

Being alone without feeling lonely? The unmet desire for company among older Italians

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Abstract (200 words)

Ageing aligns with changes in living arrangements, social networks, and companionship patterns that may increase time spent alone. But social isolation not necessarily implies *loneliness*, the *subjective feeling of being alone*. We jointly test the determinants of loneliness: living alone, spending time alone, and the existence of a *network* in case of need, together with an objective measure of *daily pattern of time spent alone and with others*.

Using the most recent Italian Time Use survey data (2013-14) we focus on individuals aged over 60 and model a *measure of loneliness*, the unmet desire for company measured through the following question: Would you like to spend more time in the company of other people? We use Sequence Analysis and clustering techniques to identify relevant daily patterns of time spent alone and with others, at home and outside. Regression models test how those time-use profiles are linked with loneliness and help identify high-risk groups. Results provide evidence that the patterns of daily activities contribute to explaining the perception of loneliness more than solo living or the lack of social networks. Those who spend time alone and at home faring well signal that being alone and feeling lonely are separate dimensions.

Keywords: loneliness, social isolation, older people, sequence analysis

For IPC: Families, Unions and Households; Population Ageing; Older Adults and Intergenerational Relations; Inequality, Disadvantage and Discrimination

Introduction and background

The unprecedented ageing population process brings with it great concern for the elderly who are left alone. As people age, indeed, they usually experience relevant changes in living arrangement, in social networks and companionship patterns that increase the risk of staying alone. Several are the mechanisms in act: the higher widowhood rate especially at very old ages and for women, the rising divorce risk at both adult and old age, the growing proportion of both childless and kinless individuals across cohorts (Verdery et al. 2019, Klaus and Schettler 2015, Alderotti et al. 2022).

At the same time, regardless the living arrangement, literature argues that at older ages the chance to have a rich and rewarding social life is reduced. Older individuals usually experience a relevant shrink in their social network and the reduction of social contractedness: for instance, the retirement changes their daily routines and reduce the chances to meet colleagues; children leaving home decreases the possibility of social interactions at home; at older age the death or the illness of lifelong friends can prevent well-established social contacts outside the household, that are unlikely to be replaced (Victor C. R. & Yang K., 2012; Cacioppo J. T. & Patrick W., 2008). In addition, ageing often brings physical impairments and an increased risk of chronic health conditions. As older adults become less mobile and independent, they may find it challenging to engage in social activities, visit friends and family, or participate in community events. These limitations can result in increased social withdrawal and exacerbate the sense of loneliness (Cornwell E. Y. & Waite L. J., 2009).

What is less clear however is whether the *objective state of social isolation* - often measured by the amount and frequency of individuals' social contacts - (Banerjee & Rai, 2020; Huxhold et al., 2022; Hwang et al., 2020) is connected with *loneliness*, the *subjective feeling of being alone*, as a gap between desired and actual level of connectedness. Loneliness has often been used as synonymous with social isolation or solitude, but these concepts have clearly different meanings as well as diverse implications. Existing research has provided valuable insights into the determinants of loneliness; however, empirical studies often take into account only single aspects of this complex phenomenon at once.

In this work we seek to integrate multiple aspects and potential determinants of loneliness, exploring their combined impact: the factor of *living alone*, *spending time alone*, the existence of network in case of need are considered in a single model and, very importantly, integrated with a daily pattern of time spent alone and with others.

A few studies have questioned that old people *being alone*, or *living alone*, necessarily feels lonely, poor of social contacts or socially isolated (Donno and Tanturri 2024, Klaus and Schettler 2015). Coping mechanisms for loneliness can be put in act by individuals who may adopt their peculiar strategy to alleviate the emotional distress of loneliness and provide a sense of satisfaction and connection: for instance, it has been shown that the childless have a quite richer network of friends than parents at older ages (Klaus and Schettler 2015), or that loneliness can be prevented devoting time to gratifying activities (Donno and Tanturri 2024). The topic is very relevant also for public health policy makers, as previous literature shows that *feeling lonely* is negatively associated with a plurality of health outcomes: e.g. subjective well-being, heart disease, depression, sleep problems, suicide risk, cognitive decline and all-cause mortality (Courtin & Knapp, 2017; Luo et al. 2012, Hawkley & Cacioppo 2010, Holt-Lunstad et al., 2015; Huxhold et al., 2022).

