

# Social Networks and Well-being: A Comparison of Older People in Mediterranean and Non-Mediterranean Countries

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**Objectives.** This study examined whether the social networks of older persons in Mediterranean and non-Mediterranean countries were appreciably different and whether they functioned in similar ways in relation to well-being outcomes.

**Methods.** The sample included family household respondents aged 60 years and older from the first wave of the Survey of Health, Ageing and Retirement in Europe in 5 Mediterranean ( $n = 3,583$ ) and 7 non-Mediterranean ( $n = 5,471$ ) countries. Region was regressed separately by gender on variables from 4 network domains: structure and interaction, exchange, engagement and relationship quality, and controlling for background and health characteristics. In addition, 2 well-being outcomes—depressive symptoms and perceived income inadequacy—were regressed on the study variables, including regional social network interaction terms.

**Results.** The results revealed differences across the 2 regional settings in each of the realms of social network, above and beyond the differences that exist in background characteristics and health status. The findings also showed that the social network variables had different effects on the well-being outcomes in the respective settings.

**Discussion.** The findings underscore that the social network phenomenon is contextually bound. The social networks of older people should be seen within their unique regional milieu and in relation to the values and social norms that prevail in different sets of societies.

**Key Words:** Engagement—Exchange—Family structure—Loneliness—SHARE—Well-being.

THERE is widespread agreement that social networks play a major role in shaping the nature and the quality of late life (Pinquart & Sorensen, 2000). Moreover, studies that examine the relationship between social network factors and well-being generally confirm a positive association between the two phenomena (de Leon, Gold, Glass, Kaplan, & George, 2001; Gray, 2009; Seeman, Lusignolo, Albert, & Berkman, 2001). However, negative or limited effects have also been cited (Bowling, Farquhar, Grundy, & Formby, 1993; Gallant, Spitze, & Prohaska, 2007).

Most social network research takes place within specific populations (Lennartsson, 1999; Li & Liang, 2007; Melchior, Berkman, Niedhammer, Chea, & Goldberg, 2003). A smaller number of inquiries compare social networks across different populations and societies (Albertini, Kohli, & Vogel, 2007; Lowenstein & Daatland, 2006). The study that is reported here addresses this gap in the literature by comparing the social networks of older people in two differing groups of countries. The analysis has two aims. First is to compare the networks along a number of key components, in order to establish whether significant differences can be observed across the two regional groupings. Second is to consider the association between specific social network components and selected well-being outcomes, in order to examine whether social networks function in similar ways across populations.

The current inquiry examined data from the 12 countries that participated in the first wave of SHARE—the Survey of

Health, Ageing and Retirement in Europe. For the purposes of the investigation, the countries were classified as primarily Mediterranean (Spain, France, Italy, Greece, and Israel) or non-Mediterranean (Sweden, Denmark, the Netherlands, Germany, Belgium, Switzerland, and Austria). Comparison of the data across these two sets of countries allows us to clarify whether social networks do indeed work in similar ways in different settings and in relation to different outcomes.

## LITERATURE REVIEW

The “convoy model” of social networks suggests that people move through life together with significant others with whom they exchange goods and services (Antonucci & Akiyama, 1987). The notion of the convoy conveys both stability and change in one’s interpersonal milieu. That is, the model suggests that people maintain distinctive personal social network structures that accompany them over time but also that these structures change in response to different situations. The convoy model thus provides a framework for consideration of how individuals recruit and manage their social ties as they enter older age.

Berkman, Glass, Brissette, and Seeman (2000) add an important feature to the study of social network recruitment and management. They remind us that social network structure is conditioned by the social and cultural context to which one belongs. Moreover, they point out that “. . .

consideration of the larger macro-social contexts in which social networks form and are sustained has been lacking” (Berkman et al., p. 846). As noted earlier, the current analysis examines social networks in two differing social settings—Mediterranean and non-Mediterranean countries.

Review of the literature reveals four major aspects of social networks that have particular relevance for the older population, namely network structure and interaction, social exchange, social engagement, and subjective network perceptions. Much of the literature addresses the structural components of social networks among older people, particularly size and composition, and the modes of interaction that occur within them (de Leon et al., 2001). Network size has been found to be related to well-being, but recent evidence points to the benefits of selective diminution of network ties in late life (Fung, Carstensen, & Lang, 2001). As for composition, family ties are seen to dominate the networks of older adults (Cornwell, Schumm, Laumann, & Graber, 2009). Nevertheless, a growing body of literature documents the importance of friendship ties in late life and the contribution of relationships that derive from personal choice (Litwin, 2007). Contact frequency, a measure of network interaction, is frequently associated with positive outcomes (Gray, 2009; Zunzunegui, Alvarado, Del Ser, & Otero, 2003), but it may also confound with health status. That is, frequency of contact, especially with close family, may rise due to increasing care needs, which, in turn, may be associated with lesser well-being.

Giving care is part of the larger sphere of social exchange. The exchange of goods and services within the network, particularly across generations, is a focus of several studies (Attias-Donfut, Ogg, & Wolff, 2005; Fritzell & Lennartsson, 2005). Analyses of time and money transfers find that the older members of society are active participants in the “transfer game” and that many of the transfers (particularly the financial ones) flow downward (Albertini et al., 2007; Grundy, 2005). Evidence seems to suggest, moreover, that giving help to network members is associated with positive outcomes (Chen & Silverstein, 2000), whereas receiving help from them correlates with lesser well-being (Reinhardt, Boerner, & Horowitz, 2006). However, others have found that giving and receiving support have both positive and negative consequences (Liang, Krause, & Bennett, 2001).

