A Broader View of Family Caregiving: Effects of Caregiving and Caregiver Conditions on Depressive Symptoms, Health, Work, and Social Isolation

Julie Robison, Richard Fortinsky, Alison Kleppinger, Noreen Shugrue, and Martha Porter

Center on Aging, University of Connecticut Health Center, Farmington.

Objectives. Informal caregivers provide the majority of long-term care. This study examined six health and psychosocial outcomes of caregiving, in the context of multiple characteristics of the caregiving situation, in a representative, statewide sample.

Methods. Data came from 4,041 respondents to the 2007 Connecticut Long-Term Care Needs Assessment. Analyses investigated whether caregiving negatively affects depressive symptoms, health, missing work, and social isolation. Logistic regressions tested the independent effects of caregiver characteristics and conditions of the caregiving situation on these health and psychosocial outcomes.

Results. Caregivers rate their health better than noncaregivers and do not report more depressive symptoms or social isolation. Living with the care receiver, inadequate income, and care receivers’ unmet need for community-based long-term care services relate to multiple negative outcomes. Care receiver memory problems and caregiver/care receiver relationship do not relate to health or psychosocial outcomes when these other factors are considered.

Discussion. Caregiving per se does not lead to symptoms of depression, poor health, or social isolation. Many caregivers do need supports in training and education, respite, and physical and mental health care. Such programs should provide outreach to caregivers facing specific stressful conditions, as not all caregivers experience negative consequences.

Key Words: Cohort—Community-based long-term care services—Coresidence—Dementia—Income.

Informal caregivers form the backbone of the U.S. long-term care system, providing the vast majority of long-term care needed by older adults and those with disabilities (Feinberg, Newman, Gray, & Kolb, 2004; Wolff & Kasper, 2006). An estimated 52 million caregivers, or 19% of the U.S. adult population, provide unpaid care to family and friends aged 18 years and older over the course of a year. The annual economic value of informal caregiving, estimated at $375 billion for 2007 (Houser & Gibson, 2008), far exceeds public expenditures for home health and nursing home care combined ($148.1 billion in 2005) (Komisar & Thompson, 2007). Caregivers come from every age group and provide care to people of all ages with disabilities or chronic illnesses, including spouses, parents or grandparents, and children with disabilities throughout their lives (Robison, Moen, & Dempster-McClain, 1995). As the population ages, more caregivers are older than 65 years themselves, caring for a relative aged 85 years or older (Kane, Kane, & Ladd, 1998).

Research on informal caregiving has largely utilized samples composed exclusively of caregivers, and most of these studies are based on convenience samples. Although much has been learned through these methods, examination of caregivers and noncaregivers from large, representative samples can demonstrate more clearly how informal caregiving experiences affect the population as a whole. This study draws on data from a representative statewide long-term care needs assessment to examine caregiving experiences of residents from two age cohorts: baby boomers and older adults. Health and psychosocial effects of caregiving in general, and of caregiving given a diverse set of potentially stressful conditions, are explored.

The Health and Psychosocial Effects of Caregiving

Although informal caregivers report some positive aspects of caregiving (Haley et al., 2004; Raschick & Ingersoll-Dayton, 2004), adverse effects experienced by many who provide such care are also well documented (Fortinsky, Tennen, Frank, & Affleck, 2007; Lantz, 2004; Moen, Robison, & Dempster-McClain, 1995; Ohaeri, 2003). Caregivers demonstrate high levels of psychological distress and depression; increased rates of physiological illness and suppressed immune responses; lower rates of engaging in preventive health behaviors; disruptions to paid employment; and personal, financial, family, and social problems (Fortinsky et al., 2007; Kiecolt-Glaser, Dura, Speicher, Trask, & Glaser, 1991; Moen, Robison, & Fields, 1994; Moen et al., 1995; Savla, Almeida, Davey, & Zarit, 2008; Torti, Gwyther, Reed, Friedman, & Schulman, 2004; Waka-bayashi & Donato, 2006).

A comprehensive meta-analysis of mental and physical health effects of caregiving found significantly higher rates.
of depression and stress in caregivers compared with non-caregivers (Pinquart & Sörensen, 2003). These differences in health outcomes were magnified within a subgroup of dementia caregivers. Several studies have concluded that caregivers who experience particular stress are far more likely than other caregivers to experience negative health and psychosocial outcomes, including mortality (Pearlin, Mullan, Semple, & Skaff, 1990; Schulz & Beach, 1999; Schulz & Martire, 2004; Son et al., 2007).

