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26 Social networks and self-rated health in later life

- ► Social integration is positively correlated with self-rated health
- ► Social networks on the individual level and social cohesion on the country level promote healthy ageing
- ► Policy makers should consider social ties as an important factor for health in old age

26.1 Older Europeans' social networks and health – an ecological perspective

The aim of the *European Year of Active Ageing and Solidarity between Generations* is to improve older people's chances and opportunities to participate fully in society. An important precondition for and consequence of elders' active participation in society is good health. The literature reveals that several mechanisms stand behind the assumed positive relationship between social connectedness and individual health. These include *social support* (where networks provide direct and indirect access to relevant resources), *social influence* (mainly affecting health behaviours), and *social participation* (being relevant for one's self-esteem or self-efficacy); see Thoits (2011) for a detailed discussion.

While there is substantial empirical evidence supporting the notion of a salutary effect of social ties and social support on health (and vice versa; e. g., Sirven & Debrand 2012), comparative studies also indicate considerable cross-cultural and cross-national variation in the scope and the strength of the observed associations, and sometimes even in their directions (e. g., Litwin 2006). This suggests that social networks are embedded in larger social and cultural contexts, arenas in which *social cohesion* plays an important role (e. g., Kawachi & Berkman 2000).

Previous research using data from the *Survey of Health, Ageing and Retirement in Europe* (SHARE) has revealed substantial cross-national differences in elders' social networks (e. g., Kohli et al. 2009, Litwin & Stoeckel 2013) and in their health (e. g., Jürges 2007, Hank 2011). Moreover, some of the SHARE-based studies examined the association between older Europeans' social network characteristics and their social capital endowments, on the one hand, and various health and health-related well-being outcome measures, on the other hand (e. g.,

Litwin 2009, Sirven & Debrand 2012). The study reported upon in this chapter advances the research on the association between social networks and health in a number of ways.

We note, first, that our empirical analysis considers the relationship between selected state-of-the art social network variables and self-rated general health. Self-reports of general health have been shown to be useful indicators of various dimensions of individuals' health, including mortality (e. g., Jürges 2007; also see Litwin 2006). In addition, we employ for the first time data from SHARE's new ego-centred 'social networks' module, which was introduced in Wave 4 of the survey (see Litwin et al. 2013 for a detailed description). Compared to previous analyses of SHARE, in which the social network variables largely reflected a role relational approach, these new data allow taking into account respondents' subjective appraisal of their interpersonal environment and its relationship to their health. In this way, we are able to consider elements of one's most intimate personal social network as well as information on social network structure and the exchange of social support. Finally, following from the idea of an ecological model of social integration and health, as proposed by Berkman and colleagues (2000), we estimated a multilevel model of self-rated health that takes into account measures of social cohesion at the country-level, that is, indicators of the level of income inequality and of general social trust (e. g., Brandt et al. 2012).

26.2 Measurement and analysis

The analytic sample on which the present analysis is based comprises 51,280 respondents aged 50+ who were interviewed in SHARE's Wave 4. The dependent variable is individuals' *self-rated health* (SRH), where respondents self-assess their own general health on a 5-point scale ranging from poor [1] to excellent [5]. Treating SRH as a continuous outcome, we estimate hierarchical linear models accounting for a set of standard *socio-demographic control variables* (age, sex, socio-economic and employment status) and *health behaviours* (smoking, physical activity) as well as for an array of *social network* and *contextual* (i. e. country-level) characteristics of individuals. Baseline information from Wave 1 and 2 was used to construct smoking histories and education. We consider three aspects of elders' *social networks* (SN), namely structure, support, and quality:
– *Structure* is measured by the number of people with whom respondents reported to have discussed important things most often during the 12 months preceding the interview. Respondents were allowed to name up to seven different network partners. We further consider the geographic proximity to social network members (assessed by a binary variable indicating whether

anybody with whom the respondent had discussed important things lives within a range of one kilometre).