Yet another aspect of social network is the sphere of social engagement. Involvement in activity provides older individuals with meaningful contacts that can contribute to their state of well-being. “Activity theory” explains this effect as stemming from the reinforcement of one’s role identity (Lemon, Bengtson, & Peterson, 1972), but recent research has underscored that it is the informal relationship aspects of activity that may account for the positive outcomes (Litwin & Shiovitz-Ezra, 2006). Whatever the reason behind the association, a positive relationship between activity and well-being in late life has been documented (Everard, Lach, Fisher, & Baum, 2000).

The fourth aspect of social network with importance for the health and welfare of older people is a subjective one—the perceived quality of one’s relationships (Birditt & Antonucci, 2008). Recent research has pointed out that social networks can sometimes be the source of negative interactions and that disagreeable relationships may be detrimental to one’s well-being (Ingersoll Dayton, Morgan, & Antonucci, 1997; Krause & Rook, 2003). Negative subjective network perceptions may be measured directly, in terms of interactions, or indirectly as a function of perceived loneliness (Fees, Martin, & Poon, 1999; Hawkey et al., 2008).

Study of the association between social network and well-being requires consideration of the gender factor as well. This is because gender has been found to modify the independent effect of social relations on certain outcomes, such as health (Melchior et al., 2003). For example, engagement with friends was found to protect against cognitive decline among the community-dwelling Spanish women but not among the men (Zunzunegui et al., 2003). In contrast, a study of older adults in Hong Kong claimed that the effect of social support on self-rated health is gender free (Cheng & Chan, 2006). In order to control for possible gender differences, one study examined the relationships between social network characteristics and health behaviors separately for each gender (Rennemark & Hagberg, 1999). This approach is adopted in the current analysis as well.

#### *Social Relations in Mediterranean and Non-Mediterranean Countries*

The literature indicates that social life in the Mediterranean region differs substantially from the same in Northern Europe, along several parameters (Viazzo, 2003). These include various aspects of lifestyle, the structure and function of social networks, and the nature of care regimes. In terms of social networks, data show that Mediterranean societies are more familial in culture (Kalmijn & Saraceno, 2008) and that adult children in Mediterranean countries provide more support to parents than their counterparts in the countries of Northern Europe (Daatland & Herlofson, 2003). A study in Italy found that only a small proportion of elderly respondents lacked frequent social ties (de Belvis et al., 2008). Albertini and colleagues (2007) report that transfers from parents to children are less frequent in the Southern European countries but that they are more intense when given. In contrast, participation in voluntary work was found to be higher in Northern Europe, even after taking into account variations in age structure and health status (Erlinghagen & Hank, 2006).

Interestingly, the changing nature of caregiving within the Mediterranean countries may portend changes in the social networks of older people in these societies. Bettio, Simonazzi, and Villa (2006) note that among the industrial nations, the Mediterranean countries form a distinctive grouping in which family care prevails. But family care

regimes are changing. Data from the European Community Household Panel show that women aged 45–59 years in the labor force in Southern European countries adjusted their work loads differently after taking on caregiving responsibilities than did working women of the same age in Northern Europe countries (Spiess & Schneider, 2003).

As for subjective perceptions of network relationships, it has been found that Italians feel lonelier than Dutch respondents, even though more of the latter live alone (van Tilburg, Gierveld, Lecchini, & Marsiglia, 1998). This might be explained by the presence of higher expectations for social contact among the former and the corresponding greater sense of disappointment when these expectations are not fulfilled.

Finally, a few sources examine social network factors in relation to well-being outcomes. The Italian study cited earlier found that despite the prevalence of social ties among the elders, a low frequency of relationships with friends was associated with a decline in quality of life (de Belvis et al., 2008). Data from a study in Spain showed that low emotional support and receipt of instrumental aid were associated with poor self-rated health and depressive symptoms (Zunzunegui, Beland, & Otero, 2001). A preliminary study using the SHARE data showed that having a partner was protective against depression in most of the countries, although frequency of contact with children was mostly unrelated (Buber & Engelhardt, 2008).

In sum, the literature shows that the social networks of older people tend to differ in Mediterranean and non-Mediterranean countries and that they seem to function differently in selected areas. Based on the literature review, it is hypothesized that people in the Mediterranean countries will report larger family networks and more social exchange. Persons from the non-Mediterranean countries will report greater social engagement and less loneliness. It is also hypothesized that network factors will be differentially associated with well-being outcomes in the two sets of nations.

## DATA AND METHODS

The analysis draws upon data from all countries that participated in the first wave of SHARE in 2004–2005 (and in 2005–2006 in Israel). SHARE is an empirical venture that collects a wide array of information from representative household samples of the community-dwelling population aged 50 years and older in participating countries (Boersch-Supan, Hank, & Juerges, 2005). The current analysis addresses the sample of respondents who answered both the computer assisted personal interview-based main interview and the supplemental drop-off questionnaire, more than two thirds of all respondents.

As in the Health and Retirement Study, each household in SHARE designates one of its eligible household members as the family respondent to whom most of the social relationship queries are given. The current investigation was

limited to those household family respondents aged 60 years and older ( $n = 9,054$ ), the age by which most of older Europeans are retired. In the event that relevant household information was supplied by another household respondent, such as details on wealth, these data were copied to the family respondent. The focus on one household respondent in the current analysis maximizes the independence of individual observations within the study sample. Weights were not available for this particular subsample, however. The sample of family respondents from the five Mediterranean countries numbered 3,583. Those from the seven non-Mediterranean countries numbered 5,471. Respondents with missing values on one or more of the measures were excluded from the multivariate analyses.

