

Social Networks at the Residential Environment and Loneliness in Old Age. A Different Role by Gender?

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The neighbourhood have a physical but also a relational dimension. In this sense, the neighbourhood gains relevance in old age, compared to other relational environments, favouring or limiting the ability to maintain activities and relationships. Geographical proximity to the members of the social networks (SN) has been identified as a key factor to prevent threats to older people well-being as loneliness. Literature has shown that at other ages friends or organized activities are more relevant in their relationship with loneliness. However, in old age, the nearby links become more important, with neighbours being very relevant. Proximate interpersonal networks, with family, but also with neighbours and friends, can help to deal with an accumulation of losses occurred in the advanced life course (the loss of a partner, friends, health and autonomy ...). In fact, previous results have shown that proximity networks are very relevant mitigating the effect of mobility problems on loneliness. Other authors have shown that a live space that favours friend-oriented networks can cushion the effect of the empty nest or the loss of a partner. However, the actual generations of old men have fewer links with people located nearby, as well as very different life trajectories, than actual generations of old women, so these effects can vary by gender.

Theoretical background

Loneliness is a good indicator of wellbeing in old age (Jakobsson & Hallberg 2005, Golden et al 2009, Thomopoulou et al 2010). Loneliness is the experience that occurs when a person's social network is deficient quantitatively or qualitatively (Perlman & Peplau 1981). It's usually described as the negative experience of a discrepancy between the desired and the achieved personal network of relationships (de Jong Gierveld et al 2016). From a life course perspective, loneliness is influenced by the different losses experienced -including the loss of relatives, friends, health and autonomy-, as well as by changes to the interpersonal environment (Aartsen & Jylhä 2011, Schnittger et al 2012, Dahlberg et al 2018). The accumulated distance to standard family histories also leaves a mark on wellbeing and life satisfaction in old age (Arpino et al 2023).

Social networks are defined as a constellation of personal relationships based on affective bonds through which goods and services are altruistically exchanged (Antonucci & Akiyama, 1987). Literature has shown that, at younger ages, friends or organized activities are more relevant in their relationship with loneliness. However, in old age, the nearby links become more important, with neighbours being very relevant (Nygqvist et al 2016).

The neighbourhood gains relevance in old age, compared to other relational environments, since this group spends more time at home than younger population, and a supportive environment can favour the ability to maintain activities and relationships and reduce the impact of health problems (Rodríguez-Blazquez & Forjaz 2022, Rojo-Perez et al 2022, van den Berg et al 2016, Sharon Shiovitz-Ezra 2015, Wissink & Hazelzet 2012). Out-of-home mobility is associated with higher levels of social participation (Kahlert & Ehrhardt 2020). As people age and their functional health and mobility decline, the immediate environment becomes a central arena of activity and social involvement and thus has a greater impact on the well-being of oldest population (Glass & Balfour 2003, Puga, Fdez-Carro & Fdez-Abascal 2021).

Literature has shown that loneliness varies significantly according to characteristics of older people's residential environment. Feelings of loneliness are indirectly associated to satisfaction with local amenities and services (Kemperman et al 2019). High population density is related with increased odds of club attendance (Hand & Howrey 2019), but some results show that the enjoyment of public-space visits is more important than the actual activities that are performed (Bergefurt et al 2019). Low built environment usability and walkability is significantly related to a higher likelihood of feeling lonely (Syed et al 2017, van den Berg 2017, Domenech-Abella et al 2020, Levasseur et al 2020, Merchant et al 2020). Perceived distance to sport and leisure facilities and public parks was found to be positively related to loneliness (Buecker et al 2020). But the mechanism behind the relationship between green areas and lonely has not been widely investigated. Shulika (2022) found evidences for a social mechanism, with green areas providing opportunities for social contacts. Attractive meeting spaces could support neighbourhood attachment and social interactions among neighbours, which could help to reduce feelings of loneliness. The social dimension of the live space is more closely related to loneliness than the perceived physical environment and services (Sharon Shiovitz-Ezra 2015). Loneliness is especially related to the social aspects of the neighbourhoods.

