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Social Networks in the NSHAP Study: Rationale, Measurement, and Preliminary Findings

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Objectives. This paper describes the rationale behind the National Social Life, Health, and Aging Project's (NSHAP) social networks module, data collection procedures, and the measurement of several egocentric network properties. This includes a discussion of network size, composition, volume of contact with network members, density, and bridging potential. Data on the extent to which older adults involve network members in personal health matters are also discussed.

Methods. Descriptive statistics are presented for key network measures. Sociodemographic distributions of these measures are presented. Older adults' likelihood of discussing health with network members is also broken down by network member characteristics.

Results. Older adults tended to have large, kin-centered, dense networks, with some bridging potential. Network characteristics were related to age, gender, race/ethnicity, education, and health. Older adults tended to be very likely to involve network members (especially close ties) in health discussions and medical decision making.

Discussion. The data reiterate the relevance of social networks to older adults' health. We close by discussing how the NSHAP measures might be employed in future analyses of health.

Key Words: Aging—Health—Medical decision making—Social integration—Social networks.

GIVEN the rapid aging of society, older adults' social integration is an increasingly salient, policy-relevant issue. Studies show that remaining socially integrated through life course challenges has substantial health benefits. These benefits have been attributed to a range of processes, from the provision of social support to a sense of belonging and self-esteem (Berkman & Glass, 2000; House, Landis, & Umberson, 1988; Thoits, 1995). Social gerontologists therefore stress the importance of continued social integration via volunteering, religious participation, group involvement, family relations, and social network connectedness (Adams & Blieszner, 1995; Antonucci & Akiyama, 1987; Atchley, 1989; Cornwell, Laumann, & Schumm, 2008; Crosnoe & Elder, 2002; Krause, 2006; Lemon, Bengtson, & Peterson, 1972; Li & Ferraro, 2005; Rowe & Kahn, 1998; Shaw, Krause, Liang, & Bennett, 2007).

Of the many forms of social integration that scientists can consider, social network connectedness—a concept which encompasses many structural features—may be the most difficult to measure thoroughly. It requires consideration not only of one's connectedness to other people but also of those persons' connectedness to *each other*. Unfortunately, there is a lack of such social network data from representative samples of older adults.

This paper describes the National Social Life, Health, and Aging Project's (NSHAP) social network module and the resulting data. In-home interviews were conducted by the National Opinion Research Center in 2005–2006 among a nationally representative sample of 3,005 community-dwelling adults between the ages of 57 and 85 years. The sample was selected using a multistage area probability design, with oversampling among older men, Blacks, and Hispanics. The weighted response rate was 75.5%. (For a complete description of the NSHAP sample design, see the paper by O'Muircheartaigh, Eckman, & Smith [in press].) Here, we outline the rationale behind the types of social network data the NSHAP study collected and the procedures used to collect them, describe key features of social networks which are likely to be relevant to aging and health, and present some preliminary findings regarding features of older adults' social networks.

Measuring Social Networks in a National Survey

The first step in collecting social network data is to identify—for each respondent (referred to as ego)—the relevant set of individuals (referred to as alters) and the types of relationships that connect them (Laumann, Marsden, & Prensky, 1983). Many researchers who wish to study social networks begin with a preidentified set of roles (e.g., family, friends) and assume that the people occupying those roles relative to ego are the most relevant. For example, a common approach in the health literature is to count the number of people occupying such roles, often restricting attention to individuals with whom ego interacts frequently face-to-face

(e.g., Cohen, Doyle, Skoner, Rabin, & Gwaltney, 1997; see also the description of this approach in Berkman and Kawachi, 2000). However, there are two serious limitations to this approach. First, it does not allow ego to specify the kinds of contacts that are most important to him or her. Second, measures of network connectedness that are collected in this manner are sensitive to more general forms of social integration. For example, if coworkers are counted in a social network index, employed individuals will automatically have larger networks. This makes it difficult to discern the unique impact of social network connectedness specifically, as opposed to broader aspects of social integration.

