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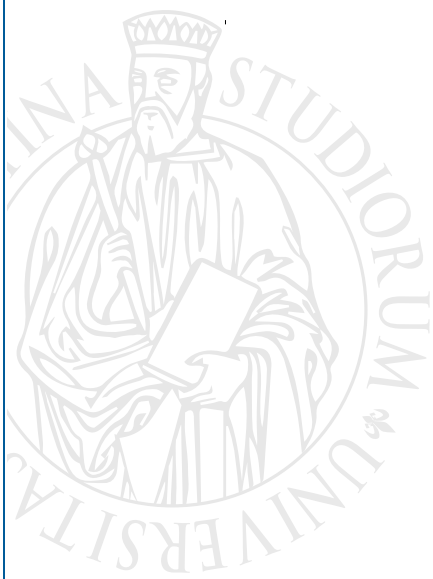

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Marta Pittavino[1], Bruno Arpino[2], Elena Pirani[3]

Abstract

Availability of kin has profound effects on the lives of people, especially in later life when social networks tend to be composed prevalently of family members, and care needs increase. Using data from the last wave (wave 8; 2019-2020) of the Survey of Health, Ageing and Retirement in Europe (SHARE), we estimate the prevalence of kinlessness (i.e., absence of close kin) among older adults aged 65 and more in 27 countries. We consider different definitions of kinlessness, from a less restrictive (i.e., based only on the absence of both partner and children) to a more restrictive one (based also on the absence of grandchildren, parents and siblings). Results show a large variation of kinlessness across countries. The proportion of adults aged 65 and above who lack both a partner and children range between 2-3.5% in Czech Republic, Romania, Israel, and Bulgaria, and more than 8% in Switzerland, Spain, Belgium and Malta. The percentage of older people lacking all considered kin ranges from 0.1 to 4.1%. In addition, in some countries there is a substantial heterogeneity in kinlessness by age and sex. Differences by education are, instead, rare. Understanding the prevalence of older individuals without close kin is critical for policymakers and healthcare providers to design appropriate support systems for this particularly vulnerable group of older people and their possibly unmet care needs.

Keywords

Kin; family; older people; aging; SHARE.

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Introduction

In the complex tapestry of human relationships, kinship has historically occupied a central and indispensable role in shaping individual behaviors, conditions, and identities, as well as societal structures (1; 2). The bonds of kinship have played a vital role in providing support, facilitating social integration, and transmitting cultural and social values across generations (3). Kinlessness, defined as the lack of (close) kin, represents a significant departure from the standard kinship structure. In an increasingly dynamic world – marked by demographic shifts, evolving cultural norms, and changing social dynamics – kinlessness is re-emerging as a critical area of scholarly inquiry (4). Our study aims at providing recent and detailed estimates of the prevalence of kinlessness in several countries.

The degree of kinlessness observed in a population at a given point in time is strongly influenced by past demographic trends encompassing fertility, mortality, partnership formation and dissolution. Examining how macro-level demographic trends affect the observed prevalence of kinlessness lies outside the scope of our study, however, and is a notably intricate endeavor (see ref. 5 and 6) for approaches to study the impact of demographic forces on kinship networks). Indeed, aside from considerations related to migration flows, a population observed at a specific moment consists of distinct birth cohorts that have experienced varying demographic dynamics shaping kinlessness. Furthermore, the absence of specific kin, such as parents or siblings, hinges on even more intricate historical (demographic) processes involving birth cohorts different from those of the focal individuals. Despite this complexity, one can argue that declining mortality rates observed in the recent decades in most countries have increased the proportion of individuals who survive to a certain age while still having kin available (due to their longer life expectancy). Conversely, recent fertility dynamics act in the opposite direction: decreasing fertility levels over time imply shrinking kinship networks with fewer (grand)children and siblings, among others, and this effect can be intensified by reduced rates of partnership formation and increased rates of divorce (see ref. 7 for an in-depth discussion). The net effect of fertility and mortality dynamics on kinlessness can be either positive or negative, contingent upon which demographic force prevails. Prior research suggests that changes in fertility appear to exert a greater influence than changes in mortality on kinship network size (8). This trend has led to an increasing number of individuals reaching old age without close kin available, a pattern expected to intensify in the coming decades (9).

In a context of population aging, the examination of kinlessness prevalence is of particular relevance. Kinship holds a general significance for both individuals and communities, the availability of kin becoming especially salient at older ages (10; 11), however. One primary reason for the study of kin

(un)availability among older individuals is the pivotal role that kin play in providing social support (12; 13). Kin relationships offer emotional and practical support, companionship, and a sense of belonging, and previous research shows that older adults who maintain close relationships with their kin are less likely to experience symptoms of depression and loneliness, and more likely to have better health conditions (14; 15). Furthermore, kin often serve as caregivers, providing essential assistance to older family members facing health-related challenges. Informal caregiving provided by family members helps older individuals in maintaining their independence and avoid institutionalization. In addition to the social support mechanism, kin exert social control over each other's health behaviors (16-19), through pressures and influence to inhibit or limit unhealthy behaviors and promote positive habits and lifestyles (20; 21).

Hence, examining kinlessness is of paramount importance for policymakers and healthcare providers to design appropriate support systems for this particular group of individuals, that may be at higher risk of experiencing health, social, and economic vulnerabilities (22). While a recent study provided projections of the size, composition, and age distribution of family networks, which are key to understanding the likely (un)availability of kin in the future (23), we focus on kinlessness and provide current estimates of the prevalence of older individuals who simultaneously lack several kin, and examine within-country variabilities by age, sex and education. As it has been recently argued, heterogeneities in kin (un)availability stand as a pivotal facet of kinship inequalities (24).

Operationalizations of kinlessness

The concept of kinlessness is influenced by the socially evolving nature of kinship (25). Traditional family structures, characterized by nuclear families and kinship established through blood and marriage, have given way to more diverse forms of kinship relationships in Western societies (26). Thus, all types of living (biological, adopted, and step-) children, as well as both married and cohabiting partners (even without a legal recognition), should be considered when identifying the absence or presence of children and a partner. Conversely, in case of divorce or separation, the ex-partner is typically not counted as available kin. Additionally, there is a consensus on the importance to account for extended kin, including grandchildren and siblings (4), and to define kinlessness as the lack of more than one type of close kin. Nevertheless, due to data limitations, not all previous empirical studies on kinlessness could account for all main types of kin.

Some previous research has focused on estimating the prevalence and socio-demographic characteristics of older individuals lacking a specific type of kin, such as children (27). Brown and colleagues (28) focused on sole family survivors addressing older people who survive their family of origin (operationalized including parents and siblings). Studies on kinlessness often define it as the unavailability of both a partner and children (29; 30), while others accounted for a wider array of kinship ties, including siblings (7), and parents and siblings (31; 32). Previous studies on the size of kinship

networks accounted for extended kin relations, including grandchildren (33; 34). Other studies have investigated the demography of grandparenthood (35-37), or have measured the prevalence of grandchild care provision among older adults (38). However, despite the importance of grandchildren in the lives of many older adults (39), research on kinlessness prevalence has often overlooked the availability of grandchildren in its definitions of kinlessness.

Contributions

With this study, we contribute to the growing, albeit still limited, body of research on kinlessness by considering a broad range of kinship ties and kinlessness definitions. For individuals aged 65 and over, we consider the (un)availability of five close kinship ties – partners (regardless of the legal formalization of the union), children (biological or not), grandchildren, parents, and siblings – and estimate both the proportion of individuals lacking each type of kin separately, and the proportion of different combinations of kinlessness. The broadest definition we employ is being without both a partner and children (labeled as K1). Then, we propose additional definitions considering increasing levels of restrictiveness, cumulatively imposing the absence of grandchildren (K2), parents (K3), and siblings (K4).

We also move forward than previous literature by taking a cross-national perspective and providing estimates of the different types of kinlessness across several countries. Based on data from the last wave (wave 8; 2019-2020) of the Survey of Health, Ageing and Retirement in Europe (SHARE), we offer detailed and recent estimates for 26 European countries plus Israel. Compared to the only other study that estimated kinlessness on a cross-national scale using 2015 data (7), we offer more recent estimates while also considering a broader set of kin types and kinlessness definitions.

Finally, we investigate within-country heterogeneity by age groups (65-79; 80 and over), sex, and education (low educated; high educated). Whereas previous studies have examined within-country heterogeneity in kinship networks (40) or kinlessness for specific countries (31; 32), we provide a cross-national investigation of these factors.