In order to address these negative effects from a public health or policy perspective, the next step points to identifying particular situations or conditions of caregiving that induce stress. Further, it remains to examine the relative importance among these conditions: Considering them as a group, which conditions have the greatest impact on caregiver health and well-being? Most studies focus on just one or two outcomes and include only a few potentially important caregiving conditions that may correlate with these outcomes. This paper moves the research forward by considering the relative impacts of a wide array of caregiving conditions on six health and psychosocial outcomes.

Caregiving Conditions That Affect Caregiver Health and Psychosocial Well-being

The literature on caregiver health and well-being has identified multiple factors that affect these outcomes, including demographic factors, particular characteristics of the caregiving situation, socioeconomic status, and unmet need for community long-term care services. Women serve as caregivers far more frequently than men (Campbell & Martin-Matthews, 2003). However, results of studies comparing outcomes for male versus female caregivers vary, with some finding worse effects for women (Covinsky et al., 2003; Cuijpers, 2005), one for men (Schulz & Williamson, 1991), and others finding no gender effect when accounting for other aspects of the caregiving situation (Savla et al., 2008). Informal caregiving at any stage of the life course has been described as an “unexpected career” (Pearlin & Anashensel, 1994). However, entering the caregiver role in midlife differs from caregiving as an older adult both in the specifics of the caregiving context and in the potential impact of caregiving on health and other psychosocial factors. For example, Covinsky and colleagues (2003) found that midlife dementia caregivers have higher rates of depression than their older counterparts.

Beyond just life stage considerations, differences between birth cohorts may also affect caregiving experiences. Studies comparing baby boomers with older adults have uncovered meaningful differences in multiple areas. For example, baby boomers tend to report worse self-rated health than older cohorts, as well as faster declines in self-rated health over time (Chen, Cohen, & Kasen, 2007). Baby boomers are somewhat better-off in terms of income and wealth than older adult cohorts were at comparable ages but less likely to own a home (Easterlin, Shaeffer, & Macunovich, 1993). Baby boomers also have lower rates of marriage and fewer children, but more siblings, than older adult cohorts (Easterlin et al., 1993). It is reasonable to expect such cohort differences to affect the experience of informal caregiving as well, although the direction of the effect has not been established.

Particular types of caregiver/care receiver role relationships relate to certain negative outcomes, with spousal caregivers demonstrating worse mental health outcomes than caregivers of parents (Covinsky et al., 2003; Zivin & Christakis, 2007) and daughters or daughters-in-law reducing work hours (Covinsky et al., 2001). Coresidence with the care receiver also relates to negative psychosocial consequences (Covinsky et al., 2001).

Further, caregiver/care receiver relationship, living arrangements, and age or cohort do not function completely independently from each other. For example, midlife caregivers are more likely to care for parents or others in an older generation than for a spouse; caregivers of spouses or children with disabilities have higher rates of coresidence than caregivers of older relatives. The relative importance of each of these potentially stressful caregiving situations has not been adequately teased out in prior research.

Characteristics of the care receiver have also been studied in the context of caregiver outcomes. A large body of research has documented the negative effects of caring for someone with dementia, the specific caregiving condition that has received by far the most attention (Cuijpers, 2005; Ory, Hoffman, Yee, Tennstedt, & Schulz, 1999; Schulz & Martire, 2004; von Känel et al., 2006).

The impact of working on caregiver health and well-being has been studied from different theoretical perspectives. When considered as a competing role, employment increases stress and role overload for caregivers (Savla et al., 2008; Stephens, Townsend, Martire, & Drule, 2001). Chesley and Moen (2006) also found a negative effect of working for female caregivers but the opposite effect for men. An alternative view regards employment as a resource for caregivers. Scharlach (1994) found that in addition to added income, employment provides caregivers with benefits such as enhanced interpersonal relationships that outweigh the stress of combining these roles. Studies that directly measure caregivers’ income level or income adequacy have consistently shown an inverse relationship to measures of caregiver depression and distress (Covinsky et al., 2003).

Unmet need for long-term care services on the care receiver’s part arguably places increased demands on the caregiver’s time and attention. Such increased demands may lead to poor health or well-being, but the relationship between use of and need for formal services and caregiver outcomes has not received much attention in the literature. A few studies have found increased caregiver stress related to unmet need for specific services such as adult day care or respite (Gaugler et al., 2003; Jeon, Brodaty, & Chesterson, 2005) or...
specific populations such as victims of Alzheimer’s disease, cancer, or mental illness (Gaugler et al., 2004; Jeon et al., 2005; Sharpe, Butow, Smith, McConnell, & Clarke, 2005). To date, no studies have examined the impact of a care receiver’s unmet need for long-term care services on his/her caregiver.