In order to avoid these limitations, NSHAP utilized a module that permits each respondent to identify several network members of relevance to him or her and obtains information about these people and the relationships among them. In the case of a national survey with tiny sampling fraction, individual respondents are unlikely to be directly connected to each other, and it would therefore be of little value (not to mention impractical) to collect "sociocentric" network data describing respondents' network connections to each other (e.g., Christakis & Fowler, 2007). Rather, the task becomes to identify a set of persons around each respondent and describe the relationships that link them to the respondent and to each together. This provides a "local" sample from the larger social network that encompasses ego. Network data collected in this way are referred to as *egocentric*. An egocentric network consists of k actors, including ego and a set of $k - 1$ alters. The network can be represented by a $k \times k$ matrix in which the element in the rth row and cth column describes the relationship from individual r to individual c. Further discussion of issues involved in measuring social networks in the context of surveys can be found in Laumann and Schumm (1997).

The NSHAP Social Networks Module

To collect egocentric network data, NSHAP adopted an approach developed by social network researchers which involves using questions called *name generators* to permit the respondent to enumerate relevant alters (for a review of research using this approach, see Marsden [1990]). The NSHAP networks module was located at the beginning of the in-home interview. (For more information on the structure of the interview, see the discussion of the interview of Smith et al. [in press]. The questionnaire [along with the data] may be obtained from the National Archive of Computerized Data on Aging [http://www.icpsr.umich.edu/NACDA/].)

The networks module was introduced to respondents in the following way: "Now we are going to ask you some questions about your relationships with other people. We will begin by identifying some of the people you interact with on a regular basis." Because NSHAP was interested in assessing several types of network members, there were four "rosters," or lists of people, in the networks module: A, B, C, and D. Roster A was focused on collecting data on respondents' core confidantes. To this end, following the General Social Survey (years 1985 and 2004), NSHAP interviewers asked respondents to list people with whom they discuss "important matters."

"From time to time, most people discuss things that are important to them with others. For example, these may include good or bad things that happen to you, problems you are having, or important concerns you may have. Looking back over the last 12 months, who are the people with whom you most often discussed things that were important to you? (Prompt if do not know: *This could be a person you tend to talk to about things that are important to you*.)"

Respondents could name up to five people; those who named five were then asked if there were any others. Thus, we can discern if their networks contain anywhere from zero to "six or more" contacts.

The "important matters" item is a well-established name generator for network studies in sociology. It elicits names of strong, frequently accessed, long-term confidantes (see Marin, 2004; Ruan, 1998)—ties through which normative pressures and social influence are likely to operate. Studies based on this question have yielded important insights about social contacts who are particularly influential in adults' lives (e.g., Burt, 1987; Deng & Bonacich, 1991; Knoke, 1990; Marsden, 1987; Moore, 1990; Straits, 1996).

Rosters B, C, and D capture other potentially important network members. When respondents who had a spouse or romantic partner did not include that person in Roster A, that individual was then recorded in Roster B. Following this, respondents were asked: "(Besides the people you already listed), is there anyone (else) who is very important to you, perhaps someone with whom you feel especially close?" If such an individual was identified, he or she was recorded in Roster C. This item was added to ensure inclusion of important social contacts that may not have been captured by the main name generator. Finally, any remaining household members not captured in Roster A, B, or C were added to Roster D. The NSHAP network data are provided in a dyad-level file in which each row contains information about a specific network member for a given respondent (i.e., multiple rows per respondent).

Table 1 displays the distributions of the number of alters identified in each of the rosters. All together, there are 13,125 alters in the network dyad file. There are 10,189 alters from Roster A. About 15% of the sample (455 respondents) added a spouse or partner in Roster B. Over half of the sample (1,633 respondents) claimed to have at least one other person to whom they are "especially close," beyond the network members already mentioned. The final column shows that 85% of respondents reported no additional household members beyond those named in preceding rosters. The remaining 15% added a total of 848 household members in Roster D. Only 28% of respondents reported living alone.

Table 1. Number of Alters in the NSHAP Network Rosters[a]

	Roster			
Number of alters in roster	A	B	C	D
0	73 (1.8%)	2,550 (84.5%)	1,372 (45.0%)	2,515 (85.2%)
1	334 (10.7%)	455 (15.5%)	1,633 (55.0%)	296 (9.5%)
2	498 (15.2%)	—	—	96 (2.9%)
3	570 (18.9%)	—	—	61 (1.5%)
4	501 (16.6%)	—	—	19 (0.4%)
5	1,029 (36.8%)	—	—	12 (0.3%)
6	—	—	—	2 (0.0%)
7	—	—	—	3 (0.0%)
8	—	—	—	1 (0.0%)
Total number of dyads	10,189	455	1,633	848

Notes: NSHAP, National Social Life, Health, and Aging Project.

