysis for the United States. We therefore applied the same labels to describe them: The first class (orange, round markers) is characterized by ‘*tight-knit*’ relationships with overall high levels of solidarity (that is, very high response probabilities on geographic proximity, contact frequency, emotional closeness, as well as social and financial support) and only a medium probability to experience conflict. The average posterior class membership probability for this cluster was 19.9%.

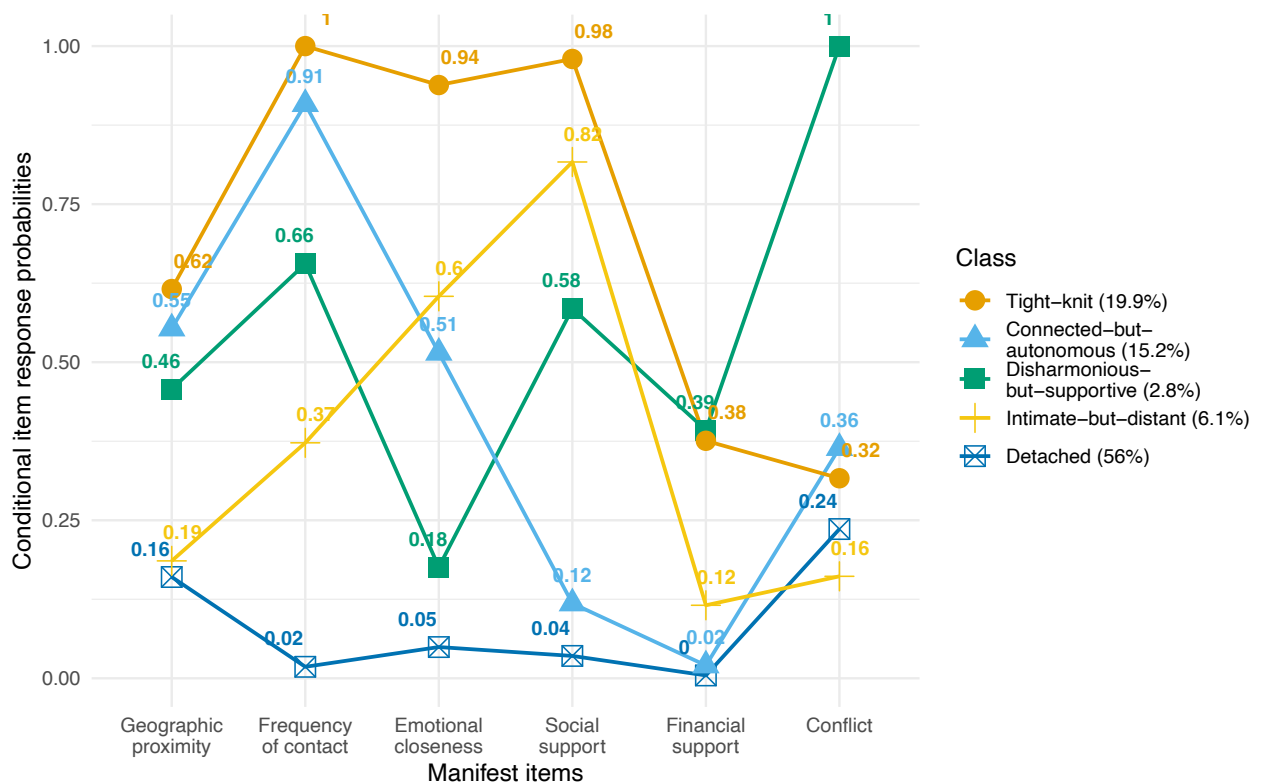


Figure 1: Conditional item response probabilities for relationship indicators in the five-cluster-solution.

The second class (light blue, triangle markers) was labelled as ‘*connected-but-autonomous*’. Relationships in this cluster were characterized by a high likelihood of close geographic proximity and regular contact, a medium propensity to feel emotionally close or to have conflict, as well as a particularly low probability of receiving social or financial support. Their high degree of autonomy thus constituted the primary difference to tight-knit relationships. The average probability of a relationship being connected-but-autonomous was 15.2%.

Because of the co-occurrence of strong positive and strong negative dimensions, relationships in the third class (green, filled squared markers) were best described as ‘*disharmonious-but-supportive*’. They exhibited relatively high levels of structural, associational, and functional solidarity paired with very low affectual solidarity and the highest likelihood of conflicts. This cluster was the smallest, with an average posterior class membership probability of 2.8%.

