Predictors of Institutionalization of Cognitively Impaired Elders: Family Help and the Timing of Placement

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Although predictors of nursing home placement have attracted a good deal of attention in gerontological research, the type and amount of family assistance offered to caregivers prior to institutionalization has not been extensively examined. This study analyzed the impact of family help on the timing of placement among cognitively impaired care recipients. Using longitudinal data from the Adult Day Care Collaborative Study, an event-history analysis was performed to determine the effects of family help after sociodemographic characteristics, caregiving stressors, and indicators of caregiver well-being were taken into account. Results showed that caregivers were far less likely to institutionalize their relatives when family members provided overnight help and assisted with activities of daily living care. These findings suggest that specific types of family help play an important role in delaying nursing home placement among older adults suffering from dementia.

T HE financial costs of long-term care have made the delay of institutionalization an important issue in gerontological research. Approximately 1.5 million people resided in nursing homes in 1995; 90% of those institutionalized were over the age of 65 and 35% were over 85 years of age (Department of Health and Human Services, 1997). The public and private costs incurred by nursing home use show no signs of diminishing; the Department of Health and Human Services (1977) has estimated that the number of nursing home residents will increase to 4 million by the year 2020. In addition to high financial costs, institutionalization may represent a difficult psychosocial adjustment for older adults and their families (Gaugler, Zarit, & Pearlin, 1999).

The goal of this study was to determine if family help offered to primary caregivers is associated with a delay in nursing home placement among older adults suffering from dementia. Older adults with Alzheimer's disease or a related disorder represent a segment of the population that is particularly at-risk for nursing home placement (Montgomery & Kosloski, 1994; Pruchno, Michaels, & Potashnik, 1990). Because people with dementia often receive considerable assistance from family members, researchers have attempted to determine if caregiver stress and well-being are associated with institutionalization among elderly care recipients (Aneshensel, Pearlin, Mullan, Zarit, & Whitlatch, 1995; Montgomery & Kosloski, 1994). Various stressors, such as caregivers' negative appraisals of care demands, are potent predictors of placement (Aneshensel et al., 1995; Zarit, Todd, & Zarit, 1986). Given these findings, it may also be possible to identify factors in the caregiving process

that assist in postponing institutionalization among cognitively impaired older adults. Informal family help (i.e., the unpaid assistance spouses, children, siblings, or other family members provide to caregivers) is often associated with lower stress and positive mental health status (Thompson, Futterman, Gallagher-Thompson, Rose, & Lovett, 1993). Likewise, family assistance offered to caregivers may play an important role in delaying nursing home placement.

The Stress Process and the Timing of Placement

Theoretical conceptualizations of informal care to frail older adults are largely grounded in social and psychological perspectives of stress (e.g., Lazarus, 1966; Lazarus & Folkman, 1984). Specifically, these approaches suggest that the occurrence of an environmental demand that is potentially harmful (the stressor) is appraised by the individual in terms of whether the demand is threatening (appraisal). If the demand is appraised as threatening, and there is a lack of resources available to stem that threat, the likelihood of poor adaptation increases (negative mental or physical health outcomes).

Pearlin and his colleagues have developed a comprehensive stress process model for dementia caregiving (Aneshensel et al., 1995; Pearlin, Mullan, Semple, & Skaff, 1990). Their model takes a multidimensional approach in describing how caregiving becomes troublesome for some individuals. Important components of the model include the background characteristics of the caregiver and care recipient (e.g., age, gender, marital status, kin relationship of caregiver to care recipient, living arrangements). In addition,

several types of stressors are proposed in the stress process model, including care demands (i.e., primary stressors, such as problematic behavior, activity of daily living [ADL] dependencies, and cognitive impairment) and caregivers' negative emotional reactions to care demands (i.e., subjective appraisals of primary stress or feelings of exhaustion, worry and strain, and "being trapped" in the caregiving role). The stress process model also highlights dimensions of well-being that represent caregivers' psychological and physical reactions to the care situation (e.g., depression, anger, subjective ratings of health). Moreover, the stress process model includes variables that directly mitigate the deleterious implications of caregiving stress. In particular, emotional and instrumental assistance provided by family members or friends has been found to alleviate some of the stress and negative mental health associated with dementia care (Aneshensel et al., 1995; Gaugler et al., 1999; Thompson et al., 1993).