– When measuring the exchange of *social support*, we distinguish between (a) financial or material gifts of at least 250 Euro and (b) help with personal care or household chores which the respondent might have given or received in the 12 months preceding the interview. Another aspect of social support considered in our model is respondents' social participation in the community during the past 12 months (volunteering, participation in clubs, attending activities of religious or political organisations, etc; binary: any vs. none).

– Network *quality* is assessed by three indicators: overall satisfaction with relationships to social network members (ranging from completely dissatisfied [0] to completely satisfied [10]), closeness to network members (a binary variable that equals 1, if 'extreme' closeness to at least one member is reported, 0 otherwise), and contact with network members (a binary variable that equals 1, if the contact frequency with at least one network member is at least 'several times a week', 0 otherwise).

Finally, our model includes two continuous country-level indicators of *social cohesion*: income inequality (measured by Gini coefficients derived from 2011 OECD statistics) and general social trust (percentage of respondents in a country who agreed that most people can be trusted; derived from the 2008 European Value Study). Both indicators are available for all 16 countries that participated in SHARE's Wave 4: Sweden, Denmark, the Netherlands, Belgium, France, Germany, Austria, Switzerland, Spain, Italy, Portugal, Czech Republic, Poland, Hungary, Slovenia and Estonia.

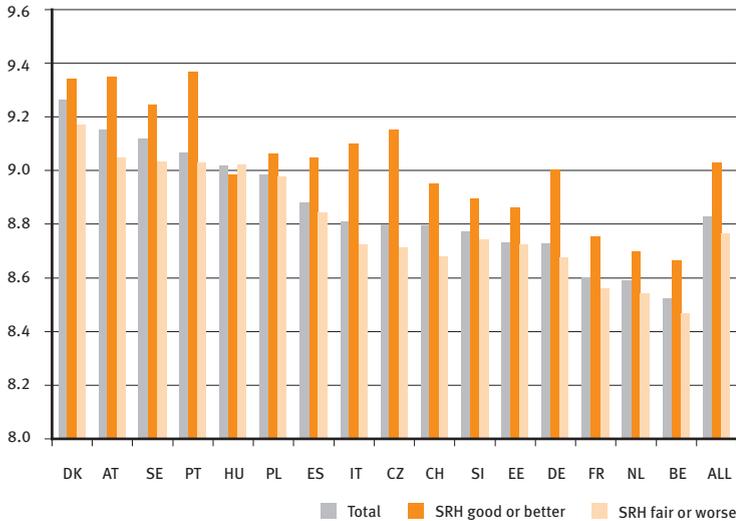## 26.3 Associations between social network characteristics and health in Europe