The literature clearly demonstrates that multiple factors affect caregiver health and well-being. Depression and other psychological indicators have been examined most widely; yet, caregiving may also affect other aspects of health and well-being, such as one’s subjective overall health, use of preventive health care, employment interruptions, or social isolation. Further, no study has included a full range of caregiver demographic factors, characteristics of the caregiving situation, socioeconomic indicators, and unmet need for long-term care services to assess these factors’ relative importance. In particular, the effects of socioeconomic indicators and unmet need for services have not previously been included in studies of caregiver and care receiver characteristics such as memory problems, caregiver/care receiver relationship, and coresidence. Using a representative sample of baby boomers and older adults, this paper examines the overall effects of caregiving and the interplay among specific conditions of caregiving across a broad range of indicators of well-being and health.

Hypotheses
1. Caregivers will report worse health or psychosocial outcomes compared with noncaregivers.
2. Caregivers with particular characteristics or facing more stressful conditions of caregiving will exhibit poorer health and psychosocial outcomes. Specifically, female gender, belonging to the baby boomer cohort, coresidence with the care receiver, caring for a younger- or same-generation care receiver, memory problems in the care receiver, working, inadequate income, and unmet need for community long-term care services will increase the likelihood of negative health and psychosocial outcomes.

Methods
Data
This study draws on data from the 2007 Connecticut Long-Term Care Needs Assessment. The primary method of data collection was a self-administered, written survey mailed directly to a sample of Connecticut residents. Survey development was informed by a comprehensive review of the long-term care and disability scientific and policy literature, as well as an examination of surveys used by other states. A 12-page survey booklet included the following major topics: current and future plans, health and functional status, long-term care service use and unmet need, social support, employment and transportation, demographics, financial resources, and caregiving.

Participants
Two groups of community-dwelling residents received the randomized mailed survey: older adults (n = 5,250) and baby boomers (n = 5,250). At the time of the survey, the baby boom cohort, born between 1946 and 1964, were aged 42–60 years. The older adult cohort included everyone born before 1946; the older adults were aged 61 years or older at the time of the survey. An additional 5,000 people with identified disabilities were also part of the Needs Assessment but are not included in this article. Contact information was obtained from state voter registry and Department of Motor Vehicles (DMV) records, including DMV-issued nonlicense identification cards. Residents were oversampled from towns with larger populations of African Americans and Latinos. In addition to the random mailing, the survey was available to the public as a general interest survey. Multiple approaches, including television, radio, newspapers, broadcast emails, statewide events, newsletters, and the Internet, attempted to reach residents of diverse ages, ethnic and racial backgrounds, and geographic regions. The survey was accessible online via multiple links.

Response Rate
A total of 2,761 surveys were received from the randomized mailing: 1,607 from older adults and 1,154 from baby boomers. Adjusting for ineligibility resulted in an overall response rate of 29%; 34% for older adults and 24% for baby boomers. This overall response rate is well within the acceptable mail survey range of 10%–60% (Harbaugh, 2002). The additional statewide distribution of the survey yielded 764 responses, and 1,175 people completed the Web-based survey, for a combined total of 4,700 surveys. Respondents younger than 42 years (n = 542) and those who did not answer the question assessing current caregiving (n = 117) were excluded from these analyses, leaving a total sample size of 4,041.

Comparability of Research Sample
Respondents versus random sample.—To assess generalizability of survey results, we compared respondents to the random mailing with the entire sample that received surveys.
in the randomly selected group of Connecticut residents. For older adults (age 61+), respondents did not differ from the random sample population in mean age (71.5 vs. 72.3), gender distribution (46% male vs. 48% male), or geographic distribution throughout the state. For baby boomer respondents (aged 42–60 years), geographic distribution and mean age (52.0 vs. 50.1 years) also closely tracked that of the random sample; however, respondents were more likely to be women (59% vs. 50% of the total sample). Ethnicity of the randomly selected group was unknown.

Respondents versus 2005 U.S. Census data.—For purposes of comparing all survey respondents (both random and nonrandom) with the Connecticut population as a whole, respondents from both the baby boomer and older adult groups were compared with the same age groups using 2005 U.S. Census data for Connecticut. Comparisons were made based on gender, education, race, disability status, and household income. The survey respondents have higher levels of education than the general population in Connecticut (48% of survey respondents have a 4-year college degree compared with 33% of the Census population in these age groups). African American respondents are underrepresented (3% of survey respondents vs. 7% of Census population), and fewer Latino baby boomers completed the survey (5% of survey respondents vs. 8% of Census population). On all other features, the survey respondents closely reflect the larger population of Connecticut in these age groups, and the results may be generalized to Connecticut as a whole.