Pearlin's stress process model offers a compelling theoretical framework from which to study the institutionalization process. Although earlier analyses did not use this model explicitly, such studies identified some of the patient/ care-recipient characteristics associated with nursing home placement. In one of the first attempts to apply multivariate techniques to the prediction of institutionalization, Greenberg and Ginn (1979) found that women and individuals who were not married were more likely to enter a nursing home. Poor health, recent hospitalization, living alone, and dementia have also been associated with nursing home placement (Greene & Ondrich, 1990; Wolinsky, Callahan, Fitzgerald, & Johnson, 1992; Steinbach, 1992). Studies that used nationally representative samples of older adults highlighted additional factors predictive of institutionalization. For example, ethnicity (e.g., African American, Hispanic) and home ownership significantly decreased the risk of nursing home admission (Greene & Ondrich, 1990). Increased age has also been identified as a significant risk factor for nursing home placement (Greene & Ondrich, 1990; Steinbach, 1992; Wolinsky et al., 1992).

Because of the important role of dementia and family members in the placement process, some studies incorporated caregiving characteristics, stressors, and psychological indicators in their analyses of institutionalization. It was expected that the emotional, psychological, and physical tolls of family care would likely be associated with nursing home placement, because primary caregivers would view institutionalization as a source of relief (Colerick & George, 1986; Pruchno et al., 1990; Zarit et al., 1986). Caregivers who have higher incomes and utilize formal services are more likely to place their elderly relatives in nursing homes (Cohen et al., 1993). In addition, decreased cognitive functioning and increased behavior problems among elderly relatives (i.e., primary stressors) often predict institutionalization (Cohen et al., 1993; Greene & Ondrich, 1990; Kasper & Shore, 1994). Subjective appraisals of primary stress also appear to be strongly associated with an elderly relative's institutionalization (Montgomery & Kosloski, 1994). Specifically, a sense of being trapped in care responsibilities and demands (i.e., role captivity) is particularly potent in its prediction of placement (Aneshensel et al., 1995). Finally,

poor physical health on the part of caregivers can precipitate a relative's institutionalization (Cohen et al., 1993).

Informal Support and Institutionalization

Clearly, the deleterious impact of caring for an elderly relative suffering from dementia plays a pivotal role in expediting the institutionalization process. It has also been hypothesized that informal assistance provided to primary caregivers would delay nursing home placement among older adults with dementia (Aneshensel et al., 1995; Colerick & George, 1986; Zarit et al., 1986). Individuals who received assistance with stressful care demands were expected to gain temporal, emotional, and psychological relief from their in-home care experiences (Thompson et al., 1993). This relief would allow caregivers to maintain their elderly relatives in the community for longer periods of time. However, prior research suggests that informal help does not influence the timing of institutionalization. A 2-year analysis of spousal caregivers measured informal support as the weekly frequency of contact with family members and friends (Zarit et al., 1986). The findings suggested that informal support did not affect dementia patients' placement. Colerick and George (1986) operationalized social support as the frequency of assistance provided by family and friends for 11 types of help (i.e., help when sick, help shopping, help with money or bills, help with household repairs, help with housework, financial advice, companionship, advice about problems, transportation, help with meals, and help caring for the patient). These items were summed to create a measure of social support. The summed measure of support was not associated with institutionalization (Colerick & George, 1986). Finally, in a large, longitudinal analysis of family caregiving, Aneshensel and colleagues (1995) conceptualized informal support as (a) whether the caregiver received help with patient care and (b) the number of household tasks performed by family members and friends. Similar to prior analyses, Aneshensel and associates found that informal support provided to primary caregivers did not influence the timing of nursing home placement among older adults suffering from dementia.

Research Focus

The distress of dementia care appears to precipitate nursing home placement, presumably because of the caregivers' need to find relief. Conversely, it is reasonable to assume that informal help provided to caregivers would make it possible for at least some caregivers to continue providing in-home care. However, prior studies offer no evidence for the delaying influence of informal support on the timing of institutionalization. The reasons for this appear related to the conceptualization of support; past research often aggregated measures of informal help to represent the amount of assistance caregivers received with all tasks (Aneshensel et al., 1995; Colerick & George, 1986). Simply summing measures of assistance may fail to capture the complex role informal help plays in postponing the onset of institutional care. For example, family help with some specific tasks may provide substantial relief for caregivers, thereby delaying placement, whereas assistance for other tasks may have little or no effect. Therefore, the present study examines dif-

ferent *types* of family help as well as the *amount* of family assistance provided to caregivers. Type and amount of help are analyzed within a stress process framework to determine their independent contributions to the timing of placement. Specifically, we will consider the relation of total amount of help and help in specific areas (ADL dependencies, overnight respite, and daily supervision) to the timing of placement after controlling for factors previously shown to affect institutionalization (i.e., patient and caregiver characteristics, primary stress, subjective appraisals of primary stress, and well-being). On the basis of findings from prior research (Aneshensel et al., 1995; Colerick & George, 1986; Zarit et al., 1986), we hypothesized that total amount of family help provided to caregivers would do little to impact the timing of institutionalization. However, more specialized types of family assistance for intensive care tasks (e.g., for ADL dependencies or overnight problems) would prove effective in delaying nursing home placement.