As aging can induce a sense of loneliness due to a combination of factors, it is of paramount importance to identify the determinants responsible of such a negative feeling in order to address the loneliness experienced by older adults and promoting their overall well-being.

Previous studies have demonstrated that is very important to distinguish between different profiles of contractedness among the old and relate them to the unmet demand for company, in order to identify the old individuals potentially more at risk of being lonely. It is possible indeed that not only the *quantity* of time spent in company, but also *with whom* time in company is spent and *when* it is spent during the day can alleviate loneliness feelings more or less. For instance, it is plausible that being alone in the evening or during a meal can be more detrimental for feeling lonely than in the morning or in the afternoon. In addition, it is also possible that considering *the venue* where time alone is spent

can add further knowledge of the mechanism of adaptation to loneliness: the idea is that the time spent outside can also be particularly valuable for the old, that usually spend more time at home for several constraints.

To the best of our knowledge, no studies have yet explored the different patterns of social contractedness using the fine grain provided by a time use survey. This paper is aimed at filling the gap as it identifies different clusters of daily time spent alone and with others using the sequence analysis. The cluster we found will be described and also be used as regressor to evidence if they are associated to an unmet demand of social contractedness. This paper thus is aimed at getting an insight into this topic and to identify an unexplored dimension of inequality among the old that also have an impact of their wellbeing.

Contextual and cultural elements can influence the perception of loneliness among old people: living in age-friendly environments that insure the necessary infrastructure and services for living fulfilling and independent lives, and the development of policies and programs aimed at addressing the unique needs and challenges of aging populations, can help overcoming loneliness and isolation feelings. Italy is an interesting case-study in this respect as it is one of the most aged countries in the world, with a high life expectancy, where the old people usually have many contacts with family members (either co-living or not), but that extensively rely on family for care and support, as public services for old people are underdeveloped. Our study relies on the Italian Time Use survey, carried out by Istat in 2013-14, that represents an excellent data source to investigate this topic.

Research questions

Loneliness – as anticipated - is a subjective, negative emotional state that arises when a person perceives a discrepancy between their desired and actual level of social connection or companionship. It is the feeling of being disconnected, isolated, or lacking meaningful social interaction. The emotional experience of loneliness typically occurs when a person desires more social contact or deeper social connections, or maybe company in specific moments of the day, but is unable to fulfil these desires. Therefore, loneliness can be influenced by both objective factors and subjective factors. By using time use data we provide a holistic view of individual's daily life. Time use data allow us to focus on all the factors of our interest that could be behind loneliness:

- *Living alone* defined as the living arrangement status.
- The existence of a *social network* that can offer support and alleviate the feeling of loneliness as a *potential source of support and company*, but just in case of need. The hypothesis is that loneliness can persist even when surrounded by others if an individual perceives a lack of accessible social connections.
- The *daily sequence of time slot spent alone, in company of co-living and non co-living individuals*, with the idea that both the *quantum* and the *timing* of time spent alone can determine the subjective experience of loneliness
- The *daily sequence of time slot spent alone/in company combined with the time spent at home or outside*.

In this way, we can answer the following research questions: does the experience of loneliness at old age depends on living arrangement, or rather on objective solitude experimented in specific moments of the day? Can it be alleviated in the same way by both the company of co-living and non-co-living? Can it be improved by the time spent outside regardless whether in company or not?

Data and methods

This study relies on the most recent Italian Time Use survey data collected in 2013-14 and focus on a subsample more than 15.000 individuals aged 60 years old or plus. In this study the dependent variable is a *measure of loneliness*, given by the answer to the following question: Would you like to spend more time in the company of other people? The possible answers are: yes, no or do not know. Older adults who express a desire for more social interaction are signalling *unmet need for company*. They may be experiencing a sense of isolation or a lack of meaningful companionship. This question helps identify those who are at risk of loneliness or already experiencing it, in order to look at the factors associated to feel lonely.

As variable of interest in this paper we will elaborate specific patterns of time spent alone or with others. Time use diaries provides information on *with whom* individuals spend their time in different activities (with the exception of the sleeping time) over the course of a day, divided into 10 minutes intervals. In this paper, we focus on the information given by each respondent providing details also on the co-presence of other individuals in the same time slots. It is possible to distinguish between *co-living family members* - parent, children, spouse; *not co-living family members*; other *not co-living people* - friends, colleagues, acquaintances. Such information allows to measure the *de facto solitude/companionship*. Specifically, we compute during the sample day the amount of (awake) time old people spend alone, the amount of (awake) time they spend with co-living people, and (awake) time spent with other not co-living individuals, or with both co-living and not co-living at the same time.

