Journal of Aging and Health
Volume 19 Number 5
October 2007 757-777

10.1177/0898264307304306
http://jah.sagepub.com
hosted at
http://online.sagepub.com

The Structure and Function of Frail Male Veterans' Informal Networks

Katherine Harris Abbott, PhD
University of Pennsylvania
Eleanor Palo Stoller, PhD
Wake Forest University
Julia Hannum Rose, PhD
Louis Stokes Cleveland VAMC

Objectives: This research focuses on the role of informal networks in providing emotional support, instrumental aid, and assistance with chronic disease management for frail male veterans. **Methods:** Telephone interviews were conducted with nursing home eligible veterans living in the community. Name-generating questions were used to illicit network members. **Results:** Data on 198 frail male veterans indicate that they have about three people they rely on for emotional support, instrumental aid, health appraisal, and health monitoring. Networks are composed primarily of family, and adult sons are mentioned almost as often as adult daughters. **Discussion:** Findings illustrate not only the role women play as providers of the majority of informal care to veterans but also the substantial role adult sons have in providing support to their fathers. Many veterans are at risk of institutionalization by having no one to provide instrumental support and health monitoring.

Keywords: *social networks; frail; veterans; men; lay consultation*

There has been considerable research demonstrating that informal networks provide a great deal of support to older people. As older people become increasingly frail, they need help with a broader range of

Authors' Notes: This study was supported in part by the New Millennium Bill in a Department of Veterans Affairs Pilot Project grant to test "Model I: VA as Sole Provider of All-Inclusive Long-Term Care." Authors wish to thank Amy Wisniewski Dan for her thoughtful comments on an earlier draft of this manuscript as well as the numerous contributions of the following individuals in data collection and implementation: Melissa Cappaert, Anthony D'Eramo, Denise Kresevic, and Klara Papp. Please address correspondence to Katherine Harris Abbott, PhD, University of Pennsylvania School of Nursing, Ralston Penn Center, 3615 Chestnut Street, Rm 335, Philadelphia, PA 19104-2676; e-mail: abbott@nursing.upenn.edu.

tasks, leading to an increase in time commitment from informal helpers (Cicirelli, 1981). Additionally, frail elders with less education, lower income, and greater disability are more likely to have unstable social networks because of fewer resources and greater need (Litwin, 2003). Veteran populations using Veteran Affairs Medical Centers (VAMC) are characterized by having greater disability, fewer socioeconomic resources such as income and education, and greater social isolation than the general population (Johnson, Fontana, Lubin, Corn, & Rosenheck, 2004; Kazis et al., 1998; Payne et al., 2005). We would expect these aspects to be detrimental to a veteran's informal social network.

Research has found that demographic factors are the primary forces behind care provided to older men and women as currently understood. Women typically marry older men, who require assistance earlier in the marital trajectory. Wives function as primary caregivers for their husbands and are often widowed because of their longer life expectancies. When widows require care, it is often their adult daughters who provide support (Arling & McAuley, 1983; Cantor, 1983; Dwyer & Seccombe, 1991; Hess & Soldo, 1985; Lee, 1992; Lee, Dwyer, & Coward, 1993; Reiss & Lee, 1988). Focusing on one primary caregiver has left unanswered questions about whether there are additional people involved in providing support to older people, such as adult children. Few studies have examined Lee et al.'s (1993) theory that adult sons are more likely to provide care to fathers than to mothers because the proportion of unmarried elderly men is relatively small. Additionally, we understand much less about the support provided to frail men who are on the cusp of being institutionalized.

Study Contributions

Because of the limited amount of information on the social networks of nursing home eligible male veterans, this study provides a descriptive account of the structural characteristics of their informal social networks. This study examines the structure of informal networks providing emotional support, instrumental support, and health consultation in a sample of male veterans who are nursing home eligible. This article contributes to our knowledge of the social networks of frail men requiring considerable assistance with activities of daily living (ADL) and instrumental activities of daily living (IADL). Additionally, because we use the social network perspective, assistance measurement is not limited to one primary caregiver. By asking frail men to identify who provides them with a variety of supportive functions, this study is able to capture additional people who are usually left

out of caregiving studies. The role of adult children is explored, specifically with regard to the participation of adult daughters and sons in the provision of care to their fathers. Finally, this study sheds light on the network characteristics that place veterans at greatest risk for institutionalization.

Theoretical Perspectives

Two theoretical perspectives guided the formation of this research, the social network perspective and the theory of lay consultation. The social network perspective provides researchers with one way to study how people receive support and make decisions about their health. Social networks are conceptualized as links connecting individuals who can be mobilized to provide functional behaviors, such as emotional support. In frail elders, much of the support needed revolves around emotional support, instrumental aid, and lay consultation about their health. Although no standard method to gather information to map a person's network exists, the use of name-generating questions has shown promise in describing network structure and function (Pescosolido, 2001).

Structure generally includes size (number of people in network), density (the extent to which members in a network know one another), frequency of contact, strength of tie, and composition (e.g., kin vs. nonkin) of a network. Function refers to the specific support functions network members provide. As opposed to most studies that investigate one or two types of support, this study focuses on four types of support: (a) emotional support, (b) instrumental aid, (c) health appraisal, and (d) health monitoring. The provision of emotional support includes talking to the elder when he or she is upset or concerned. Examples of instrumental aid include assistance with ADL, such as eating, dressing, and bathing and assistance with IADL, such as paying bills, shopping, and meal preparation. Health appraisal is assistance with evaluating the seriousness of a symptom, whereas health monitoring includes specific tasks such as watching someone's diet or making sure they exercise or take their medications in the correct amounts and at the correct times.