METHODS

Procedure

Data were taken from an evaluation of the effectiveness of adult day care (i.e., the Adult Day Care Collaborative Study [ADCCS]; Zarit, Stephens, Townsend, & Greene, 1998). Because of its longitudinal design and inclusion of a number of important measures (i.e., background characteristics and caregiver stressors), the ADCCS provided useful data to study the institutionalization process. Only the ADCCS control group was selected for the current analysis. This was because the treatment sample received considerable amounts of adult day care (over 8 hr a week), an aspect of the original study that could have affected care recipients' nursing home placement (see Gaugler, 1999).

Interviews were administered to primary caregivers at baseline (T1), 3 months (T2), and 1 year (T3) for a total of three interviews. Additional data were gathered from follow-up calls for up to 2 years after the T1–T3 interview period. In this manner, information regarding the status of the elderly relative (i.e., residing in the community, placed in a nursing home, death, and so forth) was collected over a period of 3 years.

Sample

In the ADCCS, the control condition included 304 primary caregivers from counties in northeastern Ohio who were recruited from mailings to local Alzheimer's Association chapters or through ads in local newspapers. Interested caregivers contacted project staff and were screened for eligibility over the telephone. Eligibility criteria for controls were as follows: (a) the elderly relative had to have a diagnosis of dementia, (b) the caregiver had to be willing to use adult day care (even though it was not readily available in northeastern Ohio), (c) the caregiver could not use adult day care during the study, and (d) the caregiver could not use more than 8 hr of formal (i.e., paid) service per week (Zarit et al., 1998).

Background characteristics for elderly relatives and caregivers are presented in Tables 1 and 2, respectively. Past research suggests that many of these variables have important

Table 1. Patient Characteristics at Time 1

Characteristic	n	Percentage
Gender		
Male	109	35.90
Female	195	64.10
Marital Status ($n = 300$)		
Married	145	48.30
Widowed	142	47.30
Divorced	10	3.30
Separated	1	0.03
Never married	2	0.07
Race		
White	281	92.40
African American	22	7.30
Hispanic	1	0.30

Notes: $N = 304$. Patient mean age (in years) = 77.96 ($SD = 8.26$).

implications for the timing of placement (see Aneshensel et al., 1995; Greene & Ondrich, 1990; Montgomery & Kosloski, 1994; Steinbach, 1992).

The mean age of elderly relatives at baseline was 77.96 years ($SD = 8.26$). With regard to gender, 109 relatives were men and 195 were women. Approximately 48.3% ($n = 145$) of the elderly relatives in this study were married,

Table 2. Caregiver Characteristics at Time 1

Characteristic	n	Percentage
Living Arrangement		
With care recipient	233	76.7
Away from care recipient	71	23.3
Gender		
Male	59	19.4
Female	245	80.6
Relationship to Care Recipient		
Husband	43	14.1
Wife	79	26.0
Son	12	4.0
Daughter	123	40.5
Son-in-law	2	0.7
Daughter-in-law	25	8.2
Other	20	6.5
Marital Status		
Married	245	80.6
Widowed	8	2.6
Divorced	27	8.9
Separated	3	1.0
Never married	21	6.9
Race		
White	281	92.4
African American	22	7.2
Hispanic	1	0.4
Employment Status		
Employed	96	31.6
Not employed	208	68.4
Income ($n = 294$)		
Less than $5,000	7	2.3
$5,000–$14,999	56	18.4
$15,000–$24,999	80	26.3
$25,000–$39,999	76	25.0
$40,000–over	85	24.6

Notes: $N = 304$. Caregiver mean age (in years) = 59.37 ($SD = 13.45$); duration of care (in months) = 41.24 ($SD = 36.52$).

whereas 47.3% were widowed ($n = 142$). Care recipients were almost all White ($n = 281$, 92.4%).

