Long-term Care Placement of Dementia Patients and Caregiver Health and Well-being

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Context Placing a relative with dementia into a long-term care facility is common among caregivers. Placement transition and factors that affect caregiver health and well-being after placement of the patient are not well described.

Objectives To assess the impact of placing a relative with dementia in a long-term care facility on caregivers’ health and well-being.

Design, Setting, and Participants Prospective study from 1996 to 2000 of the placement transition in a sample of 1222 caregiver-patient dyads recruited from 6 US sites. A total of 180 patients were placed in a long-term care facility during the 18-month follow-up period. Data collected before and after placement were analyzed to identify factors associated with placement, the nature of contact between caregivers and their institutionalized relatives after placement, and the relation of both of these factors to health outcomes among dementia caregivers.

Main Outcome Measures Caregiver depression (symptoms on the Center for Epidemiological Studies-Depression [CES-D] scale; range, 0-60) and anxiety (State Trait Inventory; range, 10-40) and use of prescription medications for depression and anxiety.

Results Caregivers who institutionalized their relative reported depressive symptoms and anxiety to be as high as they were while in-home caregivers. Overall CES-D scores for depression did not change from before to after placement (median [IQR], 15.0 [8-24.5] and 15.0 [7.7-28]; P=.64). Overall anxiety scores on the State Trait Inventory also did not change significantly (median [IQR], 22.0 [19-27] before vs 21.1 [18-27] after; P=.21). These effects were most pronounced among caregivers who were married to the patient (P=.02 for depression), visited more frequently (P=.01 for depression and P<.001 for anxiety), and were less satisfied with the help they received from others (P=.003 for depression and P<.001 for anxiety). The use of antidepressants did not change significantly before (21.1%) to after (17.9%) placement (P=.16). The use of anxiolytics before to after placement increased from 14.6% to 19% (P=.02), and nearly half of caregivers (48.3%) were at risk for clinical depression following placement of their relative.

Conclusions The transition to institutional care is particularly difficult for spouses, almost half of whom visit the patient daily and continue to provide help with physical care during their visits. Clinical interventions that better prepare the caregiver for a placement transition and treat their depression and anxiety following placement may be of great benefit to these individuals. www.jama.com

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these studies link the frequency and type of contact between caregivers and their relative with caregiver health outcomes; nor do they provide a clear picture of the longitudinal changes in the health of the caregiver.

Numerous investigators also have studied predictors of institutionalization of patients with dementia, but these studies have not assessed the relation between risk factors for placement and caregiver outcomes following placement. Knowing why a patient was placed may provide important information about the effects of placement on the caregiver. For example, the functional status of the patient and the level of burden and depression experienced by caregivers are consistently associated with placement, but little is known about how these factors affect the postplacement experience of the caregiver.

These 3 lines of research—antecedents of institutionalization, the frequency and types of contact among caregivers and institutionalized relatives, and the psychiatric and physical health status of caregivers following placement—have evolved in relative isolation. We undertook this study to report on the transition experience and postplacement health effects in a large cohort of family caregivers of persons with dementia. This is the first study, to our knowledge, to attempt a comprehensive analysis of the transition experience by assessing antecedent conditions that lead to placement, the nature of contact between caregivers and their institutionalized relatives after placement, and the relation of both of these factors to health outcomes among dementia caregivers following placement. Findings from this study should be useful in determining when and what types of support caregivers need in negotiating the placement transition.

METHODS

Study Design

This study includes caregivers enrolled in the Resources for Enhancing Alzheimer’s Caregiver Health (REACH) study, a multisite trial that tested the feasibility of numerous psychosocial interventions and their impact on the health and well-being of family caregivers living with persons with dementia. REACH is described in detail elsewhere. Briefly, data for 1222 caregiver and care recipient dyads were collected from 1996 to 2000 at 6 sites in the United States: Boston, Mass; Birmingham, Ala; Memphis, Tenn; Miami, Fla; Philadelphia, Pa; and Palo Alto, Calif. To assess the caregiving experience in different racial/ethnic groups, the study population included self-identified black or African American, Hispanic (Cuban American, Mexican American), and white family caregivers of patients with diagnosed Alzheimer disease who were moderately to severely impaired. The research protocol was approved by the institutional review boards of all participating sites and the coordinating center, and written informed consent was obtained from all caregivers enrolled in the study.