## Variables

Following from the literature review, four groups of social network variables were addressed. The family structure and interaction measures included having a spouse or partner in the household (0–1), number of children (0–16), number of children residing within the household (0–5), number of grandchildren (0–23), and frequency of contact with the most contacted child. The last of these variables was employed in order to tap the maximum degree of connectedness with one's children and was reported on a scale of 0–7; the higher the score, the more frequent the contact. The realm of social exchange was addressed by means of six measures that reflect the provision or receipt of practical assistance—from within or outside the household—and financial help. In each measure, a positive response received a score of 1 and a negative response, a score of 0.

Social engagement was tapped by three indicators. First was whether the respondent was currently working, a key indicator of productive engagement (Hinterlong, Morrow-Howell, & Rozario, 2007), measured as *yes* (1) or *no* (0). Second was the number of activities in which the respondent had been engaged in the previous month, from a list of seven activity areas, for example, voluntary work and going to a social club (0–7). Third was the most frequent activity, on a 4-point scale that ranged from *never* (0) to *daily* (3). The final variable category, subjective social network, was measured on a global item of loneliness, insofar as a state of loneliness reflects an absence of meaningful relationships (Weiss, 1987). Respondents were asked how lonely they had felt over the previous week, on a scale that ranged from almost *none of the time* (1) to *almost all of the time* (4).

The inquiry also considered two well-being outcome measures. The first was a count of depressive symptoms, based on responses to the EURO-D depression scale (Castro-Costa et al., 2007). The EURO-D is based on self-report of up to 12 symptoms, such as trouble sleeping, irritability, and excessive guilt feelings (0–12). The second outcome measure was perceived economic inadequacy. Respondents were asked the extent to which their household was able to make ends meet.

Table 1. Social Network Characteristics and Well-being Among Persons Aged 60 Years and Older in Mediterranean and Non-Mediterranean Countries: Univariate Descriptions

	Mediterranean countries		Mediterranean countries		$\chi^2/t$
	<i>M</i>	%	<i>M</i>	%	
Social network variables					
Spouse or partner		58.6		58.7	0.0
1 or more children in household		35.5		14.1	570.4***
Gave help within the household		6.5		4.2	24.1***
Gave help outside the household		19.3		32.8	196.6***
Gave money		23.9		25.5	3.2
Got help within the household		5.9		2.7	55.2***
Got help from outside the household		22.8		28.8	40.8***
Got money		6.5		3.8	35.3***
Work		8.1		9.0	2.1
Number of children	2.5		2.2		-8.2***
Number of grandchildren	4.1		3.5		-7.0***
Frequency of contact <sup>a</sup>	5.6		5.2		-8.3***
Number of activities <sup>a</sup>	0.6		0.9		14.3***
Frequency of activity <sup>a</sup>	1.9		2.1		6.2***
Loneliness <sup>a</sup>	1.8		1.5		-13.0***
Well-being variables					
Depressive symptoms <sup>a</sup>	3.0		2.1		-17.9***
Perceived income inadequacy <sup>a</sup>	2.7		1.9		-37.0***

Notes: <sup>a</sup>Scale ranges: frequency of contact with most contacted child (0–7); number of activities (0–7); frequency of activity in most frequent activity (1–4); loneliness (1–4); depressive symptoms (0–12); perceived income inadequacy (1–4). The values shown in italics represent the t scores.

\*\*\* $p < .001$ .

Answers ranged from *easily* (1) to *with great difficulty* (4). This measure has been found to be a robust indicator of subjective economic status (Litwin & Sapir, 2009).

Background characteristics employed as control variables in the current analysis included age, gender, education—measured on the International Standard Classification of Education (ISCED-1997), household income, and wealth. Income was compiled from self-reports of gross income from employment, transfers, pensions, and other sources. The wealth measure was the combined values of bank accounts, stock holdings, primary residence, and other sources, after the deduction of liabilities. The income and wealth variables were adjusted for relative purchasing power parity and standardized by household size square root. Health characteristics were also entered as control variables. These included basic activities of daily living (ADL) (0–6) instrumental activities of daily living (IADL) (0–7) difficulties; the number of chronic illnesses (0–10); and the number of symptoms, such as back pain, breathlessness, and persistent cough (0–12).

#### Modes of Analysis

The analysis proceeded in three principal stages. First was a univariate description of the study variables within each region and examination of the differences by region. Next, a series of multiple regressions was performed in which each of the social network measures was regressed on the control variables and on region, separately by gender. These analyses employed linear or logistic regressions, according to the measurement levels of the network outcomes. The non-Mediterranean countries served as the reference

category. In the third stage, regressions were executed for the two well-being outcome variables. In the first block, each outcome was regressed on the background and health variables. In the second block, social network variables were added to the analysis. Finally, interactions between the Mediterranean region and the social network indicators were entered. This permitted examination of regional differences in the effects of the respective network variables on the well-being outcome measures.

#### RESULTS

Examination of the structure and function variables shows that the Mediterranean and non-Mediterranean respondents were married to the same degree but that the former had more children and grandchildren (Table 1). More than one third of the Mediterranean respondents had a child residing in the household compared with less than 15% in the other group, and frequency of contact among them was higher. In terms of exchange, Mediterranean respondents gave and received more within-household help, and the non-Mediterranean group gave and received more help outside the household. Giving money was similar in both groups, but receipt of money was more pronounced among those from the Mediterranean area. As for social engagement, a similar minority within both groups was employed, but non-Mediterranean respondents took part in more social activities. Finally, Mediterranean respondents reported feeling lonelier. As for the well-being outcome measures, Mediterranean respondents reported more depressive symptoms and greater difficulty in making ends meet.