[a]The proportion of respondents reporting a given frequency is in parentheses. Estimates include weights to account for differential probabilities of selection with poststratification adjustments for nonresponse.

It is important to note that the social networks module was incorporated into the NSHAP interview in such a way as to avoid a potential deficiency in the General Social Survey (GSS) network data. Marsden (2003) found substantial between-interviewer variation in the number of alters named by GSS respondents—as large as or larger than differences associated with respondent characteristics. This high degree of between-interviewer variability may have been partly due to the fact that the GSS networks module appeared in the middle of the interview. Differences between interviewers in the manner in which the module was presented (e.g., the extent to which it was rushed, the willingness to clarify or probe, etc.) combined with factors such as respondent fatigue may have reduced the number of alters cited by some respondents. Furthermore, survey content which precedes questions about alters can affect interpretations of the name generator (Bailey & Marsden, 1999; Bearman & Parigi, 2004; Straits, 2000), thus potentially affecting the number of alters named. The NSHAP networks module was positioned at the beginning of the interview to avoid these problems.

Following the enumeration of alters, NSHAP collected several pieces of information about each alter from respondents (such items are known as *name interpreters*). First, following the GSS and many other egocentric studies, we asked the respondent to describe his or her relationship to each alter (e.g., kin, friend) and the alter's gender. For alters in Rosters A–C, we recorded whether the alter lives with ego (to permit construction of a complete household roster), ego's frequency of contact with and emotional closeness to alter, ego's likelihood of discussing health matters with alter, and the alter's frequency of contact with each of the other alters listed in Rosters A–C (this provides a basis for assigning values to the elements in the egocentric network matrix described earlier). We also asked the age of all alters who live with ego. This information is summarized in Table 2; we now consider each item in greater detail.

Social Network Measures

It is important to consider a variety of measures of social network connectedness as both structural and emotional aspects of networks are likely to be associated with health at older ages. In the following sections, we discuss several aspects of network connectedness that may be related to older adults' health. Descriptive statistics for each measure are presented in Table 3 separately according to several sociodemographic characteristics. Trend tests were conducted to assess whether the distribution of each network characteristic was uniform across groups. (Each network

Table 2. Characteristics Recorded for Alters in the NSHAP Network Rosters

	Was information collected about the following alter type?			
Information about alter	Discussion partners (A)	Spouse or partner (B)	Other close contact (C)	Other household members (D)
Relationship type	Yes	Yes	Yes	Yes
Gender	Yes	Yes	Yes	Yes
Coresident status	Yes	Yes	Yes	—
Age	If coresident	If coresident	If coresident	Yes
Frequency of contact with R	Yes	Yes	Yes	No
Frequency of contact with/other alters	Yes	Yes	Yes	No
Closeness with R	Yes	Yes	Yes	No
R's likelihood of discussing health	Yes	Yes	Yes	No

Note: NSHAP, National Social Life, Health, and Aging Project.

Table 3. Sociodemographic Distributions and Summary Statistics of Key Social Network Measures in the NSHAP Study[a]

