

## Family Networks: Predictors of Nursing Home Entry

Vicki A. Freedman, PhD, Lisa F. Berkman, PhD, Stephen R. Rapp, PhD, and Adrian M. Ostfeld, MD

### ABSTRACT

Despite the importance of kin in caring for older relatives, few studies have examined the relationship between the family network and the risk of nursing home placement. Data from a cohort of noninstitutionalized elderly persons living in New Haven in 1982 were used to predict nursing home admission through 1985. Logistic regression analyses show that older persons who have regular contact with kin have a lower risk of institutionalization. For men, the spouse is most important in reducing the risk of entry; for women, having regular contact with at least one family member—of any relation—reduces the risk of entry. (*Am J Public Health*. 1994;84:843–845)

### Introduction

Each year, over 1 million elderly persons are admitted to nursing homes.<sup>1</sup> A number of prospective studies have examined measures related to nursing home admission.<sup>2–15</sup> The strongest and most consistent predictors of nursing home entry are functional status, mental status, and age. In addition, as first demonstrated by Townsend,<sup>16</sup> the absence of family ties appears to be associated with institutional residence. More recently, studies have documented that the living arrangements of an older person before entry,<sup>4–6,11,12</sup> the recent loss of a close tie,<sup>4,6</sup> and more general measures of social contact<sup>14,15</sup> predict nursing home admission.

Together these findings suggest that social networks—family members in particular—may be important in preventing the institutionalization of an older relative. Nevertheless, to date only limited measures of the social network have been considered in analyses of nursing home admission. In this study we explore the effects of both the composition and the size of the family network on the risk of institutionalization for elderly men and women.

### Data and Methods

Data for this study are from the New Haven, Conn, site of the Established Populations for Epidemiologic Studies of the Elderly. The sampling design for the New Haven study has been described elsewhere.<sup>17,18</sup> Weighted estimates represent the population age 65 years and older in New Haven in 1982.

The New Haven cohort consisted of 2 812 noninstitutionalized men and women age 65 years and older in 1982. Respon-

dents were interviewed annually from 1982 through 1991. Fewer than 1% of participants were lost to follow-up over the study period. Sample characteristics at baseline (1982) are presented in Table 1.

In this study, we used 3 years of follow-up data from 1982 to 1985, during which 354 participants experienced at least one nursing home episode. Respondents were asked annually about nursing home admissions. For each reported admission, the name of the nursing home and the approximate length of stay were recorded. Dates of entry and exit were then confirmed with named institutions.

### Results

Table 2 presents the mean values for a series of family network variables, by gender. We included in our definition of family network children and other close relatives with whom the respondent had weekly or monthly face-to-face contact. Respondents identified close relatives in response to the question, "Apart from your children, how many other relatives do you have that you feel close to? (People you feel at ease with, can talk to about private matters, can call on for help?)" The spouse was also considered a

At the time of the study, Vicki A. Freedman, Lisa F. Berkman, and Adrian M. Ostfeld were with the Department of Epidemiology and Public Health, Yale University School of Medicine, New Haven, Conn. Stephen R. Rapp is with the Department of Psychiatry and Behavioral Medicine, Bowman Gray School of Medicine, Wake Forest University, Winston-Salem, NC.

Requests for reprints should be sent to Vicki A. Freedman, PhD, Agency for Health Care Policy and Research, 2101 E Jefferson St, Suite 500, Rockville, MD 20852.

This paper was accepted August 3, 1993.