Another well-known conceptualization of social networks is the life span developmental model of the convoy of social support by Kahn and Antonucci (1980). In this conceptualization, an individual is surrounded by network members from birth. These contacts continue through life with relationships developing as the individual matures. Throughout time, individuals' network members are lost and added in response to life events (e.g., marriage, moving away, death). Although this conceptualization is effective in capturing the

dynamic nature of networks over the life course, it is difficult to measure. Most often, respondents are asked to place network members in concentric circles, with the inner circle representing people closest to the respondent. This approach was designed to be used in face-to-face interviews, and researchers have modified this measurement strategy to be used in telephone interviews.

Two recent studies use this modified strategy to conceptualize the 'inner circle of support'. The inner circle is important because it represents strong relationships that have the greatest impact on health. Peek and Lin (1999) operationalize the inner circle placement in terms of people who were mentioned for all questions regarding who the respondent turns to for help or support. Stoller and Wisniewski (2003) adopted Peek and Lin's strategy and operationalized the inner circle as consisting of people who were mentioned for all questions relating to health appraisal.

Lay Consultation Within the Social Network Perspective

Freidson (1970) uses a symbolic interactionist perspective to explain how individuals use lay consultants (people who are not medical professionals) to make sense of symptoms, determine their seriousness, make self-care decisions, seek medical care, and comply with medical regimes. Typically, lay consultants are family members but nonfamily members who have more expertise can also be involved. Chronic conditions usually have a slow, subtle onset (and can also be asymptomatic, such as hypertension), making it difficult to determine when medical care is needed. Therefore, the appraisal and monitoring support from lay consultants are an important partnership in recognizing the need for medical attention.

Once conditions are diagnosed, lay consultants can be instrumental in managing the illness and in encouraging (or discouraging) medication compliance and lifestyle changes such as diet and exercise. Although chronic illness management increases the need for lay consultation, the ability of the care recipient to maintain the size and range of their network is compromised. Retirement, disability, illness, and death of network members tend to shrink the size and range of the network, without creating opportunities to recruit new members (Pescosolido & Levy, 2002).

Often people rely on lay consultants for health appraisal and reassurance, either for a specific symptom or situation (Edwardson & Dean, 1999; Rakowski, Julius, Hickey, Verbrugge, & Halter, 1988; Strain, 1990). The emotional support received through discussing challenges in managing chronic

illness can be especially important in legitimizing one's illness (Schlesinger, 1993). Most illness episodes are managed outside the context of formal medical care, and many chronic conditions incorporate significant lay management, including both self-care and lay consultation (George, 2001).

Veteran Populations

The population of interest in this study is frail male veterans who use VAMC and are managing multiple chronic illnesses while living in the community. Veterans have certain characteristics that contribute to disease risk, including less education, lower socioeconomic status, exposure to the cumulative effects of racism, and a higher prevalence of social isolation. Because of their military experiences and lifestyle, veterans are more likely to have chronic debilitating illnesses (Finney, Willenbring, & Moos, 2000; Klevens et al., 1995; McKinney, McIntire, Carmody, & Joseph, 1997). In addition, elderly veteran populations are at increased risk of disease while at the same time having fewer barriers to health care treatment through the VAMC than the general population.

Sample

This study of informal networks of frail veterans was part of an ongoing study of long-term care use conducted by the Dayton, Ohio VAMC. Data for this article come from the 12-month time point interview of the care coordination study, developed in response to a federal mandate to evaluate the effectiveness of long-term care utilization planning. Veterans were approached in the primary care clinics and eligible to participate in the care coordination study if they needed help with two or more ADL and were age 55 or older. Having limitations with two or more ADLs meets the state of Ohio's requirements for nursing home admission.

Enrolled frail elderly veterans were randomized into one of three groups: (a) a usual care control group, (b) a "placebo" control group, and (c) an intervention group. The usual care control group received all VAMC services available. The "placebo" control received usual care plus an annually mailed pamphlet explaining how to access the added long-term care services provided to veterans in the intervention group, but services were not coordinated for them. Finally, the intervention group had a nurse practitioner, functioning as a care coordinator, assigned to them. The function of the interventionist was to assess, identify, and coordinate all-inclusive, long-term care services

needed by the veterans. Social network questions were added to the telephone interview guide for the 12-month interviews and the data were collected between July 1, 2002 and June 30, 2004.

The care coordination study enrolled 438 frail elderly veterans. Almost all of these respondents were men (97%, N = 425). Women were not included in the network study because there was not a sufficient sample size to perform analysis by gender. Of the 425 men, 79% were White (N = 336), 21% were African American (N = 88), and one was Hispanic (.2%). By the 12-month time point when the network study was conducted, 18% had died, 14% had disenrolled from the study (either refused to continue participation or became ineligible because of a move to a sheltered living environment), and 7% were no longer eligible (because of mental status scores of 5 or higher indicating cognitive impairment).

Of the 259 veterans who were eligible to be interviewed at the 12-month time point, 10% could not be reached through telephone at their home, 2% refused, 3% were too ill, and 2% were permanently living in either a VA or community nursing home. The final sample size for the network study is 198 veterans (76% response rate).

Sample Characteristics

Respondents averaged 74 years of age and the majority of veterans in this sample were White (76%) and living with others (79%). Veteran's reported an education level primarily at the high school level or below (74%). Household income, as reported by the family caregiver, was low with almost half the sample reporting incomes below $19,000 (46%). The majority of respondents were married (62%) with an average of three children (includes stepchildren; see Table 1).

