Research Square

Preprints are preliminary reports that have not undergone peer review.
They should not be considered conclusive, used to inform clinical practice,
or referenced by the media as validated information.

Social reconnecting after isolation: A Longitudinal analysis on Italian older adults facing adversity

Elvira PELLE

elvirapelle@unimore.it

University of Modena and Reggio Emilia

Giulia Rivellini

Catholic University of the Sacred Heart

Susanna Zaccarin

University of Trieste

Francesco Santelli

University of Trieste

Research Article

Keywords: ego-networks, social reconnection, older adults, SHARE

Posted Date: May 4th, 2026

DOI: https://doi.org/10.21203/rs.3.rs-9309725/v1

License: This work is licensed under a Creative Commons Attribution 4.0 International License.
Read Full License

Additional Declarations: No competing interests reported.

Abstract

Social networks play a critical role in supporting older adults' well-being, particularly during periods of external adversity. Leveraging longitudinal data from the first and second waves of the SHARE Corona Survey (SCS), the study offers a detailed ego-network perspective on older adults' relationships during this unprecedented crisis. By focusing on individuals aged 65 ys. and over living alone or with a partner, without cohabiting children, the study examined how in particular older adults in Italy moved from a condition of social isolation—defined as the absence of any face-to-face contacts—to more connected ego-network configurations, after the most restrictive phases of the COVID-19 pandemic.

Findings indicate that kin relationships remained the most stable, while ties with friends and neighbours contracted sharply. Logistic and multinomial regression models reveal that demographic, psychological, and contextual characteristics—including age, depressive symptoms, kin availability, education, and community environment—significantly shaped the chance of restoring in-person contacts. Moderate loneliness emerged as a motivator for reconnection, whereas persistent loneliness may hinder social reconnection. Overall, this study offers a useful framework for understanding how older adults rebuild social ties in the aftermath of major external shocks.

1. Introduction

A substantial body of research demonstrates the positive impact of social networks on health, well-being, and overall quality of life (Berkman et al. 2000; Taylor 2007; Smith and Christakis 2008; Ganster and Victor 2011; Diener and Oishi 2005; Gallagher and Vella-Brodrick 2008). Since the 1970s and 1980s, extensive research—supported increasingly by longitudinal data—has examined the role of social relationships in cognitive health, well-being, loneliness, and mortality among older adults, alongside lifestyle factors and age-related cardiovascular and metabolic conditions (Berkman and Syme 1979; Kelly et al. 2017; Piolatto 2022; Röhr et al. 2020; Saito et al. 2021; Micheli and Rivellini 2002). Within this literature, personal and egocentric networks, hereafter ego-networks (McCarty et al. 2019; Perry et al. 2018; Vacca and Bianchi 2024) represent a key analytical framework for examining how social relationships are structured and how they evolve over time. Ego-networks—defined as the set of alters with whom the individual (ego) maintains ties such as contact, friendship, or support exchange—typically include partners, children, siblings, friends, neighbors, and other acquaintances. As resources tend to diminish with age, social relationships become increasingly important by providing information, emotional and instrumental support, opportunities for coping, and enhanced self-esteem. Their protective role becomes particularly evident when older adults face adversities that can be mitigated by larger networks or strong intimate ties such as spousal relationships (Fuller-Iglesias et al. 2008).

Beyond this protective role, an additional issue concerns how to observe resilient behaviours at the individual level, particularly during crises, through the lens of ego-networks. Although resilience has been defined and measured in multiple ways (Lazega et al., 2024, p. xi), it can be understood more pragmatically as the capacity to cope with adversity—namely, the ability to adapt behaviours and choices

to environmental or biological challenges and to restore equilibrium when difficulties arise (Chen, 2020). Adversities may arise not only from personal circumstances such as illness, financial strain, or loss, but also from external shocks—including extreme weather events, natural disasters, conflicts, and pandemics. The recent COVID-19 pandemic offered an unprecedented context to observe how such external adversity disrupts social relationships. Measures restricting physical contact—central to preventing SARS-CoV-2 transmission—dramatically reduced face-to-face interactions and curtailed social gatherings for extended periods, while self-protective behaviors further altered social habits, especially among older individuals (Litwin and Levinsky 2021). In Italy, stringent nationwide restrictions beginning on 9 March 2020 limited movement outside the home and restricted visits to family and friends, profoundly reshaping daily routines and access to support systems until mid-2021. A substantial body of research has documented how these containment measures affected social relations, constrained the exchange of tangible and intangible resources, and contributed to social isolation among older adults, with significant consequences for mental and overall health (Arpino et al. 2020; Dowd et al. 2020; Berg-Weger and Morley 2020; Arpino et al. 2022; Furfaro et al. 2021; Goethals et al. 2020; Mair et al. 2025; Arpino et al. 2023).

Against this background, the study exploits longitudinal data from the first and second waves of the SHARE Corona Survey (SCS), which provides a valuable opportunity to observe older Europeans' living conditions during the pandemic. We adopt a dynamic perspective, focusing on transitions between ego-network types over time. In particular, by examining individuals aged 65ys. and over living alone or with a partner, without cohabiting children or other household members, the analysis isolates extra-household ties and provides a clearer assessment of the social resources available under conditions of restricted mobility, enabling the identification of factors associated with social relations following the easing of restrictions. By explicitly examining transitions from ego-networks without face-to-face contacts to those including at least one in-person tie, the study provides an empirical analysis of social reconnection, seen as a sign of older adults' capacity to rebuild in-person relationships following a major external shock.

2. Motivation and research questions

Two key considerations motivate this study. First, sources of adversity often derive from external and unpredictable events rather than individual circumstances alone, making it essential to understand how older adults respond to such shocks. Second, population ageing is reshaping the demographic structure worldwide (UN-DESA 2024), with older adults representing a growing group for whom social relations constitute crucial emotional, informational, and instrumental resources. However, older adults are not a homogeneous group: vulnerability varies depending on health status, living arrangements, and the characteristics of ego-networks (Cugmas et al. 2021; Furfaro et al. 2021; Torres et al. 2024), with those living alone facing heightened risks that may worsen in emergency conditions (Hwang et al. 2020; MacLeod et al. 2021). Despite a substantial literature on the consequences of the COVID-19 pandemic, comparatively few studies have specifically investigated the factors that facilitate movement from social isolation—defined as the absence of face-to-face contact—to social reconnection.

The Italian context represents a particularly relevant case due to both the severe impact of the pandemic and its advanced stage of population ageing (Istat 2025), where familism is interpreted as a deeply rooted institutional and cultural framework in which strong intergenerational ties and family-based support systems play a central role (Dalla Zuanna and Micheli 2006). Within this framework, ego-networks characterized by very limited or absent face-to-face contacts represent a condition of relational vulnerability (Furfaro et al. 2021).

This study contributes to the existing literature by investigating older adults' coping experiences through the change of their social networks and addresses the following research questions:

RQ1

How did an external adversity such as the COVID-19 pandemic modify the ego-network types of Italian older adults?

RQ2

Given the ego-network types observed during the pandemic, how did older adults' sociodemographic characteristics and individual adversity-related aspects correlate with the likelihood of the changing of the network types, once the adversity has been overcome?

RQ3

Among older adults who experienced the pandemic with no face-to-face contacts (No Alter ego-network), which factors explain the persistence of isolation or, alternatively, the transition toward ego-network configurations that indicate face-to-face social reconnection, once the adversity has been overcome?

To answer these questions, we use Italian data from the first and second waves of the SHARE Corona Survey (SCS), which captured face-to-face and digital ego-network types in June 2020 and August 2021. Leveraging the longitudinal structure of SCS (Quaglieri et al. 2021), we examine changes in ego-networks across the two waves to identify factors associated with network transitions. It is worth underlining that this study does not rely on pre-COVID-19 information to establish network changes, as its primary aim is to assess how the adversity of the pandemic shaped older adults' relationships and the role of various factors in their dynamics as observed in SCS data.

3. Data and analytical approach

3.1. Data

SHARE—the Survey of Health, Ageing and Retirement in Europe—is a consolidated research infrastructure designed to investigate the effects of health, social, and environmental policies across the life course of Europeans aged 50 ys. and over (https://share-eric.eu/).