For illustrative purposes, we present first selected bivariate associations of the following aggregate indicators with elders' self-rated health, by country: (*a*) social network structure (size of the personal social network), (*b*) social support (proportions participating in community social activities), and (*c*) network quality (satisfaction with the network) (see Figure 26.1). While these aggregate social network characteristics differ significantly across countries (see Stoeckel and Litwin, in this volume, for a detailed discussion), we observe a universal pattern of associations suggesting higher levels of social connectedness (both in terms of quantity and quality of social relations) among older people reporting good or better health.
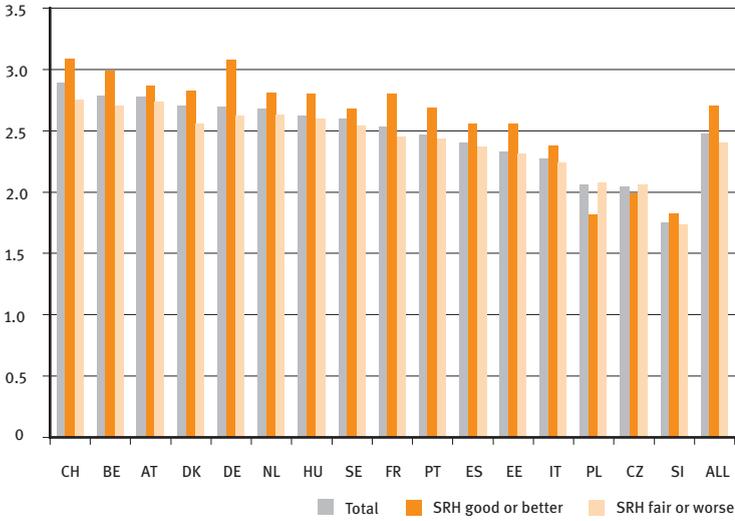
(a) Structure: Size of SN and SRH (n=58,142)
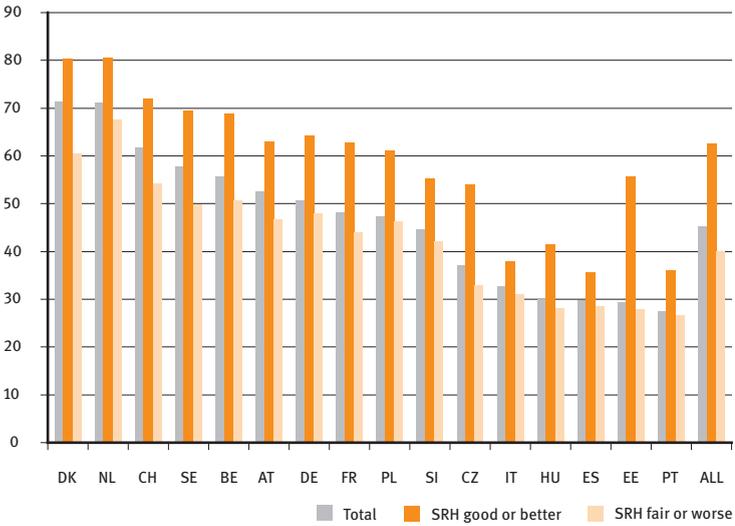
(b) Support: Social participation (%) and SRH (n= 58,142)

(c) Quality: Satisfaction with SN and SRH (n= 56,993)

Figure 26.1: Bivariate associations between selected social network (SN) characteristics and elders' self-rated health (SRH), by country
Source: SHARE Wave 4 release 1

In a next step, we estimated three different multivariate models of self-rated health, the first of which includes the social network variables only, without any additional control variables. The second model controls for health behaviours and socio-demographic variables in addition to accounting for individuals' social network characteristics. The correlations of the control variables with self-rated health are as expected and therefore not discussed here. The third and final model adds the two country-level indicators of social cohesion, as detailed earlier (see Table 26.1).

When interpreting the coefficients of these models, it is important to keep in mind that the data in this analysis are cross-sectional. Consequently, we cannot actually identify the causal mechanisms underlying the observed correlations. Thus, for example, while the positive association between network size or participation in community social activities and self-rated health – which we observe in all models – is intuitively consistent with assumptions about a salutary effect of greater social integration, the negative correlation between self-rated health and having a network member living within a range of one kilometre might seem, at first sight, counterintuitive. It is plausible to assume, however, that the causal relationship here is a different one. That is, greater proximity to members of your personal social network does not cause poor health, but if one's health is poor, he or she is more likely to reside in closer geographic proximity to those in the personal network who are able to help.

Table 26.1: Results of hierarchical linear regression models for elders' self-rated health

	SN characteristics	... plus control variables	... plus context variables
Network characteristics			
Structure			
Size	0.02***	0.01***	0.01***
	(0.003)	(0.003)	(0.003)
Proximity	−0.03***	−0.06***	−0.05***
	(0.011)	(0.010)	(0.010)
Support			
Gift given	0.12***	0.01	−0.00
	(0.010)	(0.009)	(0.009)
Gift received	0.02	−0.01	−0.03*
	(0.017)	(0.016)	(0.016)
Help given	0.16***	0.06***	0.04***
	(0.010)	(0.010)	(0.010)
Help received	−0.47***	−0.29***	−0.31***
	(0.011)	(0.011)	(0.011)
Social participation	0.34***	0.19***	0.19***
	(0.009)	(0.009)	(0.009)
Quality			
Satisfaction with network	0.04***	0.04***	0.04***
	(0.003)	(0.003)	(0.003)
Emotional closeness	0.12***	0.07***	0.06***
	(0.009)	(0.009)	(0.009)
Contact frequency	−0.10***	−0.05***	−0.05***
	(0.010)	(0.009)	(0.009)
Health behaviours			
Never smoked (ref.)		0.00	0.00
Stopped smoking		−0.05***	−0.05***
		(0.010)	(0.010)
Current smoker		−0.07***	−0.07***
		(0.011)	(0.011)
Physically active		0.43***	0.43***
		(0.009)	(0.009)
Socio-demographics			
Age		−0.01***	−0.01***
		(0.000)	(0.001)
Sex (female)		−0.00	−0.00
		(0.009)	(0.009)
Low education (ref.)		0.00	0.00
Medium education		0.16***	0.16***
		(0.010)	(0.010)
High education		0.29***	0.29***
		(0.011)	(0.012)