Standardized survey instruments and several open-ended questions were administered by trained and certified interviewers before the study participants were randomly assigned to either a treatment group or control group. Caregivers assigned to a treatment condition received a social/behavioral intervention while those in the control group received either usual care or minimal support (ie, periodic telephone calls to see how they were doing). At all 6 sites, the majority of treatment was delivered within 6 months of randomization. Caregivers were assessed at baseline, and then 6, 12, and 18 months following randomization. Caregivers randomly assigned to active treatment reported less burden after treatment than did caregivers in the control condition, but group assignment had no statistically significant effect on any of the outcomes examined in this article.

Data Collection

The following demographic variables are described for both caregiver and care recipient at baseline: age, race/ethnicity, sex, education, income, and relationship between caregiver and care recipient (spouse or not). Care recipient cognitive function was assessed using the Mini-Mental State Examination (MMSE), with scores ranging from 0 to 30, a higher score indicating higher cognitive functioning. Physical impairment was measured using the standardized functional assessment instruments for activities of daily living (ADL) (bathing, dressing, eating, getting out of a bed or chair, grooming, and using the toilet) and instrumental activities of daily living (IADL) (using the telephone, shopping, preparing meals, housekeeping, doing laundry, traveling by car or bus, administering medications, and handling finances) reported by the caregiver. Care recipient physical health was measured by asking the caregiver: “Other than problems with memory or confusion, how would you rate the physical health of (care recipient)?” Possible responses were poor (1), fair (2), good (3), very good (4), and excellent (5).

Caregiver burden was assessed using the Revised Memory and Behavior Problems Checklist, which is used to characterize memory and behavior problems in patients with dementia and the caregiver reported burden associated with these behaviors (range, 0-96, with higher values indicating greater burden). Positive aspects of caregiving were assessed using a scale of 9 items, adapted from items used in the Caregiver Health Effects Study. Respondents were asked to indicate their level of agreement or disagreement with statements describing “good things” about caregiving, including making them feel “more useful,” “needed,” “appreciated,” and “important.” Responses were coded using a 5-point agree/disagree scale (range, 9-45, with high values indicating more positive aspects of caregiving). Neither the burden nor positive aspects of caregiving measures were collected after placement of the care recipient. Caregiver comorbidities were assessed by asking whether they had arthritis, high blood pressure, heart condition, chronic lung disease, diabetes, cancer, or stroke (yes/no; range, 0-7).
Depressive symptoms were assessed before and after placement using the Center for Epidemiological Studies-Depression (CES-D) scale (range, 0-60, with higher values indicating more depressive symptoms). Information on caregivers’ use of prescription medications for depression and anxiety was collected by transcribing information from medication containers provided by the caregivers. Caregiver anxiety was assessed using the state portion of the State Trait Inventory, which consists of 10 statements regarding the level of experienced anxiety to which respondents indicated their level of agreement: not at all, somewhat, moderately, or very much. Responses were summed creating a scale ranging from 10 to 40, indicating the least anxiety and 40 indicating the most anxiety.

Satisfaction with help from family and friends was assessed with the following question: “Overall, how satisfied have you been in the last month with the help you have received from friends, neighbors, or family members?” Possible responses were not at all (0), a little (1), moderately (2), and very (3). Satisfaction with social and leisure activities was measured with the 7-item Leisure Time Satisfaction scale asking respondents to indicate how satisfied they were with the amount of time they had been able to spend in activities they enjoy, such as attending church, taking part in hobbies, going out for meals, and doing fun things with other people. Possible responses were not at all (0), a little (1), a lot (2); scores ranged from 0 to 14, with low scores indicating low satisfaction.