The states considered in the first sequence analysis are the following:

- alone (alone)
- with cohabiting family members (co-living_only)
- with other non-cohabiting persons (not-coliving_only)
- with cohabiting family members and with non-cohabiting persons (both),
- sleeping (sleep)
- missing (time slot in which the information is due, but not given)

The states considered in the second sequence are the following:

- alone at home
- alone outside
- in company at home
- in company outside
- sleeping (sleep)
- missing (time slot in which the information is due, but not given)

In addition, an individual questionnaire collects a series of *socio-demographic characteristics*, including information on the availability of help and support, the frequency of contacts with friends, which can be considered as measures of the potential social connectedness of old people. The individuals' geographic area of residence and the size (number of inhabitants) of the place they live in will be considered as proxy measures of cultural/contextual factors (in terms of opportunities for social interactions and support) which could explain loneliness feeling among old people.

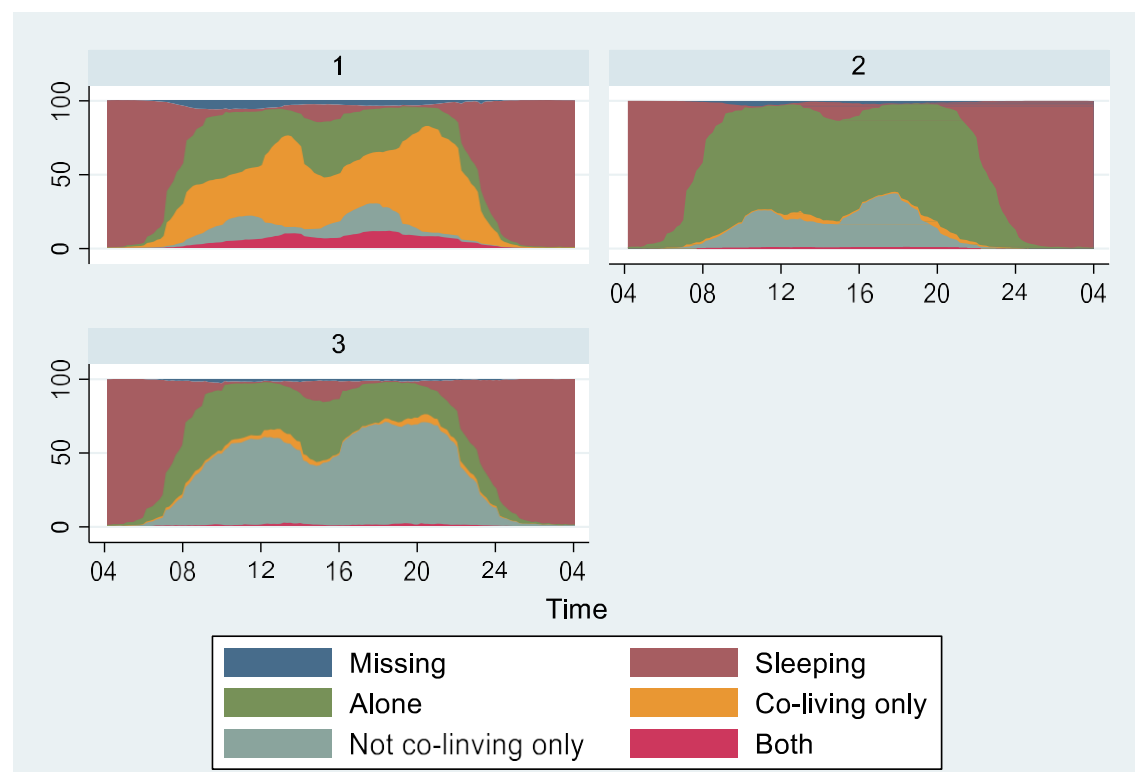
In this work, we aim at taking account the social nature of time-use, therefore we consider three elements: the individual sequence of time, its temporal setting, the level of synchronization with the other old individuals in the sample. This is the reason why we use the Dynamic Hamming Approach (Lesnard, 2009) to Sequence Analysis. The use of the Ward clustering method, applied to the distance matrix obtained through the Sequence Analysis Dynamic Hamming approach, allowed us to identify different patterns of time spent alone. Multinomial regressions are then used to understand which factors influence the risk of belonging to each of the patterns identified (not shown here). Finally, the belonging to a certain cluster is used as covariate of the logistic regression model predicting the

feeling of loneliness, controlling for a series of individual characteristics (age, living arrangement, education, professional status, area of residence, the presence of a paid housekeeper or carer, the day of the week).