Because the COVID-19 outbreak, the COVID-19 research project (SHARE-COVID19) was launched with the aim to assess the pandemic's "non-intended consequences and to devise improved health, economic, and social policies".

Between June and August 2020, the first SHARE Corona Survey (Corona 1) was administered to a subsample of panel respondents in 27 European countries and Israel. One year later, between June and August 2021, all 28 SHARE countries completed the second SHARE Corona Survey (Corona 2), which reinterviewed the Corona 1 respondents, enabling cross-country and longitudinal analyses (SHARE-ERIC 2024).

The SCS questionnaires covered key life domains relevant to the target population, including infections, living conditions before and during lockdown, general social contacts and other support activities.

The lack of large-scale surveys capable of capturing detailed information on personal relationships in Italy during the initial and peak phases of the COVID-19 pandemic (Furfaro et al. 2021) made the Italian SCS waves a valuable data source for studying ego-network types during this period. The Italian samples included approximately 4,000 respondents in Corona 1 and 3,400 in Corona 2 (see Börsch-Supan 2022 for additional methodological details). As in the broader SHARE design, individuals living in institutions were not included in the target population.

3.2 Corona surveys' items to build ego-network types

In Corona 1, Item CAS003 (CAS103 in Corona 2) measured the frequency of face-to-face contact with family, friends, and neighbours—the alters in respondents' ego-networks—by asking: "*Since the outbreak of Corona, how often did you have personal contact, that is, face-to-face, with the following people [children; parents; other relatives; non-relatives such as neighbours, friends, or colleagues] from outside your home? (Was it daily, several times a week, about once a week, less often, or never?)".* Item CAS004 (CAS104 in Corona 2) collected analogous information on virtual contact via phone, email, or other electronic means.

The ego-network of face-to-face interactions for each older respondent comprised up to three alter categories: children, other relatives, and non-relatives (neighbours, friends, or colleagues), as illustrated in Fig. 1 (given the age of the respondents, contacts with parents were excluded from analysis).

Consistent with approaches used in other Italian surveys not fully designed for network analysis (Amati et al. 2015), the frequency of face-to-face contact serves as a core criterion for including an alter in the ego-network. While Amati et al. (2015) emphasise the additional role of residential proximity in shaping relational resources during crises, such information is not available in the SCS. Therefore, adapting their operational strategy, we consider as alters only those individuals with whom respondents reported frequent face-to-face contact—defined here as at least once per week.

Because SCS questions provide only coarse information about alters and do not capture the number of people within each category, ego-network types were constructed by combining alter roles. Four types

were identified for both face-to-face and virtual contacts: *Kin* composed only of alters belonging to ego's kinship (children and other relatives); *Non–kin* composed only of neighbors and/or friends, as well as colleagues; *Extensive* composed of at least one alter in each group (Kin and Non–kin). Finally, the *No Alters* type was observed if no alters eligible persons were mentioned. These categories closely mirror widely used typologies in the literature on older adults' social networks (Amati et al. 2017; Cohn-Schwartz et al. 2021; Harasemiw et al. 2019; Lestari et al. 2022), and correspond to the well-established patterns of family, friends, diverse (which include family together with neighbors and friends) and restricted or no network (characterized for having minimal or no ties) observed across international studies (Cheng et al. 2009; Choi et al. 2022; Fiori et al. 2006; Litwin 2001; Litwin and Stoeckel 2014; Ye and Zhang 2019).

3.3 Socio-demographic variables, pandemic-related behaviour and health status variables

To provide a synthetic description of the group of older adults we focus on (egos) – individuals aged 65 + living alone or with a partner without cohabiting children - we consider several socio-demographic characteristics (living arrangement, gender, health status, children, education, type of residence).

Given that most respondents are retired, particular attention was paid to their economic conditions, which are especially salient in times of crisis, as financial security can play a critical role in individuals' capacity to cope with adverse circumstances. To capture this aspect, we derived an indicator from responses to the item on "*Household ability to make ends meet*" (item CACO107 in Corona 2 covering the period between the two waves). Family respondents provided these answers on behalf of the couple (or the entire household), and we applied the responses to the other partner, where applicable. The original response categories were dichotomized into "Difficulties ("with great difficulty" or "with some difficulty") versus "No Difficulties" ("fairly easily" or "easily").

As is well known, the containment policies of the SARS-CoV-2 virus included measures aimed at reducing physical contact and limiting, especially, activities not strictly necessary for people's survival. Thus, the older adults' daily habits during the pandemic, particularly in Corona 2, could be interpreted as signalling caution or fear about engaging in face-to-face contact after the most complex pandemic period. Above all, "leaving home" appears as a behavior more strictly related to activities that involve meeting other people, such as shopping, walking, or visiting other relatives. In addition, we consider the attention given to preventive measures—such as covering the mouth when coughing or sneezing.

To deeper account for health conditions, we derived information on health and depression status by integrating data from one or both waves. A health indicator was built by combining two items in the Corona 2 questionnaire: "*Would you say your health is excellent, very good, good, fair, or poor?*" (CAPH003) and "*Compare your health now to three months ago*" (CAH102), obtaining the categories: "Poor health or worsened", "Fair health and not worsened" "Excellent/very good/good/ health and not worsened". For simplicity, from now on, we shall call these categories "Poor", "Fair", and "Good". In both waves, several items were devoted to the feelings of sadness or depression to assess previous depression status, as

well as eventual recovery or worsening during the pandemic period (item CAMH002_ and CAMH802_ in Corona 1 and item CAMH002 and CAMH113_1 in Corona 2). Therefore, by crossing the answers in both waves, as highlighted in the diagram in Fig. 2, it was possible to depict the self-reported perceptions of depression in four distinct moments (before the outbreak of SARS-CoV-2, the last month in Corona 1, during the first wave, and the last month in Corona 2). Moreover, we consider the answers on feeling lonely since the outbreak of Corona (item CAMH037 and CAMH837).

3.4 Regression analysis

The longitudinal nature of the SHARE COVID-19 project allows for a deeper analysis of ego-network types between Corona 1 and Corona 2 by comparing participants' responses in both survey waves. The changes observed in the ego-network provide insight into the trajectories of Italian older adults between the two waves, enabling the identification of factors that led older individuals either to cope with to or be adversely affected by the challenges encountered during this exceptional period of crisis.

Specifically, we employ a statistical modelling strategy to analyse the probability of face–to-face ego-network transitions. Two models are estimated, with the outcome variable representing the ego-network transitions observed for each individual, addressing research questions RQ2 and RQ3.

The first model examines whether an individual changed ego-network type between the two survey waves, regardless of the initial configuration. Thus, we consider the full sample of individuals interviewed in both SCS waves. The response variable Y is binary, as it indicates whether a change in the ego-network type was observed between Corona 1 and Corona 2:

$$Y = \begin{cases} 1, \ if \ ego \ network \ type \ in \ Corona \ 1 \ \neq \ ego \ network \ type \ in \ Corona \ 2 \\ 0, \ otherwise \end{cases}$$

This specification motivates the use of a logistic regression model, which estimates the probability of experiencing any change in ego-network type as a function of sociodemographic characteristics and pandemic-related factors.

The second model focuses on respondents in a state of social isolation, that is classified as No-Alters in Corona 1. This group is characterised by a high level of relational vulnerability, particularly among those living alone (Furfaro et al. 2021). For this reason, examining this subgroup is crucial for identifying the factors that supported the transition from isolation to social reconnection.

The response variable Y captures the ego-network type reached in Corona 2, conditional on starting from a No-Alter network in Corona 1, and includes four mutually exclusive categories:

$$\mathrm{Y} = \begin{cases} 1, \ if \ ego \ network \ type \ in \ Corona \ 2 = Extensive \\ 2, \ if \ ego \ network \ type \ in \ Corona \ 2 = Kin \\ 3, \ if \ ego \ network \ type \ in \ Corona \ 2 = Non - kin \\ 0 \ (ref. \ category) \ , \ if \ ego \ network \ type \ in \ Corona \ 2 = \ No \ Alters \end{cases}$$

Given the multinomial nature of the outcome, a multinomial logistic regression model (Hosmer et al. 2013) is used to estimate the probability of each possible transition.