Some findings highlight the importance of the social network types as mediators of the relationship between neighbourhoods and loneliness (Scharf & de Jong Gierveld 2008, Stephens & Phillips 2022). Neighbourhood social cohesion and access to facilities were related to the development of broader social network types, such as those including friends and neighbours, that are negatively related to loneliness (Dahlberg & McKee 2014). Belonging to family-dependent or private-restricted network types and low scores on locally integrated networks are related to higher loneliness (Stephens & Phillips 2022). Proximate interpersonal networks, with family, but also with neighbours and friends, can help to deal with an accumulation of losses occurred in the advanced life course. A live space that favours friend-oriented networks can cushion the effect of the empty nest or the loss of a partner (Fdez-Carro & Gumà 2022). Older adults who are able to ambulate more easily in the community have more opportunity to engage with friends and family (Middleton et al 2015). Older adults with a wider community focused network type had the lowest loneliness scores in different populations (Scharf & de Jong Gierveld 2008).

Prior research has shown that the geographical proximity to members of the social networks is a key factor to mediate the relation between mobility problems and loneliness. (Puga, Fdez-Carro & Fdez-Abascal 2021). But different authors found gender differences in the relation between social network's characteristics and loneliness (Scharf & de Jong Gierveld 2008, Tomassini et al 2020, Puga, Fdez-Carro & Fdez-Abascal 2021, Fdez-Carro & Gumà 2022, Stephens & Phillips 2022). The actual generations of old Spanish men have fewer links with people located nearby, as result of very different labour-market trajectories (Radl 2013), than actual generations of old Spanish women (Puga 2022). So, they offer the opportunity to analyse the gender role in the relationship between social networks at the neighbourhood and loneliness.

In order to further the existing knowledge about the interplay of factors that affect wellbeing in later life, in this paper we wonder if the geographical proximity of social networks plays a mitigating effect on loneliness, especially in relation to health problems and family losses, and if this effect is different between men and women.

Data and research methods

Data from Waves 6 and 9 of the European Health, Aging and Retirement Survey (SHARE) were used for this analysis (Malter and Börsch-Supan 2017). Loneliness was measured in both waves using the Three-Item Loneliness Scale (Hughes et al. 2004). This scale is a short version of the R-UCLA Loneliness Scale. SHARE Waves 6, 8 and 9 also included a special module focused on social networks, in which respondents provided information about various characteristics of their social ties including geographical proximity. Sub-samples were selected from the Spanish population aged 65 years old and over (N=1287 & 1718).

To explore the mediating effect of nearby social networks on loneliness the analysis considered three different types of information: a) loneliness (answers were re-coded on a three-point Likert-type scale (3-9)); b) biographical transitions (changes in mobility difficulties, loss of a partner, among others); and c) social network dimensions. Social networks were analysed using the main dimensions of social networks as proposed in conceptual models (Berkman and Glass 2000).

The independent variables (transitions in family and health conditions), the dependent variable (loneliness), and the mediating variables (SN) were described by means of bivariate analyses. Contingency tables and chi-square tests were used for the bivariate analysis of the categorical variables, whereas Comparison of Means and the f-Test (ANOVA) were employed for the numerical variables. Mediation analysis was conducted. Following Baron and Kenny's (1986) steps for mediation, several regression models were used to test the changes in the relationship between independent and dependent variables. Basic sociodemographic data were introduced as control variables. Separate models for men and women were calculated. In the second stage, to estimate the significance of the indirect effect, Sobel's test (1982) was used. To approximate effect sizes for mediation variables, Percent Mediation (PM) was calculated by following Preacher and Kelly (2011).