Materials and Methods

We used data from the last available wave (wave 8) of the Survey of Health, Ageing and Retirement in Europe (SHARE). Data collection, based on computer-assisted personal interviewing, started in October 2019 and stopped in March 2020 due to the COVID-19 outbreak. Our analyses include all the 27 countries that participated: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Israel, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland. We select only individuals aged 65 and above in 2019/2020. Therefore, the analytical sample includes people born between 1920 and 1955.

In each wave, SHARE collects data on different types of living kin: partner, children, grandchildren, parents, and siblings. For each kin type, we build dummy variables taking value 1 for respondents who lack that specific kin. Partners include those in a legally recognized union (marriage or registered union), regardless of their cohabitation in the same household, and cohabiting partners even if not legally bonded. Widowed individuals and those who divorced or separated from their partner are considered as partnerless, unless they are in a new partnership at the time of the interview. Children include biological, adopted, and step- children alive at the time of interview. As for children, also grandchildren include both biological and non-biological offspring of respondents' children. SHARE, information on parents is restricted to biological parents, while siblings include also non-biological ones (namely, half- or step-siblings).

We consider four definitions of kinlessness where the absence of kin is defined as the lack of a progressively more extended set of kin: K1: partner and children; K2: partner, children, and grandchildren; K3: partner, children, grandchildren, and parents; K4: partner, children, grandchildren, parents, and siblings.

We estimate both the prevalence of lacking each type of kin separately and the prevalence of kinlessness according to the four above-mentioned definitions. Prevalence estimates are obtained as sample proportions by country, with observations weighted using the cross-sectional calibrated weights provided by SHARE that account for sampling design and attrition (57). Estimates are reported in the Tables as percentages. Estimates based on weighted logistic regression models where the only independent variable was the country gave virtually identical values and standard errors. For the main analyses (Table 1), we also report 83.5% confidence intervals for pair-wise comparisons so that a non-overlap of the confidence intervals indicates that the corresponding predictions are significantly different at the 5% significance level (41), while an overlap indicates the opposite. We also examine within-country heterogeneity by age, sex and education. We consider two age groups (65-79 and 80 and over) and two educational groups ("low" and "high" education). Education is measured according to the International Standard Classification of Education (http://www.uis.unesco.org/), and a high educational level is defined as having a high school degree. Sample sizes by country, and by age, sex and education are reported in Table S8 in the Supplementary Materials.

Results

Prevalence of different types of kinlessness across countries

For the 27 countries included in our data, Table 1 presents estimates of the percentages of individuals aged 65 years and over lacking a specific type of kin, and the percentages of kinlessness based on our different definitions, from the least to the most restrictive one (K1 to K4). The countries are listed in

ascending order according to K1 (i.e. those without a partner and children). Confidence intervals (in parentheses) are calculated to allow testing the difference between any pair of two percentages at an approximate 5% significance level (41). Overlap between a pair of intervals indicates that the corresponding estimated percentages are not statistically different at the 5% level, while non-overlap indicates a significant difference. Below, we only discuss differences between countries when statistically significant ($p < 0.05$).

Substantial variability emerges across countries in the prevalence of lacking kin. The prevalence of older individuals lacking a partner ranges from less than a third in countries such as Malta, Israel, Netherlands, and Greece, to more than half in Latvia, Estonia, Bulgaria, and Hungary. Considerable diversity is also evident in the proportion of childlessness, albeit with lower absolute values, ranging from around 5% in the Czech Republic, Israel, Cyprus and Romania, to over 15% in Switzerland and Malta. For the cohorts under study, births outside marriage were limited; thus, the majority of parents in our data have been married in the past. Therefore, the considerable disparities across countries in the prevalence of individuals without a partner (and children) are primarily attributed to variation in widowhood levels (which range between 19.7% in Sweden to 49.4% in Bulgaria), but also, to some extent, by differing rates of individuals who never married and those who separated/divorced (see Table S1 in the Supplementary Materials).

Our first and least restrictive definition of kinlessness combines the absence of a partner and children (K1). The lowest levels, ranging from 2% to 4%, are observed in the Czech Republic, Romania, Israel, Bulgaria, Cyprus, and Denmark. Values exceeding 8% are found in Switzerland, Spain, Belgium, and Malta. Besides substantial between-country variability in K1, we note that countries cannot be easily categorized according to geographical clusters typically employed in family studies. In fact, among Northern European countries, K1 ranges from 3.9% in Denmark to 7.3% in Finland. While some Eastern European countries display values in the lowest part of the distribution, we nonetheless find K1 values ranging from 3.3% in Romania to 7.6% in Estonia. Conversely, all big Southern European countries exhibit similar medium-to-high values, ranging from around 6% in Italy and Greece to 8.4% in Spain (differences among them are not statistically significant).

The prevalence of grand-childlessness, obviously exceeding that of childlessness, varies significantly across countries, ranging from 7.7% in the Czech Republic to 30.8% in Switzerland. The rank ordering of countries in terms of grand-childlessness closely mirrors the ranking in childlessness, although variations can be attributed to differences in the fertility rates of older generations' offspring, child mortality, and demographic dynamics related to the fertility and mortality of older age groups. The lack of grandchildren is accounted for in our second definition of kinlessness. Due to its more stringent criteria, K2 values naturally exhibit lower prevalence compared to K1 in all countries.

Table 1. *Weighted estimates and confidence intervals (CI) for approximate 5% pairwise comparisons of the proportion (in percentage) of people aged 65 and over without each type of kin separately and according to our four definitions of kinlessness, by country*