Most caregivers lived at home with their relatives ($n = 233$, 76.7%). The average age of caregivers was 59.37 years ($SD = 13.45$). The majority of caregivers were women ($n = 245$, 80.6%). Spouses made up 40.1% of the sample (79 wives, 43 husbands), whereas the remaining 59.9% were either adult children (123 daughters, 12 sons, 25 daughters-in-law, 2 sons-in-law, 52.3%) or other family members providing assistance to their elderly relatives suffering from dementia ($n = 20$, 7.6%). A large proportion of caregivers were married ($n = 245$, 80.6%). The majority of caregivers were unemployed ($n = 208$, 68.4%). Almost half ($n = 151$, 49.6%) of the caregivers had an annual income of $25,000 or above.

Measures: Predictors of Placement

In addition to background characteristics, caregivers were assessed on other dimensions that potentially impact institutionalization, including primary stressors, subjective appraisals of primary stress, well-being, and paid help (Aneshensel et al., 1995; Zarit et al., 1998). Baseline measurements of these dimensions were included. Baseline items assessing the type and amount of family help received by caregivers were also available. In Table 3 the measures used for this study are listed. In Table 4 descriptive information for primary stressors, subjective appraisals of primary stress, well-being, and paid help are presented. In Table 5 descriptive information for family help indicators is shown.

Primary stressors.—Two primary stressors were measured. A revised short version of the Memory Behavior Problems Checklist assessed behavior problems (Teri et al., 1992). *Behavior problems* refer to the frequency of troublesome and disruptive behaviors that may occur as a result of the relative's dementia. A 14-item scale measured whether a particular problem did (1) or did not (0) occur in the month prior to the interview ($\alpha = .76$). *ADLs* represent the amount of assistance elderly relatives require to complete the following tasks: eating, dressing, grooming, bathing, toileting, housecleaning, shopping, cooking, laundry, and transportation (see Lawton & Brody, 1969). Each item assessed whether the relative required assistance to complete the

Table 4. Baseline Means of Caregiver Stressors, Well-Being, and Paid Help

Variable	M	SD	Range
Primary Stressors			
ADL dependencies	7.19	2.18	1.00–10.00
Problematic behavior	6.49	2.86	0.00–14.00
Appraisals of Primary Stressors			
Role captivity	6.39	2.56	3.00–12.00
Role overload	20.75	3.53	10.00–28.00
Worry and strain	18.56	4.34	8.00–32.00
Well-Being			
Depression	14.44	10.22	0.00–47.00
Anger	7.38	2.72	4.00–16.00
Subjective health	3.27	1.00	1.00–5.00
Paid Help	4.31	10.99	0.00–21.00

Note: ADL = activity of daily living.

aforementioned ADLs ($\alpha = .87$). Summing the item responses created the scale scores for ADL dependencies and behavior problems.

Appraisals of primary stressors.—Three dimensions representing subjective appraisals were included (see Pearlin et al., 1990; Zarit et al., 1998). Response categories for the following measures ranged from never (1) to all the time (4). *Role captivity* is a 3-item scale that focuses on the involuntary aspects of caregiving; caregivers feel trapped and have no choice in their role (Aneshensel et al., 1995). Internal reliability in the present sample was high ($\alpha = .80$). *Role overload* was measured on a 7-item scale that assesses the extent to which caregivers feel overwhelmed and worn out by caregiving responsibilities ($\alpha = .74$; see Zarit et al., 1998). Finally, *worry and strain* was measured on an 8-item scale that examines the stress and worry individuals experience when they are trying to meet the psychological demands of the caregiving role ($\alpha = .76$; see Zarit et al., 1998). Summing the item responses created scale scores for appraisals of primary stress.

Well-being.—The various stressors associated with the care of a cognitively impaired older adult may result in negative physical and mental health, which in turn can affect

Table 3. Measures Included in the Present Study

Primary Stressors	Subjective Appraisals of Primary Stressors	Well-Being	Paid Help	Family Help
Behavior Problems (Revised version of Memory and Behavior Problems Checklist; Teri et al., 1992)	Role Captivity (Pearlin et al., 1990; Zarit et al., 1998)	Depression (CES-D; Radloff, 1977)	1 item (i.e., *How many hours in the past month did you use paid services?*)	Amount (*How many hours in the past month did family members help?*)
ADL Dependencies (ADL checklist; Lawton & Brody, 1969)	Role Overload (Pearlin et al., 1990; Zarit et al., 1998)	Anger (HSCL; Aneshensel et al., 1995; Derogatis et al., 1971)		Type (*Did a spouse or other family member help with (a) ADLs, (b) sitting with your relative, (c) taking your relative out of the house, (d) overnight respite?*)
	Worry and Strain (Zarit et al., 1998)			

Notes: ADL = activity of daily living; CES-D = Center for Epidemiologic Studies–Depression Scale; HSCL = Hopkins Symptoms Checklist.