Attribute[b]	Network size (number of confidantes)	Proportion kin	Proportion female	Proportion living in R's household	Closeness to alters[c]	Volume of contact with alters (contact-days/year)	Network density (proportion of possible alter–alter ties that exist)[d]	Bridging potential (number of unconnected alter pairs)[d]
Age (years)								
57–64	3.54	0.66	0.63	0.27	3.21	727.24	0.86	0.08
65–74	3.46	0.67	0.63	0.24	3.13	661.16	0.84	0.10
75–85	3.40	0.69	0.64	0.18	3.10	639.80	0.85	0.11
Trend test	$p=.09$	$p=.19$	$p=.58$	$p=.00$	$p=.00$	$p=.00$	$p=.30$	$p=.10$
Gender								
Female	3.69	0.66	0.71	0.16	3.19	734.24	0.83	0.12
Male	3.26	0.68	0.54	0.32	3.12	629.39	0.87	0.07
Trend test	$p=.00$	$p=.20$	$p=.00$	$p=.00$	$p=.00$	$p=.00$	$p=.00$	$p=.01$
Race/ethnicity								
White	3.59	0.66	0.62	0.23	3.15	684.52	0.85	0.10
Black	3.10	0.67	0.68	0.20	3.22	691.18	0.84	0.11
Hispanic, non-Black	2.86	0.79	0.66	0.34	3.16	670.95	0.90	0.07
Other	3.26	0.72	0.60	0.27	3.12	666.74	0.93	0.03
Trend test	$p=.00$	$p=.00$	$p=.03$	$p=.00$	$p=.19$	$p=.94$	$p=.00$	$p=.02$
Education								
<HS	2.97	0.72	0.66	0.25	3.15	653.69	0.89	0.08
HS or equivalent	3.34	0.71	0.64	0.22	3.18	685.64	0.88	0.10
Some college	3.62	0.64	0.63	0.22	3.15	697.38	0.83	0.11
≥Bachelor's	3.85	0.63	0.59	0.26	3.14	686.34	0.82	0.09
Trend test	$p=.00$	$p=.00$	$p=.01$	$p=.53$	$p=.56$	$p=.22$	$p=.00$	$p=.59$
Self-rated health								
Poor/fair	3.29	0.68	0.63	0.22	3.09	681.34	0.86	0.10
Good	3.37	0.69	0.63	0.25	3.16	675.56	0.85	0.11
Very good/excellent	3.66	0.66	0.63	0.24	3.19	689.09	0.85	0.09
Trend test	$p=.00$	$p=.17$	$p=.98$	$p=.15$	$p=.01$	$p=.60$	$p=.51$	$p=.21$
Overall weighted mean	3.48	0.67	0.63	0.24	3.16	683.42	0.85	0.10
SD	1.49	0.34	0.30	0.28	0.54	363.85	0.25	0.30
Skewness	−0.44	−0.67	−0.42	1.51	−0.32	0.53	−1.74	2.62

Notes: HS, High School; NSHAP, National Social Life, Health, and Aging Project.

[a]Estimates refer to network members included in Roster A only.

[b]Observed (weighted) means for each group are reported in the table. Significance of differences across groups was assessed using trend tests. The *p* value for the overall test of significance is reported below each group.

[c]Based on respondent's average rating of how close they are to network members (1 = *not very close*, 4 = *extremely close*).

[d]These measures are relevant only to those who have at least two confidantes ($n=2,589$).

measure was regressed separately on each integer score measure representing age, education, and health and on each set of group of dummies representing race/ethnicity and gender. The *p* value for the test of overall significance is reported. All estimates and models include weights to account for differential probabilities of selection with post-stratification adjustments for nonresponse and take into account the clustering and stratification of the sample design.) Pairwise correlations among the network measures are presented in Table 4.

Table 4. Pairwise Correlations Between Key Social Network Measures in the NSHAP Study[a]

Network measure	1	2	3	4	5	6	7
Network size	—	—	—	—	—	—	—
Proportion kin	−0.14***	—	—	—	—	—	—
Proportion female	−0.12***	0.08***	—	—	—	—	—
Proportion coresident	−0.42***	0.37***	0.04*	—	—	—	—
Average closeness	−0.18***	0.36***	0.15***	0.25***	—	—	—
Volume of contact	0.60***	0.07***	−0.02	−0.07***	0.12***	—	—
Network density[b]	−0.16***	0.47***	−0.07***	0.27***	0.27***	0.16***	—
Bridging potential[b]	0.01	−0.31***	0.08***	−0.22***	−0.18**	−0.17***	−0.77***

Notes: NSHAP, National Social Life, Health, and Aging Project.

[a]Correlations are calculated from all cases with data on the relevant pair of variables.

[b]These measures are relevant only to those who have at least two confidantes ($n=2,589$).

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

Network Size

The most basic measure is egocentric network size. All else equal, individuals who have larger social networks have greater access to social resources like instrumental and socioemotional support. Because NSHAP used a variation of the "important matters" name generator, a measure of network size derived from these data captures the extent to which a person has the strong types of social ties that are most likely to provide social support.

The findings from Roster A deserve particular attention given the importance of discussion networks to social influence and support. Few respondents reported having no confidantes. In fact, the modal number reported by NSHAP respondents was five, with over one third of the sample reporting that they have five or more confidantes. As shown in Table 3, women, Whites, higher educated people, and healthier respondents reported having larger confidante networks.