Table 2. Background and Health Characteristics of Persons Aged 60 Years and Older in Mediterranean and Non-Mediterranean Countries: *t* Tests

Variable	Mediterranean countries		Non-Mediterranean countries		<i>t</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Age	70.9	7.8	70.7	8.0	-1.0
Gender (F)	0.6	0.5	0.5	0.5	-3.3**
Education	1.6	1.2	2.6	1.1	36.2***
Income	26,305.1	34,171.5	42,468.1	46,314.5	19.1***
Wealth	313,293.7	1,021,160.9	303,229.7	794,563.8	-0.5
ADLs	0.3	0.9	0.2	0.7	-5.4***
IADLs	0.3	0.9	0.2	0.6	-9.2***
Number of chronic illnesses	2.0	1.6	1.7	1.4	-9.4***
Number of physical symptoms	1.9	1.9	1.6	1.6	-8.1***

Notes: ADL = basic activities of daily living; F = female; IADL = instrumental activities of daily living.

\*\**p* < .01; \*\*\**p* < .001.

In terms of background and health, Mediterranean respondents were less highly educated than their non-Mediterranean counterparts, had lower household incomes, and included more women (Table 2). They also reported worse health. The age distribution of the two groups was similar. Differences in mean wealth were not evident, but the range in wealth distribution among the Mediterranean respondents was wider. Given these differences, the background and health characteristics were entered into the subsequent analyses as control variables.

Table 3 presents the net association of the country groupings on the network variables, controlling for the effects of background and health characteristics, separately by gender. Almost all the network variables differed by region among both gender groups. Thus, even after taking the control variables into account, the networks of older men and women in the Mediterranean countries had more children or grandchildren, more children coresiding in the household

and more frequent contact with the most contacted child. In addition, Mediterranean men were more likely to have a spouse or partner. Men and women in the Mediterranean were more likely to exchange practical help within the household and financial assistance and less likely to exchange help outside the household. More of the Mediterranean men worked in formal employment, but fewer participated in social activities. Finally, both men and women from the Mediterranean region reported greater loneliness.

Depressive symptoms were regressed on the study variables separately by gender (Table 4). Only variables significant in at least one of the models are presented. Model 1 shows that the background and health characteristics accounted for 24%–27% of the variance. Physical symptoms were the prime initial predictor among both men and women, followed by IADL difficulties among the men and lower education among the women. The addition of the

Table 3. Associations Between Mediterranean Countries<sup>a</sup> and Social Network Variables by Gender: Regression Coefficients and OR

Variable	Men			Women		
	<i>N</i>	$\beta^a$	OR <sup>a</sup>	<i>N</i>	$\beta^a$	OR <sup>a</sup>
Spouse or partner <sup>a,b</sup>	4,111		1.384***	4,855		1.112
Number of children <sup>b</sup>	4,115	.077***		4,858	.013	
Number of grandchildren <sup>b</sup>	4,093	.020		4,835	.041**	
Number of children in household <sup>c</sup>	4,110	.250***		4,850	.213***	
Frequency of contact with most contacted child <sup>c</sup>	3,904	.095***		4,671	.034*	
Gave help within the household <sup>a,c</sup>	4,118		1.518**	4,858		1.250*
Gave help outside the household <sup>a,c</sup>	4,118		0.481***	4,858		0.670***
Gave money <sup>a,c</sup>	4,118		1.450***	4,858		1.343***
Got help within the household <sup>a,c</sup>	4,118		1.395	4,858		1.569*
Got help from outside the household <sup>a,c</sup>	4,118		0.620***	4,858		0.531***
Got money <sup>a,c</sup>	4,118		1.624**	4,858		1.851***
Work <sup>a,c</sup>	4,118		1.710***	4,858		1.147
Number of activities <sup>c</sup>	4,110	-.111***		4,850	-.015	
Frequency of activity in most frequent activity <sup>c</sup>	4,106	-.063***		4,849	.049**	
Loneliness <sup>c</sup>	3,985	.067***		4,662	.098***	

Notes: ADL = basic activities of daily living; OR = odds ratio; IADL = instrumental activities of daily living.

<sup>a</sup>Reference categories (in parentheses): Mediterranean countries (non-Mediterranean countries); spouse or partner (none); gave help within the household (no); gave help outside the household (no); gave money (no); got help within the household (no); got help from outside the household (no); got money (no); work (no).

<sup>b</sup>Adjusted for age, gender, education, and income.

<sup>c</sup>Adjusted for age, gender, education, income, wealth, ADL, IADL, number of chronic illnesses, and number of physical symptoms.

Table 4. Social Network and Other Predictors of Depressive Symptoms in Mediterranean and Non-Mediterranean Countries by Gender: OLS Regressions (beta coefficients)

	Model 1	Model 2	Model 3
<b>Men</b>			
<i>N</i>	3,725	3,710	3,695
Education	-.078***	-.054***	-.028
IADL	.156***	.120***	.114***
Number of chronic illnesses	.054**	.054**	.054**
Number of physical symptoms	.357***	.309***	.308***
Number of children in household		.041**	.054
Frequency of contact with child		-.038*	-.025
Gave help within the household		.059***	.104*
Got help within the household		.052**	-.056
Got help outside the household		.070***	.073
Work		-.037*	-.028
Loneliness		.230***	.147***
Interactions: by Mediterranean			
Got help within the household			.111*
Loneliness			.098*
<i>R</i> <sup>2</sup>	.238	.306	.315
$\Delta R^2$	—	.068	.009
<i>F</i>	145.154***	71.071***	44.652***
<b>Women</b>			
<i>N</i>	4,420	4,405	4,390
Age	-.018	-.040**	-.028
Education	-.130***	-.082***	-.047**
Income	-.004	.024	.034*
ADL	.087***	.073***	.076***
IADL	.099***	.064***	.049**
Number of chronic illnesses	.052**	.043**	.038*
Number of physical symptoms	.362***	.311***	.311***
Number of children in household		.032*	.039
Frequency of contact with child		-.013	-.097*
Gave help within the household		.044***	-.016
Got help within the household		.038**	-.008
Got money		.014	-.084*
Work		.004	.024
Number of activities		-.061**	.033
Loneliness		.295***	.247***
Interactions: by Mediterranean			
Frequency of contact with child			.114*
Got money			.098*
<i>R</i> <sup>2</sup>	.267	.352	.365
$\Delta R^2$	—	.086	.012
<i>F</i>	200.751***	104.095***	66.297***

Notes: ADL = basic activities of daily living; IADL = instrumental activities of daily living; OLS = ordinary least squares.