Table 5. Family Help Variables

Variable	*n*	Percentage
Helping With ADL Dependencies		
Yes	182	59.9
No	122	40.1
Sitting With Relative		
Yes	188	61.8
No	116	38.2
Taking Relative Out of the House		
Yes	145	47.7
No	159	52.3
Providing Overnight Respite		
Yes	51	16.8
No	253	83.2

Notes: $N = 304$. ADL = activity of daily living. Mean amount of family help offered in the past month (in hours) = 45.48 ($SD = 86.05$).

placement decisions (see Aneshensel et al., 1995). Two negative mental health indicators were included. To measure *depression*, the 20-item Center for Epidemiological Studies–Depression Scale was used (CES-D; Radloff, 1977). Depression items assess feelings of hopelessness, loss of appetite and energy, boredom, depressed mood, and loneliness. Caregivers were asked how often these symptoms occurred in the past week, with response categories ranging from less than 1 day (0) to 5–7 days (3; $\alpha = .89$). *Anger* was measured with 4 items from the Hopkins Symptoms Checklist (Aneshensel et al., 1995; Derogatis, Lipman, Covi, & Rickels, 1971). Anger items assess feelings of irritability, annoyance, and impatience. Caregivers were asked how often these symptoms occurred in the past week, with responses ranging from not at all (1) to very much (4; $\alpha = .76$). Summing the item responses created scale scores for depression and anger. Finally, a single 5-point item measured subjective physical health. Item responses ranged from poor (1) to excellent (5). Most caregivers reported themselves in good, very good, or excellent health ($n = 241$, 79.2%).

Paid help.—In the present study, caregivers were asked how many hours in the past month they used paid services (e.g., in-home help, paid respite care, short-term hospital stays) to assist with relative's ADL dependencies, overnight care, and daily supervision (sitting with the relative, taking the relative out of the house). The hourly estimate provided by caregivers was included in subsequent analyses as an indicator of paid help. Estimates of paid help in the present study were expected to be low because the sample was limited to caregivers who initially were using minimal levels of formal help (Zarit et al., 1998).

Family help.—Family help was assessed for two different sources (i.e., "spouses" and "other family members"). Respondents were asked whether each family source assisted with four care tasks in the previous month: helping with the relative's ADL dependencies (i.e., eating, dressing, bathing, toileting, housework, shopping, laundry, cooking, or transportation), sitting with the relative, taking the relative out of the house, and providing overnight care. For the present study, four dichotomous variables assessed the *type*

of assistance caregivers received; if any family source provided a caregiver with a particular type of help (ADLs, sitting with the relative, taking the relative out, overnight respite), the caregiver received a 1 for that type of help. Conversely, if a caregiver did not receive a particular type of help from any family source, the caregiver received a 0.

Caregivers were also asked to estimate (in hours) the amount of help different family sources provided in the past month for ADL dependencies, overnight respite, and daily supervision combined. In the ADCCS, hours of assistance were not assessed for each type of family support; instead, caregivers only reported the total hours of family help received. Similar to the four dichotomous variables, sources were aggregated when estimating hours of family help. As illustrated in Table 5, a number of caregivers received various types and considerable amounts of family help in the month prior to the baseline interview. However, caregivers varied a great deal in their reports of assistance, particularly in the amount of family help received.

Measures: Time Until Placement

Time until institutionalization was considered the dependent variable and was measured as days since entry into the study. Dates of institutionalization were identified by caregivers in screening calls prior to a scheduled interview (i.e., T2 and T3) or during follow-up calls after the initial T1–T3 interview period. Because duration of care varied at the time caregivers entered the study, it was necessary to control for duration of care when determining the impact of family support on the timing of placement. As past research has emphasized, individuals who provide care for a shorter period of time may be more likely to institutionalize (see Pruchno et al., 1990). Caregivers had been providing assistance to their relatives for an average of 41.24 months ($SD = 36.52$) prior to participating in the present study (see Table 2).

One hundred sixteen caregivers institutionalized their relatives during the 3-year course of the present study (38%). On average, caregivers institutionalized their cognitively impaired relatives after 403.02 days ($SD = 283.10$) of participation in the ADCCS. Caregivers who did not institutionalize their relatives participated in the study an average of 720.31 days ($SD = 403.10$). A total of 87 caregivers (28.6%) remained in the study for the entire 3-year period. Sixty elderly relatives (19.7%) died at home during the 3-year period. An additional 41 respondents (13.5%) were lost to follow-up over the 3-year duration of the study because the caregiver refused to participate, the caregiver moved out of the area, or interviewers were unable to contact the caregiver.