Countries	no partner	no children	K1	no grandchildren	K2	no parents	K3	no siblings	K4
Czech Rep.	35.9 (34.1, 37.7)	3.2 (2.6, 3.9)	**2.0** (1.5, 2.6)	7.7 (6.8, 8.7)	**1.8** (1.3, 2.4)	93.4 (92.1, 94.5)	**1.8** (1.3, 2.4)	29.4 (27.8, 31.2)	**0.4** (0.3, 0.7)
Romania	42.5 (39.4, 45.6)	5.1 (4.0, 6.6)	**3.3** (2.3, 4.6)	12.3 (10.5, 14.4)	**2.7** (1.8, 3.9)	97.2 (96.3, 97.9)	**2.7** (1.8, 3.9)	27.5 (24.6, 30.6)	**0.6** (0.3, 1.3)
Israel	31.7 (28.8, 34.8)	4.5 (3.4, 6.0)	**3.4** (2.4, 4.7)	11.2 (9.0, 13.9)	**2.8** (1.9, 4.0)	91.6 (89.8, 93.0)	**2.4** (1.5, 3.6)	18.4 (16.4, 20.6)	**0.7** (0.4, 1.3)
Bulgaria	54.9 (51.8, 57.9)	5.7 (4.3, 7.4)	**3.5** (2.4, 5.2)	12.5 (10.6, 14.8)	**2.6** (1.7, 4.2)	96.7 (95.3, 97.6)	**2.6** (1.7, 4.2)	42.1 (39.1, 45.2)	**1.1** (0.6, 2.1)
Cyprus	36.8 (32.9, 40.8)	5.0 (3.5, 7.2)	**3.9** (2.5, 6.0)	15.1 (12.3, 18.5)	**3.7** (2.3, 5.8)	91.5 (88.7, 93.7)	**3.7** (2.3, 5.8)	8.6 (6.8, 10.8)	**0.1** (0.0, 0.5)
Denmark	37.7 (35.8, 39.6)	6.5 (5.6, 7.5)	**3.9** (3.1, 4.8)	12.6 (11.4, 13.9)	**3.9** (3.1, 4.8)	93.6 (92.6, 94.8)	**3.7** (3.0, 4.5)	20.6 (19.1, 20.1)	**1.3** (0.9, 1.9)
Poland	45.5 (43.3, 47.7)	5.5 (4.5, 6.7)	**4.3** (3.3, 5.4)	10.9 (9.6, 12.4)	**4.2** (3.2, 5.3)	93.4 (92.3, 94.4)	**3.9** (3.0, 5.0)	22.6 (20.8, 24.6)	**0.3** (0.1, 0.6)
Slovenia	42.8 (41.0, 44.6)	5.9 (5.1, 6.9)	**4.6** (3.9, 5.5)	12.9 (11.7, 14.2)	**4.4** (3.6, 5.3)	94.0 (93.1, 94.8)	**4.1** (3.4, 5.0)	22.3 (20.9, 23.8)	**0.6** (0.4, 1.1)
Hungary	57.4 (52.3, 62.3)	10.1 (7.5, 13.4)	**5.1** (3.1, 8.2)	21.2 (16.8, 22.6)	**4.6** (2.7, 7.7)	95.9 (94.2, 97.2)	**4.4** (2.5, 7.6)	50.4 (45.1, 55.8)	**1.7** (1.0, 2.9)
Croatia	42.9 (40.1, 45.7)	9.2 (7.7, 11.0)	**5.1** (3.9, 6.7)	15.4 (13.6, 17.5)	**4.0** (2.9, 5.5)	94.6 (93.2, 95.8)	**3.6** (2.6, 5.0)	29.5 (27.0, 32.0)	**1.8** (1.1, 2.8)
Netherlands	31.7 (29.8, 33.7)	10.0 (8.8, 11.3)	**5.2** (4.3, 6.3)	20.5 (18.9, 22.1)	**5.2** (4.3, 6.3)	94.9 (94.0, 95.7)	**4.9** (4.0, 6.0)	12.0 (10.8, 13.4)	**0.7** (0.4, 1.2)
Slovakia	47.4 (43.6, 51.3)	10.0 (7.9, 12.7)	**5.5** (3.8, 7.9)	17.7 (15.1, 20.6)	**4.4** (3.0, 6.5)	97.5 (96.3, 98.3)	**4.4** (3.0, 6.5)	47.0 (43,2, 50.8)	**2.9** (1.7, 4.8)
Lithuania	49.4 (46.9, 51.9)	8.3 (7.0, 9.9)	**5.5** (4.4, 6.9)	15.5 (13.8, 17.5)	**5.2** (4.1, 6.6)	96.5 (95.4, 97.3)	**5.2** (4.1, 6.6)	26.4 (24.2, 28.7)	**1.2** (0.7, 1.9)
Germany	39.9 (38.1, 41.7)	10.3 (9.2, 11.5)	**5.9** (5.0, 7.0)	24.4 (22.9, 26.0)	**5.7** (4.8, 6.7)	93.7 (92.9, 94.4)	**5.4** (4.6, 6.5)	28.6 (27.0, 30.2)	**1.6** (1.2, 2.2)
Austria	38.8 (36.5, 41.1)	8.8 (7.7, 10.1)	**5.9** (4.9, 7.0)	19.8 (18.1, 21.6)	**5.5** (4.6, 6.6)	94.2 (93.0, 95.1)	**5.2** (4.3, 6.3)	29.3 (27.2, 31.4)	**1.6** (1.2, 2.3)
Sweden	40.3 (38.6, 42.0)	8.0 (7.1, 9.1)	**6.0** (5.1, 6.9)	16.1 (14.8, 17.4)	**5.6** (4.8, 6.6)	92.1 (91.0, 93.0)	**5.2** (4.4, 6.1)	22.8 (21.5, 24.2)	**1.3** (1.0, 1.9)
Italy	34.1 (32.0, 36.2)	11.9 (10.6, 13.4)	**6.0** (5.0, 7.2)	23.6 (21.9, 25.4)	**4.0** (3.2, 5.0)	95.6 (94.7, 96.3)	**3.8** (3.0, 4.8)	25.4 (23.6, 27.3)	**1.3** (0.9, 2.0)
Greece	32.5 (31.0, 34.1)	9.4 (8.5, 10.3)	**6.1** (5.4, 6.9)	28.7 (27.4, 30.2)	**5.8** (5.1, 6.6)	94.4 (93.7, 95.1)	**5.4** (4.7, 6.2)	26.0 (24.6, 27.3)	**2.0** (1.6, 2.0)
France	38.6 (37.0, 42.2)	9.1 (8.2, 10.1)	**6.6** (5.8, 7.5)	17.0 (15.8, 18.3)	**6.2** (5.4, 7.1)	90.7 (89.7, 91.6)	**5.7** (5.0, 6.5)	22.2 (20.8, 23.6)	**1.4** (1.0, 1.8)
Latvia	50.4 (47.1, 53.7)	9.8 (8.1, 11.8)	**7.2** (5.7, 9.0)	19.0 (16.5, 21.7)	**6.0** (4.6, 7.7)	95.8 (94.0, 97.0)	**5.8** (4.5, 7.5)	49.4 (46.0, 52.7)	**4.1** (3.0, 5.6)
Finland	41.0 (36.9, 45.2)	9.4 (7.2, 12.3)	**7.3** (5.2,10.2)	24.1 (20.9, 27.7)	**7.1** (5.0, 10.0)	91.1 (88.3, 93.3)	**6.7** (4.6, 9.6)	16.6 (13.6, 20.2)	**2.4** (1.1, 5.1)
Luxembourg	40.2 (37.0, 43.5)	12.6 (10.6, 14.9)	**7.4** (5.7, 9.5)	27.3 (24.6, 30.1)	**7.4** (5.7, 9.5)	93.3 (91.7, 94.6)	**7.1** (5.4, 9.2)	26.1 (23.4, 29.0)	**1.5** (0.8, 2.8)
Estonia	54.3 (52.7, 55.8)	9.3 (8.4, 10.3)	**7.6** (6.7, 8.5)	15.8 (14.7, 17.0)	**6.6** (5.8, 7.5)	95.4 (94.7, 96.1)	**6.3** (5.6, 7.2)	37.0 (35.5, 38.5)	**2.5** (2.0, 3.0)
Switzerland	37.7 (35.8, 39.6)	15.2 (13.9, 16.7)	**8.1** (7.0, 9.2)	30.8 (29.1, 32.)	**7.7** (6.7,8.9)	92.5 (91.4, 93.4)	**7.2** (6.2, 8.3)	19.6 (18.1, 21.1)	**1.7** (1.3, 2.4)
Spain	40.3 (37.9, 42.8)	11.5 (9.9, 13.2)	**8.4** (7.0, 10.0)	20.5 (18.6, 22.6)	**7.5** (6.2, 9.1)	95.6 (94.5, 96.5)	**7.1** (5.8, 8.7)	24.9 (22.8, 27.0)	**1.9** (1.2, 2.8)
Belgium	38.1 (36.1, 40.2)	12.0 (10.6, 13.4)	**8.5** (7.3, 9.8)	20.4 (18.8, 22.2)	**8.3** (7.2, 9.6)	94.0 (93.0, 94.9)	**8.1** (7.0, 9.4)	25.7 (23.9, 27.6)	**3.3** (2.5, 4.3)
Malta	31.4 (28.2, 34.8)	16.3 (13.9, 18.9)	**8.7** (6.8,11.0)	21.7 (18.9, 24.9)	**7.7** (6.0, 10.0)	92.8 (90.9, 94.3)	**7.4** (5.7, 9.6)	5.4 (4.1, 7.1)	**1.1** (0.5, 2.2)

Notes: Estimates are in ascending order of K1. Calibrated cross-sectional weights are used to account for survey design and attrition. Confidence intervals at the 83.5% level are calculated to allow testing the difference between any pair of two estimated percentages at an approximate 5% significance level.
Source: Authors' elaborations on Share Data, wave 8, 2019-2020.

Nevertheless, the gap between K2 and K1 varies between minimal discrepancies of almost 0 percentage points, observed in countries like Denmark, Netherlands, and Luxembourg, to more substantial differences of over 1 percentage point in countries such as Croatia, Lithuania, Latvia, and Italy. This variability is closely related to the percentage of grandparents who lack living children (a detailed breakdown of which can be found in Table S2 in the Supplementary Materials).

Although small, the percentage of older people with at least one surviving parent in some of the considered countries in 2019-2020 is not negligible, exceeding 8% in France, Finland, Cyprus, and Israel. Therefore, in these countries, our third measure of kinlessness, K3, which restricts this definition to those without a partner, children, grandchildren and any living parent, slightly decreases. In the rest of the considered countries, K3 is very similar to K2.

Finally, our most restrictive definition of kinlessness, K4, also accounts for lacking (or not) siblings. The percentage of older people who lack siblings shows considerable cross-country variability, with values ranging from less than 10% in Malta and Cyprus, to approximately 50% in Slovakia, Latvia, and Hungary. Due to the generally substantial proportions of older people who do have siblings, K4 values are lower than K3, and substantially lower than K1. The prevalence of older individuals who lack all five types of kin considered is generally low but, again, highly heterogeneous across countries. On the one end, there are countries with K4 values lower than 1% (Cyprus, Poland, the Czech Republic, Romania, Slovenia, Israel, and Netherlands); on the opposite end, there are countries where the percentage of K4 is as high as 2.5% and more (Estonia, Slovakia, Belgium, and Latvia).