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

network variables in the second model added 7%–9% to the explained variance. Subjective network, as measured by loneliness, emerged as the second strongest predictor in both gender groups. Exchange of help within the household also predicted depressive symptoms among men and women as did the number of coresident children. Getting help from outside the household was a predictor among the men. The number of activities in which women engaged was inversely related to depressive symptoms, as was engagement in work among the men.

The entry of the interactions between the network measures and the Mediterranean grouping added just 1% to the overall explained variance (Model 3). But differing net-

work effects were evident among the women. Frequency of contact with the most contacted child was a positive predictor of depressive symptoms among women in the Mediterranean countries, as was receipt of money (as shown in the interaction variable). These same variables were negative predictors of the depression outcome in the non-Mediterranean control group (as may be seen in the corresponding network variable in the same model). Moreover, loneliness was a predictor of depressive symptoms among the women in the non-Mediterranean countries but not among the women in the Mediterranean comparison group.

In contrast, network effects among the men were fairly similar in both regions. The giving of household help was a predictor of depressive symptoms in the non-Mediterranean grouping, whereas the receipt of household help was a corresponding predictor among Mediterranean men. Loneliness emerged as a predictor of the depression outcome among men in both regions, but its association was stronger among those in the non-Mediterranean countries.

Perceived income inadequacy was also analyzed separately by gender (Table 5). Model 1 shows that background and health characteristics accounted for 16%–17% of the variance in this measure. Education and income were the strongest initial inverse predictors of economic distress among both genders. Age and wealth were also negatively associated with the outcome, and physical symptoms were positively related. Model 2 shows that the network variables added 5%–6% to the explained variance. For both genders, the variables most positively associated were the number of children in the household and loneliness. Receipt of financial aid was also a positive predictor, but a bit less so for men. Giving financial assistance was a major negative predictor of financial distress among both gender groups, as was the number of social activities. Among the women, having a partner was inversely associated with the outcome. Additional network variables having smaller associations are shown in the model as well.

The entry of the interactions between the network measures and the Mediterranean grouping (Model 3) added another 4%–6% to the explained variance. First, Mediterranean men and women who lived in a couple reported greater income inadequacy, whereas the opposite was true for those in the non-Mediterranean countries. Among non-Mediterranean men, work and the number of social activities were negatively correlated with the outcome. In contrast, frequency of activity was positively associated among Mediterranean men. Lastly, the exchange of money was also a predictor of distress among the men from the Mediterranean region but not among the men from the other countries. Turning to the women, frequency of contact with the most contacted child was a positive predictor of perceived income inadequacy in the Mediterranean countries but not in the non-Mediterranean countries. The number of grandchildren was negatively associated with the outcome among the non-Mediterranean women but not among their Mediterranean counterparts. Finally, giving

Table 5. Social Network and Other Predictors of Perceived Income Inadequacy in Mediterranean and Non-Mediterranean Countries by Gender: OLS Regressions (beta coefficients)

	Model 1	Model 2	Model 3
<b>Men</b>			
<i>N</i>	3,730	3,715	3,700
Age	-.084***	-.101***	-.101***
Education	-.277***	-.223***	-.149***
Income	-.185***	-.157***	-.116***
Wealth	-.057***	-.048*	-.057***
IADL	.058**	.032	.023
Number of physical symptoms	.112***	.087***	.089***
Spouse or partner		-.007	-.147**
Number of children		.052*	.028
Number of children in household		.093***	.093
Gave help within the household		.063***	.012
Gave money		-.122***	-.026
Got money		.045**	-.060
Work		-.031*	-.087*
Number of activities		-.067**	.074
Frequency of activity		.001	-.143*
Loneliness		.082***	.028
Interactions: by Mediterranean			
Spouse or partner			.160***
Gave money			-.121**
Got money			.092*
Frequency of activity			.157*
<i>R</i> <sup>2</sup>	.165	.215	.273
$\Delta R^2$	—	.050	.058
<i>F</i>	92.236***	44.311***	36.304***
<b>Women</b>			
<i>N</i>	4,447	4,432	4,417
Age	-.145***	-.184***	-.163***
Education	-.270***	-.204***	-.134***
Income	-.165***	-.122***	-.095***
Wealth	-.073***	-.067***	-.077***
IADL	.042*	.010	-.012
Number of physical symptoms	.117***	.095***	.093***
Spouse or partner		-.090***	-.314***
Number of grandchildren		.005	-.117*
Number of children in household		.090***	.067
Frequency of contact with child		.034*	-.076
Gave help within the household		.039**	.005
Gave money		-.098***	-.158***
Got money		.088***	.006
Work		-.037***	-.040
Number of activities		-.061**	.048
Loneliness		.114***	.061
Interactions: by Mediterranean			
Spouse or partner			.236***
Frequency of contact with child			.136*
<i>R</i> <sup>2</sup>	.163	.218	.261
$\Delta R^2$	—	.055	.043
<i>F</i>	108.623***	53.828***	40.066***

Notes: IADL = instrumental activities of daily living; OLS = ordinary least squares.

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

financial assistance was a negative predictor of financial distress among women in the non-Mediterranean group only.