After placing their relative in a long-term care facility, caregivers were asked about how often they visited, whether they helped with physical care, how satisfied they were with the quality of care, and the social and physical environments of the long-term care facility. They were also asked whether they were using their own finances to pay for the stay.

Statistical Analysis
Because the assignment of caregivers to a treatment group or to a control group was not significantly related to the outcomes examined in this article, including time to institutionalization, we combined caregivers in the intervention and control groups into a single group. Of the 1222 dyads enrolled in the study, a total of 180 care recipients were institutionalized.

Using all dyads enrolled in REACH for which covariate data and dates of institutionalization were available, we first identified factors associated with institutionalization using stratified (by site) proportional hazards models. Univariate analyses assessed whether any of the following variables were statistically significantly associated with time to institutionalization: relationship between caregiver and care recipient; caregiver and care recipient age, sex, and education; caregiver race/ethnicity; burden and positive aspects of caregiving; depression, use of medication for depression, anxiety, and use of medication for anxiety; self-rated health score, satisfaction with help from others, satisfaction with social activities, assignment to active treatment or control condition; and care recipient MMSE, ADL, IADL, and physical health. All variables were eligible for inclusion in the multivariable model obtained using stepwise selection. Results of the models are reported as hazard ratios (HRs) with 95% confidence intervals (CIs) and P values.

Caregiver outcomes prior to placement were compared with those following placement using assessment data closest to the placement date. Characteristics compared included depression, antidepressant use, anxiety, anxiolytic use, satisfaction with social activities, and satisfaction with help from others. Furthermore, placement depression and anxiety were compared with their respective values 1 year following placement. Statistical significance of changes over time in continuous variables were compared using Wilcoxon matched-pairs signed rank tests; dichotomous variables were compared using McNemar χ² tests; and categorical variables with more than 2 categories were compared using the Bowker test for symmetry. Caregiver satisfaction with the quality of the long-term care facility at first interview following placement is also described.

After confirming that assumptions were not violated, linear regression was used to identify factors associated with the first postplacement CES-D score. Simple regression models included caregiver age, relationship to care recipient, race/ethnicity, education, family income, number of comorbidities, visiting frequency, receiving help with physical care, time spent helping with physical care, paying for care, satisfaction with quality of care, assignment to treatment or control group, time since placement, and care recipient ADL status. All variables were eligible for inclusion in a multivariable model using stepwise regression. Preplacement CES-D scores were controlled for in the multivariable model because CES-D scores before and after placement were associated. The same procedure was used to identify factors associated with the first postplacement anxiety score, with the exception that preplacement anxiety score was controlled for instead of the preplacement CES-D score.

Changes in depression and anxiety before and after placement for spouse compared with nonspouse caregivers were compared using the 2-sample Wilcoxon signed rank test.

For all statistical tests, P<.05 was considered to be statistically significant. Statistical analyses were conducted using SAS version 8.2 (SAS Institute Inc, Cary, NC).

RESULTS
Predictors of Institutionalization
Demographic characteristics of the entire sample of 1222 caregivers and care recipients have been previously reported. Briefly, the median age of caregivers at baseline was 63 years (range, 22-95 years), and the majority were female (81.4%). The sample included 684 white (56%), 295 black (24.2%), and 232 Hispanic (19%) in-home caregivers, who were primarily spouses (48%) or children (44%) of the care recipients. The remaining 8% were siblings, grandchildren, nieces, and nephews. Care recipients had a diagnosis of Alzheimer disease.
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Table 1. Stratified (by Site) Proportional Hazards Regression Analyses Predicting Time to Care Recipient Placement (n = 1177)*