Measures

Network Function

Social network function was measured through a series of name-generating questions related to emotional support (three questions), instrumental aid (three questions), health monitoring (four questions), and health appraisal (three questions). The three name-generating questions for emotional support are from the Sarason Social Support Scale (Sarason, Levin, Basham, & Sarason, 1983): (a) Whom can you really count on to listen to you when you need to talk? (b) Whom can you count on to console you when you are very upset?

Table 1
Demographic Characteristics of Respondents

	Percentage (*n*)	Mean (*SD*)	Skewness (Kurtosis)	Range	Percentage Valid Data (*n*)
Age		74 (7.2)	–0.7 (0.2)	55-88	100 (198)
Marital status					
Married	62 (124)				100 (198)
Widowed	18 (35)				
Separated or divorced	13 (26)				
Single	7 (13)				
Adult children					
Total children		3.1 (2.3)	1.4 (3.5)	0-14	100 (198)
No children	9 (18)				
1 Child	11 (22)				
2 Children	26 (51)				
3-4 Children	34 (68)				
5-8 Children	17 (33)				
9-14 Children	3 (6)				
Education				0-4	100 (198)
0-8 Years	18 (35)				
9-11 Years	19 (38)				
12 Years	37 (74)				
13-15 Years	19 (37)				
16+ Years	7 (14)				
Caregiver income				0-8	63 (125)
0-4,9999	1 (1)				
5,000-9,9999	6 (8)				
10,0000-14,999	13 (16)				
15,000-19,999	26 (32)				
20,000-29,999	29 (36)				
30,000-39,999	8 (10)				
40,000-49,999	6 (8)				
50,000 and higher	11 (14)				
Race				0-2	100 (198)
White	75.8 (150)				
African American	23.7 (47)				
Hispanic	.5 (1)				
Living arrangements			–1.4 (–0.01)	0-1	100 (198)
Lives alone	21 (42)				
Lives with others	79 (156)				

and (c) Whom could you really count on to help you out in a crisis situation, even though they would have to go out of their way to do so?

The three name-generating questions for instrumental aid include who helps with ADLs, IADLs, and who provides transportation to VA medical

appointments. Four name-generating questions for health appraisal were modified from a study by Stoller and Wisniewski (2003): (a) Whom do you talk to when you want some information about a particular disease or symptom, what might be causing it, or how you might treat it? (b) Whom do you talk to when you are worried about your health? (c) Whom do you talk to about what the doctor has told you? and (d) Whom do you ask for advice about whether or not you should go see your doctor about a particular symptom or problem that is bothering you?

The four health monitoring questions were developed specifically for this study: (a) Does anyone remind you to take your medications? (b) Does anyone remind you to try to keep yourself moving and get some exercise? (c) Does anyone watch your diet? and (d) Does anyone advise you to avoid unhealthy habits like smoking or drinking alcohol?

Network Composition

This research employs several indicators of network composition. To generate this information, respondents were asked to report the first name and last initial of each person mentioned in response to the name-generating questions. Initials of the last name were asked to keep people with the same first name separate. Names were recorded on a network roster, which tracked the question(s) that elicited the name. The respondent was asked a series of questions about each person they mentioned. These questions include relationship to respondent, age, sex, geographic proximity to respondent (measured as the number of minutes or number of hours it would take to drive), and number of years the respondent has known the individual.

Variable Creation

The information provided from the questions listed above was used to examine a range of network characteristics, including (a) network size, (b) network composition (based on relationships to respondent), (c) duration of relationships, (d) network homogeneity, and (e) division of labor. Network size is the count of unique network members, including all family, friends, and neighbors mentioned in response to the name-generating questions. Network composition is categorized as family only networks, friends and neighbor only networks, and mixed networks (including family, friends, and neighbors). Duration of relationships with friends and neighbors is reported as the mean number of years respondents knew their friends and neighbors.

Network homogeneity is defined as the extent to which the focal person shares characteristics with network members. Network homogeneity was assessed with respect to gender and to geographic location. Gender homogeneity is the percentage of members who are the same gender as the respondent. In this study, all the respondents were male, so this measure will be the percentage of male network members mentioned.

Geographic homogeneity will be assessed using a modification of a typology developed by Wenger, Burholt, and Thissen (2001). The three categories include neighborhood networks (all network members live within a 30 min drive of respondent), wider local networks (all network members live within a 60 min drive of the respondent), and dispersed networks (some members living within 1 hr's drive and others living more than 1 hr's drive from the respondent).

The division of labor of network members encompasses two dimensions: the inner circle of support and specialization. Inner circle members are people mentioned for at least one question across the four functions (e.g., respondent mentions their wife for at least one emotional support question, one instrumental support question, one health monitoring, and one health appraisal question). This conceptualization stems from Kahn and Antonucci's (1980) convoy model, where focal members are asked to place network members in concentric circles with members in the inner circle representing the most significant. This operationalization was modified by Peek and Lin (1999) for use with name-generating questions.

Specialization occurs when a person with special expertise may be mentioned for only one particular function. For example, the respondent mentions a neighbor who is also a nurse for the questions in health appraisal, but this person is not mentioned for emotional support, instrumental support, or health monitoring.

Results

Network Structure

Figure 1 is a graphic representation of the total number of network members frail male veterans reported. Very few veterans reported having empty networks (no network members, 3%). One third of veterans mentioned one to two network members (32%), whereas most veterans mentioned three to four network members (43%). Finally, almost a quarter of veterans mentioned five or more network members (23%).