4. Results

4.1 Descriptive findings on network types

Figure 3 shows the ego-network (face-to-face contact) type distributions separately for singles and partners in a couple, observed in the two different periods, 2020 (Corona 1) and 2021 (Corona 2).

These distributions provide an initial answer to RQ1. The *No Alters* type was widespread during the strictest phase of the pandemic (34.9% among singles and 44.6% among those living with a partner), but it declined sharply in 2021, reaching approximately 10%, a level comparable to pre-pandemic estimates reported in similar data sources (Furfaro et al. 2021). The opposite trend was observed for the *Extensive* type, which increased in 2021, although its prevalence remained lower among partnered older adults than among singles (28.1% versus 34.5%). The *Kin* type resulted as the most widespread for single and older adults in couples, with a slight increase between 2020 and 2021 for individuals in couples (from 40% to more than 50%). The *Non-kin* type remained the less common type, and no changes were observed between the two periods.

These findings resulted from two different behaviors related to the lockdown restrictions. First, frequent face-to-face contact (at least about once a week for 50% of singles and 47.4% of partners in a couple) was maintained, especially with children who, under specific conditions, were allowed to visit their parents in case of need. Second, ties with *non-kin* alters and other relatives (around 80% of contacts with these categories occurred less frequently than a week or never) were likely forcefully reduced.

However, a different and interesting pattern emerged considering virtual contacts (Figure 4): the *No Alter* ego-network type showed significantly lower values (under 10%) than the corresponding face-to-face type, both for single older adults and those in a couple, without any evident change between Corona 1 and Corona 2. During the pandemic period, digital forms of contact (or non-physical) proved to protect against social isolation and depression of older adults (Arpino et al., 2021a).

Ties entirely with kin were frequent also virtually and slightly increased through the pandemic time, but the digital form of contact did not appear as an additional alternative to interact with the kin: the *Kin* virtual type did not show percentage values much higher than 40% both for singles and partners in couples (Figure 4), as observed in the case of face-to-face contact (Figure 3).

The *Non-kin* virtual ego-network was steadily very rare as the correspondent face-to-face type. Nevertheless, virtual relationships with other non-relatives re-emerged for older people who showed an *Extensive* ego-network. For around 50% of older adults, the digital forms of contact were, in this case, reinforcing the opportunity to keep in contact with kin and non-kin. This percentage is higher than the corresponding face-to-face network. In other words, during the two waves of the SCS, the digital means

allowed older adults to have contact with others, reducing the percentage of individuals with *no alters* in their network. Focusing on intergenerational non-physical contacts, a similar result was observed in some European countries (France, Italy, and Spain) for respondents aged 50 (see Arpino et al., 2021b).

At the same time, virtual contact did not appear to replace physical forms of interaction when the ego-network is made only by kin. Digital means appeared to favor relationships with non-kin alters but only if these interactions were also entertained with kin, as in the case of the *Extensive* network type.

Focusing on daily habit, the answers to the question "*Since the outbreak of Corona, have you ever left your home*? asked in both Corona 1 and Corona 2, show clearly that during the pandemic outbreak (Corona 1), regardless of network type, older adults in couples left home more often than singles. In contrast, the change in this habit was stronger for singles, especially for older adults with an *Extensive* or a *Non-Kin* ego-network type (Figure 5).

In the three months preceding the Corona 2 interviews, older adults living alone reported greater attention to preventive measures—such as covering the mouth when coughing or sneezing—compared to those in couples. Nonetheless, a high level of vigilance was observed across all groups (Figure 6).

4.2 Ego-Networks type transitions: model results

Focusing on participants in both survey waves (n=876), overall 55.1% of respondents (56% for older people in couples and 51% for singles, respectively) switched to a different network type from Corona 1 to Corona 2.

Looking at face-to-face contact, two distinct patterns emerge, both for singles and partners in a couple. Most older adults in a *Kin* or *Extensive* ego-network type in Corona 1 maintained the same type in Corona 2 or, if changed, they simply switch from one to the other. Looking at the *No Alters* and *Non-kin* types, only around one quarter (25%) did not move, especially among singles. From these types, the changes were mainly towards *Extensive* and *Kin*, even if around 17% of singles moved from *Non-kin* to *No Alters*.

Regarding virtual contact, more than 40% of the respondents changed their network type (44.4% in couples and 42.8% in singles, respectively), with *Kin* and *Extensive* types more involved in such transitions. Kin were added to the virtual exchanges due to new digital skills or habits acquired during the pandemic, while a relative high quota of individuals having no virtual contact with anyone during and after the pandemic persisted (33.3% for singles and 25.8% for partners in a couple, respectively).

To understand how the changing of the network types is associated to older adults' sociodemographic characteristics and individual adversity-related aspects, we carried out logistic and multinomial regression analyses by considering the blocks of covariates illustrated above, with their respective categories, as reported in Table 1.

The first block of covariates pertains to the sociodemographic and economic characteristics with the addition of the indicator on the economic conditions.

The second block of covariates includes health, depression and lonely status described in Sect. 3.3. Although the detailed profiles that can be derived from Figure 2 on depression status, a notable result highlights that most older adults (59%) were not

Table 1: *Covariates by blocks*

Block	Variable – ref. category	Range- Categories	% - Mean (SD)
Block 1	Gender Female	Male	43.9%
	Age	65 - 97	75.8 (6.1)
	Children	0 - 6	1.3 (1.3)
	Single-No	Yes	23.2%
	Education-Low Level/None	Medium-High	28.0%
	Residence Type - Non-Rural	Rural	33.0%
	Able to make Ends Meet Corona 2- Difficulties	No Difficulties	53.7%
Block 2	Depression Status-Yes	No	58.7%
	Health-Poor	Fair	24.8%
		Good	53.7%
	Lonely Status Corona 1-Often	Some of the time	25.8%
		Hardly-Never	52.1%
Block 3	Leaving home Corona 1-No	Yes	21.0%
	Postponed Medical Treat. Corona 2-Yes	No	92.1%

depressed or had recovered by the second wave, while 41% were and remained depressed. Therefore, we used this dichotomization in the model. In addition to depression, loneliness “in the last month” was measured in both waves. In the first wave, 14.9% of respondents reported feeling lonely often, 33.1% sometimes, and 51.9% rarely or never; similar shares were observed in the second wave (16.3%, 36.9%, and 46.8%). To account for loneliness, since questions related to this aspect refer to the month preceding the interviews—particularly after the ego-network assessment in Corona 2—we include it in the models only as measured in Corona 1, ensuring temporal consistency with the covariates relative to ego-network changes.

The third block reported on the older adults’ daily habits during the pandemic. In both models we considered only the information on leaving home or not in Corona since, as previously mentioned, it is the precondition driving other outside activities involving meeting other people.

Furthermore, as a proxy of caution or apprehensive feelings about meeting other people, we also considered the forgiveness of medical treatments since July 2020, as requested in Corona 2.

Lastly, the information related to the ego-network type in Corona 1 was included as a control variable in the logistic model.