The fourth class (yellow, cross markers) comprised ‘*intimate-but-distant*’ relationships. They exhibited, on the one hand, low probabilities of close geographic proximity, frequent contacts, receipt of financial support, and conflict. On the other hand, these relationships were characterized by a high propensity to be emotionally close and to receive social support. The average posterior class membership probability for this cluster was 6.1%.

Finally, the *fifth* class (dark blue, hollow squared markers) represented a ‘*detached*’ relationship pattern, characterized by very low response probabilities on all relationship items (including conflict). With an average posterior class membership probability of 56%, this was the by far largest cluster.

Importantly, the five classes described above were not only substantively comparable to the American ones identified by Hünteler et al. (2025), but they were also largely similar in their size and distribution. The ‘*connected-but-autonomous*’ cluster constituted a noteworthy

exception: It comprised a substantially larger fraction of kin relations in Europe (15.2%) than in the United States (8.8%; see Hünteler et al., 2025: Figure 2).

Distribution of relationship types by kin category

Next, we assessed the distribution of the five latent classes identified above across various kin categories, running multinomial logistic regressions controlling for respondents' gender and country of residence (including post-stratification weights, see *Supplementary Table S3*). *Figure 2* depicts the distribution of typical patterns of relationship qualities across kin categories, displayed as predicted probabilities for each kin (left-hand panel) and their predicted average absolute counts per respondent (right-hand panel).

The *tight-knit* pattern was by far most common in nuclear family ties, ranging from 81% of relationships with mothers to still more than half of all full sibling relations. Sizeable shares of tight-knit relationships were also found in nuclear-extended ties, especially in relationships

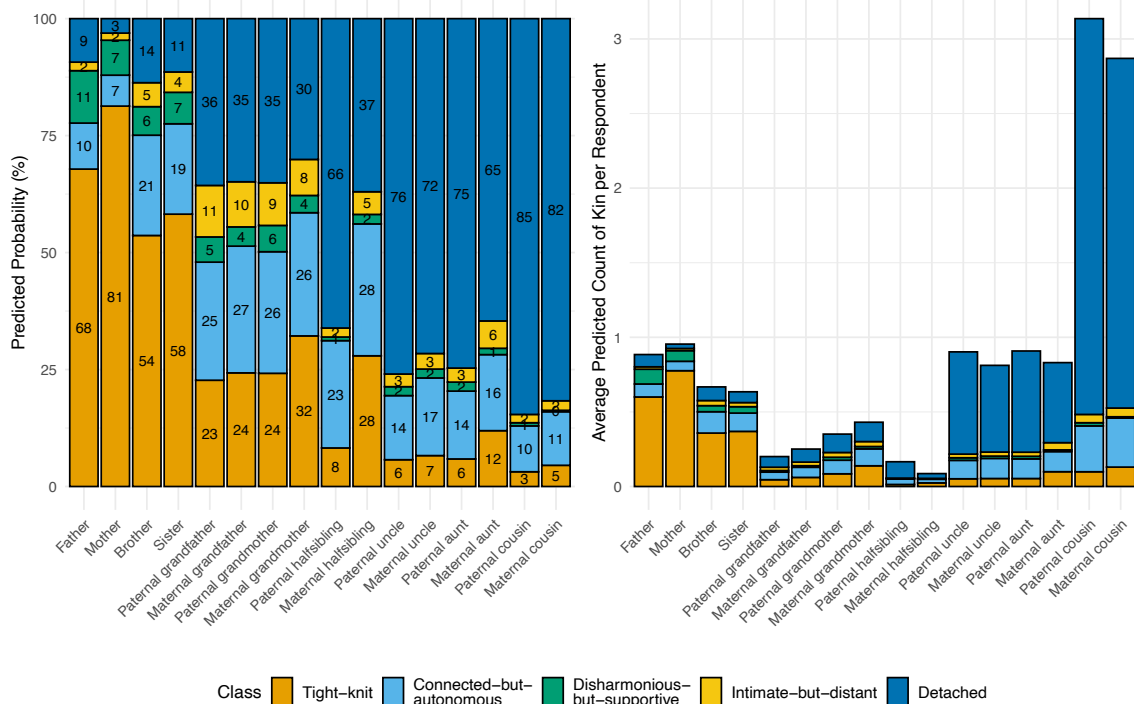


Figure 2: Distribution of relationship patterns by kin category. Based on multinomial logistic regressions controlling for respondents' gender and country of residence (weighted; see Supplementary Table S3).