Network Composition

Network composition refers to the types of contacts ego maintains. Network composition can be defined in various ways, such as the prevalence of specific types of tie (e.g., friends) in the network or the overall diversity of ties within it. Many researchers in medical sociology and social gerontology focus on the proportion of kin because kin relations are the most likely to provide unconditional support in the face of health crises (Antonucci & Akiyama, 1987; Hurlbert, Haines, & Beggs, 2000).

To make it possible to identify a wider variety of relationship types in older adults' networks, NSHAP asked respondents to characterize their relationship with each alter as 1 of the following 18 types: spouse, ex-spouse, romantic/sexual partner, parent, parent-in-law, child, stepchild, sibling, other relative, other in-law, friend, neighbor, coworker or boss, minister/priest/other clergy, psychiatrist/psychologist/counselor/therapist, caseworker/social worker, housekeeper/home health care provider, or other. As seen from Table 3, older adults' networks are mainly kin centered. However, there are some differences in network composition across demographic groups. Latinos tended to report more kin-centered networks than Whites. About two thirds of Whites' and Blacks' networks comprised kin compared with nearly 80% of Latinos' networks. People with less formal education also reported networks with a higher proportion of kin. With respect to other aspects of network composition, men reported having fewer female confidantes, as did Whites (compared with Blacks) and more highly educated people. About one fourth of network members lived with the respondent. (About 80% of coresident network members were the respondent's spouse or current partner.) Older respondents, women, and Whites (compared with Latinos) reported fewer coresident alters.

Emotional Closeness to Network Members

The subjective, emotional quality of relationships has been linked to well-being (Wellman & Wortley, 1990) and may modulate the effect of other network features on well-being (Fiori, Antonucci, & Cortina, 2006). High-quality relationships are the most likely to provide individuals with a sense of belonging and self-esteem. Unlike studies that conceptualize emotional closeness in terms of relationship type (e.g., automatically assuming that kin ties are closer), NSHAP measured relationship quality directly by asking respondents: "How close do you feel is your relationship with [name]?" Possible responses included "not very close," "somewhat close," "very close," or "extremely close" (in that order). This item was modeled after an item in the GSS networks module. Emotional closeness is summarized in Table 3 using the average closeness rating (coded 1–4) across alters. Most older adults maintain close contacts. However, the oldest adults, men, and those who are in poorer health reported being less close to their network members.

Volume of Contact With Network Members

All else equal, more contact with alters means more access to resources and social support (Lin, Woelfel, & Light, 1985; Munch, McPherson, & Smith-Lovin, 1997). Contact volume therefore affects the potential impact of networks on health (Seeman & Berkman, 1988; Terhell, van Groenou, & van Tilburg, 2007). NSHAP respondents reported how often they talk to each alter on an 8-point scale, ranging from "every day" to "less than once per year." One can score these responses according to the approximate number of times per year ego interacts with alter (e.g., "once a month" = 12; "every day" = 365) and sum these scores across all alters in Roster A to obtain a measure of overall volume of contact with alters. This measure depends both on average frequency of interaction with each network member and on network size, so it is closely related to both (Table 4). The findings presented in Table 3 show that on average, older adults report nearly two contacts per day with a close confidante. The oldest adults in the sample and men reported fewer contacts per year than younger adults and women, respectively.

Network Density

In addition to the relationships between ego and alter, it is also important to consider the presence and nature of relationships *among* alters. One way to address this is through the concept of network density, defined as the proportion of all possible pairs among the alters in which the two individuals know each other. High-density networks constitute close-knit social contexts in which alters can share and compare information, coordinate caregiving duties, and pool resources. Thus, high network density is associated with more reliable and more frequent activation of informal support (Haines, Hurlbert, & Beggs, 1996; Hurlbert et al.,

2000). Consider, for example, a widowed woman who is recovering from heart surgery. If her children and her closest friends know each other well, they can arrange to monitor and care for her in shifts during her recovery at home. The relationship of this aspect of network structure to health has not been explored in depth, though there are some exceptions (e.g., Kelley-Moore, Schumacher, Kahana, & Kahana, 2006).

NSHAP respondents were asked to indicate how often each alter talks to each of the other alters. The response set was the same as that used for the relationship between ego and alter, with the additional response "have never spoken to each other." Although weighted measures of density are available which take into account the frequency of contact among alters, for simplicity, we present here an unweighted measure, calculated as the proportion of $k(k-1)/2$ pairs in which the two individuals merely know each other. Table 3 shows that older adults' networks are quite dense, with 85% of all possible ties among alters being present, on average. Men, Latinos, and those in the "other" racial/ethnic category, and less educated respondents tended to report more dense networks.