4.2.1 Logistic regression model for the probability of an ego-type transition

To model the probability of changing ego-network types between the two waves, we performed a STEP-AIC procedure to select the relevant variables from the list in Table 1. Odds Ratios (O.R.) for the resulting model are shown in Table 2, while the corresponding marginal predicted probabilities, as estimated by the model, are shown in Figure A1 in the Appendix. As expected, the highest probability of changing the ego-network was linked to the older adults belonging to the *No Alters* ego-network type (higher than 80%), followed by the *Non-Kin* type. In contrast, individuals in *Kin* and *Extensive* ego-network types showed a lower probability of changing, as familiar bonds appeared as the most stable kind of relationship. Age appeared to be related to a lower probability of changing ego-network type: as expected, the oldest individuals are more stable in their network configuration than younger older adults. All considered, the probability of observing a network transition decreased from around 65% for the youngest older adults to less than 50% for the oldest. The chances of a network transition increased by around 7% for older adults living in rural areas compared to those in non-rural areas. A similar phenomenon was evident among the older adults who claimed to be able “to make ends meet without difficulty” (they were around 5% more likely to change the type of network compared to those who “had some difficulties”). Not being in a strong depression status was associated with higher mobility in ties (60% chance of changing ego-network type vs. 53% chance in the case of depressed older adults). The same is observed among people who went out more frequently. In general, the conditions related to sociodemographic and economic vulnerability (depression, old age, economic difficulties) were clearly recognized to be significant in keeping people in the network type observed in Corona 1. A willingness to change, likely with the aim of returning to previous pandemic lifestyle, was more related to generally better conditions. In the same direction, living in rural areas, where the sense of belonging to a community can be stronger, emerged as a place of residence where it is easier to resume contacts in comparison with living in non-rural areas (especially in cities). Other sociodemographic characteristics (see covariates in block 1) and other health-related conditions (see block 2) or specific behavior (block 3) did not show a notable association with network type transition. Similarly, no interaction terms were shown to be significant in the model.

Table 2: *Model 1: logistic regression for the probability of an ego-network type transition after STEP-AIC covariates selection; coefficients as odds ratio (O.R.), standard error (S.E.) in brackets.*

	Dependent variable:
	Outcome - network change
	O.R. (S.E.)
Network-Corona 1 *Ref. Category: No Alters*	
Network-Corona 1 - Extensive	0.156*** (0.039)
Network-Corona 1 - Kin	0.113*** (0.020)
Network-Corona 1 - NonKin	0.211*** (0.070)
Age	0.963*** (0.013)
Residence Type *Ref. Category: Non-Rural*	
Rural	1.340* (0.227)
Able to make ends meet *Ref. Category: Difficulties*	
No Difficulties	1.256 (0.202)
Depression Status *Ref. Category: Yes*	
No	1.344* (0.220)
Leaving home Behaviour *Ref. Category: No*	
Yes	1.752*** (0.357)
Constant	65.201*** (67.045)
n	876
Log Likelihood	−483.021
Akaike Inf. Crit.	986.041
Note:	*p<0.1; **p<0.05; ***p<0.01

4.2.2 Multinomial logistic regression model for the probability of transitions from the No Alters ego-network type

Older adults who were, in the first wave, in the *No Alters* ego-network type comprised around 43% of the total, representing a very large group during 2020 due to pandemic restrictions and, likely, also due to fear of infection.

The results of multinomial logistic regression model – after the STEP-AIC variables selection procedure – are listed in Table 3.

In this case, the reference category refers to the *No Alters* ego-network type, i.e., the older adults who maintained the same isolation level as in Corona 1. The predicted probabilities are depicted in Figure A2 in the Appendix. As in Model 1, older individuals persisted in remaining in the *No Alters* type, an isolation status that, whatever entered, at oldest age can reduce opportunities to form social ties. A transition to an *Extensive* ego-network type ranged from around a 30% chance at age 65 to around 15% at age 95. An

increasing number of children was negatively related to the probability of changing into a *Non-Kin* ego-network type, and the opposite, although less remarkable, happened towards the *Kin* type. As expected, when the number of children increased, it was less likely for the older parent to create non-familiar ties (Pelle et al. 2022) since children usually could be an important source of face-to-face contact, especially when the pandemic restrictions were reduced. On the contrary, living as a single, having a medium-high education level or being in a low or not depressed status were characteristics that more likely fostered a *Non-Kin* ego-network type in the second wave. Although these results have to be taken with caution due to the small sample size of respondents in a *Non-Kin* ego-network type, also in Corona 2, older adults with these characteristics were generally less involved in family activities, benefited from better psychological conditions and a higher cultural environment, and tended to create ties with people outside the kin circle, as shown in Pelle et al. (2022). Older adults living in rural areas were less likely to remain isolated, confirming the results obtained in Model 1. Despite providing more opportunities to rebuild a social space, non-rural environments still incited fear and discomfort in many older adults, while small communities encouraged the rebirth of ties with others. Leaving home showed a clear relation with the chance of moving towards an *Extensive* ego-network type. Interestingly, feeling lonely, particularly “some of the time”, was positively related to the transition to the *Extensive* type. In this case, the probability of being involved in this type of network ranged from around 15%

Table 3: *Model 2: multinomial logistic regression model for the probability of transitions from a No Alter ego-network type after STEP-AIC covariates selection. No Alters ego-network type in Corona 1; coefficient estimates, standard error (S.E.) in brackets*

	Extensive	*Kin*	*Non-kin*
	(1)	(2)	(3)
Age	−0.070**	−0.052*	−0.091*
	(0.032)	(0.026)	(0.049)
Children	−0.101	0.032	−0.607**
	(0.142)	(0.121)	(0.253)
Single – Yes	0.404	−0.339	1.199* (0.614)
	(0.448)	(0.395)	
Education Medium-High	−0.172	0.211	1.636*** (0.533)
	(0.386)	(0.324)	
Residence – Rural	1.055** (0.446)	1.094*** (0.396)	2.029*** (0.577)
Depression Status - No/Low	0.616	0.175	1.018* (0.583)
	(0.386)	(0.324)	
Leaving home – Yes	2.016*** (0.471)	0.576	1.133* (0.614)
		(0.458)	
Lonely Corona 1 - Some of the time	1.331** (0.546)	0.639	0.254
		(0.436)	(0.786)
Lonely Corona 1 - Hardly ever or never	0.642	0.323	−0.277
	(0.551)	(0.430)	(0.810)
Constant	3.750	4.065** (2.062)	3.977
	(2.463)		(3.811)

n	376
Akaike Inf. Crit.	857.061

Note: *p<0.1; **p<0.05; ***p<0.01

to 30%. Although several studies found that older age was a protective factor against loneliness (perhaps due to older people having lower expectations for social interaction than younger people, Arpino et al., 2022; Dahlberg, 2021), older people with moderate loneliness showed a willingness to rekindle their relationships. On the contrary, they were likely to stay in a *No Alters* ego-network type if they claimed to be frequently lonely.

5. Conclusion and discussion

By analysing transitions between ego-network types using longitudinal data from the SHARE Corona Surveys (SCS), the study identifies the individual and contextual factors that shaped older adults' opportunities to resume in-person social relations following an externally imposed disruption. The study examined how in particular older adults in Italy moved from a condition of social isolation—defined as the absence of any face-to-face contacts—to more connected ego-network configurations after the most restrictive phases of the COVID-19 pandemic.

The descriptive findings illustrate how the initial lockdown substantially altered older adults' social environments. The No Alters network type, indicating the complete absence of face-to-face contacts outside the household, was widespread, particularly among those living with a partner, who continued to interact exclusively with their cohabiting spouse. Kin relationships—especially those with children allowed to visit under necessity exemptions—proved far more stable than ties with friends and neighbours, which experienced the steepest contraction. Virtual communication followed the same pattern: digital contact reinforced kin relations but rarely compensated for the erosion of non-kin interactions, consistent with long-standing evidence on the strength of familial ties within the Italian "familistic model" (Danielsbacka et al. 2022; Dalla Zuanna 2001; Micheli 2021b).

These patterns highlight a significant source of inequality: older adults with geographically close or easily reachable relatives were able to maintain essential support, whereas those without kin nearby faced prolonged isolation. This imbalance is especially relevant in a demographic context such as Italy's, characterised by rising numbers of single-person households and declining numbers of couples with children (Istat 2024), conditions that may exacerbate vulnerability in future crises or in any context where mobility or physical proximity is restricted.

The modelling results deepen this interpretation. Logistic regression estimates (RQ2) show that older adults experiencing demographic, economic, or psychological disadvantages—advanced age, depressive symptoms, or financial difficulties—were less likely to modify their relational configuration. Living in rural

areas increased the probability of reconnecting socially, suggesting that small-community environments may facilitate renewed interaction when restrictions ease.