Analysis

Data analyses proceeded in two steps. First, descriptive statistics were examined for baseline stressors, indicators of well-being, paid help, and family help variables (see Tables 4 and 5). Next, an event-history analysis was conducted. Event-history analysis (also called survival analysis or hazards modeling) examines whether a particular event occurs (i.e., institutionalization), and if so, when. A specific type of event history analysis, the Cox proportional hazards model, was used to analyze the probability that caregivers would

institutionalize their elderly relatives during the 3-year course of the study (see Cox, 1972). The Cox proportional hazards model is defined as the product of an unknown function of time and the exponent of a linear combination of risk variables. Unlike other types of event-history analyses (such as life tables or Kaplan–Meier analyses), a Cox regression was appropriate for this study because it allowed for a number of predictors (i.e., patient background characteristics, caregiver background characteristics, primary stressors, appraisals of primary stressors, caregiver well-being, paid help, and family support) when modeling time-to-institutionalization data.

Modeling the timing of target events is complex and can pose difficulties to longitudinal analyses. Regardless of the length of the study design, it is likely that some people may not experience the target event (i.e., institutionalization) before the study period ends. Such observations are *censored.* Censoring complicates the analytical approach; should the design be restricted to uncensored observations (e.g., only caregivers who institutionalize), or should the question of "when the event occurred" be shunned entirely in favor of whether the event occurred by a certain point in time? The bias in these approaches is evident, especially because of their sensitivity to the length of data collection (see Singer & Willett, 1991) and the potential exclusion of cases that do not experience the target event. Event-history analyses, however, address these issues by incorporating censored cases as well as those that experience the event. Specifically, the dependent variable in an event-history analysis is a combination of time and whether the event occurs. Censored observations are assigned a length of time representing their duration of participation in the analysis, but these cases are not coded as having experienced the event.

In the present study, *censored* referred to elderly relatives who continued to receive in-home care at the conclusion of the study (i.e., 3 years), died at home, or were lost to follow-up without having been institutionalized (Aneshensel et al., 1995). Information was available on how long these cases remained in the analysis, and their inclusion captured the experiences of caregivers who provided in-home care without placing their elderly relatives in nursing homes. The ability to retain these cases in an event-history approach was a particular strength of this analysis and provided greater insight into the role of family help during the institutionalization process.

Several background characteristics were excluded because they were confounded with other variables. Because it was totally confounded with caregiver race, care recipient race was excluded from the Cox regression. In addition, marital status for both caregivers and elderly relatives was largely confounded with the caregiver's relationship to the care recipient; therefore, both marital status variables were excluded from subsequent analyses.

RESULTS

Predictors of Institutionalization

A Cox regression was performed to determine the impact of family help on the timing of institutionalization following the inclusion of background characteristics, stressors, and indicators of well-being. Table 6 presents the final Cox regression model, which includes unstandardized beta coefficients, standard errors, and the relative risk of institutionalization (exp[B]). Positive coefficients were associated with decreased "survival" times, or time until placement. Variables with negative coefficients were related to increased time until institutionalization. The relative risk refers to the estimated likelihood associated with the timing of placement. For example, if the relative risk of a certain variable is 2.00, the estimated risk of placement is 2 times greater for a 1-unit increase in that variable.

As is shown in Table 6, elderly relatives who were older and had a higher income experienced nursing home placement sooner, $B = .04$, $SE = .02$, $\exp(B) = 1.04$, $p = .03$; and $B = .13$, $SE = .05$, $\exp(B) = 1.14$, $p = .02$, respectively. Among caregiver characteristics, increased duration of care was found to predict a slight delay in institutionalization, $B = -.01$, $SE = .01$, $\exp(B) = .99$, $p = .01$. One primary stressor (behavior problems) was associated with an increased likelihood of early placement, $B = .09$, $SE = .04$, $\exp(B) = 1.10$, $p = .03$. Also, one appraisal of primary stress was significant in precipitating nursing home placement: Caregivers who reported greater role captivity were more likely to institutionalize their elderly relatives sooner,