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to grandmothers (32%) and half-siblings (28%) along the maternal line. The largest proportion of tight-knit dyads in distant-extended ties was also detected on the maternal side, in relationships with aunts (12%); relations to paternal cousins were least likely to be characterized as tight-knit (3%).

Nuclear-extended and distant-extended family relations tended to be dominated by *detachment*, which applied to two-thirds of relationships to paternal half-siblings and maternal aunts, three quarters of relations to paternal aunts and all uncles, as well as more than 80% of respondent-cousin dyads. Moreover, detached relationships constituted the largest class among respondent-grandparent dyads (30-36%) and they were also identified in nuclear ties: Whereas 9-14% of relationships to fathers and full siblings were detached, this applied to only 3% of respondent-mother dyads.

The largest proportions of *connected-but-autonomous* relations (23-28%) were found in extended-nuclear relationships with grandparents and half-siblings, followed by full siblings (19-21%). *Disharmonious-but-supportive* relations were overall rare, but most common in respondent-father dyads (11%), still present in other nuclear and nuclear-extended kin relations (1-7%), and almost non-existent in distant-extended kin relationships. Lastly, the prevalence of *intimate-but-distant* relationships was highest among nuclear-extended kin (8-11%) but hardly existent in any other relations, except for full siblings or maternal halfsiblings and aunts (4-6%).

In sum, these findings underline the central role of mothers (81% tight-knit and only 3% detached) and the maternal line (grandmothers, halfsiblings, and aunts) in the family system. Importantly, though, we also observed relatively close relationships to fathers: Compared to the United States (see Hünteler et al., 2025: Figure 3), for example, there were more tight-knit (68% vs. 56%) and fewer detached (9% vs. 16%) respondent-father relationships in Europe. Moreover, detached relations were overall less common in European countries (56%) than in

the United States (61%), but particularly so in nuclear-extended kin ties (30-36% in Europe vs. 39-56% in the U.S.; Hünteler et al., 2025: Figure 3). Finally, the larger overall proportion of connected-but-autonomous relationships in the European context (15% vs. 9% in the U.S.) seemed to be largely driven by their greater prevalence in nuclear-extended ties: In Europe, the respective share was about one quarter, compared to 13-19% in the United States, where the high proportion of connected-but-autonomous maternal halfsiblings (24%) constituted an exception (Hünteler et al., 2025: Figure 3).

Even though the total number of distant-extended kin was somewhat smaller in Europe than in the United States (resulting from lower fertility in the European context), our model still predicted a considerable number of non-detached relatives outside the nucleus – especially uncles, aunts, and cousins – who might function as a ‘kinship reservoir’ (Sauter et al., 2023) individuals may tap into when needing support: On average, respondents across all European countries reported almost two distant-extended kin with whom they had had either tight-knit (0.5), connected-but-autonomous (1.2), or intimate-but-distant relationships (0.2). Distant-extended relations thus accounted for 19% of all tight-knit, 63% of all connected-but-autonomous, and 57% of all intimate-but-distant relationships. Overall, these numbers are almost identical to those reported by Hünteler et al. (2025) for the United States, except for the contribution of uncles, aunts, and cousins to the total number of intimate-but-distant relationships, which was found to be higher (66%) in the United States.

Differences between countries

To explore cross-national variation in the likelihood of being sorted into a specific class of relationship qualities, we estimated multinomial logistic regression including an interaction between relationship class and country, controlling for gender. Germany served as the reference category, because previous research indicated that this country takes an intermediate position in the Continental European continuum of intergenerational family solidarity (e.g., Szydlik,

2016). *Figure 3* displays the average marginal effects derived from the regression results (see *Supplementary Table S3* for further details).