Figure 1
Total Number of Social Network Members

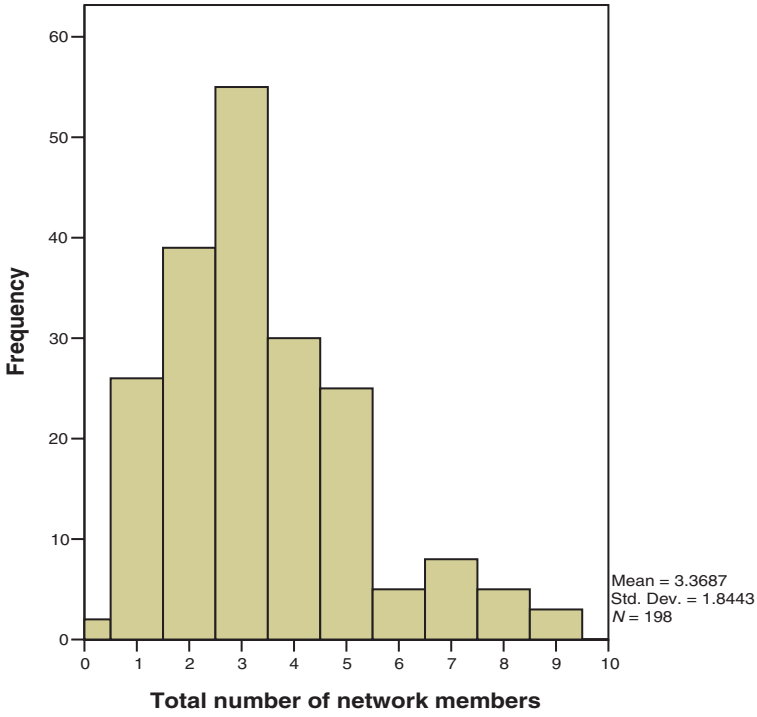

Table 2 displays information about the size of the network for frail male veterans. On average, veterans mentioned three people who assist them with all four functions ($X = 3.4$, $SD = 1.9$). The majority of networks are comprised exclusively of family (63%) with one third having a mix of network members (family and friends, 33%). Very few had friend or neighbor only networks (3%) and only two people had empty networks (1%). Most relationships with friends were long term with an average length of 24 years (range 1 to 68 years, $SD = 18$). Relationships with neighbors were similar in length to relationships with friends with an average of 19 years (range 1 to 70 years, $SD = 18$).

With regard to gender homogeneity, roughly two thirds of respondents had network members that included other men. The remaining respondents

Table 2
Structural Characteristics of Networks: Univariate Distributions

	Percentage (*n*)	Mean (*SD*)	Skewness (Kurtosis)	Range	Percentage Valid Data (*n*)
Network size		3.4 (1.8)	0.9 (0.7)	0-9	100 (198)
Empty networks	1 (2)				
One member	13 (26)				
Two members	20 (39)				
Three members	28 (55)				
Four members	15 (30)				
Five members	13 (25)				
Six to nine members	10 (21)				
Network composition					100 (198)
Empty	1 (2)				
Family only	63 (125)				
Friend/neighbor only	3 (6)				
Mixed (family and friend/neighbor)	33 (65)				
Duration of relationship (in years)					100 (198)
Friends		24 (18)		1-68	
Neighbors		19 (18)		1-70	
Network homogeneity					
Gender		0.35 (.3)	0.4 (–0.6)	0-100	99 (196)
Percentage of male					
Zero	30 (58)				
1 to 49	30 (58)				
50	18 (36)				
51-99	16 (33)				
100	6 (11)				
Geographic location					98 (195)
Neighborhood	66 (129)				
Wider local	9 (17)				
Dispersed	25 (49)				

did not mention male network members (29%). The complete breakdown by percentage of men in the network can be seen in Table 2.

The majority (66%) of respondents had neighborhood networks, defined as networks consisting of people either living with the respondent or living within a 30 min drive. Nine percent of respondents had wider local networks that consisted of people living within a 1 to 60 min drive. Finally, 25% of respondents had dispersed networks, composed of people who lived both within 1 hr and more than 1 hr's drive away (see Table 2).

Table 3
Relationship of Network Member to Veteran

	%
Wife[a] ($N = 123$)	97
Adult daughter[a] ($N = 151$)	66
Adult son[a] ($N = 146$)	60
Other female relative ($N = 198$)	27
Other male relative ($N = 198$)	22
Male friend or neighbor ($N = 198$)	23
Female friend or neighbor ($N = 198$)	18

a. Calculated based on number of people who had the potential to mention this relationship, for example, 123 respondents were married. Adult children include stepchildren.

Table 3 displays information regarding the relationship of the network member to the frail veteran. As expected, almost all veterans who were married mentioned their wives (97%), followed by adult daughters (66%), and adult sons (60%) (see Table 3 for a complete breakdown of relationships mentioned). Interestingly, veterans mentioned their adult sons almost as often as they mentioned their adult daughters in response to the name-generating questions.

No statistically significant differences were found in network size by marital status. Married veterans had an average of 3.4 people, whereas veterans who were not married (single, widowed, separated, or divorced) had an average network size of 3.3 people. African American veterans were more likely to be living alone than White veterans ($p = .011$), but no statistically significant differences were found between network size and race. African American veterans had, on average, 3.2 people in their network, whereas White veterans had, on average, 3.4 people in their network.