Table 6. Cox Regression for Predictors of Institutionalization

Predictors	B	SE	exp(B)
Patient Characteristics			
Race (0 = non-Caucasian, 1 = Caucasian)	.29	.22	1.33
Age	.04*	.02	1.04
Gender (0 = male, 1 = female)	.14	.17	1.15
Caregiver Characteristics			
Relative lives at home with caregiver			
(0 = no, 1 = yes)	−.14	.16	0.87
Kin relationship (0 = non-spouse, 1 = spouse)	.34	.26	1.40
Gender	.18	.17	1.19
Age	.00	.02	1.00
Duration of care	−.01**	.01	0.99
Income	.13*	.05	1.14
Work status (0 = unemployed, 1 = employed)	.07	.12	1.08
Primary Stressors			
Problematic behavior	.09*	.04	1.10
ADL dependencies	.04	.06	1.04
Appraisals of Primary Stress			
Role captivity	.14*	.05	1.14
Role overload	−.06	.04	0.94
Worry and strain	.05	.04	1.05
Caregiver Well-Being			
Depression	−.03	.02	0.97
Anger	.05	.05	1.05
Subjective health	−.20*	.11	0.82
Paid Help			
Hours of paid help	.02	.01	1.02
Family Help			
Amount of family help	.01	.01	1.00
Family support, ADLs	−.37**	.13	0.69
Family support, sitting with relative	.10	.14	1.10
Family support, taking relative out	.06	.13	1.06
Family support, overnight respite	−.52*	.20	0.59

Notes: exp(B) = relative risk of institutionalization; ADL = activity of daily living.

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

$B = .14$, $SE = .05$, $\exp(B) = 1.14$, $p = .01$. Finally, one indicator of well-being was significantly associated with the timing of institutionalization: Caregivers who reported greater subjective health at baseline were more likely to postpone placement, $B = -.20$, $SE = .11$, $\exp(B) = .82$, $p = .05$.

Similar to previous research, the amount of family assistance provided to caregivers had no effect on institutionalization. However, two types of family help were related to a delay in placement. When caregivers received family assistance with older adults' ADLs, they were likely to postpone institutionalization, $B = -.37$, $SE = .13$, $\exp(B) = .69$, $p = .01$. In addition, if family members provided help with overnight respite, a delay in placement was likely to occur, $B = -.52$, $SE = .20$, $\exp(B) = .69$, $p = .01$.

DISCUSSION

Studies examining institutionalization among disabled older adults have identified numerous predictors of nursing home placement. Risk factors most often cited in the literature include age, functional status, living arrangement, income, race, gender, and dementia (Steinbach, 1992; Wolinsky et al., 1992). Research involving older adults with dementia has included both background characteristics *and* caregiver stressors as potential predictors of institutionalization (Aneshensel et al., 1995; Montgomery & Kosloski, 1994). Although caregiver stressors are often significant risk factors in a relative's nursing home placement, few studies have examined whether family help offered to caregivers helps to maintain elderly relatives in the community for longer periods of time. By utilizing data from the AD-CCS, we were able to include background characteristics, stressors, well-being, and formal service utilization in conjunction with family help variables when analyzing the timing of institutionalization.

The event-history analysis revealed that nursing home placement is a complex process involving multiple predictors from several domains. As reported in previous research, background characteristics played a role in placement. Elderly relatives who were older were more at-risk for nursing home placement (Greene & Ondrich, 1990; Wolinsky et al., 1992). Also, caregivers with higher incomes were more likely to institutionalize sooner. Caregivers with greater financial resources may have an increased number of long-term care options available (e.g., private pay nursing homes) which may expedite the placement process (Aneshensel et al., 1995). In addition, caregivers who more recently assumed care responsibilities institutionalized their relatives earlier. Although the relationship between duration of care and placement was small, this apparently paradoxical finding is similar to those in other studies (Pruchno et al., 1990). These results may reflect a bias present in caregiving samples: Longer-term caregivers have already demonstrated a strong commitment to remain in the caregiving role, whereas shorter-term caregivers include people who relinquish their responsibilities sooner when faced with a placement decision.

One primary stressor was found to reliably predict institutionalization (i.e., behavior problems). As past studies have indicated, elderly relatives who frequently engage in troublesome behaviors (e.g., wandering, getting lost, becoming agitated, exhibiting inappropriate behavior) are more difficult to care for (Aneshensel et al., 1995). The caregiver's inability to effectively manage these disruptive behaviors may necessitate institutionalization (Kasper & Shore, 1994). One appraisal of primary stress (i.e., role captivity) was significant in precipitating nursing home placement. The finding replicates an earlier report by Aneshensel and colleagues (1995): Increased feelings of role captivity play a pivotal role in institutionalization. Finally, caregivers who reported greater subjective health delayed placement. Those who are in better physical condition are able to perform more strenuous care tasks as opposed to caregivers who have functional limitations (Cohen et al., 1993).