<table>
<thead>
<tr>
<th>Variables</th>
<th>Hazard Ratio (95% CI)</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caregiver race/ethnicity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Black</td>
<td>0.52 (0.36-0.76)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Hispanic</td>
<td>0.61 (0.38-0.96)</td>
<td>.03</td>
</tr>
<tr>
<td>RMBPC burden per 1 additional point on the scale</td>
<td>1.02 (1.01-1.03)</td>
<td>&lt;.001</td>
</tr>
</tbody>
</table>

| Mini-Mental State Examination                   |                       |          |
| Severe (0-9)                                    | 1.00                  |          |
| Moderate (10-19)                                | 0.87 (0.66-1.14)      | .32      |
| Mild (20-30)                                    | 0.34 (0.23-0.52)      | <.001    |

| Positive aspects of caregiving per one additional point on the scale | 0.98 (0.97-0.99) | .008 |

Abbreviation: CI, confidence interval.

*45 Observations not reported due to missing Mini-Mental State Examination scores (n = 34), time of placement (n = 9), caregiver race (n = 1), and Revised Memory and Behavior Problems Checklist (RMBPC) assessment of burden (n = 1).

Table 2. Baseline Demographic and other Characteristics of Caregivers and Institutionalized Care Recipients (n = 180)*

<table>
<thead>
<tr>
<th>Variables</th>
<th>Caregivers (n = 180)</th>
<th>Care Recipients (n = 180)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, median (IQR), y</td>
<td>66.1 (63.4-75.2)</td>
<td>80.6 (75.1-85.3)</td>
</tr>
<tr>
<td>Race/ethnicity, No. (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>121 (67.2)</td>
<td>123 (68.3)</td>
</tr>
<tr>
<td>Black</td>
<td>31 (17.2)</td>
<td>32 (17.8)</td>
</tr>
<tr>
<td>Hispanic</td>
<td>25 (13.9)</td>
<td>23 (12.8)</td>
</tr>
<tr>
<td>Caregiver relationship to care recipient, No. (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spouse</td>
<td>94 (52.2)</td>
<td></td>
</tr>
<tr>
<td>Nonsnouse†</td>
<td>86 (47.8)</td>
<td></td>
</tr>
<tr>
<td>Women, No. (%)</td>
<td>142 (78.9)</td>
<td>94 (52.2)</td>
</tr>
<tr>
<td>Caregiver education level, No. (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than high school</td>
<td>26 (14.4)</td>
<td>68 (38.9)</td>
</tr>
<tr>
<td>High school</td>
<td>45 (25.0)</td>
<td>46 (26.3)</td>
</tr>
<tr>
<td>More than high school</td>
<td>109 (60.6)</td>
<td>61 (34.9)</td>
</tr>
<tr>
<td>Annual income, No. (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;$20 000</td>
<td>60 (34.7)</td>
<td></td>
</tr>
<tr>
<td>$20 000-$39,999</td>
<td>53 (30.6)</td>
<td></td>
</tr>
<tr>
<td>≥$40 000</td>
<td>60 (34.7)</td>
<td></td>
</tr>
<tr>
<td>RMBPC burden, median (IQR)†</td>
<td>17 (8.25)</td>
<td></td>
</tr>
<tr>
<td>Positive aspect of caregiving, median (IQR)†</td>
<td>33 (26-39)</td>
<td></td>
</tr>
<tr>
<td>Comorbidities, No. (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>47 (26.3)</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>49 (27.2)</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>49 (27.2)</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>27 (15.0)</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>6 (3.3)</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>2 (1.1)</td>
<td></td>
</tr>
<tr>
<td>MMSE, median (IQR)</td>
<td>11 (6-17)</td>
<td></td>
</tr>
<tr>
<td>ADL limitations (6 possible), median (IQR)†</td>
<td>4 (2-5)</td>
<td></td>
</tr>
<tr>
<td>IADL limitations (8 possible), median (IQR)†</td>
<td>8 (7-8)</td>
<td></td>
</tr>
<tr>
<td>Physical health, No. (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poor</td>
<td>21 (11.7)</td>
<td></td>
</tr>
<tr>
<td>Fair</td>
<td>58 (32.2)</td>
<td></td>
</tr>
<tr>
<td>Good to excellent</td>
<td>101 (56.1)</td>
<td></td>
</tr>
</tbody>
</table>

Abbreviations: ADL, activities of daily living; IADL, instrumental activities of daily living; IQR, interquartile range; MMSE, Mini-Mental State Examination; RMBPC, Revised Memory and Behavior Problems Checklist.