Network Bridging Potential

A concept that is even more rarely considered in the context of health research is that of bridging. Bridging occurs when ego maintains connections with at least two alters who, without ego, would not be connected to each other. Serving as a bridge can be useful to individuals for a variety of reasons. For one, it yields brokerage potential because those who occupy bridging positions can gain power from the mediation of exchange and transfer of resources and information between unconnected parties (Burt, 1992, 2005). Bridging increases access to separate pools of information and resources (Granovetter, 1973), a valuable option when one seeks advice from numerous sources. Finally, those who maintain separate circles of close contacts tend to exhibit greater individuality and have more independence (Cornwell, 2009; Krackhardt, 1999).

Like network density, bridging potential is evaluated using information on the presence or absence of relationships among alters. A person has bridging potential whenever two alters are unconnected to each other. Therefore, a person's bridging potential could be quantified as the number of pairs of alters in his or her network who are not directly connected to each other—the number that reportedly "have never spoken to each other." However, it is important to recognize that some other individual apart from ego could serve as an indirect link between the unconnected pair. This is not likely to be the case for alters who have had no contact with any of ego's other alters. Therefore, we operationalize bridging potential as a dichotomous indicator of whether there is any alter in ego's network who is unconnected to all the other alters (Cornwell, 2009). In such cases, ego constitutes the sole bridge between this alter and the others—at least within his or her egocentric network (other bridges may exist which involve individuals outside the respondent's egocentric network). All else equal, those who have low network density will have the most bridging potential of this kind as density and bridging are inversely related (see Table 4). Therefore, it is not surprising that men, Latinos, and those in the "other" racial/ethnic category exhibited significantly less bridging potential.

Assessing Network Members' Involvement in Health-Related Decisions

The NSHAP study was particularly interested in the relationship between aspects of social connectedness and health. Much research has examined the link between older adults' network connectedness and health. However, little is known about the extent to which older adults include their alters directly in discussions about their health or involve them in decisions regarding medical treatment. This is a potentially important mechanism by which network connectedness may affect health (and vice versa). In this section, we describe two additional items included in NSHAP that permit one to address this issue.

Network Members in Health Discussions

The health benefits of being socially connected may depend on open communication with one's network members, including the candid exchange of health-related concerns. When health is discussed openly, alters may be better able to identify and deliver the kind of support, care, and other resources a person needs. With this in mind, NSHAP asked respondents about the prospects of health-related discussions with each of the alters they listed in Rosters A, B, and C. The question was: "Suppose you had a health problem that you were concerned about, or needed to make an important decision about your own medical treatment. How likely is it that you would talk with [name] about this: Would you say very likely, somewhat likely, or not likely"? This question was designed by the NSHAP team, but it was informed by items used in Lin, Dean, and Ensel (1986).

What features of older adults' relationships with alters are associated with the likelihood that they discuss health openly with them? This question can be easily examined using the dyad-level network file supplied with the NSHAP data set (described earlier) which includes data on respondents' level of openness in health-related discussions with the 12,277 alters in Rosters A, B, and C. Table 5 shows how the likelihood of including alters in discussions about health issues or medical decisions is related to the characteristics of the alters themselves and the nature of their relationships with ego.

Several items are worth noting. First, older adults are in general very open to discussing health matters with their alters, reporting that they were "very likely" to discuss

Table 5. Likelihood of Including Social Network Members (alters) in Health-Related Discussions, by Alter Characteristics ($n = 12{,}256$ alters)[a]