Expected findings

A dense nearby network is a mitigating factor against some frequent transitions in old age and their effects in terms of loneliness. Having a dense social network nearby facilitates social participation despite increasing mobility difficulties. Having closer networks also softens the effect of the lack of a partner on the perception of social isolation. Older women usually have dense nearby social networks. Our results suggest that the geographical proximity of SN plays a stronger role among the male population, whose emotional wellbeing at advanced ages relies more heavily on family ties.

Table 1. Analysis of Variance (ANOVA) of loneliness in relation to selected family and health characteristics

		Women			Men		
		Mean	S.D.	F	Mean	S.D.	F
Partner	No	4,83	1,831	37,931**	5,12	2,033	105,1**
	Yes	3,81	1,379		3,53	1,017	
Chronic diseases	0-2	4,34	1,788	8,67**	3,87	1,46	13,628**
	3+	4,77	1,767		4,49	1,865	
Diseases that affect mobility	Yes	4,58	1,857	0,007	4,77	1,995	23,152**
	No	4,59	1,736		3,87	1,447	
Diseases that affect cognitive skills	Yes	5,17	1,783	18,992**	4,15	1,359	0,064
	No	4,42	1,755		4,09	1,697	
Depressive symptoms	Yes (4+)	5,26	1,89	144,094**	4,84	1,917	54,161**
	No (0-3)	3,68	1,099		3,63	1,263	
Disability (GALI)	Severely limited	5,48	2,133	14,991**	4,86	1,81	5,376*
	Not severely limited	4,5	1,728		4,05	1,629	

** Sig. < 0.01; * Sig. < 0.05

Table 2. ANOVA of the social network dimensions in relation to selected family and health characteristics