Compared to the ‘average case’ of Germany, kin relations in the *Nordic countries* were significantly more likely to be detached or intimate-but-distant, and less likely to be connected-but-autonomous or disharmonious-but-supportive. A significantly higher probability of kin relations being of the ‘detached’ type was also observed in the *United Kingdom*, where all other classes of relationship qualities were found to be basically as likely as in Germany, though. Similarly, *Poland* and *the Netherlands* differed from the German case only in so far as there was a lower probability of ties to be sorted into the (small) disharmonious-but-supportive class. This was also the case in *Italy*, which however, also differed from Germany in other – and more relevant – regards: tight-knit as well as connected-but-autonomous relationships were

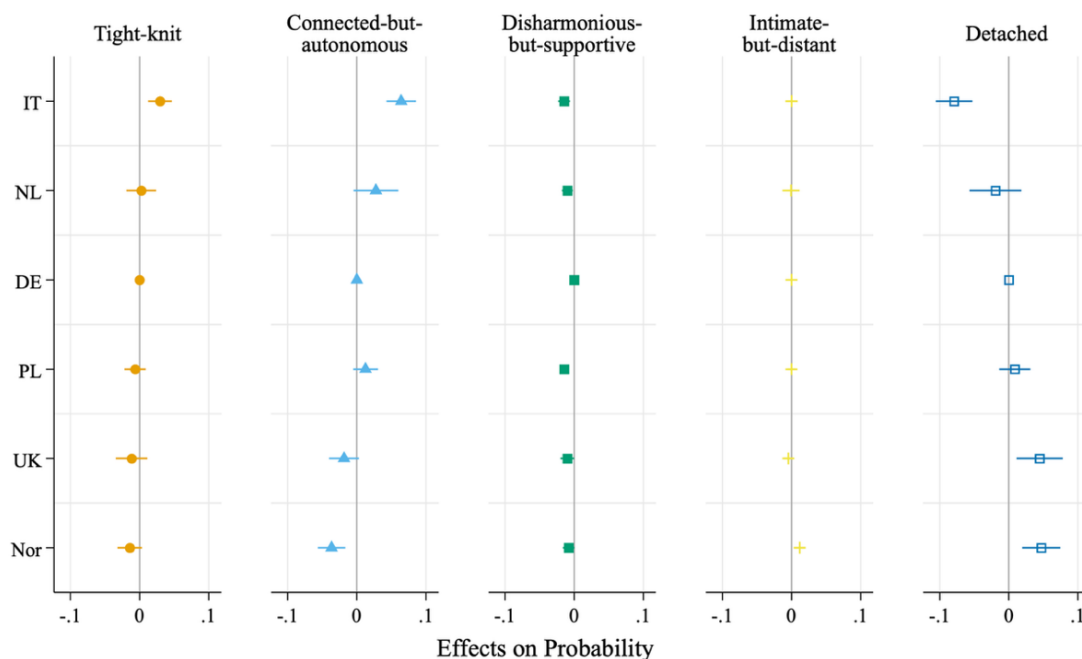


Figure 3: Average marginal effects of country of residence on probability for class membership. Based on multinomial logistic regressions controlling for respondents' gender (weighted; see Supplementary Table S3).

significantly more likely, whereas detached kin ties were substantially less likely. Next to providing an overall picture of great similarities among the three ‘central’ European countries of Poland, Germany, and the Netherlands as well as the United Kingdom, our study thus confirms the existence of a North-South gradient of increasingly close – nuclear *and* extended – family ties in Europe.

To investigate the overall country differences more in-depth, we compared the average predicted number of kin in each class across countries (*Figure 4*). To this end, we, first, estimated the predicted probability for each kin to be in one class by country from the multinomial logistic regression. Second, we multiplied these probabilities with the country-specific average number of kin in each category (nuclear, nuclear-extended, distant-extended).