Preliminary results

The first sequence analysis allowed us to identify three main time use patterns in old age, as displayed in chronograms in Figure 1. For each cluster, the percentage of old people being alone, with co-living and not co-living in each time slot (Fig. 1). The first group is composed by the “socialite” as they spend definitively more time in company than alone, and in most case with co-residing individuals. Two clear peaks of company at meals time are also recognisable. The group 2 is the composed mainly by people that spend much time alone, with very limited contacts with family members and only few hours of contact with no co-living people. We could define them as the “lone wolves”. The group 3 is composed by those who spent a limited time alone (as group 1), but they basically spend much time with non-co-living people. We might define them the “outgoing”. A multinomial regression helps to characterise those who are more likely to belong to each group (not shown here).

Fig. 1. Chronograms of cluster based on the first sequence analysis



Source: Authors' elaboration on Italian Time Use Survey 2013-14

First results evidence that those living alone are not more likely to suffer loneliness with respect to those who live with others (Table 1). Conversely, belonging to the cluster 2 and 3 decreases significantly the sense of loneliness, unexpectedly respect to the socialites. These results are quite surprising, especially for group 2, but confirm the hypothesis that those who seem more alone doesn't necessarily suffers loneliness as they may have adopted coping mechanisms for dealing with solitude or even to choose it. Those belonging to group 2 may prioritize the quality of social interactions over

the quantity, thus having smaller but close-knit social network that provides them with meaningful companionship and emotional support, even if less intense in terms of time, and concentrated in the afternoon. The individuals belonging to the group 3 conversely seem to find extremely rewarding to spend so much time with non-co-living people, especially at lunch time and dinner time or in general in the late afternoon and in the evening. With regard to social network (not shown in the table), only those who can rely on neighbours show significant and positive association with loneliness.

Table 1. Logit regression odds ratios, standard error and statistical significance Dependent variable: loneliness. Variable of interest: 3 clusters

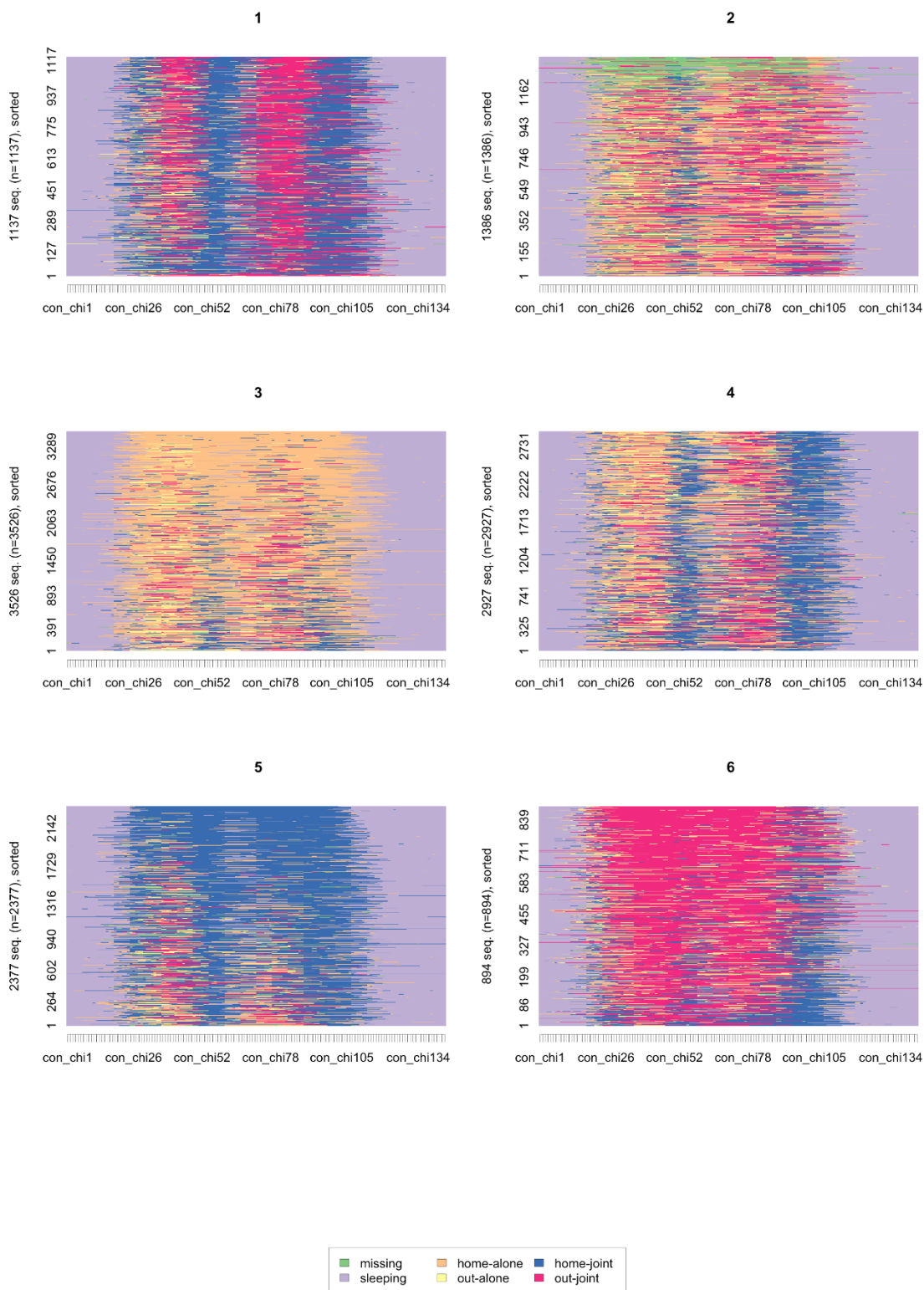
	Odds Ratio	Std. Err.	P value
Cluster (Ref. 1)			
2	.8354617	.0745725	0.044
3	.8175732	.0834873	0.049
Ref (live with others)			
live_alone	1.080451	.105942	0.430