In summary, the prevalence of kinlessness varies significantly across countries for all the definitions adopted. In addition, the relative positions of countries in terms of kinlessness levels vary according to the specific kin type. For instance, some countries with high prevalence of individuals who are partnerless exhibit low proportions of childlessness (e.g., Bulgaria), or vice versa (e.g., Italy and Malta). A few countries with the highest values of K1 (lack of both partner and children) report relatively low levels of the most restrictive K4 measure (lack of all considered kin). This is the case of Malta and Switzerland (8.7% and 8.1% for K1, and 1.7% and 1.1% for K4, respectively) and is a result of high values of childlessness compensated by relatively low levels of lacking parents and siblings. Consequently, the overall agreement of the country rankings based on K1 and K4 is far from perfect (Kendall's tau correlation among the ranks is 0.63). Note that, with the exception of Slovakia, differences between K1 and K4 are statistically significant for all countries.

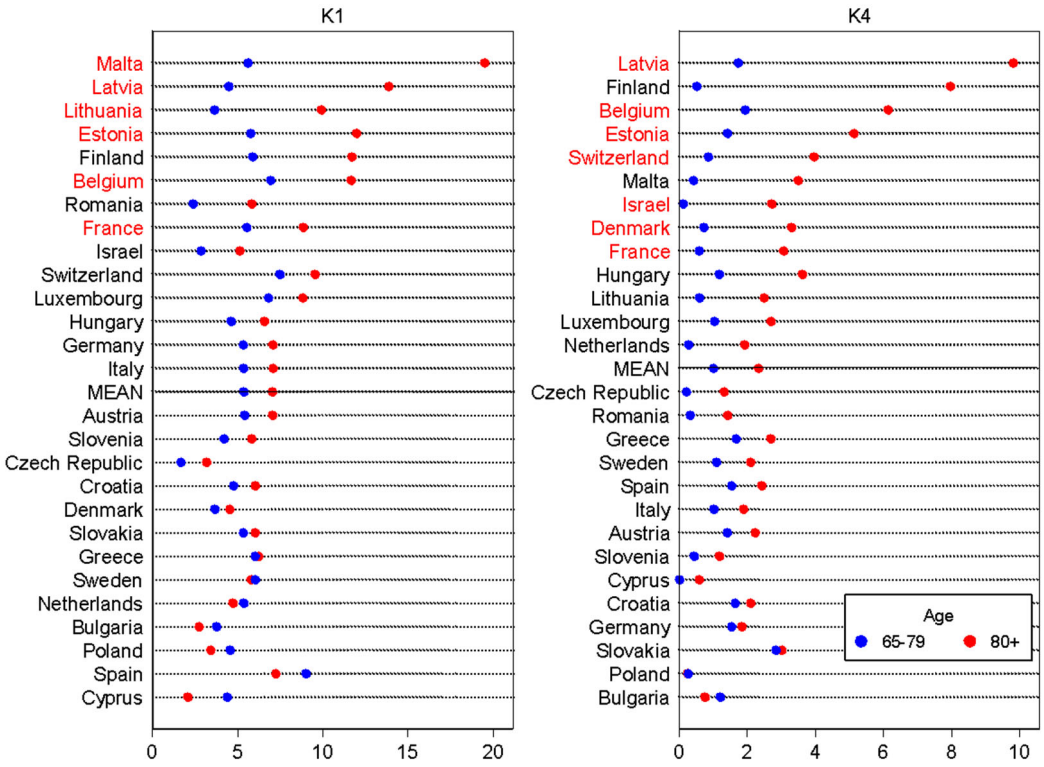
Heterogeneities in kinlessness prevalence across population sub-groups

We now turn to the examination of potential heterogeneity in kinlessness within country, focusing on the least and the most restrictive kinlessness measures, namely K1 and K4. Figures 1-3 illustrate the prevalence of kinlessness for two groups defined by age, sex or education; in each Figure, countries are

in descending order of the difference between the two considered groups. In case of statistically significant differences between the two groups ($p < 0.05$), country labels on the y-axes are colored with the same color as the group displaying the highest prevalence of kinless. Numerical values of K1 and K4, together with their difference (and p-values of tests of equivalence between the groups) are reported in the Supplementary Materials (Tables S3-S5).

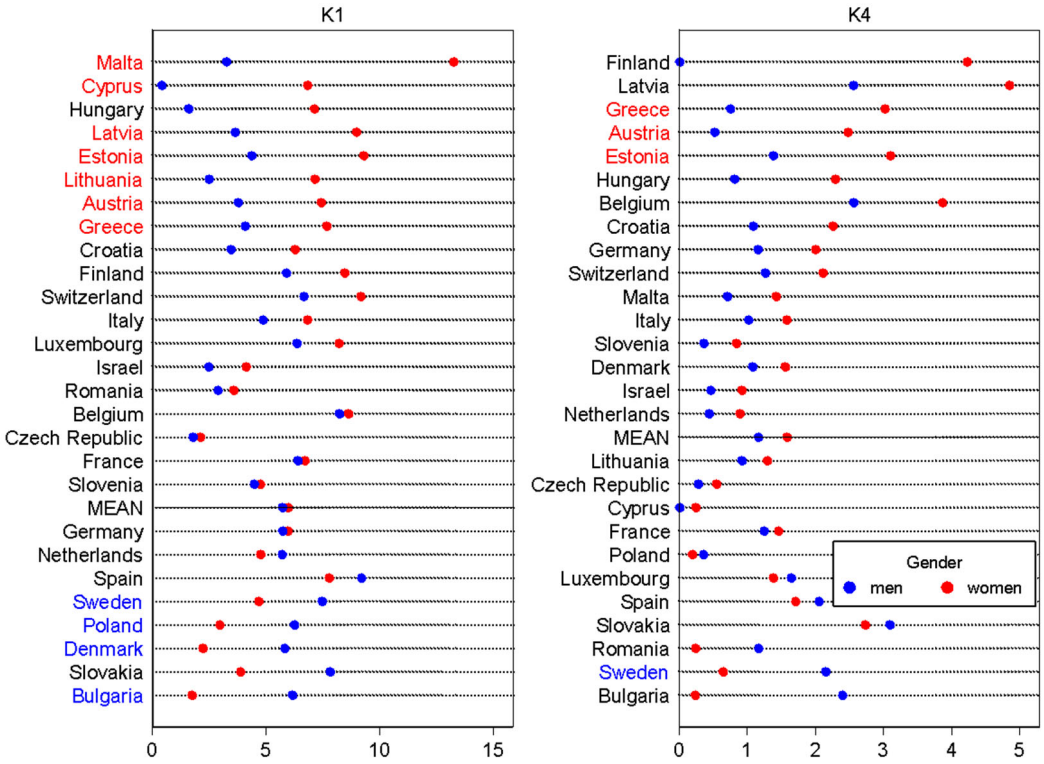
Figure 1 shows that the prevalence of both K1 and K4 tend to be higher among the older age group considered, or 80 and over (statistically significant differences are found in 6 countries for K1 and 7 for K4). However, age patterns in the prevalence of kinlessness are extremely diversified across countries. While in several countries age gaps are very small, in others they are remarkable with the prevalence of kinlessness among the oldest individuals being more than double that among the youngest ones (e.g., Estonia, Latvia and Lithuania for K1).

Figure 1. *Weighted estimates of the proportion (in percentage) of people without partner and children (K1) and without all close kin (K4), by age groups and their difference, by country*



Note: Countries are in descending order of the difference in kinlessness between the oldest and youngest age groups. Calibrated cross-sectional weights are used to account for survey design and attrition. In case of statistically significant differences between the two groups ($p < 0.05$), country labels on the y-axes are colored with the same color as the group with the highest prevalence of kinless.
Source: Authors' elaborations on Share data, wave 8, 2019-2020.