The multinomial model (RQ3), which focused on older adults starting from a condition of complete social isolation, provides further insight into the specific determinants of social reconnection. While age and kin availability continued to shape the likelihood of moving out of isolation, certain characteristics—living alone, higher educational attainment, and the absence of depressive symptoms—were associated with transitions toward Non-Kin networks. These findings are consistent with existing research showing that individuals with broader psychological, cultural, or personal resources may be more inclined or better equipped to rebuild ties beyond the family circle (Pelle et al. 2022; Arpino et al. 2022).

The role of subjective well-being also emerges as particularly relevant. Older adults reporting loneliness “some of the time” during the first wave were among the most likely to expand their ego-networs in the subsequent period, suggesting that moderate loneliness may function as a motivator for reconnecting. By contrast, persistent loneliness may hinder the ability—or motivation—to rebuild social contacts, reinforcing the need to monitor prolonged isolation, as it can negatively affect individual well-being and broader “public moods” (Burlina and Rodríguez-Pose 2023; Micheli 2021a; Bhutani and Greenwald 2021).

A key strength of this study lies in the availability of longitudinal data collected at two critical moments of the pandemic, which allows the observation of actual transitions in network types rather than static snapshots, providing a novel insight into the mechanisms of social reconnection. The analytical focus on the shift from isolation to reconnection provides a clear and measurable indicator of social contact recovery. Moreover, the combined use of a general transition model (RQ2) and a model specifically targeting individuals in complete isolation (RQ3) offers a nuanced understanding of different trajectories and determinants of social reconnection.

Several limitations must also be acknowledged. The relational information in SCS is coarse and lacks details on the number of alters, relationship quality, and geographical proximity—elements that would further refine the analysis of social contact recovery. In addition, behavioural responses observed during the pandemic may reflect context-specific mechanisms—such as fear of infection or differing levels of compliance with public health measures—that may play a different role in other contexts.

Despite these limitations, the findings have broader relevance. Although the COVID-19 pandemic represents an extreme and unprecedented disruption, the mechanisms documented here—the movement from an ego-network with no face-to-face contacts to one including at least a single in-person tie—can be informative for understanding how social contacts recover after other forms of external constraints. Situations such as heatwaves, natural disasters, severe weather events, public health restrictions, and infrastructural failures may produce temporary interruptions in face-to-face interaction, and the same factors identified in this study—kin availability, psychological and economic conditions, educational levels, and local social cohesion—may play a role in determining how and when older adults resume in-person ties.

In conclusion, this study demonstrates that transitions from social isolation to social reconnection among older adults are influenced by a complex interplay of personal resources, family structures, psychological well-being, and contextual environments. Although the COVID-19 pandemic presented an extreme test case, the analytical framework developed here provides a useful foundation for investigating social reconnection processes in a variety of situations where in-person interactions are temporarily limited or suspended. Furthermore, a deeper understanding of the individual and contextual factors that facilitate the restoration of in-person ties can inform the design of interventions, policies, and behaviors aimed at mitigating loneliness, addressing unmet needs, and reducing broader forms of social malaise.

Declarations

Author Contribution

All authors contributed to the study conception and design. Material preparation, and analysis were performed by E.P. and F. S. The first draft of the manuscript was written by all authors, who also provided comments on earlier versions. All authors read and approved the final manuscript.

Data Availability

The datasets generated and/or analysed during the current study are available in the SHARE Research Data Center repository, [**https://releases.sharedataportal.eu/**](https:/releases.sharedataportal.eu) **.** All data analyses were conducted using the R statistical environment. Upon request, the authors are willing to share all scripts and code used in the analysis.

References

1. Amati, V., Rivellini, G. & Zaccarin, S. (2015). Potential and effective support networks of young Italian adults. *Social Indicators Research* 122(3), 807-831. https://doi.org/10.1007/s11205-014-0706-7
2. Amati, V., Meggiolaro, S., Rivellini, G. & Zaccarin, S. (2017). Relational Resources of Individuals Living in Couple: Evidence from an Italian Survey. *Social Indicators Research* 134(2), 547-590. https://doi.org/10.1007/s11205-016-1443-x
3. Arpino, B., Bordone, V. & Pasqualini, M. (2020). No clear association emerges between intergenerational relationships and COVID-19 fatality rates from macro-level analyses. *Proceedings of the National Academy of Sciences.* USA 117 (32), 19116–19121. https://doi.org/10.1073/pnas.2008581117.
4. Arpino, B., Pasqualini, M., Bordone, V. & Solé-Auró, A. (2021a). Older people's nonphysical contacts and depression during the COVID-19 lockdown. *The Gerontologist*. 61, 176-186. https://doi.org/10.1093/geront/gnaa144

5. Arpino, B., Pasqualini, M. & Bordone, V. (2021b). Physically distant but socially close? Changes in non-physical intergenerational contacts at the onset of the COVID-19 pandemic among older people in France, Italy and Spain. *European Journal of Ageing*, 18(2), 185-194. https://doi.org/10.1007/s10433-021-00621-x
6. Arpino, B., Mair, C.A., Quashie, N.T. & Antczak, R. (2022). Loneliness Before and During the COVID-19 Pandemic: Are Unpartnered and Childless Older Adults at Higher Risk? *European Journal of Ageing.* 9(4), 1327-1338. https://doi.org/10.1007/s10433-022-00718-x.
7. Arpino, B., Bordone, V. & Di Gessa, G. (2023). COVID-19 precautionary behaviors and vaccine acceptance among older individuals: The role of close kin. *Proceedings of The National Academy of Sciences*. 120(13), e2214382120. https://doi.org/10.1073/pnas.2214382120
8. Berg-Weger, M. & Morley, J.E. (2020). Loneliness and social isolation in older adults during the COVID-19 pandemic: implications for gerontological social work. *Journal of Nutrition, Health and Aging*. 24(5), 456–458. https://doi.org/10.1007/s12603-020-1366-8
9. Berkman, L. F., & Syme, S. L. (1979). Social networks, host resistance, and mortality: a nine-year follow-up study of Alameda County residents. *American Journal of Epidemiology*, *109*(2), 186–204. https://doi.org/10.1093/OXFORDJOURNALS.AJE.A112674.
10. Berkman, L. F., Glass, T., Brissette, I., & Seeman, T. E. (2000). From social integration to health: Durkheim in the new millennium. *Social Science and Medicine,* 51, 843–857. https://doi.org/10.1016/S0277-9536(00)00065-4
11. Bhutani, S. & Greenwald, B. (2021). Loneliness in the elderly during the COVID-19 pandemic: a literature review in preparation for a future study. *The American Journal of Geriatric Psychiatry* 29(4), S87-S88. https://doi.org/10.1016/j.jagp.2021.01.081
12. Börsch-Supan, A. (2022). Survey of Health, Ageing and Retirement in Europe (SHARE) Wave 8. COVID-19 Survey 1. Release version: 8.0.0. SHARE-ERIC. https://doi.org/10.6103/SHARE.w8ca.800.
13. Burlina, C. & Rodrìguez-Pose, A. (2023). Alone and lonely. The economic cost of solitude for regions in Europe. *Environment and Planning A: Economy and Space.* 55, 2067–2087. https://doi.org/10.1177/0308518X231169286.
14. Chen, L. K. (2020). Older adults and COVID-19 pandemic: Resilience matters. *Archives of gerontology and geriatrics*, *89*, 104124. https://doi.org/10.1016/j.archger.2020.104124
15. Cheng, S. T., Lee, C. K. L., Chan, A. C. M., Leung, E. M. F. & Lee J. (2009). Social network types and subjective well-being in Chinese older adults. *The Journals of Gerontology: Series B*. *64* (6), 713–722. https://doi.org/10.1093/geronb/gbp075.
16. Choi, E.Y., Farina, M.P., Wu, Q., Ailshire, J. (2022). COVID-19 Social distancing measures and loneliness among older adults. *The Journals of Gerontology: Series B*. *77* (7), E167–E178. https://doi.org/10.1093/geronb/gbab009.
17. Cohn-Schwartz, E., Levinsky, M., Litwin, H. (2021). Social network type and subsequent cognitive health among older Europeans. *International Psychogeriatrics*. 33(5), 495–504. https://doi.org/10.1017/S1041610220003439.