Controlling for sex, age, education level, employment status, marital status, paid domestic aid, paid care-giver, geographical area, social network to rely on, day of the week

The second sequence analysis allowed us to identify 6 different clusters based also on the combination of location (at home or outside the home) and with whom the old people spend their time (alone or with others). The time use patterns, are displayed in an index plot (Figure 2). The 6 clusters have been used as independent variables on the risk of loneliness. The cluster 5 we took as reference is characterised by a long permanence at home, mostly in company. In the regression (table 2), only other three clusters are statistically significative and are all associated to a reduced loneliness: cluster 1 that is characterised by a large presence outside in company, especially at the meals time where we observe two picks. Cluster 2 is characterised by the presence of missing, by a more balance between time alone and in company; in this group the time at home is mainly spent alone, while the time in company is spent mainly outside, Finally, cluster 3, is characterised by the majority of time spent alone and at home. The case of cluster 3 clearly shows that a situation that might appear to be associated with a more serious risk of loneliness actually seems to mitigate it. In this case, too, there appear to be adaptive mechanisms at work that should be investigated further.

At this stage, however, we can conclude that the association between social isolation and the perception of loneliness is far from simple and that surprisingly those who spend time alone and at home seem to fare rather well. Unexpectedly those who spend more time with co-living seem to have a higher unmet need of company. Further analysis of the profiles found, a further investigation also including the typology of activities performed alone and with other will help us to delineate a more complete framework on the association between de facto solitude and loneliness, in order to identify the profile of old people with the unmet need of company.

Fig. 2. Index plots of clusters based on the second sequence analysis



Source: Authors' elaboration on Italian Time Use Survey 2013-14

Table 2. Logit regression odds ratios, standard error and statistical significance. Dependent variable: loneliness. Variable of interests: 6 clusters

	Odds Ratio	Std. Err.	P>z
Ref. Home joint (cluster 5)			
Joint-mixed (cluster 1)	0.81168	.0731658	0.021
Non-co-living at home (cluster 2)	0.83275	.0731236	0.037
Alone home (cluster 3)	0.84602	.0636782	0.026
Alone-mixed (cluster 4)	0.91228	.0642088	0.192
Socialites (cluster 6)	1.01691	.1063686	0.873
Controlling for sex, age, education level, employment status, marital status, paid domestic aid, paid care-giver, geographical area, social network to rely on, day of the week			