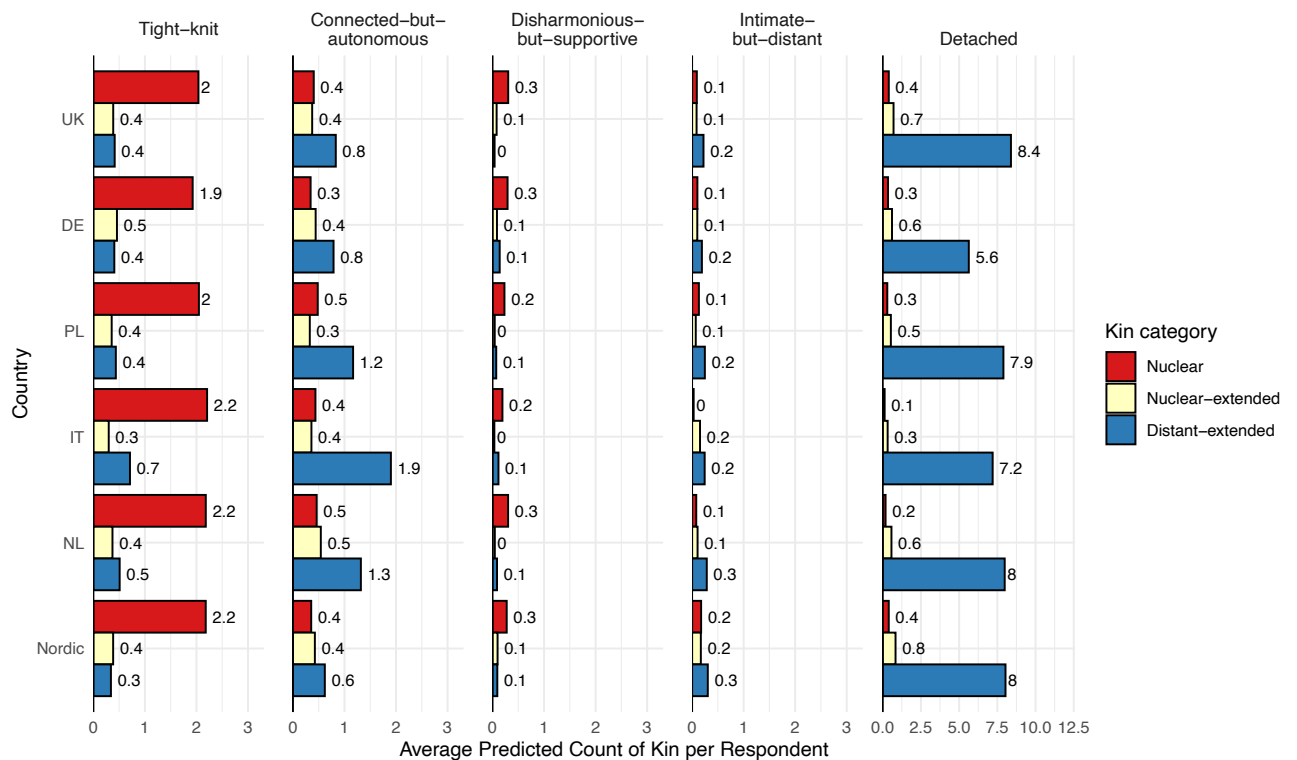


Figure 4: Average predicted number of kin by relationship type across country displayed as absolute counts. Counts were calculated by multiplying the country-specific average number of kin with the predicted probabilities derived from the multinomial logistic regression controlling for respondents' gender (weighted, Supporting Information: Table S3).

Differentiating our country comparison by kin categories revealed a clear gradient from tight-knit relations being most prevalent in the nuclear family to distant-extended relations being dominated by detachment in all countries, with nuclear-extended ties being situated between these poles. Because of the overall small variation in relative differences between countries and in the absolute availability of kin across countries (ranging between ~ 12 and ~ 15 ; see *Table 1*), the average predicted number of kin by class also barely varied by country, with three noteworthy exceptions: First, in Germany, the number of detached distant-extended relations was comparatively small (< 6 vs. ~ 8 in most other countries), which resulted from the smaller total number of kin in the country. Second, Italian respondents' higher likelihood to have tight-knit ties did not translate into a higher number of absolute nuclear and nuclear-extended kin ties, but only more numerous distant-extended tight-knit ties (0.7 vs. < 0.5 in all other countries). Third, the relative differences in connected-but-autonomous ties were most clearly visible in absolute kin counts among distant-extended kin, with Italy having the most (1.9), followed by the Netherlands and Poland (1.2 – 1.3), and the United Kingdom, Germany and the Nordic countries having the fewest (0.6 – 0.8).

Discussion

Against the background of previous observations of distinct patterns of 'closer' and 'weaker' (nuclear) family ties across Western countries (e.g., Reher, 1998; Szydlik, 2016) and building on recent research highlighting the relevance of kin relations beyond the nuclear family (e.g., Hünteler et al., 2025; Leopold et al., 2025), the present study set out to identify typical classes of relationship qualities in the nuclear and extended family ties of younger adults from nine European countries. Several main findings emerged from our latent class analysis of the KINMATRIX survey:

First, we identified five distinct classes of relationship qualities which we labelled as 'tight-knit', 'connected-but-autonomous', 'disharmonious-but-supportive', 'intimate-but-

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distant’, and ‘detached’ (also see Hünteler et al., 2025). With regard to the distribution of these relationship types across the family system, we observed a clear gradient from tight-knit relations being most prevalent in the nuclear family to distant-extended relations being dominated by detachment, which resulted in a high overall proportion of relatively ‘weak’ – often detached – relationships in our sample. These findings from the European context very much resemble those reported in the U.S. study by Hünteler et al. (2025).