To further examine the relationship between marital status, living arrangements, and network size a one-way ANOVA was performed. A variable that combined marital status and living arrangement was created with the following categories: married living with someone, unmarried living with someone, and unmarried living alone. No statistically significant differences were found between the three groups ($F = .161$, $p > .05$). In other words, in this group of frail male veterans, aspects traditionally associated with larger networks, such as marital status and living arrangements, were not found.

A detailed look at unmarried veterans living alone ($N = 40$), a group we know very little about, shows that a variety of family, friends, and neighbors were mentioned. More than half mentioned adult children (55%) as part of

Table 4
Network Function: Univariate Distributions

	Mean (*SD*)	Skewness (Kurtosis)	Range	Percentage Valid Data (*N*)
Network function				
Size of emotional support	2.78 (1.9)	0.86 (1.0)	0-9	100 (198)
Size of instrumental support	1.47 (1.1)	1.2 (2.3)	0-6	100 (198)
Size of health appraisal	1.95 (1.5)	1.0 (0.9)	0-7	100 (198)
Size of health monitoring	1.2 (1.2)	2.1 (7.1)	0-8	100 (198)

their networks with almost half being adult sons (46%). Other relatives such as siblings, nieces, nephews, and cousins were mentioned as well (45%).[1] Almost half of the unmarried veterans living alone mentioned friends (48%) and 23% mentioned neighbors. As expected, of the adult children mentioned by unmarried veterans living alone, the majority lived within a 30 min drive (89%). Married and unmarried veterans living with others were more likely to have family only networks than unmarried veterans living alone, who were more likely to have mixed networks. No race differences were found in network composition with the majority of both White and African American veterans having family only networks.

Network Function

Table 4 displays information regarding network function. When network size is broken down by function, frail veterans have an average of three people they rely on for emotional support. Instrumental support is provided by one person on average. Respondents have an average of two people they talk to about their health and about what their doctor told them. Health monitoring is performed by a small consultant group with respondents turning to, on average, one person for help managing their medications, diet, and activity. These data highlight that almost half of the frail male veterans in this study are at risk of having no one to provide instrumental aid and health monitoring support if something should happen to the one person who provides this type of assistance.

When looking at frail veterans who mention someone for each function versus those who do not, most respondents receive emotional support (89%) and instrumental aid (83%), followed by health appraisal (78%) and health monitoring (65%) support.

Table 5
Division of Labor Among Network Members

	Percentage (*n*)	Percentage Valid Data (*N*)
Division of labor		100 (198)
Inner circle member	46 (91)	
One member	41 (81)	
Two members	4.5 (9)	
Three members	0.5 (1)	
Specialized consultant		
For emotional support	52 (103)	
For instrumental support	18 (35)	
For health appraisal	39 (78)	
For health monitoring	11 (23)	

Table 5 displays information regarding the division of labor among network members. The inner circle member is defined as a member that is mentioned for each of the four functions. Fifty-four percent did not have an inner circle member. Of the 46% of respondents who did mention someone in each category, indicating inner circle placement, the majority had only one inner circle member (41%), whereas 5% had two to three inner circle members.

The specialized *network consultant* is defined as a person whom the respondent turns for only one specific function. Specialized consultants occur most frequently for emotional support (52%). Fewer veterans have a specialized consultant for instrumental support (18%). For health appraisal, 39% have a specialized person they turn to for questions about their health, whereas the fewest number of veterans had specialized consultants they turned to for monitoring their health (11%; see Table 5).

Discussion

The results of this study highlight three main findings. First, frail male veterans have small social networks, composed primarily of family. Second, adult sons are mentioned almost as often as adult daughters, supporting Lee et al.'s (1993) theory of same gender preferences in parent care. Third, when network size is broken down by function, we find that many frail male veterans are at risk of institutionalization because they have only one person providing instrumental aid and health monitoring support to them.

The frail male veterans in this study have an average of three people they rely on for emotional support, instrumental aid, and health consultation. Larger network size is generally considered a benefit because network size speaks to the potential number of people one can call on when assistance is needed (Pescosolido, 2001). Therefore, having a larger network may increase the scope of functions that can be provided, and having only three people in a network is a potential disadvantage to receiving the needed amount and type of support.

The small size of the network is concerning because of the relative lack of opportunities for frail veterans to add members. Research shows that network size declines with age (Belle, 1987; Thoits, 1995). As health deteriorates, frail veterans may have a difficult time maintaining or replacing network ties. It has also been suggested that increasing age is associated with smaller networks because frail elders become more aware of their limited abilities and the value in network members shifts to maintain those relationships that are emotionally meaningful (Carstensen, 1993, 1995, 1998; Charles & Carstensen, 1999). These findings are consistent with selectivity theory because emotional support name-generating questions elicited the highest number of network members.

The definition of the social network in this study can provide another explanation for the small size. The definition used in this study is consistent with what some researchers term the *care network*. Keating, Otfinowski, Wenger, Fast, and Derksen (2003) argue for research on social networks to differentiate between support and care networks. Both types of networks provide similar support (e.g., emotional and instrumental support), but the intensity of support provision of a care network is greater than that of a support network. This increasing need for instrumental and emotional support, which can exhaust the resources of a support network, is the reason for differentiating between the two. The name-generating questions used in this study focused on the needs thought to be relevant to nursing home eligible male veterans. If additional name-generating questions had been asked in other areas, such as assistance with lawn care or home modifications, a larger network may have been found. However, it is likely that health needs and concerns of the focal person are an overarching theme making the care network the most relevant to the frail male veteran.