## DISCUSSION

This study sought to clarify whether the social networks of older persons in Mediterranean and non-Mediterranean countries are appreciably different and whether the net-

works in question function in similar ways in relation to different well-being outcomes. The answer to the first query is affirmative; the respective social networks in the two settings differ on almost all the network indicators, even after controlling for relevant background and health characteristics. The response to the second question, however, seems to be negative. That is, the network variables show different patterns of association in relation to the well-being outcome measures in the analysis, albeit it to differing degrees.

The first hypothesis queried in this analysis posited that older Mediterranean respondents have larger family networks and more social exchange than their counterparts in the non-Mediterranean countries. The findings in the present study confirmed larger families, more children in the household, and more exchange of assistance within the household in the Mediterranean countries. This suggests, as has been reported elsewhere (Kalmijn & Saraceno, 2008), that the social networks of older persons in the Mediterranean might indeed be more familial in scope and in character.

However, it is also worthy to note that the non-Mediterranean respondents report greater exchange of assistance outside the household. This suggests that, at least in terms of social exchange, older non-Mediterranean men and women may define the boundaries of their family networks differently. Meaningful interaction with adult children and others can take place at a distance (Silverstein, Burholt, Wenger, & Bengtson, 1998), as long as this distance is accessible. Thus, older non-Mediterranean adults do not necessarily maintain less familial social networks. Rather, their network exchanges may simply extend over greater distances.

The second hypothesis postulated that older persons from the non-Mediterranean countries have greater social engagement and less loneliness than those in the Mediterranean region. The findings show that although older non-Mediterranean men are less likely to work in formal employment, they are indeed more likely to engage in social activity. And, when they do engage in social activity, they do so more frequently. This is not the case among the women, however. Thus, the first part of the hypothesis received partial support in the current analysis.

In contrast, the second part of the hypothesis was fully supported by the data. Men and women from the non-Mediterranean countries report less loneliness. Stated differently, respondents from the Mediterranean countries indicate a greater sense of loneliness despite their having larger families and greater exchange within their households. The explanation for this most probably stems from the differing expectations that older people in each of the regional groups of countries maintain regarding their relationships. As has been reported (van Tilburg et al., 1998), loneliness tends to be greater in communal societies where one's expectations for social contact are greater.

The present study underscores differences across the two regional settings in each of the conceptual areas that comprise the network phenomenon. These disparities prevail

above and beyond other differences that exist across these same settings in regard to socioeconomic standing and health status. It seems, therefore, that older people in different regions do indeed maintain different social networks. It is relevant to ask, therefore, whether such differing network constellations impact the well-being of older adults in characteristically different ways. The third hypothesis in the analysis addressed this question.

In the case of the first outcome—depressive symptoms—striking regional differences emerged among the women. (This was not the case among the men, however). As noted earlier, loneliness was the variable most associated with depression among older non-Mediterranean women, but it was not related to the same among Mediterranean women. It seems, therefore, that older women in the Mediterranean region report greater loneliness, but their perceived loneliness does not correspond with poorer mental health, as it does among the non-Mediterranean group.

An additional disparity of note is the inverse trends found in the association between frequency of contact with the most contacted child and depressive symptoms. Among Mediterranean women, greater frequency of contact correlates with more depressive symptoms. The opposite is the case among the non-Mediterranean women. Additional inquiry is required to clarify the reasons for this association.

Yet another divergent trend among the women relates to the receipt of financial support. Receipt of money was negatively associated with depressive symptoms among those from the non-Mediterranean countries, but positively related among their Mediterranean counterparts. The source of this disparity may lie in the social context of private financial transfers in the respective settings and their differing connotations. It could be that in the Mediterranean context, receipt of money from children is accompanied by a sense of shame and hence its correlation with poorer mental health.

Regional differences in the social network-related associations are also evident in the second well-being outcome addressed in this analysis. As noted, having a spouse or partner is a positive predictor of subjective economic distress in the Mediterranean area, whereas it is a negative predictor of the same in the non-Mediterranean region. This is true for both men and women. This difference might stem from the higher rates of employment that prevail among women in the non-Mediterranean countries and their resultant pension coverage. Having a retirement pension may provide a sense of economic security that is above and beyond actual differences in wealth and income. Thus, the households of two formerly employed partners can count on having a greater sense of income security after retirement than households in which only one of the partners has a pension.

Frequency of activity is another variable that shows opposing regional associations with perceived economic distress among the men (but not among the women). As

recalled, greater activity was related to less perceived income inadequacy in the non-Mediterranean countries and to greater perceived income inadequacy in the Mediterranean countries. One might explain this phenomenon by the high costs required in late life in order to remain active in social pursuits. Men who are active and can afford to be active, as is the case in the non-Mediterranean countries, feel less financial distress. Those who are active but cannot as easily afford to be so, as may be the case among men in the Mediterranean countries, perceive greater income inadequacy.

Finally, other variables show unique associations with perceived income inadequacy by regional group. For example, working is a negative predictor of financial distress among non-Mediterranean men but not among their Mediterranean counterparts. The number of grandchildren inversely correlates with financial distress among non-Mediterranean women but not among women from the Mediterranean. These and other results further underscore that network properties do indeed work differently in different sets of countries.

A word is also required on the gender issue. Sources cited in the literature review contend that the gender variable modifies the independent effect of social relations on various outcomes (Melchior et al., 2003; Zunzunegui et al., 2003). The findings from the present analysis reinforce this observation in many instances. Yet in other cases, the regional grouping variable outweighs possible gender differences. Additional research to further clarify the role of gender in the association between social network and well-being in different settings is warranted.