Moreover, the five classes in our study were qualitatively similar to those identified in prior research on (nuclear) intergenerational relationships in European countries (e.g., Steinbach, 2008; Van Galen & Dykstra, 2006) and their distribution across countries confirms the existence of a North-South gradient of increasingly close nuclear *and* extended family ties in Europe: ‘Weaker’ relationships are more (and ‘stronger’ ties are less) common in the Nordic countries, compared to an ‘intermediate’ cluster of countries consisting of the Netherlands, Germany, Poland, as well as the United Kingdom, and – especially – compared to Italy. The latter case, exhibiting an above average degree of closeness in kin relations, underlines the notion of particularly strong family systems in Mediterranean countries (e.g., Reher, 1998).

Overall, our study demonstrates the applicability of common typologies of relationship qualities to assess kin relations beyond the nuclear family – and it highlights the relevance of accounting for extended kin relations across a range of European countries: Even though genetically / genealogically more distant relationships tend to be ‘weaker’ on average, they still constitute a quantitatively and qualitatively relevant support potential and thus form an important part of individuals’ ‘latent kin matrix’ (see Leopold et al., 2025, for a more comprehensive discussion).

One limitation of the present study is that exact quantifications of the size of younger adults’ ‘kinship universe’ are beyond KINMATRIX’ scope, because the survey data have been shown to underestimate the number of extended kin, especially along the maternal line, due to

unknown or unreported relatives (Leopold et al., 2024). Linking survey-based information on relationship qualities with more precise information on individuals' family network structures – derived, for example, from administrative data available for several European countries (e.g., de Bel et al., 2025) – might thus be a promising perspective to enhance future research. Finally, our analytic sample is limited towards kin relations that were (at least partially) biologically determined. That is, step-relations, for which van Houdt (2023) identified specific relationship profiles, as well as relationships with in-laws (e.g., Santos & Levitt, 2007) were not considered. Importantly, these limitations point towards great potentials: Even though kinship seems to have lost its status as a 'neglected topic' (Furstenberg, 2020) and despite considerable advances that have recently been made (see, for example, Alburez-Gutierrez et al., 2022; Leopold et al., 2025), the study of kin relations from a broader and more inclusive perspective is likely to remain a fruitful and important research arena for the time to come.

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Supplementary Tables & Figures

Table S 1 Classification Criteria Over Models

Model	log-likelihood	resid. df	BIC	aBIC	cAIC	likelihood-ratio	relative Entropy
Model 1	-359,795.4	57	719,660.1	719,641.0	719,666.1	125,599.2	
Model 2	-301,541.5	50	603,233.1	603,191.8	603,246.1	9,091.4	0.855
Model 3	-298,634.4	43	597,499.8	597,436.3	597,519.8	3,277.3	0.853
Model 4	-297,711.6	36	595,735.1	595,649.3	595,762.1	1,431.6	0.834
Model 5	-297,234.7	29	594,862.1	594,754.1	594,896.1	477.8	0.805
Model 6	-297,104.6	22	594,682.7	594,552.4	594,723.7	217.6	0.789
Model 7	-297,046.5	15	594,647.5	594,494.9	594,695.5	101.5	0.671

Note: Selected model in bold.

Table S 2 Average Posterior Latent Class Probability

Class	Tight-knit	Connected-but-autonomous	Disharmonious-but-supportive	Intimate-but-distant	Detached
Tight-knit	0.94 ^a	0.01	0.02	0.03	0.00
Connected-but-autonomous	0.05	0.59 ^a	0.14	0.07	0.16
Disharmonious-but-supportive	0.07	0.03	0.84 ^a	0.03	0.02
Intimate-but-distant	0.04	0.03	0.10	0.77 ^a	0.06
Detached	0.00	0.01	0.06	0.06	0.87 ^a

^aNote: Values $\geq .90$ are ideal; values $< .80$ or $< .70$ are not acceptable.