*Information was not available for caregivers for the following variables: race/ethnicity (n = 3) and income (n = 7). Information was not available for care recipients for the following variables: age (n = 1), race/ethnicity (n = 2), education (n = 8), MMSE score (n = 7), and physical health (n = 1).

From multivariable proportional hazard models, we found that black and Hispanic caregivers were less likely to place their relative in a facility than were white caregivers. Caregivers reporting greater burden were more likely to institutionalize their relative, and caregivers reporting greater positive aspects of caregiving were less likely to do so. Care recipients scoring in the mild category on the MMSE were less likely to be institutionalized than those in the severe category (Table 1). Assignment to treatment or control condition was not significantly related to long-term care placement.

**Characteristics of Institutionalized Care Recipients and Their Caregivers**

The sample of 180 caregivers who institutionalized their relative in the course of the study were a median age of 66 years (interquartile range [IQR], 63-75 years), and 121 (67.2%) were white. More than half of caregivers were spouses of the care recipient (94; 52.2%), and the large majority of the nonspouse caregivers were children of the care recipient (81; 81.4%). The care recipients had median MMSE scores of 11 (IQR, 6-17) and 4 (IQR, 2-5) ADL impairments (Table 2). The majority of care recipients were placed in skilled nursing or intermediate-care facilities (133; 73.9%), followed by assisted living facilities (26; 14.4%), personal care homes (12; 6.7%), rehabilitation facilities (3; 1.7%), and other facilities (6; 3.3%).

**Frequency of Contact and Satisfaction With Long-term Care Facility**

At the first interview following placement, 46 (49.5%) spouse and 22 (25.6%) nonsnouse caregivers reported visiting the care recipient at least once a day, and...
nearly all (167; 93.3%) reported visiting at least once a week. A total of 96 (53.6%) indicated that they provided help with the physical care of the patient. Nearly half of responding caregivers expressed the highest category of satisfaction for each of the aspects of the institution they were asked about: 78 (44.1%) caregivers were very satisfied with the quality of care provided by the facility, 76 (43.2%) were very satisfied with the social environment, and 84 (47.2%) were very satisfied with the physical environment. Almost half of spouse caregivers (43; 47.8%) were paying for care using their own finances compared with only 10 (11.6%) nonspouse caregivers (TABLE 3).

Change in Caregiver Outcomes

The median time between placement and the last preplacement assessment was 16.6 weeks (IQR, 10.6-23.1 weeks), and the median time between placement and the first postplacement assessment was 12.2 weeks (IQR, 5.4-16.9 weeks). CES-D scores, the percentage of caregivers taking antidepressants, and anxiety scores did not change significantly from before to after placement. Nearly half of the caregivers (87; 48.3% following placement) had CES-D scores of 16 or higher, indicating that they were at risk for clinical depression. Spouses, compared with nonspouses, were significantly more depressed before placement and more depressed and anxious after placement (TABLE 4). The changes did not differ significantly by caregiver relationship to care recipient. The percentage of caregivers taking anxiolytics increased from before to after placement, with 10 caregivers starting use and 2 quitting (TABLE 4).

Satisfaction with social activities increased from before to after placement (P<.001), and the percentage of caregivers very satisfied with help received from others increased following placement (P=.005) (TABLE 4).

Adjusting for preplacement CES-D, we found that spouses, those who visited at least daily, and those less satisfied with help from others had higher postplacement CES-D scores (TABLE 5).