The majority of frail veterans have family only networks. This could be explained by literature showing that it is easier to maintain family ties than friendship ties. As opposed to friendship ties, family ties are seen as relatively stable and the time frame for reciprocity is over a longer period of time (Wellman, 1990; Wellman & Wortley, 1989). Although many view family

only networks as more supportive, especially during a health crisis, there are potential disadvantages. Family only networks are networks that are characterized as having limited scope or range, whereas those with a mix of family, friends, and neighbors are more likely to have a greater network range (Pescosolido, 2001). Having a greater network range promotes access to "weak ties." As opposed to strong ties, weak ties can be viewed as bridges, allowing people broader access to information (Granovetter, 1973, 1982, 1995). Weak ties could be useful in terms of finding needed services available for fail veterans. Additionally, Lehman, Ellard, and Wortman (1986) discuss how a loved one's poor health may lead to less support from family members because they are struggling with their own feelings about their relative's declining health and anticipatory bereavement.

Reliance on family in structuring informal networks is a consistent finding in prior research (Stoller, 1993). Even though the majority (70%) of frail male veterans had men in their networks, spouses made up the largest percentage of ties providing support followed by adult daughters and sons. The findings support the importance of women as providers of the majority of informal or lay care to others (Stoller, 1993). Although this study is further evidence of the role of women in the production of health, adult sons were mentioned only 6% less than adult daughters. This finding, along with the fact that most male veterans mentioned other men, supports findings of gender consistency in caregiving relationships (Lee et al., 1993). A finer level of analysis on the division of labor and hours of assistance adult sons and daughters provide is necessary to fully understand the caregiving roles of adult children. The types of assistance provided by adult daughters and adult sons, within the networks of frail men, may be similar or quite different. Adult sons could be involved in fewer hours of assistance and with types of assistance that are less physically demanding (Stoller, 1990). For example, sons may be providing transportation to medical visits, whereas adult daughters and wives are providing more demanding personal care.

No differences were found in network structure between White and African American frail male veterans in this study. Total size of the network was virtually identical, and the majority of both groups had networks that were composed of family only. These findings are consistent with studies showing there are no differences by race in the size of caregiving networks assisting older disabled people (Burton et al., 1995; Peek & O'Neill, 2001) Similarly, Dilworth-Anderson, Williams, and Cooper (1999) report that network structure is predicated by the care recipients' health conditions and that networks among elderly African Americans diminish in size where elderly people no longer have the physical or financial resources to fulfill norms of

reciprocity that support network relationships. In essence, frailty trumps race. In this population of frail male veterans who are not wealthy and have experienced considerable declines in physical health, race differences are not found. Both White and African American respondents exhibited relatively small networks dominated by family.

In addition to network homogeneity in gender, this study also found network homogeneity in geographic proximity of network members. The majority (66%) of network members lived either with the veteran or within 30 mins of the veteran. Having network members in a close geographic proximity is consistent with Wenger (1995) and Wenger and St Leger's (1992) work showing older people in poor health tend to have small, dense, homogeneous networks with fewer ties to geographically dispersed friends and neighbors. The authors also found that shared households were common, which was supported in this study with 78% of frail veterans living with others, 20% of whom lived with people other than spouses.

An unanticipated finding was that almost half of frail veterans have only one person assisting them with instrumental support and health monitoring. Perhaps as network members' age, they find themselves with similar functional impairments preventing them from being able to provide physical assistance to each other. Emotional support and health appraisal assistance, which involve conversations that can be provided over the phone, may be easier types of support for frail network members to offer. The more demanding assistance, provision of hands-on personal care, requires both physical proximity and physical strength, which would be more difficult for age-matched peers to provide.

People identified as "at risk" of losing their health monitoring support could be ideal candidates for telemedicine devices, which could supplement and support the existing social network. This is an exciting avenue for future research, especially as preliminary studies with telehealth technologies show older adults can adapt to using the technology in ways that can benefit their health by providing consistent monitoring support (Demiris, Oliver, Fleming, & Edison, 2004; Ryan, Kobb, & Hilsen, 2003; Tran, Buckley, & Prandoni, 2002; Wagner, 2001).

The majority of frail veterans did not have an inner circle member defined as a person who was mentioned for each of the four functions. This is concerning because inner circle members are conceptualized as intimate, long lasting, and confiding relationships. As Thoits (1995) explains, having inner circle members is the most powerful measure of social support because they are thought to significantly buffer the deleterious affects of stress.

It is possible that inner circle membership among these frail veterans is not made up of the four functions studied in this research project. To look

for people mentioned across emotional, instrumental, health appraisal, and health monitoring support as inner circle members may be too broad. Perhaps providing particular types of emotional and instrumental support is how the inner circle member should be conceptualized. A more accurate measure in future research would be to ask respondents the circumstances in which they rely on particular network members. A more situation specific measure of satisfaction with support provided by each network member could also be incorporated in definitions of inner circle membership.

The specialized network consultant is defined as a person to whom the respondent turns for only one specific function. Specialized consultants occurred most frequently for emotional support followed by health appraisal, instrumental support, and health monitoring with the fewest number of specialized consultants. The division of labor among the four functions could be because of the nature of the function. Half of respondents had someone they turned to only for emotional support. This could be because emotional support was the only type of support the network member was able to provide because of their own health limitations. The specialized consultants may be age matched peers with similar functional limitations. Although they can provide emotional support, they may not be able to provide other types of support. Future research could enhance understanding of these networks by interviewing network members as well as focal respondents.