Figure 2. *Weighted estimates of the proportion (in percentage) of people without partner and children (K1) and without all close kin (K4), by sex and their difference, by country*

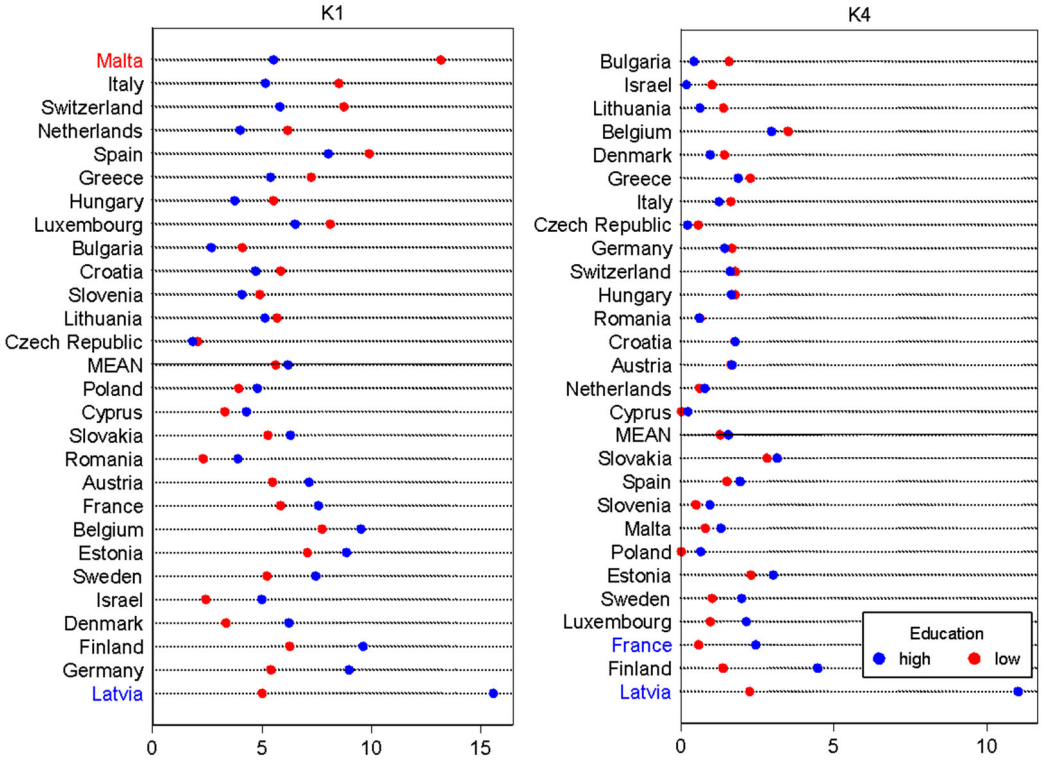


Note: Countries are in descending order of the difference in kinlessness between women and men. Calibrated cross-sectional weights are used to account for survey design and attrition. In case of statistically significant differences between the two groups ($p < 0.05$), country labels on the y-axes are colored with the same color as the group with the highest prevalence of kinless.
Source: Authors' elaborations on Share data, wave 8, 2019-2020.

Kinlessness patterns are even more diversified across countries when considering sex differences (Fig. 2). In fact, while in the majority of countries differences by sex are small and statistically insignificant, in some countries kinlessness is significantly higher among women (7 countries for K1 and 3 for K4). We also identify a few countries where men show significantly higher levels of K1 (4 countries) or K4 (1 country).

Finally, with the exception of few cases, we do not find significant differences in kinlessness levels by education (Fig. 3). K1 is significantly higher for lower educated individuals only in Malta and for higher educated individuals in Latvia. K4 is significantly higher among higher educated older adults only in France and Latvia.

Figure 3. *Weighted estimates of the proportion (in percentage) of people without partner and children (K1) and without all close kin (K4), by education groups and their difference, by country*



Note: Countries are in descending order of the difference in kinlessness between low- and high-educated individuals. Calibrated cross-sectional weights are used to account for survey design and attrition. In case of statistically significant differences between the two groups ($p < 0.05$), country labels on the y-axes are colored with the same color of the group with the highest prevalence of kinless.
Source: Authors' elaborations on Share data, wave 8, 2019-2020.

Discussion

Social support for older individuals in many countries traditionally relies heavily on kin, who play a pivotal role in providing care, assistance, and emotional support (3; 13). However, contemporary shifts in demographics and societal structures may challenge the sustainability of this system.

In this study, using data from wave 8 (2019-2020) of the Survey of Health, Ageing, and Retirement in Europe (SHARE), we examine the prevalence of kinlessness among individuals aged 65 and over across 26 European countries plus Israel. Our comprehensive analysis of kinlessness prevalence, using multiple measures, reveals a complex mosaic of differences. While a previous cross-national study (7) also included some of the SHARE countries we consider, it focused on a larger group of people aged 50 and above in 2015. Therefore, our findings are not directly comparable to those of this previous study; still, consistently with previous evidence we show a pattern of strong variability across countries in kinlessness. We provide updated estimates for individuals aged 65 and over, who are at a higher risk of social isolation and of needing care than younger individuals. Additionally, we extend the definitions of kinlessness by expanding the types of kin considered and provide estimates for the prevalence of

individuals lacking each type of kin separately. This allows us to highlight the intricate variability across countries, which varies depending on the type of kin and definition of kinlessness considered. We propose four distinct definitions of kinlessness, each being progressively more restrictive: from K1, which defines kinlessness as the absence of a partner and children, to K4, equating kinlessness with the absence of a partner, children, grandchildren, parents, and siblings.

The prevalence of older individuals without a partner ranges from approximately 30% to over 50%. These disparities primarily result from factors such as widowhood, but also reflect variations in partnership formation rates and divorce patterns. Childlessness also exhibits significant cross-national diversity, with percentages fluctuating from under 5% to over 15%. This variation is closely linked to past fertility trends and, to a lesser extent, experiences of child mortality.

Partner and children serve as the main sources of support for older people (13). However, in line with the perspective advocated by several scholars (4), it is essential to consider extended kinship ties. Adhering to this call, we also account for other types of kin, such as grandchildren, parents and siblings, which have been often overlooked in previous studies on kinlessness, despite grandparenthood representing a significant life transition for many older individuals (42; 43). Variations in the prevalence of grand-childlessness, ranging from about 8% to 30%, can be attributed to factors such as fertility rates among the examined individuals and their offspring, as well as mortality dynamics, including child mortality. In the age group we focus on, the availability of parents is limited. Still, the percentage of individuals aged 65 and above without both living parents varies from about 91% to 98%. Finally, our findings underscore a significant variability in the prevalence of lacking siblings, ranging from less than 10% to almost 50%.

As the result of cross-national differences in the availability of each type of kin, our kinlessness measures also display considerable variability. The prevalence of K1 (absence of a partner and children) ranges between 2% and 8% across countries. The ranking of countries based on our second kinlessness definition, K2, which accounts for grandchildren, also differs from that based on K1. In fact, due to varying degrees of child mortality across countries, the percentage of grandparents with no living children differs considerably. The most restrictive measure, K4 (absence of a partner, children, grandchildren, parents, and siblings), naturally yields lower values but still exhibits significant cross-national heterogeneity. In some countries, only one out of 1,000 individuals aged 65 and over lacks all five types of kin considered, while in others the proportion raises to 41 per 1,000 individuals. Due to complex socio-demographic dynamics, the relative positions of countries in terms of the absence of specific kin vary, and this variation is reflected in changing rankings of countries depending on the definition of kinlessness. For instance, Malta and Switzerland are among the top-ranked countries in terms of K1, despite reporting relatively low levels of K4.

The variability in lacking specific kin and kinlessness is a reflection of the intricate interplay of multifaceted cultural, historical, and demographic factors that influence kinship structures in diverse societal settings. Family and demographic studies often cluster countries geographically or according to welfare regimes to capture contextual similarities and differences (44; 45). Although these country clusters capture important similarities in family support and demographic trends due to shared policies, norms, and socio-economic conditions, our findings highlight that they cannot neatly categorize countries in terms of kinlessness prevalence. With the exception of the largest Southern European countries which consistently display relatively high values of kinlessness (from K1 to K4), considerable heterogeneity exists within all other geographically-based clusters.

The description of the pattern of kinlessness becomes even more complex when considering within-country differences across socio-demographic groups defined by age, sex, and education. These dimensions are among the most relevant in influencing demographic trends which, in turn, affect kinlessness (46). When comparing kinlessness prevalence across age groups, two forces are at play: age (as individuals grow older, the likelihood of losing kin through death increases) and cohort effects (older individuals belong to cohorts characterized by different demographic dynamics, e.g. higher fertility). The combined effect of these two forces has challenging-to-predict and non-universal consequences on kinlessness. In most countries, we find small or otherwise non-significant differences between the two age groups considered, which may be the resultant of a compensation between age and cohort effects. In some countries, instead, both kinlessness K1 and K4 are significantly higher, and in some cases substantially so, among individuals aged 80 and over compared to the younger group we considered (those aged 65-79). The only two existing studies that examined age differences in kinlessness, also found higher kinlessness prevalence among older individuals in the US (47) and China (32).