A few methodological limitations of the present analysis also need to be acknowledged. First is the cross-sectional nature of the data. Longitudinal data can better trace the dynamic nature of social network variables and their concomitant effects on various outcomes. Such inquiry will be possible as new waves of SHARE data are made available to the research community. A second limitation stems from the social network variables currently available within the SHARE questionnaire. Although SHARE provides a wide range of social network indicators, others are still missing, particularly measures of non-family-related ties and subjective appraisals of various aspects of network capacity. This limitation is characteristic of other surveys of this kind, such as the Health and Retirement Survey upon which the SHARE project is based. A third limitation is that despite the efforts of SHARE to harmonize the questionnaire items cross-nationally, it could still be that certain items were interpreted differently in different countries, as for example the interpretation of what it is to be lonely.

Despite these limitations, the SHARE enterprise provides an unparalleled opportunity to examine social networks in a comparative cross-national context. It also supplies a wide range of variables that may affect the development of social networks and their maintenance, particularly the inclusion of detailed indicators of economic status. By controlling for



these particular background variables, the net nature and the net effects of social networks can be more systematically addressed.

In conclusion, the current inquiry confirms that social networks are indeed a convoy that travels a different route in different settings (Antonucci & Akiyama, 1987). The findings further suggest that the social network phenomenon is contextually bound and that its various manifestations may differ in different sets of countries. Accordingly, the social networks of older people should be seen within their unique regional milieu and in relation to the values and social norms that prevail in different sets of societies.

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#### REFERENCES

- Albertini, M., Kohli, M., & Vogel, C. (2007). Intergenerational transfers of time and money in European families: Common patterns—Different regimes? *Journal of European Social Policy*, 17, 319–334.
- Antonucci, T. C., & Akiyama, H. (1987). Social networks in adult life and a preliminary examination of the convoy model. *Journal of Gerontology*, 42, 519–527.
- Attias-Donfut, C., Ogg, J., & Wolff, F. C. (2005). European patterns of intergenerational financial and time transfers. *European Journal of Ageing*, 2, 161–173.
- Berkman, L. F., Glass, T., Brissette, I., & Seeman, T. E. (2000). From social integration to health: Durkheim in the new millennium. *Social Science & Medicine*, 51, 843–857.
- Bettio, F., Simonazzi, A., & Villa, P. (2006). Change in care regimes and female migration: The 'care drain' in the Mediterranean. *Journal of European Social Policy*, 16, 271–285.
- Birditt, K., & Antonucci, T. C. (2008). Life sustaining irritations? Relationship quality and mortality in the context of chronic illness. *Social Science & Medicine*, 67, 1291–1299.
- Boersch-Supan, A., Hank, K., & Juerges, H. (2005). A new comprehensive and international view on ageing: Introducing the Survey of Health, Ageing and Retirement in Europe. *European Journal of Ageing*, 2, 245–253.
- Bowling, A., Farquhar, M., Grundy, E., & Formby, J. (1993). Changes in life satisfaction over a 2-1/2 year period among very elderly people living in London. *Social Science & Medicine*, 36, 641–655.
- Buber, I., & Engelhardt, H. (2008). Children's impact on the mental health of their older mothers and fathers: Findings from the Survey of Health, Ageing and Retirement in Europe. *European Journal of Ageing*, 5, 31–45.
- Castro-Costa, E., Dewey, M., Stewart, R., Banerjee, S., Huppert, F., Mendonca-Lima, C., Bula, C., Reisches, F., Wancata, J., Ritchie, K. et al. (2007). Prevalence of depressive symptoms and syndromes in later life in ten European countries: The SHARE study. *British Journal of Psychiatry*, 191, 393–401.
- Chen, X., & Silverstein, M. (2000). Intergenerational social support and the psychological well-being of older parents in China. *Research on Aging*, 22, 43–65.
- Cheng, S. T., & Chan, A. C. M. (2006). Social support and self-rated health revisited: Is there a gender difference in later life? *Social Science & Medicine*, 63, 118–122.
- Cornwell, B., Schumm, L. P., Laumann, E. O., & Graber, J. (2009). Social networks in the NSHAP study: Rationale, measurement, and preliminary findings. *Journal of Gerontology: Social Sciences*, 64B (Suppl. 1), i47–i55.
- Daatland, S. O., & Herlofson, K. (2003). 'Lost solidarity' or 'changed solidarity': a comparative European view of normative family solidarity. *Ageing & Society*, 23, 537–560.
- de Belvis, A. G., Avolio, M., Spagnolo, A., Damiani, G., Sicuro, L., Cicchetti, A., Ricciardi, W., & Rosano, A. (2008). Factors associated with health-related quality of life: The role of social relationships among the elderly in an Italian region. *Public Health*, 122, 784–793.
- de Leon, C. F. M., Gold, D. T., Glass, T. A., Kaplan, L., & George, L. K. (2001). Disability as a function of social networks and support in elderly African Americans and Whites: The duke EPESE 1986-1992. *Journal of Gerontology: Social Sciences*, 56, S179–S190.
- Erlinghagen, M., & Hank, K. (2006). The participation of older Europeans in volunteer work. *Ageing & Society*, 26, 567–584.
- Everard, K. M., Lach, H. W., Fisher, E. B., & Baum, M. C. (2000). Relationship of activity and social support to the functional health of older adults. *Journal of Gerontology: Social Sciences*, 55, S208–S212.
- Fees, B. S., Martin, P., & Poon, L. W. (1999). A model of loneliness in older adults. *Journal of Gerontology: Psychological Sciences*, 54, P231–P239.
- Fritzell, J., & Lennartsson, C. (2005). Financial transfers between generations in Sweden. *Ageing & Society*, 25(3), 397–414.
- Fung, H. H., Carstensen, L. L., & Lang, F. R. (2001). Age-related patterns in social networks among European Americans and African Americans: Implications for socioemotional selectivity across the life span. *International Journal of Aging & Human Development*, 52, 185–206.
- Gallant, M. P., Spitze, G. D., & Prohaska, T. R. (2007). Help or hindrance? How family and friends influence chronic illness self-management among older adults. *Research on Aging*, 29, 375–409.
- Gray, A. (2009). The social capital of older people. *Ageing & Society*, 29, 5–31.
- Grundy, E. (2005). Reciprocity in relationships: Socio-economic and health influences on intergenerational exchanges between third age parents and their adult children in Great Britain. *British Journal of Sociology*, 56, 233–255.
- Hawkley, L. C., Hughes, M. E., Waite, L. J., Masi, C. M., Thisted, R. A., & Cacioppo, J. T. (2008). From social structural factors to perceptions of relationship quality and loneliness: The Chicago Health, Aging, and Social Relations Study. *Journal of Gerontology: Social Sciences*, 63, S375–S384.
- Hinterlong, J. E., Morrow-Howell, N., & Rozario, P. A. (2007). Productive engagement and late life physical and mental health—Findings from a nationally representative panel study. *Research on Aging*, 29, 348–370.
- Ingersoll Dayton, B., Morgan, D., & Antonucci, T. (1997). The effects of positive and negative social exchanges on aging adults. *Journal of Gerontology: Social Sciences*, 52, S190–S199.
- Kalmijn, M., & Saraceno, C. (2008). A comparative perspective on intergenerational support—Responsiveness to parental needs in individualistic and familialistic countries. *European Societies*, 10, 479–508.