Limitations

Although the network data were elicited for the purpose of this article, the project still retains the limitations of secondary data analysis. The network questions were not central to the original intention of the care coordination project. Because of this limitation, it was necessary to limit the number of network questions that could be added to the study to minimize respondent burden. Network characteristics such as reciprocity and density were eliminated because of this constraint. Another potential drawback to this study is that name-generating questions were limited to four functions: emotional support, instrumental aid, health monitoring, and health appraisal. If more categories of support been investigated, a larger network might have been found. Generalizability of the findings is crucial to the external validity of this article. This research has the ability to generalize to other groups of frail male veterans who use the VAMC health care system, but the applicability of these findings to other frail men remains an empirical question. Finally, although the total sample size used for this study was 198, the subset of African American veterans was only 47; therefore, results should be interpreted cautiously.

In conclusion, informal networks of frail male veterans are relatively small and dominated by family. As the demands of frailty and disease escalate, frail veterans may find it increasingly difficult to maintain ties, particularly those ties that require reciprocity. Findings illustrate not only the role women play as providers of the majority of informal care to veterans but also the substantial role adult sons have in providing support to their fathers. Many veterans are at risk of having no one to provide instrumental support and health monitoring and could be ideal candidates for telemedicine devices.

Note

1. Percentages will not equal 100% because these are not mutually exclusive categories. For example, veterans could have mentioned both adult children and other relatives.

References

Arling, G., & McAuley, W. J. (1983). The feasibility of public payments for family caregiving. *The Gerontologist*, *23*, 300-306.

Belle, D. (1987). Gender differences in the social moderators of stress. In R. C. Barnett, L. Biener, & G. K. Baruch (Eds.), *Gender and stress* (pp. 257-277). New York: Free Press.

Burton, L., Kasper, J., Shore, A., Cagney, K., LaVeist, T., Cubbin, C., et al. (1995). The structure of informal care: Are there differences by race? *The Gerontologist*, *35*, 744-752.

Cantor, M. H. (1983). Strain among caregivers: A study of experience in the United States. *The Gerontologist*, *23*, 597-604.

Carstensen, L. L. (1993). Motivation for social context across the life span: A theory of socioemotional selectivity. In J. Jacobs (Ed.), *Nebraska symposium on motivation* (pp. 209-254). Lincoln: University of Nebraska Press.

Carstensen, L. L. (1995). Evidence for a life-span theory of socioemotional selectivity. *Current Directions in Psychological Science*, *4*, 151-156.

Carstensen, L. L. (1998). A life-span approach to social motivation. In J. Heckhausen & C. Dweck (Eds.), *Motivation and self-regulation across the life span* (pp. 341-365). New York: Cambridge University Press.

Charles, S. T., & Carstensen, L. L. (1999). The role of time in the setting of social goals across the life span. In T. M. Hess & F. Blanchard-Fields (Eds.), *Social cognition and aging* (pp. 319-342). San Diego, CA: Academic Press.

Cicirelli, V. (1981). *Helping elderly parents: The role of adult children*. Boston: Auburn Howe.

Demiris, G., Oliver, D. R., Fleming, D. A., & Edison, K. (2004). Hospice staff attitudes towards telehospice. *American Journal of Hospice and Palliative Medicine*, *21*, 343-347.

Dilworth-Anderson, P., Williams, S. W., & Cooper, T. (1999). Family caregiving to elderly African Americans: Caregiver types and structures. *Journal of Gerontology: Social Sciences*, *54B*, S237-S241.

Dwyer, J. W., & Seccombe, K. (1991). Elder care as family labor: The influence of gender and family position. *Journal of Family Issues*, *12*, 229-247.

Edwardson, S. R., & Dean, K. J. (1999). Appropriateness of self-care responses to symptoms among elders: Identifying pathways of influence. *Research in Nursing and Health*, *22*, 329-339.

Finney, J., Willenbring, M., & Moos, R. (2000). Improving the quality of VA care for patients with substance use disorders: The quality enhancement research initiative (QUERI) substance abuse model. *Medical Care*, *38*, 105-113.

Freidson, P. (1970). Professional dominance: The social structure of medical care. New York: Atherton Press.

George, L. K. (2001). The social psychology of health. In R. H. Binstock & L. K. George (Eds.), *Handbook of aging and the social sciences* (5th ed., pp. 217-233). San Diego, CA: Academic Press.

Granovetter, M. (1973). The strength of weak ties. *American Journal of Sociology*, *78*, 1360-1880.

Granovetter, M. (1982). The strength of weak ties: A network theory revisited. In N. Lin & P. Marsden (Eds.), *Social structure and network analysis.* Beverly Hills, CA: Sage.

Granovetter, M. (1995). *Getting a job: A study of contacts and careers*. Chicago: University of Chicago Press.

Hess, B., & Soldo, B. J. (1985). Husband and wife networks. In W. J. Sauer & R. T. Coward (Eds.), *Social support networks and the care of the elderly: Theory, research, and practice*. New York: Springer.

Johnson, D. R., Fontana, A., Lubin, H., Corn, B., & Rosenheck, R. (2004). Long-term course of treatment-seeking Vietnam veterans with posttraumatic stress disorder: Mortality, clinical condition, and life satisfaction. *The Journal of Nervous and Mental Disease*, *192*, 35-41.

Kahn, R. L., & Antonucci, T. C. (1980). Convoys over the life course: Attachment, roles, and social support. In P. B. Baltes & O. Brim (Eds.), *Life-span development and behavior* (pp. 253-286). New York: Oxford University Press.