	Likelihood of discussing health with alter		
Alter characteristics	Not likely	Somewhat likely	Very likely
Alter's relationship type			
Spouse	37 (2.1%)	96 (5.3%)	1,667 (92.6%)
Child	225 (6.1%)	697 (18.8%)	2,783 (75.11%)
Sibling	236 (17.5%)	385 (28.5%)	728 (54.0%)
Partner	125 (9.3%)	304 (22.7%)	910 (68.0%)
Other relative	25 (13.1%)	41 (21.5%)	125 (65.5%)
Friend	569 (19.1%)	932 (31.3%)	1,479 (49.6%)
Other	212 (23.8%)	270 (30.3%)	410 (46.0%)
Emotional closeness to alter			
Very or extremely close	663 (6.7%)	1,712 (17.4%)	7,459 (75.9%)
Not very or somewhat close	761 (31.6%)	1,011 (42.0%)	638 (26.5%)
Frequency of contact with alter			
≥Several times a week	642 (8.2%)	1,390 (17.8%)	5,761 (73.9%)
<Several times a week	783 (17.6%)	1,333 (29.9%)	2,337 (52.5%)
Alter's sex			
Female	700 (9.4%)	1,557 (20.9%)	5,199 (69.7%)
Male	729 (15.2%)	1,168 (24.3%)	2,903 (60.5%)
Alter's coresident status			
Coresident	73 (3.2%)	189 (8.3%)	2,020 (88.5%)
Not coresident	1,356 (13.6%)	2,536 (25.4%)	6,082 (61.0%)
All network members	1,429 (11.7%)	2,725 (22.2%)	8,102 (66.1%)

Note: [a]No significance tests are conducted and weights are not used because observations of alters who are in the same respondent's network are not independent of each other.

health with two thirds of their alters. However, whether they are likely to discuss important health matters with a given alter does appear to be associated with the nature of the relationship. More older adults say that they are "very likely" to discuss health with their spouse than with any other individual, followed by children, siblings, romantic partners, then other relatives, friends, and other nonrelatives. Likewise, health discussions are strongly associated with relationship strength; older adults are more likely to discuss health with those alters with whom they feel close and with whom they have frequent contact. Respondents were also more likely to discuss health with female alters and with those who are coresident.

Network Members in Medical Decision Making

Apart from the inclusion of social network members in health discussions, it is also useful to examine older adults' consideration of alters as proxy medical decision makers. An increasing number of people are establishing advanced directives, such as durable powers of attorney for health care (DPAHC), to help extend their control over future medical treatments. Research suggests that most older adults trust someone to make medical decisions on their behalf. In general, preferences for medical decision makers are hierarchically ordered as follows: spouse, children, other relatives, and then nonkin (Carr & Khodyakov, 2007; Hopp, 2000; Noelker & Bass, 1994).

To assess the role played by alters in proxy medical decision making, we asked respondents: "Do you have someone who you would like to make medical decisions for you if you were unable, as for example if you were seriously injured or very sick?" If so, we then assessed this person's role in the respondent's social network by asking: "Is this person one of the people you identified earlier?" If so, they were asked to identify this person from the network roster. In order to save time during the interview, these questions were asked of a randomly selected two thirds of the sample during the in-person interview, whereas the remainder received it in the leave-behind questionnaire. Because the completed rosters were not left behind for respondents' reference, the follow-up question about whether medical decision makers were in the network was only asked of those who were administered these items during the interview.

A vast majority of respondents (92%) had designated a medical decision maker. Of these, 94% indicated that their designee was one of the people they had named in one of the network rosters. Nearly all (96%) the alters identified as medical decision makers were kin (usually the spouse or a child). These findings are similar to those reported by Carr and Khodyakov (2007), who find that 96% of the people in their study who appointed a DPAHC named a family member. The egocentric network is also relevant for those few respondents who had no spouse, partner, or children and who reported that they had a medical decision maker ($n = 72$). Among these respondents, 89% reported that their medical decision maker was a social network member. Overall, these results suggest that older adults' see social network members as playing a key role in their long-term medical treatment.

Conclusions

The NSHAP study affords researchers the opportunity to develop a comprehensive picture of older adults' social networks. The findings presented here suggest that older adults are well connected socially. They have relatively large core discussion networks and access to a variety of types of social contacts. Analysis of basic measures of network structure—including size, composition, density, and bridging— reveals several differences between sociodemographic subgroups which deserve closer scrutiny in future research by medical sociologists and social gerontologists.

The NSHAP network data make it possible to explore several links between health and social life, which are thus far poorly understood. We know that older adults' social network members are central to medical decision-making processes. An issue that calls for more research, though, is older adults' openness about personal health issues with their social network members. The free exchange of health-related information may make older adults' networks more

efficient with respect to the mobilization of support and delivery of advice and other resources. With the NSHAP data, researchers can examine how respondents' attributes, network members' characteristics, and the nature of their relationships with each other facilitate or impede the sharing of health-related concerns. These factors should be employed in future research on the role of social networks in affecting older adults' health.

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