18. Cugmas, M., Ferligoj, A., Kogovsek, T. & Batagelj, Z. (2021). The social support networks of elderly people in Slovenia during the Covid-19 pandemic. *PLOS ONE*. 16(3), e0247993. https://doi.org/10.1371/journal.pone.0247993
19. Dahlberg, L. (2021). Loneliness during the COVID-19 pandemic. *Aging & Mental Health* 25, 1161–1164. https://doi.org/10.1080/13607863.2021.1875195
20. Danielsbacka, M., Tammisalo, K. & Tanskanen, A. O. (2022). Digital and traditional communication with kin: displacement or reinforcement? *Journal of Family Studies*. 29(3), 1270–1291. https://doi.org/10.1080/13229400.2022.2040575.
21. Dalla Zuanna, G. (2001). The banquet of Aeolus: A familistic interpretation of Italy's lowest low fertility. *Demographic research* 4(5), 133-162. https://doi.org/10.4054/DemRes.2001.4.5
22. Dalla Zuanna, G. & Micheli, G.A. (2006). Strong family and low fertility: a paradox?: New perspectives in interpreting contemporary family and reproductive behaviour, vol 14. Springer Science & Business Media, New York
23. Diener, E., & Oishi, S. (2005). The nonobvious social psychology of happiness. *Psychological Inquiry*, 16, 162–167. http://www.jstor.org/stable/20447284
24. Dowd, J.B., Andriano, L., Brazel, D. M., Rotondi, V, Block, P., Ding, X., Liu Y. & Mills, M.C. (2020). Demographic science aids in understanding the spread and fatality rates of Covid-19. *Proceedings of the National Academy of Sciences*, 117(18), 9696– 9698. https://doi.org/10.1073/pnas.2004911117
25. Fiori, K.L., Antonucci, T.C., Cortina, K.S. (2006). Social network typologies and mental health among older adults. *The Journals of Gerontology: Series B*. *61*(1), 25–32. https://doi.org/10.1093/geronb/61.1.P25
26. Fuller-Iglesias, H., Sellars, B., & Antonucci, T. C. (2008). Resilience in Old Age: Social Relations as a Protective Factor. *Research in Human Development*, *5*(3), 181–193. https://doi.org/10.1080/15427600802274043
27. Furfaro, E., Rivellini, G., Pelle, E. & Zaccarin, S. (2021). Constructing personal networks in light of COVID-19 containment measures. *Genus* 77, 17.https://doi.org/10.1186/s41118-021-00128-4.
28. Gallagher, E. N., & Vella-Brodrick, D. A. (2008). Social support and emotional intelligence as predictors of subjective well-being. *Personality and Individual Differences*, 44(7), 1551–1561. https://doi.org/10.1016/j.paid.2008.01.011
29. Ganster, D. C., & Victor, B. (2011). The impact of social support on mental and physical health. *British Journal of Medical Psychology*, 61(1), 17–36. https://doi.org/10.1111/j.2044-8341.1988.tb02763.x
30. Goethals, L., Barth, N., Guyot, J., Hupin, D., Celarier, T., & Bongue, B. (2020). Impact of home quarantine on physical activity among older adults living at home during the COVID-19 Pandemic: Qualitative interview study. *Journal of Medical Internet Research Aging*, 3(1), e19007. https://doi.org/10.2196/19007.
31. Harasemiw, O., Newall, N., Mackenzie, C.S., Shooshtari, S., Menec, V. (2019). Is the association between social network types, depressive symptoms and life satisfaction mediated by the perceived

availability of social support? A cross-sectional analysis using the Canadian longitudinal study on aging. *Aging & Mental Health*. *23*(10), 1413–1422. https://doi.org/10.1080/13607863.2018.1495176

32. Hosmer, D. W., Lemeshow, S. & Sturdivant, R.X. (2013). Applied Logistic Regression (Vol. 398). John Wiley Sons. https://doi.org/10.1002/9781118548387
33. Hwang, T.J., Rabheru, K., Peisah, C., Reichman, W. & Ikeda, M. (2020). Loneliness and social isolation during the COVID-19 pandemic. *International Psychogeriatrics*, 32(10), 1217-1220. https://doi.org/10.1017/S1041610220000988.
34. Istat (2024). *Previsioni della popolazione residente e delle famiglie. Base 1/1/2023.* Statistiche Report, Roma.
35. Istat (2025). *Rapporto annuale 2025. La situazione del Paese*. Roma.
36. Kelly, M.E., Duff, H., Kelly, S., McHugh Power, J.E., Brennan, S., Lawlor, B.A. & Loughrey, D.G. (2017). The impact of social activities, social networks, social support and social relationships on the cognitive functioning of healthy older adults: a systematic review. *Systematic Reviews* **6**, 259. https://doi.org/10.1186/s13643-017-0632-2
37. Lazega, E., Wittek, R. P., & Snijders, T. A. (2022). "Introduction to social networks and social resilience". In *A Research Agenda for Social Networks and Social Resilience*. Cheltenham, UK: Edward Elgar Publishing. https://doi.org/10.4337/9781803925783.00005
38. Lestari, S.K., Eriksson, M., de Luna, X., Malmberg, G., Ng, N. (2022). Frailty and types of social relationships among older adults in 17 European countries: a latent class analysis. *Archives of Gerontology and Geriatrics.* 101, 104705 https://doi.org/10.1016/j.archger.2022.104705.
39. Litwin, H. (2001). Social network type and morale in old age. *Gerontologist 41*(4), 516–524. https://doi.org/10.1093/geront/41.4.516.
40. Litwin, H. & Levinsky, M. (2021). Network-exposure severity and self-protective behaviors: The case of COVID-19. *Innovation in Aging*, 5(2), igab015. https://doi.org/10.1093/geroni/igab015
41. Litwin, H., Stoeckel, K.J. (2014). Confidant network types and well-being among older Europeans. *Gerontologist 54* (5), 762–772. https://doi.org/10.1093/geront/gnt056
42. Mair, C. A., Arpino, B., Antczak, R., & Quashie, N. T. (2025). Family Availability, 'Kinlessness', COVID Stringency, and Loneliness in 26 Countries. *Research on Aging*, *0*(0). https://doi.org/10.1177/01640275251334624
43. McCarty, C., Lubbers, M. J., Vacca, R., & Molina, J. L. (2019). *Conducting personal network research: A practical guide*. Guilford Publications.
44. MacLeod, S., Tkatch, R., Kraemer, S., Fellows, A., McGinn, M., Schaeffer, J. & Yeh, C. S. (2021). COVID-19 Era Social Isolation among Older Adults. *Geriatrics*, 6(2), 52. https://doi.org/10.3390/geriatrics6020052.
45. Micheli, G. A. (2021a). *Preferirei di no: Perché il crollo delle nascite ha radici lontane.* Mimesis, Milano - Udine.