As for sex differences, the prevalence of K1 was significantly higher among females in 7 countries, similar to what Margolis & Verdery (31) observed for the US. This result can be related to the fact that females tend to survive longer than their male counterparts, so they have a higher likelihood of losing their partners (who are also typically older) due to death (48). In fact, in the countries where K1 is higher among females, we also observe higher shares of partnerless because of widowhood for them (Table S6 in the Supplementary Materials). Nevertheless, the sex-based effect of widowhood on K1 can be counteracted by other forces, mainly related to partnership formation and childlessness, giving rise to insignificant sex gaps, as we found in the majority of the countries, or even turn in higher K1 levels among men, as we found in 4 cases. For these latter countries, the higher share of individuals who never married among males than among females (see again Table S6), which may also guide their higher likelihood to be childlessness (Table S7), can help explaining the result. Higher K1 prevalence among

men was also found in China by Zhou et al. (32). Significant sex differences in K4 prevalence were detected only in 4 countries, and in 3 cases women showed the highest levels.

We also investigated kinlessness prevalence separately for older individuals with different levels of educations (i.e. those with or without at least a high school degree) and we found significant differences (in both directions) only in a handful of countries. Only in the case of Malta, and limited to the broadest definition of kinlessness (K1), we did find a higher prevalence of kinlessness among people with lower education. In Latvia and France, instead, K4 (and also K1 in Latvia) was higher among higher educated individuals. Previous studies also found different educational gradients in kinlessness in different contexts. In China, kinlessness was found to be more prevalent among lower educated individuals (32), while in the US, the opposite was found, but only among women (31). The educational gap in kinlessness is influenced by educational gradients in the demographic forces affecting kinlessness and how these gradients have changed across cohorts. Non-standard demographic behaviors that influence the likelihood of experiencing kinlessness at older ages, such as singlehood, divorce/separation, and childlessness, may be positively or negatively associated with education depending on the period, country, and the specific behaviors considered (49; 50). The Second Demographic Transition (SDT) framework explains the adoption of non-standard demographic and family behaviors as the resultant of a cultural shift and thus predict higher educated individuals to be at higher risk of experiencing these behaviors (45). Instead, the pattern-of-disadvantage hypothesis (51) argues that individuals may experience non-standard behaviors due to lower resources; accordingly, lower educated individuals would be more likely to "deviate" from traditional fertility and partnership patterns. In addition, the educational gap in mortality also changes cross-nationally and over time (52). Future research can be specifically dedicated to addressing the factors that, likely differing across countries, contribute explaining the absence of educational gaps we found in most countries and the varying education gradients in kinlessness we found in others.

The variations we document in kinlessness across countries are not merely a numerical curiosity; rather, they suggest that across Europe, we observe the emergence of substantial subgroups lacking the customary close family ties responsible for providing support to older people. This shift has significant ramifications, impacting the demand for institutionalized care, pension systems, and the overall welfare of older individuals. Although non-kin can have an important role in influencing the well-being of older kinless individuals (53; 54), kin play a pivotal role in the overall well-being of older individuals, serving as the primary providers of emotional and instrumental support, companionship, and social control over health behaviors. Recognizing the importance of kin in the lives of older people, our study highlights the significance of developing support systems and policies that cater to the specific needs of those who lack close kin.

With the world's population aging at an unprecedented rate, understanding and addressing kinlessness is of paramount importance. Policymakers must proactively plan for the growing number of older individuals without close kin. This planning involves the development of alternative support networks and services that ensure the well-being of these individuals. Adequate provisions of social and healthcare services, designed to mitigate social isolation and health-related risks, are vital to address the unique challenges faced by this vulnerable demographic group. Policy interventions to address rising kinlessness also need to account for the fact that experiencing a lack of kin is not homogeneous. The challenges implied by substantial and increasing kinlessness are exacerbated by the fact that not all individuals who do have kin can count on them for several reasons, including loss of contact, geographical distance, unwillingness, or inability of kin to provide support (55; 56).

Our study emphasizes that kinlessness is a multifaceted and multifactorial phenomenon. Variability in kinlessness prevalence cannot be attributed to a single factor but, rather, results from an intricate interplay of cultural, historical, demographic, and policy-related factors. Policymakers and researchers need to acknowledge that a one-size-fits-all approach to understanding kinlessness is inadequate, as demonstrated by the cross-national differences in the level of kinlessness (even within clusters of countries routinely considered as similar), the existence of within-country heterogeneity and the specific sub-groups that are at highest risk of lacking kin.

While our research contributes to the understanding of kinlessness variation, several avenues for future research remain. These include a deeper exploration of the impact of kinlessness on the mental and physical health of older individuals and the extent to which this can be mitigated by non-kin networks (29). Investigating the underlying mechanisms behind disparities in kinlessness between and within different countries is another area that warrants further examination. Additionally, the dynamics of kinship in non-European (and non-Western) contexts have not been studied, except for Zhou et al.'s (32) research on China.

In conclusion, our research demonstrates the intricate and varied nature of kinlessness across countries and population sub-groups. It underscores the importance of recognizing the diverse conditions of older individuals, particularly those without close kin, and calls for tailored policies and support systems to ensure their well-being. As the global demographic landscape continues to evolve, understanding and addressing kinlessness will remain a vital area of study, with implications for the well-being and quality of life of older individuals.

Data acknowledgment

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Supplementary Materials

Table S1. *Weighted estimates of the proportion (in percentage) of people with and without a partner, with the distinction between reasons for not having a partner (i.e. never married, separated/divorced, widow).*

Countries	With partner	Without partner			Total
		Never married	Divorced	Widow	
Austria	58.6	5.7	11.4	24.3	100.0
Belgium	59.5	5.9	10.7	23.9	100.0
Bulgaria	44.8	2.6	3.3	49.4	100.0
Croatia	56.6	3.0	5.7	34.8	100.0
Cyprus	63.2	2.2	4.3	30.4	100.0
Czech Republic	60.1	1.9	11.2	26.8	100.0
Denmark	58.5	5.7	12.8	23.0	100.0
Estonia	42.1	7.4	14.2	36.3	100.0
Finland	55.8	8.1	14.0	22.1	100.0
France	58.4	6.1	9.7	25.8	100.0
Germany	57.4	5.0	9.7	27.9	100.0
Greece	67.1	3.7	3.7	25.5	100.0
Hungary	37.4	6.4	10.4	45.8	100.0
Israel	65.5	1.1	9.3	24.1	100.0
Italy	64.2	4.8	3.2	27.8	100.0
Latvia	47.6	3.4	9.9	39.1	100.0
Lithuania	48.2	3.3	10.5	38.0	100.0
Luxembourg	58.7	4.8	10.4	26.1	100.0
Malta	67.5	7.6	1.9	23.1	100.0
Netherlands	66.3	4.2	8.8	20.8	100.0
Poland	53.6	2.9	4.2	39.2	100.0
Romania	57.0	1.7	3.1	38.2	100.0
Slovakia	51.8	3.6	4.6	40.0	100.0
Slovenia	56.7	4.5	5.7	33.0	100.0
Spain	58.4	8.6	3.1	29.8	100.0
Sweden	56.8	8.9	14.7	19.7	100.0
Switzerland	58.0	6.5	13.4	22.1	100.0
Total	58.2	5.1	7.4	29.2	100.0

Notes: Calibrated cross-sectional weights are used to account for survey design and attrition.
Source: Authors' elaborations on Share data, wave 8, 2019-2020.

***Table S2**. Weighted estimates of the proportion (in percentage) of people with and without grandchildren, within those with and without children.*

Countries	With children		Total	No child		Total
	No grandchild	With grandchildren		No grandchild	With grandchildren	
Austria	12.8	87.2	100.0	92.3	7.7	100.0
Belgium	10.4	89.6	100.0	94.2	5.8	100.0
Bulgaria	10.5	89.5	100.0	46.5	53.5	100.0
Croatia	8.5	91.5	100.0	84.1	15.9	100.0
Cyprus	11.4	88.6	100.0	84.8	15.2	100.0
Czech Rep.	5.1	94.9	100.0	87.5	12.5	100.0
Denmark	6.8	93.2	100.0	97.2	2.8	100.0
Estonia	8.5	91.5	100.0	87.5	12.5	100.0
Finland	16.7	83.3	100.0	95.7	4.3	100.0
France	9.5	90.2	100.0	91.9	8.1	100.0
Germany	16.3	83.1	100.0	95.0	5.0	100.0
Greece	21.8	78.2	100.0	95.2	4.8	100.0
Hungary	14.3	85.7	100.0	82.2	17.8	100.0
Israel	8.5	91.5	100.0	68.5	31.5	100.0
Italy	16.8	82.8	100.0	73.2	26.8	100.0
Latvia	13.3	86.7	100.0	72.5	27.5	100.0
Lithuania	9.4	90.6	100.0	82.8	17.2	100.0
Luxembourg	17.2	82.8	100.0	97.1	2.9	100.0
Malta	12.1	87.9	100.0	71.2	28.8	100.0
Netherlands	12.1	87.9	100.0	96.1	3.9	100.0
Poland	6.2	93.8	100.0	90.9	9.1	100.0
Romania	8.7	91.3	100.0	79.5	20.5	100.0
Slovakia	10.6	89.4	100.0	81.4	18.6	100.0
Slovenia	8.2	91.8	100.0	88.2	11.8	100.0
Spain	11.6	88.4	100.0	89.4	10.6	100.0
Sweden	9.3	90.7	100.0	93.9	6.1	100.0
Switzerland	19.8	80.2	100.0	91.6	8.4	100.0
Total	12.5	87.4	100.0	87.8	12.2	100.0

Notes: Calibrated cross-sectional weights are used to account for survey design and attrition.
Source: Authors' elaborations on Share Data, wave 8, 2019-2020.