Although an analysis of patient characteristics and caregiver stressors is important, the main contribution of this study lies in its emphasis on family help as a resource that allows caregivers to postpone institutionalization. After taking into account background characteristics, stressors, caregiver well-being, and paid help, two family help variables were found to significantly delay placement. Caregivers who received family assistance with elderly relative's ADL dependencies were more likely to postpone institutionalization. In addition, family help with overnight respite was negatively related to the timing of nursing home placement. Although the provision of ADL assistance and overnight respite were strongly associated with a delay of placement, amount of family help (in terms of hours provided to caregivers per month) was not related to the timing of institutionalization (Aneshensel et al., 1995; Colerick & George, 1986; Zarit et al., 1986). These findings suggest that the amount of family help provided to caregivers prior to placement is not as important as getting specific types of assistance (i.e., help with ADL dependencies and overnight problems). Analyzing total support without considering the tasks caregivers are receiving assistance with may obscure the ways family help operates to delay nursing home placement.

When compared with other types of assistance, why does family help offered for ADL dependencies and overnight care postpone institutionalization among older adults suffering from dementia? Prior research has long emphasized that ADL dependency is both an important predictor of institutionalization (Greene & Ondrich, 1990; Steinbach, 1992) and a stressful experience for caregivers (Aneshensel et al., 1995). In addition, care demands that occur during the late night hours are particularly troublesome to caregivers. For example, incontinence (a factor that is an important predictor of nursing home placement; see Hope, Keene, Gedling, Fairburn, & Jacoby, 1998) can be a difficult problem that arises for caregivers during the night and disrupts sleep. Other stressful care-related problems that can occur in the night hours include wandering and agitation, both of which may result in emotional distress and fatigue among caregivers (Logsdon et al., 1998). As managing ADL dependencies and overnight problems prove challenging to caregivers, family assistance provided for these specific tasks may offer caregivers the respite and support necessary to help elderly relatives remain in the community for longer periods of time.

Why isn't more help necessarily better? Unlike the use of medication in which dosage is important, the symbolic value of assistance may be as helpful as the amount provided. The failure to demonstrate a relationship between amount of help and the timing of placement also suggests that some families that provide a great deal of assistance to primary caregivers have reached the limit of their resources and turn to placement because there is no more that they can do. Of course, it is possible that varying amounts of help in different domains affect placement, but the present data did not include the number of hours family members spent on each specific task. Moreover, the data did not allow for an appropriate analysis of family help by source (only two sources of family help were assessed: spouses and other family members). Clearly, the individual contributions of family members in the caregiving context vary according to kin relationship and gender; however, the dynamics of family support during the institutionalization process are relatively unknown (Bass, Noelker, & McCarthy, 1999; Matthews, 1987; Matthews & Heidorn, 1998). The findings of the present study suggest that the relationship of family assistance to institutionalization is complex and requires a carefully delineated approach that considers the type, source, and quality of help.

There are several limitations in this study that should be considered. A more representative sample of caregivers and their elderly relatives would help to generalize the findings. For example, the overwhelming majority of caregivers and elderly relatives were White, and all elderly relatives were cognitively impaired. It is unclear how family help impacts the timing of placement among those of diverse ethnic background or caregivers who provide assistance to elderly relatives who have only physical impairments. In addition, the present analysis was restricted to baseline measurements of stressors, well-being, and family help variables. The incorporation of time-varying measurements could have identified how changes in family assistance were related to the timing of nursing home placement (Montgomery & Kosloski, 1994). Also, including help variables that moved beyond dichotomous measurements would have represented a more refined approach in the assessment of family assistance. As mentioned above, the amount of family help caregivers received was not specified for each type of care. Although past research has found that total amount of informal support does not impact institutionalization, it is possible that differentiated amounts of support for various care responsibilities do play a pivotal role in the timing of placement. Similarly, only help from spouses and other family members were measured; this lack of refinement forced us to aggregate family source when assessing the importance of assistance type. Finally, because of eligibility restrictions in the original analysis (Zarit et al., 1998), caregivers who used substantial amounts of formal support at baseline were excluded, possibly impacting the generalizability of the sample in the present study.

Interventions designed to help caregivers maintain their elderly relatives in the community must address family-related issues, such as support and conflict, that potentially affect the well-being of caregivers as well as the timing of nursing home placement (Gaugler et al., 1999). As these findings suggest, programs that encourage different types of help from family members and create a cooperative atmosphere regarding care responsibilities can help to maintain a cognitively impaired relative in the community for a longer period of time (e.g., Mittleman et al., 1993; Whitlatch, Zarit, Goodwin, & von Eye, 1995). With the financial and emotional burdens associated with nursing home placement, interventions must bolster family resources so that caregivers can help disabled elderly relatives remain in the place they want to be most: home.

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