Table S 3 Multinomial Logistic Regression Models of Cluster Membership (Relative Risk Ratios; Ref. 'Detached')

	Model without control variables				Model with control variables			
	Tight-knit	Connected-but-autonomous	Disharmonious-but-supportive	Intimate-but-distant	Tight-knit	Connected-but-autonomous	Disharmonious-but-supportive	Intimate-but-distant
<i>Kin Category (ref. Father)</i>								
Mother	1.26*** (0.10)	0.68*** (0.13)	0.67*** (0.12)	0.89*** (0.17)	1.01*** (0.20)	0.38 (0.27)	0.32 (0.24)	0.08 (0.36)
Brother	-0.67*** (0.12)	0.35*** (0.12)	-1.03*** (0.17)	0.64*** (0.16)	-0.77*** (0.19)	0.46* (0.25)	-1.04*** (0.24)	0.32 (0.32)
Sister	-0.39*** (0.11)	0.45*** (0.13)	-0.73*** (0.25)	0.68*** (0.18)	-0.32* (0.18)	0.70*** (0.25)	-0.52** (0.24)	0.18 (0.37)
Paternal grandfather	-2.38*** (0.10)	-0.39*** (0.11)	-1.99*** (0.17)	0.40** (0.20)	-1.69*** (0.22)	0.06 (0.25)	-1.32*** (0.35)	-0.50 (0.36)
Maternal grandfather	-2.35*** (0.10)	-0.31*** (0.10)	-2.33*** (0.19)	0.29 (0.19)	-1.75*** (0.21)	0.41** (0.21)	-2.19*** (0.31)	-0.30 (0.39)
Paternal grandmother	-2.35*** (0.09)	-0.37*** (0.10)	-2.00*** (0.22)	0.25 (0.17)	-1.97*** (0.20)	0.09 (0.22)	-1.57*** (0.27)	-0.20 (0.32)
Maternal grandmother	-1.92*** (0.10)	-0.19* (0.10)	-2.28*** (0.16)	0.26 (0.16)	-1.47*** (0.19)	0.56*** (0.20)	-2.03*** (0.26)	0.21 (0.29)
Paternal halfsibling	-4.23*** (0.20)	-1.16*** (0.14)	-4.35*** (0.31)	-2.01*** (0.24)	-4.20*** (0.37)	-1.02*** (0.30)	-3.71*** (0.55)	-2.19*** (0.53)
Maternal halfsibling	-2.38*** (0.17)	-0.28* (0.16)	-3.08*** (0.31)	-0.41 (0.30)	-2.41*** (0.38)	-0.13 (0.31)	-18.73*** (0.25)	-1.14 (0.91)
Paternal uncle	-4.56*** (0.13)	-1.76*** (0.10)	-3.86*** (0.21)	-1.72*** (0.16)	-4.40*** (0.21)	-1.39*** (0.22)	-3.43*** (0.31)	-1.68*** (0.34)
Maternal uncle	-4.35*** (0.10)	-1.50*** (0.10)	-3.81*** (0.22)	-1.46*** (0.14)	-4.05*** (0.24)	-1.22*** (0.22)	-2.68*** (0.33)	-1.88*** (0.34)
Paternal aunt	-4.51*** (0.10)	-1.68*** (0.11)	-3.85*** (0.18)	-1.60*** (0.14)	-4.44*** (0.22)	-1.45*** (0.23)	-3.09*** (0.32)	-1.72*** (0.29)
Maternal aunt	-3.66*** (0.10)	-1.42*** (0.10)	-4.04*** (0.17)	-0.78*** (0.14)	-3.47*** (0.29)	-1.20*** (0.23)	-3.49*** (0.31)	-1.13*** (0.30)
Paternal cousin	-5.27***	-2.21***	-5.04***	-2.25***	-4.92***	-1.99***	-4.57***	-2.51***

	(0.10)	(0.10)	(0.22)	(0.15)	(0.20)	(0.21)	(0.37)	(0.33)
Maternal cousin	-4.89***	-2.04***	-5.83***	-2.08***	-4.29***	-1.52***	-4.95***	-2.33***
	(0.10)	(0.10)	(0.20)	(0.14)	(0.30)	(0.25)	(0.37)	(0.30)
<i>Country (ref. DE)</i>								
Italy					0.86***	1.13***	0.34	-0.96**
					(0.25)	(0.30)	(0.30)	(0.46)
Netherlands					0.62**	0.77**	0.57*	-0.58
					(0.26)	(0.35)	(0.31)	(0.62)
Poland					-0.04	0.46**	-0.26	-0.12
					(0.16)	(0.23)	(0.20)	(0.32)
United Kingdom					0.16	-0.05	0.05	-0.58
					(0.23)	(0.29)	(0.33)	(0.38)
Nordic countries					0.33	0.35	0.20	0.15
					(0.21)	(0.29)	(0.26)	(0.37)
Women (ref. Men)					-0.01	-0.37***	-0.25**	-0.12
					(0.07)	(0.07)	(0.11)	(0.09)
Observations	103,880	103,880	103,880	103,880	103,880	103,880	103,880	103,880
Pseudo R2	0.239	0.239	0.239	0.239	0.254	0.254	0.254	0.254

Note: Robust standard errors in parentheses. Weighted. Kin category # country interaction not shown, available on request.