46. Micheli, G. A. (2021b). *La famiglia mediterranea. Una geografia dei legami di sangue.* Carocci Editore, Roma.
47. Micheli G. A., Rivellini G.A. (2002), Se il cerchio si stringe, in Micheli G. A. (a cura di), *La nave di Teseo*, Franco Angeli, Milano.
48. Pelle, E., Zaccarin, S., Furfaro, E. & Rivellini, G. (2022). Support provided by elderly in Italy: a hierarchical analysis of ego networks controlling for alter-overlapping. *Statistical Methods & Applications* 31, 133–158. https://doi.org/10.1007/s10260-021-00565-7
49. Perry, B. L., Pescosolido, B. A. & Borgatti, S. P. (2018). *Egocentric network analysis: Foundations, methods, and models*. Vol. 44. Cambridge university press. https://doi.org/10.1017/9781316443255
50. Piolatto, M., Bianchi, F., Rota, M., Marengoni, A., Akbaritabar, A. & Squazzoni, F. (2022). The effect of social relationships on cognitive decline in older adults: an updated systematic review and meta-analysis of longitudinal cohort studies. *BMC Public Health* **22**, 278. https://doi.org/10.1186/s12889-022-12567-5.
51. Quaglieri, A., Lausi, G., Fraschetti, A., Burrai, J., Barchielli, B., Pizzo, A., Cordellieri, P., De Gennaro, L., Gorgoni, M., Ferlazzo, F., Sdoia, S., Zivi, P., Giannini, A. M., & Mari, E. (2021). "Stay at Home" in Italy during the COVID-19 Outbreak: A Longitudinal Study on Individual Well-Being among Different Age Groups. *Brain Sciences*, *11*(8), 993. https://doi.org/10.3390/brainsci11080993
52. Röhr, S., Löbner, M., Gühne, U., Heser, K., Kleineidam, L., Pentzek, M., Fuchs, A., Eisele, M., Kaduszkiewicz, H., König, H.H., Brettschneider, C., Wiese, B., Mamone, S., Weyerer, S., Werle, J., Bickel, H., Weeg, D., Maier, W., Scherer, M., Wagner, M. & Riedel-Heller, S.G. (2020). Changes in Social Network Size Are Associated With Cognitive Changes in the Oldest-Old. *Frontiers in Psychiatry*. 11:330. https://doi.org/10.3389/fpsyt.2020.00330.
53. SHARE-ERIC (2024). Survey of Health, Ageing and Retirement in Europe (SHARE) Wave 9. COVID-19 Survey 2. Release version: 9.0.0. SHARE-ERIC. Data set. https://doi.org/10.6103/SHARE.w9ca.900
54. Saito, T., Nishita, Y., Tange, C., Nakagawa, T., Tomida, M., Otsuka, R., Ando, F., Shimokata, H. & Arai, H. (2021). Association between intra-individual changes in social network diversity and global cognition in older adults: Does closeness to network members make a difference? *Journal of Psychosomatic Research*, *151*, 110658. https://doi.org/10.1016/j.jpsychores.2021.110658.
55. Smith, K. P., & Christakis, N. A. (2008). Social networks and health. *Annual Review of Sociology*, 34, 405–429. https://doi.org/10.1146/annurev.soc.34.040507.134601
56. Taylor, S. E. (2007). Social support. In H. S. Friedman & R. Cohen Silver (Eds.), *Foundations of health psychology* (pp. 145–171). Oxford: Oxford University Press.
57. Torres Z., Oliver A. & Fernandez I. (2024). Older adults' mental health during the COVID-19 pandemic: The association with social networks, *Social Networks* 78, 164–172. https://doi.org/10.1016/j.socnet.2024.02.003
58. United Nations Department of Economic and Social Affairs (DESA), Population Division (2024). World Population Prospects 2024: Summary of Results (UN DESA/POP/2024/TR/NO. 9).

59. Vacca R. & Bianchi F. (2024). Diversity, integration, and variability of intergenerational relationships in old age: New insights from personal network research. *Social Science Research* 119, https://doi.org/10.1016/j.ssresearch.2024.102991.
60. Ye, L., Zhang, X. (2019). Social network types and health among older adults in Rural China: the mediating role of social support. *International Journal of Environmental Research and Public Health, 16* (3). https://doi.org/10.3390/ijerph16030410.

Figures

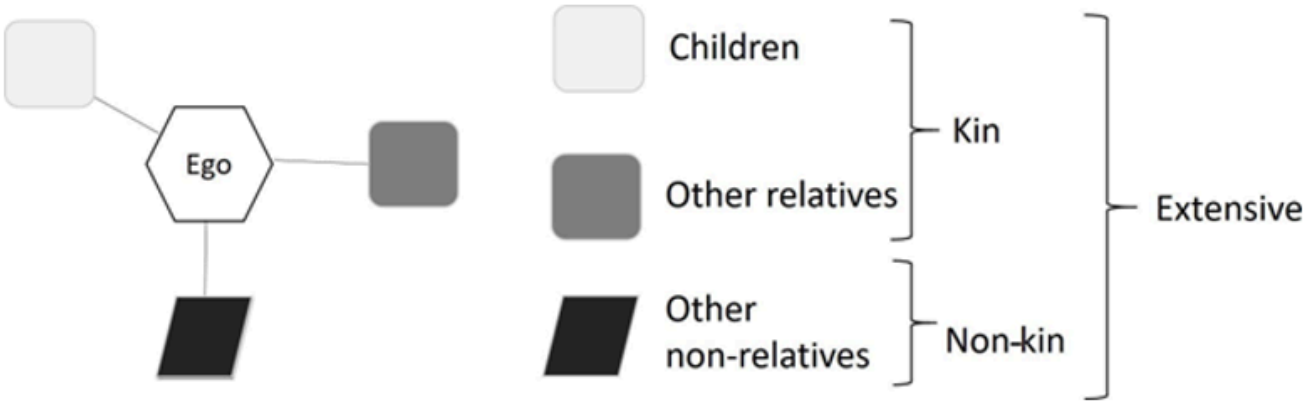


Figure 1

Ego-network types in SCS by alter categories

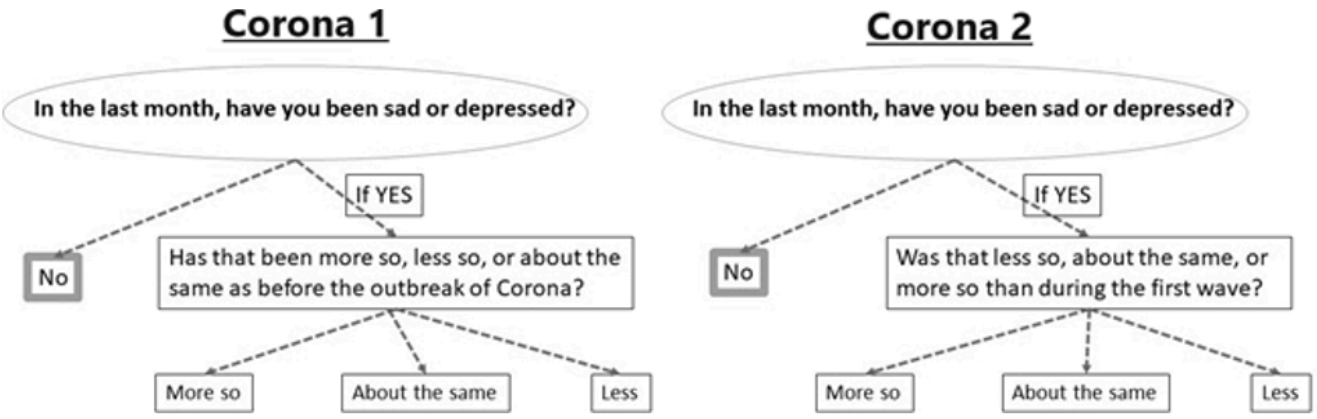


Figure 2

Longitudinal trajectory of sadness/depression status in Corona 1 and Corona 2

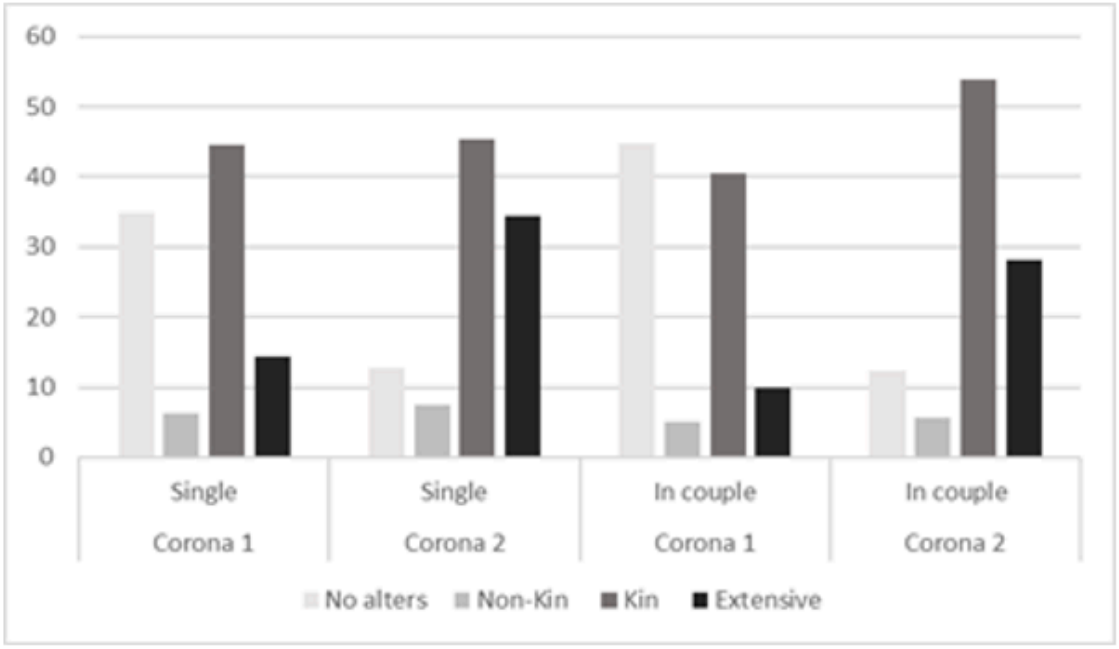


Figure 3

Ego-network types during COVID-19 breakdown (face-to-face contact, source: Corona 1 and Corona 2, %).