***Table S3**. Weighted estimates of the proportion (in percentage) of people without partner and children (K1) and without all close kin (K4), by age groups and their difference, by country.*

Countries	K1				K4			
	65-79	80+	diff.	p-val.	65-79	80+	diff.	p-val.
Austria	5.4	7.1	1.7	0.369	1.4	2.2	0.8	0.388
Belgium	6.9	11.7	4.8	0.029	1.9	6.1	4.2	0.013
Bulgaria	3.8	2.7	-1.1	0.569	1.2	0.8	-0.4	0.646
Croatia	4.8	6.0	1.2	0.590	1.6	2.1	0.5	0.742
Cyprus	4.4	2.1	-2.3	0.242	0.0	0.6	0.6	n.a.
Czech Rep.	1.7	3.2	1.5	0.155	0.2	1.3	1.1	0.073
Denmark	3.7	4.5	0.8	0.522	0.7	3.3	2.6	0.016
Estonia	5.8	12.0	6.2	0.000	1.4	5.1	3.7	0.000
Finland	5.9	11.7	5.8	0.271	0.5	8.0	7.5	0.129
France	5.5	8.8	3.3	0.015	0.6	3.1	2.5	0.001
Germany	5.3	7.1	1.8	0.292	1.5	1.8	0.3	0.731
Greece	6.0	6.2	0.2	0.859	1.7	2.7	1.0	0.182
Hungary	4.6	6.6	2.0	0.571	1.2	3.6	2.4	0.228
Israel	2.8	5.1	2.3	0.260	0.1	2.7	2.6	0.046
Italy	5.3	7.1	1.8	0.332	1.0	1.9	0.9	0.381
Latvia	4.5	13.9	9.4	0.003	1.7	9.8	8.1	0.003
Lithuania	3.6	9.9	6.3	0.008	0.6	2.5	1.9	0.091
Luxembourg	6.8	8.8	2.0	0.564	1.0	2.7	1.7	0.398
Malta	5.6	19.5	13.9	0.003	0.4	3.5	3.1	0.131
Netherlands	5.4	4.7	-0.7	0.700	0.3	1.9	1.6	0.072
Poland	4.6	3.4	-1.2	0.454	0.3	0.2	-0.1	0.962
Romania	2.4	5.8	3.4	0.118	0.3	1.4	1.1	0.213
Slovakia	5.3	6.0	0.7	0.873	2.8	3.0	0.2	0.957
Slovenia	4.2	5.8	1.6	0.234	0.4	1.2	0.8	0.211
Spain	9.0	7.2	-1.8	0.404	1.5	2.4	0.9	0.425
Sweden	6.0	5.8	-0.2	0.864	1.1	2.1	1.0	0.220
Switzerland	7.5	9.5	2.0	0.258	0.9	4.0	3.1	0.004
Total	5.4	7.0	1.7	0.004	1.0	2.3	1.3	0.000

Notes: Calibrated cross-sectional weights are used to account for survey design and attrition. Estimates are obtained separately for the two age groups. The difference is the kinlessness value of the oldest group minus that of the youngest one. n.a. = not available, i.e. it cannot be estimated because of absence of kinless individuals in one group.
Source: Authors' elaborations on Share Data, wave 8, 2019-2020.

***Table S4**. Weighted estimates of the proportion (in percentage) of people without partner and children (K1) and without all close kin (K4), by sex and their difference, by country.*

Countries	K1				K4			
	male	female	diff.	p-val.	male	female	diff.	p-val.
Austria	3.8	7.4	3.6	0.012	0.5	2.5	2.0	0.004
Belgium	8.2	8.6	0.4	0.821	2.6	3.9	1.3	0.294
Bulgaria	6.2	1.7	-4.5	0.048	2.4	0.2	-2.2	0.085
Croatia	3.5	6.3	2.8	0.154	1.1	2.3	1.2	0.315
Cyprus	0.4	6.8	6.4	0.005	0.0	0.2	0.2	n.a.
Czech Rep.	1.8	2.1	0.3	0.672	0.3	0.6	0.3	0.323
Denmark	5.8	2.2	-3.6	0.003	1.1	1.6	0.5	0.467
Estonia	4.4	9.3	4.9	0.000	1.4	3.1	1.7	0.015
Finland	5.9	8.5	2.6	0.459	0.0	4.2	4.2	n.a.
France	6.4	6.7	0.3	0.805	1.2	1.5	0.3	0.697
Germany	5.7	6.0	0.3	0.868	1.2	2.0	0.8	0.248
Greece	4.1	7.7	3.6	0.001	0.8	3.0	2.2	0.000
Hungary	1.6	7.1	5.5	0.055	0.8	2.3	1.5	0.194
Israel	2.5	4.1	1.6	0.329	0.5	0.9	0.4	0.465
Italy	4.9	6.8	1.9	0.219	1.0	1.6	0.6	0.473
Latvia	3.6	9.0	5.4	0.014	2.6	4.8	2.2	0.200
Lithuania	2.5	7.2	4.7	0.003	0.9	1.3	0.4	0.667
Luxembourg	6.4	8.2	1.8	0.498	1.6	1.4	-0.2	0.846
Malta	3.3	13.3	10.0	0.000	0.7	1.4	0.7	0.510
Netherlands	5.7	4.8	-0.9	0.522	0.4	0.9	0.5	0.387
Poland	6.3	3.0	-3.3	0.049	0.4	0.2	-0.2	0.614
Romania	2.9	3.6	0.7	0.669	1.2	0.2	-1.0	0.231
Slovakia	7.8	3.9	-3.9	0.185	3.1	2.7	-0.4	0.863
Slovenia	4.5	4.7	0.2	0.825	0.4	0.8	0.4	0.286
Spain	9.2	7.8	-1.4	0.533	2.1	1.7	-0.4	0.760
Sweden	7.5	4.7	-2.8	0.036	2.2	0.6	-1.6	0.024
Switzerland	6.7	9.2	2.5	0.109	1.3	2.1	0.8	0.252
Total	6.0	5.7	0.25	0.618	1.6	1.2	0.4	0.082

Notes: Calibrated cross-sectional weights are used to account for survey design and attrition. Estimates are obtained separately for the two sexes. The difference is the kinlessness value of females minus that of males. n.a. = not available, i.e. it cannot be estimated because of lack of kinless individuals in one group.
Source: Authors' elaborations on Share Data, wave 8, 2019-2020.