*** p<0.01, ** p<0.05, * p<0.1.

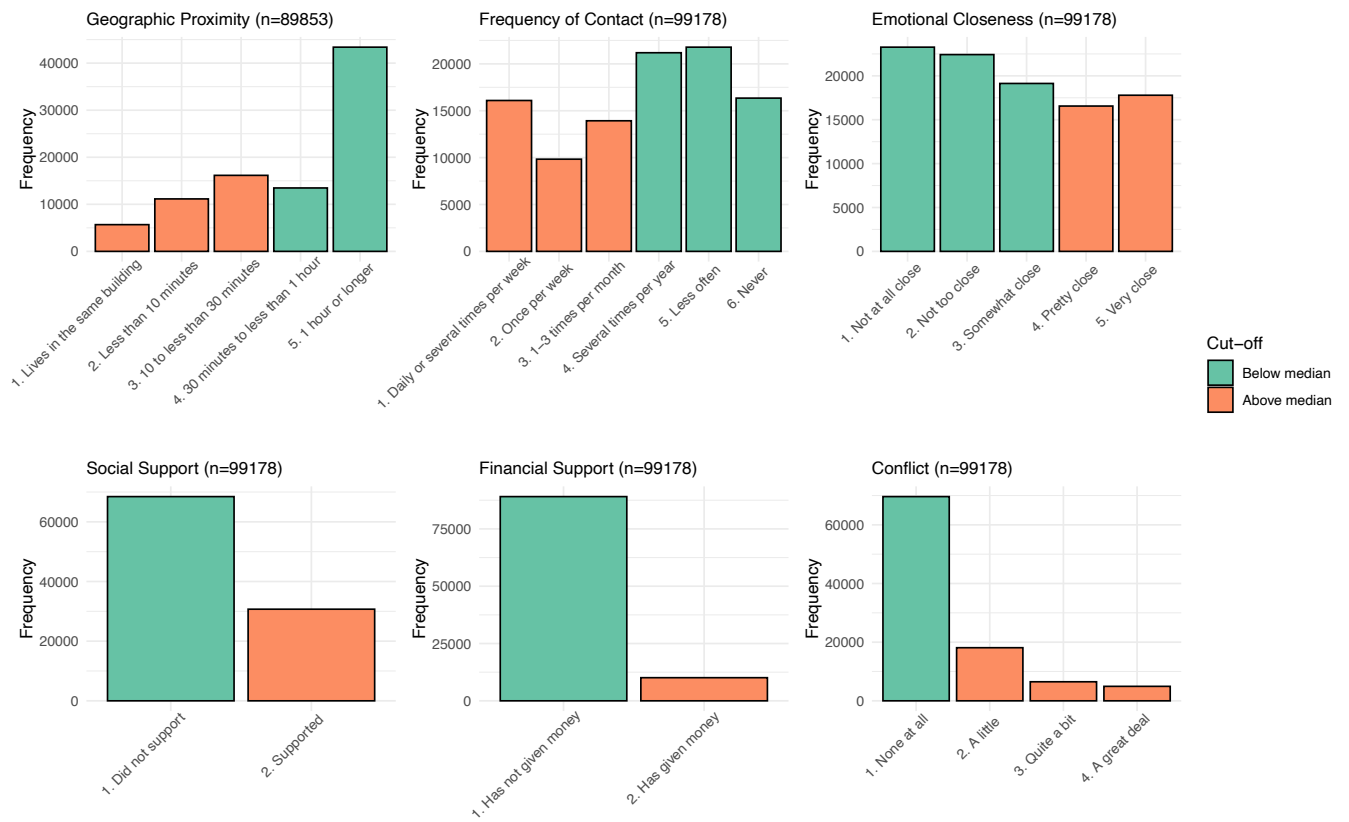


Figure S1 Distribution of relationship indicators, showing dichotomization cut-offs.