**TABLE 1—Demographic and Health-Related Characteristics, New Haven EPESE, 1982**

|  | Men,<br>% | Women,<br>% |
|--|-----------|-------------|
| Age group, y                                   |           |             |
| 65–74  | 63.2      | 55.8        |
| 75–84  | 28.6      | 34.4        |
| 85+  | 8.3       | 9.7         |
| Race   |           |             |
| White  | 82.6      | 81.6        |
| Non-White                                      | 15.0      | 16.0        |
| Missing  | 3.3       | 2.4         |
| Education                                      |           |             |
| Less than high school                          | 61.7      | 64.7        |
| High school or more                            | 37.8      | 24.8        |
| Missing  | 2.2       | 2.6         |
| Annual income, \$                              |           |             |
| < 5 000  | 17.8      | 35.5        |
| 5 000–10 000                                   | 37.1      | 32.1        |
| > 10 000                                       | 34.6      | 17.9        |
| Missing  | 10.5      | 14.5        |
| Housing stratum                                |           |             |
| Public low-income housing <sup>a</sup>         | 9.6       | 10.8        |
| Private housing <sup>b</sup>                   | 10.1      | 16.7        |
| Community housing                              | 80.3      | 72.5        |
| Functional status <sup>c</sup>                 |           |             |
| High (no limitations)                          | 87.8      | 85.4        |
| Low (1+ limitations)                           | 11.3      | 13.9        |
| Missing  | 0.9       | 0.6         |
| Cognitive status <sup>d</sup>                  |           |             |
| High (0–4 incorrect)                           | 89.4      | 86.1        |
| Low (4+ incorrect)                             | 7.5       | 11.7        |
| Missing  | 3.2       | 2.2         |
| One or more nursing home admissions, 1982–1985 | 6.4       | 11.5        |
| Cohort size (unweighted no.)                   | 1 169     | 1 643       |

Note. Data are weighted. EPESE = Established Populations for Epidemiologic Studies of the Elderly.

<sup>a</sup>Housing is age and income restricted.

<sup>b</sup>Housing is age restricted.

<sup>c</sup>One point given for each activity for which respondent reported needed help: walking, bathing, grooming, dressing, eating, getting from bed to a chair, and using the toilet.

<sup>d</sup>One point given for each Pfeiffer mental status question respondent answered incorrectly.

**TABLE 2—Family Network Composition and Size, New Haven EPESE, 1982**

|                                | % of Elderly with Regularly Contacted Network Member |       | Mean No. of Network Members <sup>a</sup> |       |
|--------------------------------|--|-------|--|-------|
|                                | Men  | Women | Men                                      | Women |
| Network member                 |  |       |  |       |
| Spouse                         | 64.4   | 27.4  | ...                                      | ...   |
| Children                       | 65.2   | 66.0  | 2.3                                      | 2.2   |
| Close relatives                | 55.3   | 55.9  | 3.1                                      | 2.9   |
| Total contact with any network | 91.6   | 87.7  | 4.3                                      | 3.8   |
| Cohort size (unweighted no.)   | 1169   | 1643  | ...                                      | ...   |

Note. The family network included the spouse, children, and/or close relatives other than children (including siblings) with whom the respondent had regular face-to-face contact. Data are weighted. EPESE = Established Populations for Epidemiologic Studies of the Elderly.

<sup>a</sup>Means for persons with specified type of network member.

**TABLE 3—Adjusted Odds Ratios of Nursing Home Entry, by Family Network Composition and Size, New Haven EPESE, 1982 through 1985**

| Network Characteristics | Mean (n = 1136) |          | Women (n = 1603) |          |
|-------------------------|-----------------|----------|------------------|----------|
|                         | OR              | 95% CI   | OR               | 95% CI   |
| Composition             |                 |          |                  |          |
| No spouse/spouse        | 3.2             | 1.6, 6.3 | 2.1              | 0.9, 4.8 |
| No children/children    | 1.1             | 0.4, 3.2 | 0.7              | 0.4, 1.4 |
| No relatives/relatives  | 1.5             | 0.8, 2.9 | 0.9              | 0.6, 1.5 |
| Size                    |                 |          |                  |          |
| 2 vs 3+                 | 1.8             | 0.8, 4.3 | 1.4              | 0.7, 2.6 |
| 1 vs 2                  | 1.2             | 0.5, 3.0 | 1.0              | 0.5, 2.1 |
| 0 vs 1                  | 0.8             | 0.1, 8.4 | 2.9              | 1.5, 5.1 |