		SN size			SN diversity			SN proximity			SN contact			SN emotional closeness			SN Satisfaction		
Women		Mean	S.D.	F	Mean	S.D.	F	Mean	S.D.	F	Mean	S.D.	F	Mean	S.D.	F	Mean	S.D.	F
Partner	No	2,37	1,48	29,456*	1,42	0,62	133,17*	3,46	1,412	34,972**	1,62	0,793	0,414	3,52	0,4989	0,000	8,91	1,409	0,133
	Yes	3,12	1,46		2,09	0,64		2,39	1,411		1,68	0,815		3,52	0,4707		8,95	1,174	
3 or more chronic diseases	0-2	2,68	1,52	3,975*	1,56	0,71	0,146	3,21	1,458	0,002	1,71	0,86	3,811	3,48	0,4966	2,554	8,95	1,335	0,202
	3 or more	2,44	1,5		1,58	0,67		3,21	1,501		1,58	0,748		3,55	0,4877		8,9	1,373	
Diseases that affect mobility	No	2,75	1,7	8,578**	1,55	0,75	0,584	3,23	1,47	0,054	1,72	0,873	4,817*	3,49	0,4979	1,977	8,85	1,425	1,099
	Yes	2,4	1,33		1,59	0,64		3,20	1,492		1,58	0,736		3,54	0,4871		8,97	1,307	
Mental or cognitive diseases	No	2,62	1,52	6,099*	1,57	0,68	0,003	3,29	1,488	6,339*	1,67	0,822	3,012	3,48	0,4986	12,196**	8,92	1,366	0,015
	Yes	2,27	1,45		1,58	0,7		2,93	1,433		1,52	0,687		3,65	0,4467		8,91	1,328	
Depressive symptoms (EURO-D)	No	2,69	1,66	3,756	1,59	0,73	0,007	3,23	1,638	0,111	1,68	0,896	1,370	3,56	0,4731	2,553	9,06	1,22	5,847*
	Yes	2,46	1,37		1,6	0,63		3,27	1,343		1,60	0,73		3,50	0,5051		8,79	1,484	
Disability (GALI)	Not severely limited	2,55	1,52	0,297	1,59	0,69	4,164*	3,26	1,487	7,525**	1,65	0,808	2,039	3,53	0,4858	0,965	8,94	1,329	0,868
	Severely limited	2,45	1,39		1,41	0,62		2,72	1,343		1,49	0,675		3,46	0,547		8,76	1,607	
Men																			
Partner	No	2,03	1,34	12,923*	1,37	0,72	11,016*	3,37	1,661	04,043*	1,82	1,16	0,000	3,41	0,6158	3,305	8,76	1,55	0,000
	Yes	2,61	1,64		1,88	0,79		1,89	1,162		1,82	0,913		3,51	0,4815		8,76	1,351	
3 or more chronic diseases	0-2	2,46	1,59	1,187	1,73	0,82	1,289	2,44	1,551	0,278	1,76	0,979	1,884	3,44	0,5487	3,999*	8,81	1,45	0,930
	3 or more	2,29	1,51		1,64	0,77		2,35	1,5		1,94	1,087		3,55	0,5017		8,67	1,372	
Diseases that affect mobility	No	2,4	1,56	0,002	1,72	0,79	1,012	2,32	1,461	4,398*	1,76	1,002	3,155	3,47	0,5301	0,452	8,74	1,526	0,142
	Yes	2,4	1,58		1,63	0,84		2,70	1,707		2,01	1,047		3,51	0,5475		8,81	1,04	
Mental or cognitive diseases	No	2,5	1,58	10,154*	1,74	0,8	6,051*	2,43	1,447	0,367	1,77	0,924	7,051**	3,49	0,5235	0,541	8,92	1,227	31,41**
	Yes	1,81	1,34		1,46	0,8		2,29	1,967		2,29	1,57		3,43	0,5949		7,8	2,009	
Depressive symptoms (EURO-D)	No	2,64	1,59	12,71**	1,83	0,77	14,033*	2,37	1,497	0,411	1,80	1	0,653	3,55	0,4949	11,533**	9,01	1,12	25,08**
	Yes	2,04	1,49		1,51	0,84		2,48	1,621		1,91	1,084		3,35	0,5868		8,26	1,71	
Disability (GALI)	Not severely limited	2,4	1,58	0,000	1,69	0,81	0,283	2,41	1,537	0,021	1,80	1,014	3,074	3,47	0,5345	2,762	8,8	1,385	5,221*
	Severely limited	2,39	1,32		1,79	0,8		2,36	1,446		2,28	0,985		3,66	0,502		8,09	1,831	

** Sig. < 0.01; * Sig. < 0.05

Note: SN= Social Network

Table 3. Analysis of variance (ANOVA) of social networks' characteristics and loneliness

		Women		Men	
		Lonely	Not lonely	Lonely	Not lonely
SN size	Mean	2,49	2,7	2,1	2,63
	S.D.	1,529	1,523	1,452	1,634
	F	2,834		11,021**	
SN diversity	Mean	1,54	1,67	1,46	1,89
	S.D.	0,657	0,71	0,761	0,791
	F	5,394*		29,291**	
SN proximity	Mean	3,45	3,00	3,01	1,97
	S.D.	1,353	1,614	1,686	1,245
	F	13,673**		46,53**	
SN contact	Mean	1,62	1,68	1,90	1,74
	S.D.	0,710	0,927	1,142	0,903
	F	0,734		1,72	
SN emotional closeness	Mean	3,52	3,53	3,39	3,55
	S.D.	0,501	0,481	0,597	0,470
	F	0,055		8,651**	
SN satisfaction	Mean	8,85	8,97	8,6	8,93
	S.D.	1,405	1,339	1,528	1,242
	F	1,135		5,097*	
Household size	Mean	1,48	1,94	1,63	2,3
	S.D.	0,801	0,898	0,739	0,825
	F	44,026**		69,586**	
No. confidants	Mean	2,42	2,65	2,07	2,61
	S.D.	1,489	1,472	1,388	1,548
	F	3,506		12,129**	

** Sig. < 0.01; * Sig. < 0.05

Note: N= Social Network