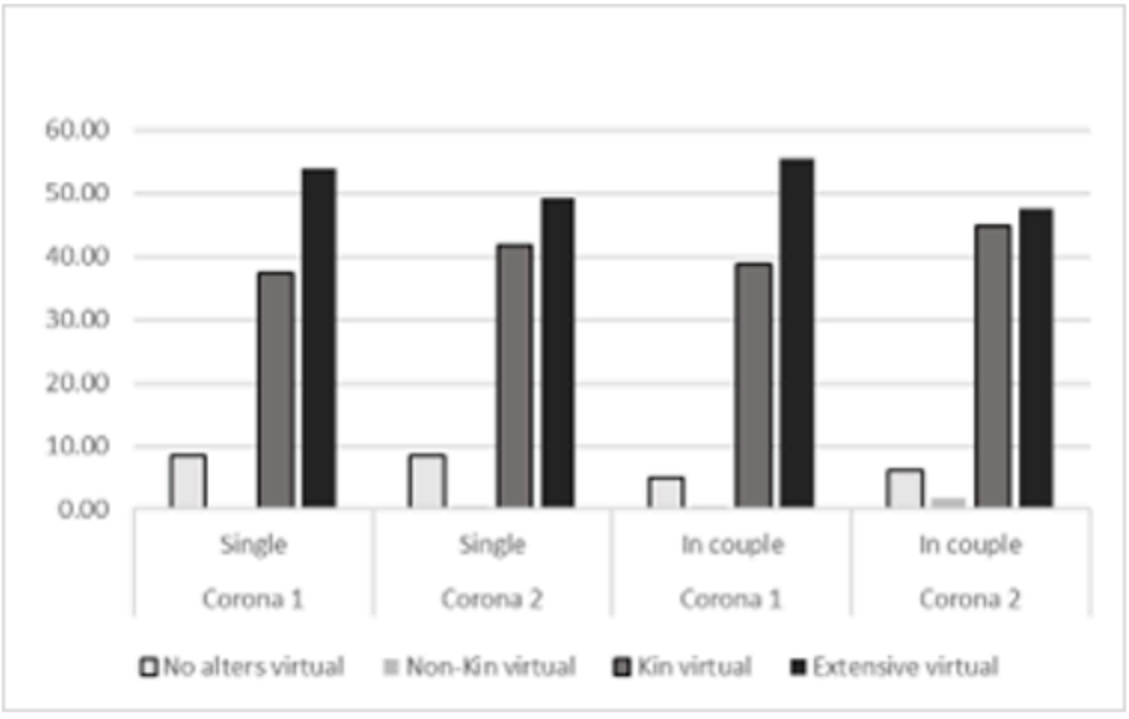


Figure 4

Ego-network types during and after COVID-19 breakdown (virtual contact, source: Corona 1 and Corona 2, %)

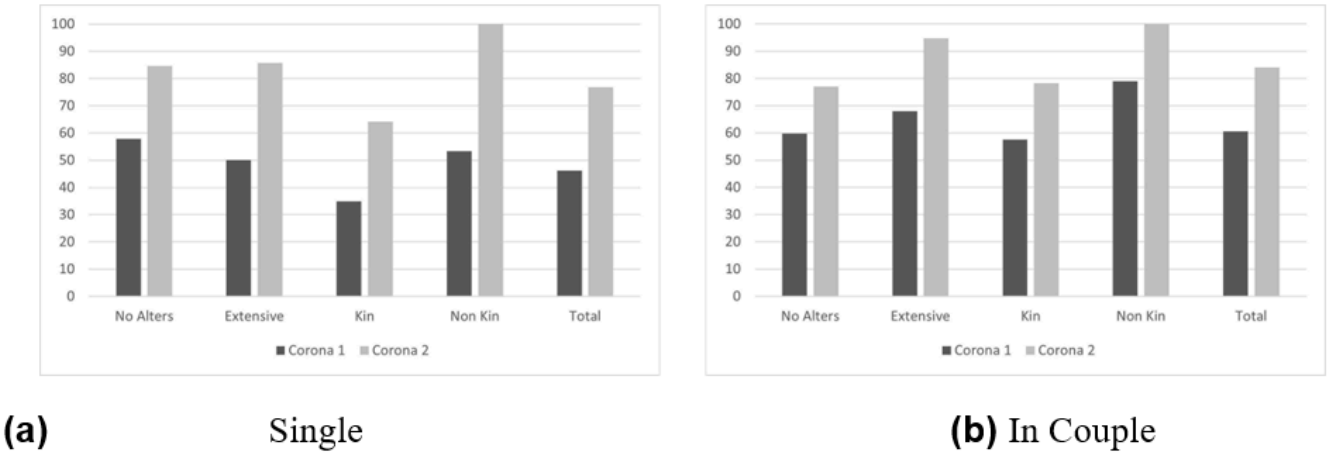


Figure 5

Older adults who left home during and after the outbreak of SARS-CoV-2 by network type (source: Corona 1 and Corona 2, %)

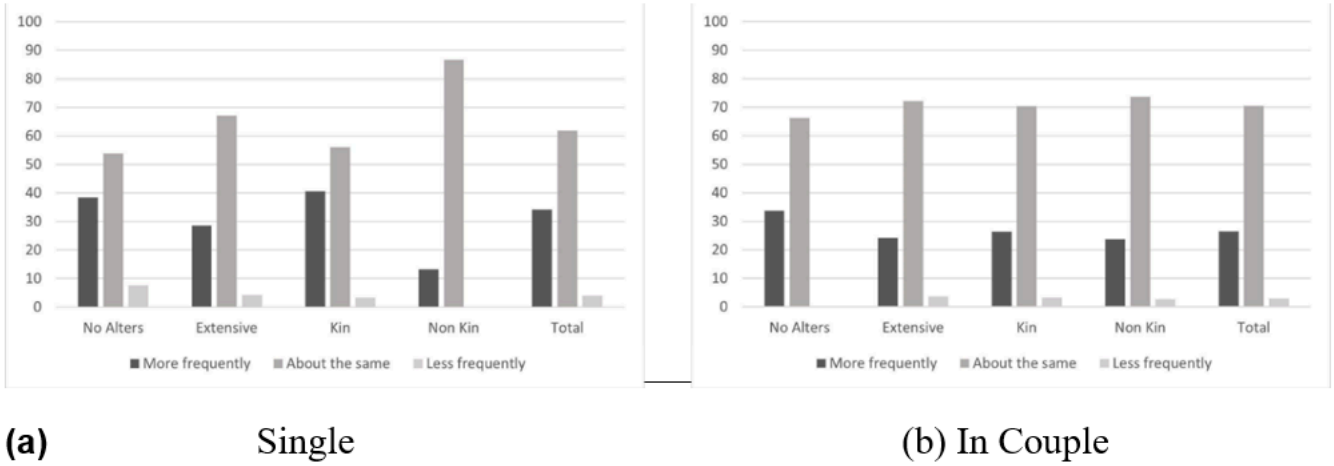


Figure 6

Attention given to security measures (covering mouth to cough and sneeze) compared to the first wave of the pandemic (source: Corona 2, %)

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- Appendi1.docx