Note. The family network included the spouse, children, and/or close relatives other than children (including siblings) with whom the respondent had regular face-to-face contact. Odds ratios (ORs) are adjusted for age, race, housing strata, reported limitations in activities of daily living, and cognitive performance. Data are weighted. CI = confidence interval; EPESE = Established Populations for Epidemiologic Studies of the Elderly.

member of the family network if he or she was reported as a member of the household in 1982.

In 1982, 91.6% of older men and 87.7% of older women in New Haven had regular contact with at least one family member (i.e., spouse, child, or other close relative including siblings). For persons with a family network, the mean family size was 4.3 and 3.8 persons for men and women, respectively. Although overall differences between older men and women are slight with respect to their family networks, the differential in the proportion of men and women with a living spouse is noteworthy.

Results from logistic regression models are presented in Table 3 for men and women. Effects of both the composition and size of the family network on the risk

of nursing home entry are examined. The outcome of interest is whether or not a respondent had at least one nursing home admission during the study period. Models control for age, race, housing strata, limitations in activities of daily living, and cognitive performance. Confidence intervals (CIs) for relative risks are based on standard errors adjusted to reflect the sampling design of the study.

For men, the absence of regular contact with a spouse was highly associated with nursing home entry (odds ratio = 3.2, 95% CI = 1.6, 6.3). At the same time, none of the variables indicating the size of the network predicted nursing home entry. Thus, no matter how large the network of relatives, the spouse was most important in reducing the risk of nursing home entry for men.

In contrast, for women, the composition of the network was not particularly important, but the size of the network was predictive of admission. Specifically, the relative risk of entry for elderly women who had no contact with relatives compared with those who had contact with only one relative was 2.9 (95% CI = 1.5, 5.1). This finding suggests that having at least one regularly contacted family member, regardless of his or her relation, reduces the risk of entry for women.

## Discussion

In this study, we used prospective community-based data on the elderly population of New Haven to examine the relationship between family networks and the risk of nursing home entry. Our analyses support the hypothesis that, for older persons, the presence of a family network is associated with a reduced risk of nursing home entry, even after controlling for important confounders.

In addition, findings suggest the roles of kin in preventing institutionalization may be distinct for older men and women. For men, network members do not appear to be interchangeable. No matter how large the family, the absence of a spouse nearly triples the risk of nursing home entry, with age, race, functional disability, and mental status controlled. In contrast, the risk of nursing home entry for women appears to be reduced in the presence of at least one family member, regardless of the type of relation.

A major strength of this analysis is that we used a random sample of community-dwelling elderly persons, followed prospectively over time. In addition, we had rich detail on the social network and functional ability of the cohort of elderly persons. This detail enabled us to explore the role of extended family members in nursing home entry.

Nevertheless, our analysis is limited in several ways. We were unable to examine characteristics of network members (i.e., sex, marital status), nor could we identify the relationship of relatives (other than children) to respondents. We also did not take into consideration possible changes in the network over time due to mortality. Further, sample size constraints prohibited any distinction between recuperative and custodial stays.

Despite these limitations, this study points to the importance of regular contact with family members in reducing the risk of nursing home entry for older persons. Health professionals interested in targeting programs to persons at high risk of institutionalization should consider not only functional and mental performance of older persons, but also the extent to which the family is able and willing to provide support in the community. Widowed, divorced, and never-married men are at particularly high risk, as are women without at least one regularly contacted family member. □

## Acknowledgments

Funding for this research was provided by Commonwealth Fund Commission on Elderly People Living Alone grant 11186 and also by National Institute on Aging grants N01-AG-0-2105 and T32-AG00153-04.

Helpful comments were made by Daniel Foley on an earlier draft of this paper.

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