Kazis, L. E., Miller, D. R., Clark, J., Skinner, K., Lee, A., Rogers, W., et al. (1998). Health-related quality of life in patients served by the department of veteran affairs: Results from the veterans health study. *Archives of Internal Medicine*, *158*, 626-32.

Keating, N., Otfinowski, P., Wenger, C., Fast, J., & Derksen, L. (2003). Understanding the caring capacity of informal networks of frail seniors: A case for care networks. *Ageing and Society*, *23*, 115-127.

Klevens, R., Giovino, G. A., Peddicord, J., Nelson, D. E., Mowery, P., & Grummer-Strawn, L. (1995). The association between veteran status and cigarette-smoking behaviors. *American Journal of Preventive Medicine*, *11*, 245-250.

Lee, G. R. (1992). Gender differences in family caregiving: A fact in search of a theory. In J. W. Dwyer & R. T. Coward (Eds.), *Gender, families, and elder care*. Newbury Park, CA: Sage.

Lee, G. R., Dwyer, J. W., & Coward, R. T. (1993). Gender differences in parent care: Demographic factors and same-gender preferences. *Journals of Gerontology*, *48*, S9-S16.

Lehman, D. R., Ellard, J. H., & Wortman, C. B. (1986). Social support for the bereaved: Recipients' and providers' perspectives on what is helpful. *Journal of Consulting and Clinical Psychology*, *54*, 438-446.

Litwin, H. (2003). The association of disability, sociodemographic background, and social network type in later life. *Journal of Aging and Health*, *15*, 391-408.

McKinney, W., McIntire, D. D., Carmody, T., & Joseph, A. (1997). Comparing the smoking behavior of veterans and nonveterans. *Public Health Reports*, *112*, 212-217.

Payne, S. M., Lee, A., Clark, J. A., Rogers, W. H., Miller, D. R., Skinner, K. M., et al. (2005). Utilization of medical services by veterans health study (VHS) respondents. *Journal of Ambulatory Care Management*, *28*, 125-140.

Peek, M. K., & Lin, N. (1999). Age differences in the effects of network composition on psychological distress. *Social Science and Medicine*, *49*, 621-636.

Peek, M. K., & O'Neill, G. S. (2001). Networks in later life: An examination of race differences in social support networks. *International Journal of Aging and Human Development*, *52*, 207-229.

Pescosolido, B. A. (2001). The role of social networks in the lives of persons with disabilities. In G. L. Albrecht, K. D. Seelman, & M. Bury (Eds.), *Handbook of disability studies* (pp. 468-489). Thousand Oaks, CA: Sage.

Pescosolido, B. A., & Levy, J. A. (2002). The role of social networks in health, illness, disease and healing: The accepting present, the forgotten past, and the dangerous potential for a complacent future. In J. A. Levy & B. A. Pescosolido (Eds.), *Advances in medical sociology: Social networks and health* (Vol. 8, pp. 3-25). Greenwich, CT: JAI.

Rakowski, W., Julius, M., Hickey, T., Verbrugge, L. M., & Halter, J. B. (1988). Daily symptoms and behavioral responses: Results of a health diary with older adults. *Medical Care*, *26*, 278-297.

Reiss, I. L., & Lee, G. R. (1988). *Family systems in America* (4th ed.). New York: Holt, Rinehart, and Winston.

Ryan, P., Kobb, R., & Hilsen, P. (2003). Making the right connection: Matching patients to technology. *Telemedicine Journal and e-Health*, *9*, 81-88.

Sarason, I., Levin, H., Basham, R. B., & Sarason, B. (1983). Assessing social support: The social support questionnaire. *Journal of Personality and Social Psychology*, *44*, 127-139.

Schlesinger, L. (1993). Pain, pain management and invisibility. *Research in the Sociology of Health Care*, *10*, 233-268.

Stoller, E. P. (1990). Males as helpers: The role of sons, relatives, and friends. *The Gerontologist*, *30*, 228-235.

Stoller, E. P. (1993). Interpretations of symptoms by older people: A health diary study of illness behavior. *Journal of Aging and Health*, *5*, 58-81.

Stoller, E. P., & Wisniewski, A. (2003). The structure of lay consultation networks: Managing illness in community settings. *Journal of Aging and Health*, *15*, 482-507.

Strain, L. A. (1990). Lay consultation among the elderly: Experiences with arthritis. *Journal of Aging and Health*, *2*, 103-122.

Thoits, P. (1995). Stress, coping, and social support processes: Where are we? What next? *Journal of Health and Social Behavior*, *Extra Issue*, 53-79.

Tran, B., Buckley, K. M., & Prandoni, C. M. (2002). Selection and use of telehealth technology: In support of homebound caregivers of stroke patients. *Caring*, *21*, 16-21.

Wagner, L. (2001). Telemedicine offers promise to long-term care. *Provider*, *27*, 28-29.

Wellman, B. (1990). The place of kinfolk in personal community networks. *Marriage and Family Review*, *15*, 195-227.

Wellman, B., & Wortley, S. (1989). Brother's keepers: Situating kinship relations in broader networks of social support. *Sociological Perspectives*, *32*, 273-306.

Wenger, G. C. (1995). A comparison of urban with rural support networks: Liverpool and North Wales. *Ageing and Society*, *15*, 59-81.

Wenger, G. C., Burholt, V., & Thissen, F. (2001, July). *Social integration of older people in Europe: Findings from the OPERA study*. Paper presented at the 17th World Congress of Gerontology, Vancouver, Canada.

Wenger, G. C., & St Leger, F. (1992). Community structure and support network variations. *Ageing and Society*, *12*, 213-236.