- Krause, N., & Rook, K. S. (2003). Negative interaction in late life: Issues in the stability and generalizability of conflict across relationships. *Journal of Gerontology: Psychological Sciences, 58*, P88–P99.
- Lemon, B. W., Bengtson, V. L., & Peterson, J. A. (1972). Exploration of activity theory of aging—Activity types and life satisfaction among in-movers to a retirement community. *Journal of Gerontology, 27*, 511–523.
- Lennartsson, C. (1999). Social ties and health among the very old in Sweden. *Research on Aging, 21*, 657–681.
- Li, L. W., & Liang, J. (2007). Social exchanges and subjective well-being among older Chinese: Does age make a difference? *Psychology and Aging, 22*, 386–391.
- Liang, J., Krause, N. M., & Bennett, J. M. (2001). Social exchange and well-being: Is giving better than receiving? *Psychology and Aging, 16*, 511–523.
- Litwin, H. (2007). What really matters in the social network-mortality association? A multivariate examination among older Jewish-Israelis. *European Journal of Ageing, 4*, 71–82.
- Litwin, H., & Sapir, E. V. (2009). Perceived income adequacy among older adults in 12 countries: Findings from the Survey of Health, Ageing and Retirement in Europe. *The Gerontologist, 49*, 397–496.
- Litwin, H., & Shiovitz-Ezra, S. (2006). The association between activity and well-being in later-life: What really matters? *Ageing & Society, 26*, 225–242.
- Lowenstein, A., & Daatland, S. O. (2006). Filial norms and family support in a comparative cross-national context: Evidence from the OASIS study. *Ageing & Society, 26*, 203–223.
- Melchior, M., Berkman, L. F., Niedhammer, I., Chea, M., & Goldberg, M. (2003). Social relations and self-reported health: A prospective analysis of the French Gazel cohort. *Social Science & Medicine, 56*, 1817–1830.
- Pinquart, M., & Sorensen, S. (2000). Influences of socioeconomic status, social network, and competence on subjective well-being in later life: A meta-analysis. *Psychology and Aging, 15*, 187–224.
- Reinhardt, J. P., Boerner, K., & Horowitz, A. (2006). Good to have but not to use: Differential impact of perceived and received support on well-being. *Journal of Social and Personal Relationships, 23*, 117–129.
- Rennemark, M., & Hagberg, B. (1999). Gender specific associations between social network and health behavior in old age. *Ageing & Mental Health, 3*, 320–327.
- Seeman, T. E., Lusignolo, T. M., Albert, M., & Berkman, L. (2001). Social relationships, social support, and patterns of cognitive aging in healthy, high-functioning older adults: MacArthur studies of successful aging. *Health Psychology, 20*, 243–255.
- Silverstein, M., Burholt, V., Wenger, G. C., & Bengtson, V. (1998). Parent-child relations among very old parents in Wales and the United States: A test of modernization theory. *Journal of Aging Studies, 12*, 387–409.
- Spiess, C.K., & Schneider, A. U. (2003). Interactions between care-giving and paid work hours among European midlife women, 1994 to 1996. *Ageing & Society, 23*, 41–68.
- van Tilburg, T., Gierveld, J. D., Lecchini, L., & Marsiglia, D. (1998). Social integration and loneliness: A comparative study among older adults in the Netherlands and Tuscany, Italy. *Journal of Social and Personal Relationships, 15*, 740–754.
- Viazzo, P. P. (2003). What's so special about the Mediterranean? Thirty years of research on household and family in Italy. *Continuity and Change, 18*, 111–137.
- Weiss, R. S. (1987). Reflections on the present state of loneliness research. *Journal of Social Behavior and Personality, 2*(2), 1–16.
- Zunzunegui, M. V., Alvarado, B. E., Del Ser, T., & Otero, A. (2003). Social networks, social integration, and social engagement determine cognitive decline in community-dwelling Spanish older adults. *Journal of Gerontology: Social Sciences, 58*, S93–S100.
- Zunzunegui, M. V., Beland, F., & Otero, A. (2001). Support from children, living arrangements, self-rated health and depressive symptoms of older people in Spain. *International Journal of Epidemiology, 30*, 1090–1099.