***Table S5**. Weighted estimates of the proportion (in percentage) of people without a partner and children (K1) and without all close kin (K4), by education groups and their difference, by country.*

Countries	K1				K4			
	low educ.	high educ.	diff.	p-val.	low educ.	high educ.	diff.	p-val.
Austria	7.1	5.5	-1.7	0.397	1.7	1.6	0.0	0.970
Belgium	9.5	7.7	-1.8	0.333	3.0	3.5	0.5	0.674
Bulgaria	2.7	4.1	1.4	0.465	0.4	1.6	1.1	0.211
Croatia	4.7	5.9	1.1	0.597	1.8	1.8	0.0	0.996
Cyprus	4.3	3.3	-1.0	0.689	0.2	0.0	-0.2	n.a.
Czech Rep.	1.8	2.1	0.2	0.789	0.2	0.6	0.3	0.179
Denmark	6.2	3.4	-2.9	0.117	1.0	1.4	0.5	0.547
Estonia	8.9	7.1	-1.8	0.236	3.0	2.3	-0.7	0.419
Finland	9.6	6.3	-3.4	0.438	4.5	1.4	-3.1	0.401
France	7.6	5.8	-1.7	0.164	2.4	0.6	-1.9	0.002
Germany	9.0	5.4	-3.6	0.173	1.4	1.7	0.2	0.830
Greece	5.4	7.2	1.9	0.107	1.9	2.3	0.4	0.564
Hungary	3.8	5.5	1.8	0.518	1.7	1.8	0.1	0.923
Israel	5.0	2.4	-2.6	0.199	0.2	1.0	0.8	0.102
Italy	5.1	8.5	3.4	0.102	1.2	1.6	0.4	0.659
Latvia	15.6	5.0	-10.6	0.008	11.0	2.2	-8.8	0.012
Lithuania	5.1	5.7	0.5	0.775	0.6	1.4	0.8	0.276
Luxembourg	6.5	8.1	1.6	0.564	2.1	1.0	-1.2	0.405
Malta	5.5	13.2	7.6	0.017	1.3	0.8	-0.5	0.641
Netherlands	4.0	6.2	2.2	0.130	0.8	0.6	-0.2	0.748
Poland	4.8	3.9	-0.9	0.571	0.6	0.0	-0.6	n.a.
Romania	3.9	2.3	-1.6	0.307	0.6	0.6	0.0	0.979
Slovakia	6.3	5.3	-1.0	0.818	3.1	2.8	-0.3	0.917
Slovenia	4.1	4.9	0.8	0.511	0.9	0.5	-0.5	0.462
Spain	8.0	9.9	1.9	0.523	1.9	1.5	-0.4	0.683
Sweden	7.5	5.2	-2.2	0.119	2.0	1.0	-1.0	0.199
Switzerland	5.8	8.7	2.9	0.087	1.6	1.8	0.2	0.849
Total	6.2	5.6	-0.6	0.261	1.6	1.3	-0.3	0.296

Notes: Calibrated cross-sectional weights are used to account for survey design and attrition. Estimates are obtained separately for the two educational groups. The difference is the kinlessness value of the highest education group minus that of the lowest education one. n.a. = not available, i.e. it cannot be estimated because of the absence of kinless individuals in one group.
Source: Authors' elaborations on Share Data, wave 8, 2019-2020.

***Table S6**. Weighted estimates of the proportion (row percentages) of females and males with and without partner, distinguishing for the reason of not having a partner (i.e. never married, separated/divorced, widow).*

Countries	Female				Male			
	With partner	Without partner			With partner	No partner		
		Never married	Divorced	Widow		Never married	Divorced	Widow
Austria	44.5	6.1	13.8	35.6	77.7	5.1	8.1	9.1
Belgium	49.0	3.7	10.3	37.0	68.1	6.7	8.9	16.4
Bulgaria	48.3	8.5	17.2	26.0	66.7	9.2	11.7	12.4
Croatia	57.0	3.3	11.2	28.5	76.8	5.2	6.0	11.9
Cyprus	47.5	8.4	3.9	40.3	73.4	8.9	2.1	15.6
Czech Rep.	52.7	5.4	2.3	39.6	79.4	4.1	4.4	12.2
Denmark	47.2	5.7	11.1	36.0	73.2	6.7	7.8	12.3
Estonia	51.5	4.2	13.5	30.7	66.7	7.4	12.0	13.9
Finland	52.5	4.2	4.2	39.1	85.6	3.1	3.1	8.2
France	47.6	7.4	15.2	29.8	71.3	5.3	11.2	12.2
Germany	50.7	5.0	12.1	32.3	70.6	7.0	9.0	13.4
Greece	53.1	1.3	8.9	36.7	79.8	0.9	9.9	9.4
Hungary	46.4	1.5	14.0	38.2	77.5	2.5	7.8	12.3
Israel	42.9	1.5	3.5	52.1	69.7	5.1	5.3	19.9
Italy	45.6	5.4	13.1	35.9	74.6	4.1	7.0	14.2
Latvia	21.1	3.8	12.3	62.8	65.0	10.9	7.1	17.0
Lithuania	42.0	4.9	6.5	46.6	76.7	3.9	4.7	14.6
Luxembourg	29.4	7.5	16.5	46.5	65.2	7.3	9.9	17.6
Malta	40.7	2.6	4.8	51.9	78.7	3.5	7.0	10.9
Netherlands	34.7	3.6	10.5	51.3	73.3	2.8	10.6	13.3
Poland	29.9	1.1	3.1	66.0	66.6	4.8	3.5	25.1
Romania	45.2	4.0	6.1	44.7	84.3	0.0	2.2	13.5
Slovakia	45.7	7.9	17.1	29.3	68.8	8.4	10.0	12.8
Slovenia	33.4	3.2	10.8	52.6	76.7	3.9	7.9	11.6
Spain	52.9	11.6	2.2	33.3	84.6	2.8	1.5	11.1
Sweden	41.1	2.0	3.6	53.3	80.7	1.2	2.4	15.8
Switzerland	37.1	1.8	5.0	56.0	73.1	6.2	4.1	16.7
Total	47.0	4.6	8.1	40.4	73.3	5.9	6.6	14.3

Notes: Calibrated cross-sectional weights are used to account for survey design and attrition.
Source: Authors' elaborations on Share Data, wave 8, 2019-2020.

Table S7*. Weighted estimates of the proportion (in percentage) of females and males with and without children.*

Countries	Female		Male	
	With child(ren)	No child	With child(ren)	No child
Austria	89.9	10.1	92.9	7.1
Belgium	90.7	9.3	88.0	12.0
Bulgaria	93.3	6.7	90.4	9.6
Croatia	91.0	9.0	88.5	11.5
Cyprus	89.4	10.6	87.2	12.8
Czech Republic	88.2	11.8	87.9	12.1
Denmark	91.1	8.9	90.7	9.3
Estonia	95.3	4.7	91.3	8.7
Finland	89.9	10.1	91.5	8.5
France	84.2	15.8	85.4	14.6
Germany	88.5	11.5	87.4	12.6
Greece	94.8	5.2	96.3	3.7
Hungary	96.9	3.1	96.6	3.4
Israel	96.1	3.9	92.1	7.9
Italy	87.5	12.5	87.3	12.7
Latvia	90.5	9.5	89.0	11.0
Lithuania	94.2	5.8	93.9	6.1
Luxembourg	89.4	10.6	92.9	7.1
Malta	91.1	8.9	90.4	9.7
Netherlands	91.1	8.9	92.8	7.2
Poland	97.2	2.8	90.2	9.9
Romania	91.7	8.4	98.9	1.2
Slovakia	89.6	10.4	91.8	8.2
Slovenia	87.9	12.1	93.2	6.8
Spain	81.2	18.8	86.7	13.3
Sweden	95.3	4.7	94.2	5.8
Switzerland	93.1	6.9	85.4	14.6
Total	91.2	8.8	89.7	10.4

Notes: Calibrated cross-sectional weights are used to account for survey design and attrition.
Source: Authors' elaborations on Share Data, wave 8, 2019-2020.

***Table S8**. Sample sizes by country, age, education and sex, from the SHARE study 2019-2020, wave 8.*

Countries	All	Age		Education		Sex	
		65-79	80+	Female	Male	Low Ed.	High Ed.
Austria	1259	902	357	763	496	282	977
Belgium	1395	996	399	753	642	568	827
Bulgaria	601	465	136	361	240	226	375
Croatia	776	609	167	418	358	469	307
Cyprus	431	270	161	259	172	265	166
Czech Republic	2217	1754	463	1324	893	813	1404
Denmark	1484	1123	361	787	697	260	1224
Estonia	2291	1523	768	1473	818	627	1664
Finland	744	586	158	394	350	270	474
France	1819	1266	553	1060	759	764	1055
Germany	1994	1483	511	1015	979	214	1780
Greece	2086	1480	606	1116	970	1240	846
Hungary	614	490	124	374	240	168	446
Israel	809	557	252	465	344	303	506
Italy	1554	1082	472	842	712	1153	401
Latvia	482	339	143	325	157	104	378
Lithuania	842	581	261	541	301	247	595
Luxembourg	592	478	114	305	287	258	334
Malta	528	425	103	283	245	309	219
Netherlands	1518	1188	330	786	732	658	860
Poland	1330	1036	294	726	604	498	832
Romania	758	598	160	427	331	434	324
Slovakia	433	382	51	234	199	68	365
Slovenia	1869	1343	526	1074	795	605	1264
Spain	1717	1079	638	963	754	1415	302
Sweden	2034	1460	574	1081	953	687	1347
Switzerland	1454	1054	400	783	671	315	1139
Total	33631	24549	9082	18932	14699	13220	20411

Note: Unweighted sample sizes.
Source: Authors' elaborations on Share Data, wave 8, 2019-2020.