Adjusting for preplacement anxiety, those who visited daily and those who were less satisfied with help from others had higher postplacement anxiety scores (Table 5). Neither group assignment (active treatment vs control) nor time since placement was significantly associated with either CES-D or anxiety at the first measurement following placement.

Long-term Changes in Depression and Anxiety

To assess long-term changes in depression and anxiety, we compared CES-D and anxiety scores from before placement to those approximately 1 year following placement for the 41 caregivers who had CES-D values from 44 to 60 weeks following placement. We found no statistically significant change in CES-D scores from preplacement levels. However, there was a statistically significant decrease in anxiety scores (median [IQR], 23.6 [19-27] vs 19.8 [17-23]; P<.001), which was not significantly related to the use of anxiolytics. After adjusting for preplacement CES-D and anxiety scores, respectively, we found no statistically significant predictors of long-term changes in depression or anxiety in 2 separate multivariable regression models.

COMMENT

Based on a large cohort of caregivers of persons with dementia followed up for 18 months, this article provides a comprehensive assessment of predictors of institutional placement among dementia patients, the type and frequency of contact between family caregiver and patient following placement, changes in caregiver depression and anxiety before to after placement, and factors predicting postplacement adjustment among caregivers. Like others, we found that race/ethnicity, caregiver bur-
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Table 4. Comparison of Caregiver Status Outcomes Between Last Assessment Before and First Assessment After Placement (n = 180)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Placement Assessment</th>
<th>Before</th>
<th>After</th>
<th>Difference (After−Before)</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time between placement and postplacement assessment, median (IQR), wk</td>
<td>16.6 (10.6 to 23.1)</td>
<td>12.2 (5.4 to 16.9)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CES-D score, median (IQR)</td>
<td>Overall</td>
<td>15.0 (8 to 24.5)</td>
<td>15.0 (7.7 to 28)</td>
<td>−1.0 (−4.5 to 6)</td>
<td>.64</td>
</tr>
<tr>
<td></td>
<td>Spouse</td>
<td>18.0 (10 to 27)</td>
<td>20.5 (12 to 30)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Nonspouse</td>
<td>12.0 (6 to 19)</td>
<td>11.0 (5.6 to 17)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Takes antidepressant, No. (%)</td>
<td>32 (20.1)</td>
<td>32 (19.7)</td>
<td>.16*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anxiety, median (IQR)†</td>
<td>Overall</td>
<td>22.0 (19 to 27)</td>
<td>21.1 (18 to 27)</td>
<td>−1.0 (−4 to 4)</td>
<td>.21*</td>
</tr>
<tr>
<td></td>
<td>Spouse</td>
<td>22.5 (19 to 29)</td>
<td>24 (19 to 29)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Nonspouse</td>
<td>22 (19 to 26)</td>
<td>20 (16 to 24)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Takes anxiolytics, No. (%)*</td>
<td>26 (14.6)</td>
<td>34 (19.0)</td>
<td>.02*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Satisfied with social activities, median (IQR)‡</td>
<td>5.8 (2 to 8)</td>
<td>8.0 (5 to 11)</td>
<td>2 (0 to 5)</td>
<td>&lt;.001*</td>
<td></td>
</tr>
<tr>
<td>Satisfied with help, No.%(§</td>
<td>Not at all</td>
<td>32 (18.8)</td>
<td>19 (10.7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>A little</td>
<td>30 (17.5)</td>
<td>30 (16.9)</td>
<td>.005</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Moderate</td>
<td>56 (32.8)</td>
<td>41 (23.0)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Very</td>
<td>53 (31.0)</td>
<td>88 (49.4)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Abbreviations: CES-D, Center for Epidemiological Studies-Depression (range, 0-60 with higher values indicating more depressive symptoms); IQR, interquartile range.
*Calculated with the McNemar test.
†Based on the State Trait Inventory with scores ranging from 10 to 40 (40 indicating the most anxiety).
‡Based on the Leisure Time Satisfaction scale (7 items) with scores ranging from 0 to 14 (lower scores indicating low satisfaction).
§n = 171 at preplacement assessment and n = 178 at postplacement assessment.
Calculated with the Bowker test.