Employed		0.26***	0.27***
		(0.011)	(0.011)
Perceived income adequacy		0.28***	0.27***
		(0.009)	(0.009)
Social cohesion			
Income inequality			−2.40***
			(0.136)
General social trust			0.01***
			(0.000)
Constant	1.96***	2.39***	2.25***
	(0.028)	(0.043)	(0.063)
Model			
n (individuals)	51,280	51,280	51,280
n (countries)	16	16	16
LL	−71,041	−67,389	−67,403
AIC	142,109	134,822	134,853

Significance: *p < .10; **p < .05; ***p < .01
Source: SHARE Wave 1 release 2.5.0, Wave 2 release 2.5.0, Wave 4 release 1; OECD 2011 & EVS 2008, unweighted

This same kind of 'reverse causality' might also explain the negative association found between receiving help and self-rated health. Whereas those giving help are more likely to report better health (because they have the resources to do so), those receiving help may be receiving such help precisely because they are ill. Turning to the exchange of gifts, the findings show an initially observed positive relationship between giving a gift and self-rated health. However, it loses its significance once we control for individuals' socio-demographic characteristics and health behaviours. We note also that alternative model specifications (not shown in Table 26.1) distinguishing between the exchange of social support within and outside of one's personal social network did not provide any evidence of differential associations with elders' self-rated health (see Roll and Litwin in this volume for greater specification of this latter point).

The results of the multivariate analysis also show that all the indicators of network quality obtained significant associations with self-rated health. The propensity to rate one's health more positively increases, if individuals are satisfied with their personal social network or if they feel extremely close to one or more of their network members. There is a negative correlation between self-rated health and frequent contact to network members, which suggests that elders suffering from poorer health may turn more often to their confidants for emotional and/or practical support.

Finally, both country-level indicators of social cohesion exhibit the expected associations with individuals' self-rated health: higher levels of income inequality are paralleled by poorer health, whereas older people living in countries where social trust is more widespread tend to report better health. Accounting for these contextual variables does not reduce the strength of the correlations between characteristics of individuals' personal social networks and self-rated health.

26.4 Individual and societal responsibilities

Taking advantage of data from SHARE's new ego-centred 'social networks' module, we investigated how older Europeans' self-rated health is associated with their personal network structure, the exchange of social support, and network quality. We demonstrated that close correlations exist between self-rated health and almost all the network characteristics considered here, suggesting a salutary effect of social integration. In addition, our multilevel analysis showed that a country's level of social cohesion matters as well. It is clear, therefore, that establishing and maintaining health promoting social relationships in later life is a matter of both individual *and* societal responsibility. It is particularly important that "policy makers use the scientific findings on social ties and health to advance population health and to reduce social disparities in health" (Umberson & Montez 2010: 60). Our current research adds important additional evidence for the debate concerning this critical area of interest.

Future research should aim at exploiting more fully the potential of Berkman et al.'s (2000) ecological model of social integration and health by accounting for cross-level interactions between societal context and elders' social network characteristics. Although previous research has demonstrated the value of self-rated general health information, further analyses should also consider more specific health outcomes (e. g. functional limitations or depression) and their relation to individuals' social network characteristics. Finally, more detailed longitudinal information on the dynamics of elders' social networks, which will be collected in future waves of SHARE, will allow us to better identify the causal mechanisms underlying the social networks-health-nexus in the older population (e. g., Sirven & Debrand 2012).

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