Table 5. Multivariable Regression for First CES-D Assessment and First Anxiety Assessment Following Placement (n = 178)*

<table>
<thead>
<tr>
<th>Variables</th>
<th>First CES-D Assessment Following Placement</th>
<th>First Anxiety Assessment Following Placement</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Coefficient (SE)</td>
<td>P Value</td>
</tr>
<tr>
<td>Intercept</td>
<td>8.05 (2.15)</td>
<td>.01</td>
</tr>
<tr>
<td>Caregiver is spouse</td>
<td>3.40 (1.43)</td>
<td>.02</td>
</tr>
<tr>
<td>Preplacement CES-D</td>
<td>0.65 (0.06)</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Preplacement anxiety</td>
<td>...</td>
<td>...</td>
</tr>
<tr>
<td>Visiting frequency at least once per day</td>
<td>3.77 (1.45)</td>
<td>.01</td>
</tr>
<tr>
<td>Satisfaction with help</td>
<td>−2.07 (0.68)</td>
<td>.003</td>
</tr>
</tbody>
</table>

Abbreviations: CES-D, Center for Epidemiological Studies-Depression; ellipses, variables not included in the respective models.
*Visiting frequency information missing for 2 caregivers.

The effects of the relative’s death are relatively benign, with caregivers reporting significant decreases in depression before to after the death.5 The findings reported here stand in sharp contrast to the bereavement effects. Caregivers who institutionalized their relative reported depressive symptoms and anxiety to be as high as they were while the patient was being cared for at home and they reported increased use of anxiolytics from before to after placement. Being married to the patient, visiting more frequently, and being more dissatisfied with help received from others were associated with higher depression scores following placement. More visiting and dissatisfaction with support from others was also linked to higher anxiety scores. These data suggest that the transition to institutional care is particularly difficult for spouses, almost half of whom visit the patient daily and continue to provide help with physical care during their visits.

Our findings also indicate that anxiety, but not depression, declined over time and that caregivers became more satisfied with their social activities and
dent effects on the placement decision. We also found that spouses compared with nonspouses differed in the level of distress they reported prior to and after placement. Spouses reported higher levels of depression both before and after placement and more anxiety after placement than their nonspouse counterparts.

In a previous article based on a cohort of caregivers from the same parent study who experienced the death of their relative with dementia, we showed that
the support they received from others. The latter finding may be the result of the contrast between unmet needs while they were in-home caregivers and the unmet needs following placement.

Multiple factors may contribute to the continued high level of depressive symptoms among caregivers who place their relative in a long-term care facility. Caregivers face new practical realities such as changes in the family's financial situation, frequent trips to the long-term care facility, reduced control over the care provided their relative, and taking on new responsibilities such as coordinat-
ing and monitoring care. In addition, pa-
tient functional and cognitive declines are common following placement, causing caregivers to question the placement de-
cision. Maintaining contact with the care recipient through frequent visits makes salient the continued decline of the pa-
tient. Finally, personal and cultural expecta-
tions regarding the acceptability of institutional care can create conflict for the caregiver. On a personal level, care-
givers may feel they have broken a prom-
ise to the patient or failed to live up to parental/spousal obligations.

These findings have important clin-
ical implications. Caregivers are at risk for adverse health outcomes not only while providing care at home, but also after the patient is institutionalized. Our findings indicate that spouses, caregivers who remain actively involved with the care recipient, caregivers who have high levels of depression, and those who lack adequate support from others should receive interventions, such as preparation for and guidance through the placement transition, medical treatment for anxiety and depres-
sion following their relative's place-
ment, and the recruitment of family and friends to support the caregiver.

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Study concept and design: Schulz.

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Analysis and interpretation of data: Schulz, Belle, Czaja, McGinnis, Zhang.

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