Random versus nonrandom respondents.—To determine the appropriateness of combining the random surveys with the nonrandom surveys collected, these two groups were compared across age, ethnicity, income, disability, and region. No differences were found in age or disability status. Minor differences exist with slightly more random respondents among the upper income category, more Latinos in the nonrandom group (which brings the total sample closer to matching the Census numbers), and more nonrandom respondents in the northern region of the state. Other than these few differences, the nonrandom and random samples are strongly comparable and have been combined for these analyses.

Measures

Health and psychosocial outcomes.—To determine whether participants exhibited depressive symptoms, we used the Prime-MD two-question depressive symptom screen, a widely used, reliable, and validated measure (Whooley, Avins, Miranda, & Browner, 1997). The two questions are: “During the past month, have you often been bothered by feeling down, depressed, or hopeless”? and “During the past month, have you often been bothered by little interest or pleasure in doing things”? These two questions are the stem questions used for a diagnosis of major depression or dysthymia in the Diagnostic and Statistical Manual of Mental Disorders, 4th revision; however, they alone do not document a depressive disorder diagnosis. Following the published symptom screening procedures for the Prime-MD, participants in this study were considered to have depressive symptoms if they answered “yes” to either one of these two screening questions.

Survey respondents gave a subjective rating of their own health (excellent, good, fair, or poor), modified from the Short Form (SF)-36 in the Medical Outcomes Study, a widely used measure with excellent reliability and validity (Jenkinson, Wright, & Coulter, 1994; McHorney, Ware, Lu, & Sherbourne, 1994; Ware & Sherbourne, 1992). These categories were combined for analyses into excellent/good versus fair/poor. Using this binary outcome compensated for small cell sizes among some groups and also facilitated interpretation of logistic regression results with this measure as a dependent variable.

The demands of caring for another individual may cause caregivers to neglect their own preventive health care needs. Preventive health care behavior measures were adapted from the Behavioral Risk Factor Surveillance System Survey Questionnaire (BRFSS) (Centers for Disease Control and Prevention, 1999). The BRFSS includes a checklist of preventive health tests, screens, and vaccinations; they are used descriptively or analytically as individual items, not as a summary scale. The present analyses include the two items that address regular health care visits for both men and women: (a) whether respondents had had a dental cleaning in the past year and (b) whether respondents had had a wellness checkup in the past 2 years.

Caregivers reported whether they had missed work or used sick or vacation time in the past year to provide care. Only caregivers who also reported that they were employed were included in this measure.

As a measure of social isolation, survey respondents indicated whether the number of days they leave the house each week is enough, too much, or too little. Anyone who responded that they go out too little was considered socially isolated.

Conditions of Caregiving That May Affect Health and Well-being

Demographic factors included gender and birth cohort. Survey respondents were either part of the baby boomer group, born between 1946 and 1964, or part of the older adult group, born in 1945 or earlier.

Characteristics of the caregiving situation include both caregiver and care receiver characteristics. All caregiver measures were developed by the research team or based on questions used in previous needs assessments. Respondents self-identified as caregivers by replying yes to: “Do you
provide unpaid care and assistance for a relative or friend who lives in Connecticut because of old age, disabilities, or other problems? Considering the person they provide the care for, caregivers then described how this person was related to themselves: The care receiver was a spouse/partner, a child with disabilities younger than 18 years, a child with disabilities aged 18 years or older, a parent, or another relative. In order to address the small cell sizes for some of these groups, the categories were further collapsed into a 3-level indicator of the caregiver/care receiver relationship, with care receivers in an older generation, the same generation, or a younger generation relative to the caregiver. Ninety-seven percent of the older-generation care receivers were parents or parents-in-law; this category also included nine aunts/uncles and two grandparents. The same-generation care receivers were predominantly spouses (86%); the rest were siblings and one cousin. All the younger-generation care receivers were the caregivers’ children; 88% were aged 18 years or older, and the remaining 12% were younger than 18 years. Finally, caregiving respondents reported whether the care receiver had any memory problems (coded as none, mild, moderate, or severe; collapsed as none vs. any memory problems).

Socioeconomic indicators included caregivers’ work status (including full time or part time employment) and income adequacy. The income adequacy question asked, “In general, how do your finances usually work out at the end of the month”? with three response choices: some money left over, just enough to make ends meet, or not enough money to make ends meet. Respondents with either enough money or some money left over were contrasted in analyses to those without enough money. This question has been used in large epidemiologic surveys, including the Established Populations for Epidemiologic Studies of the Elderly (Cornoni-Huntley, Brock, Ostfeld, Taylor, & Wallace, 1986) and the Americans Changing Lives Study (Danigelis & McIntosh, 2001).

Unmet need for community long-term care services represents the fourth category of caregiving conditions. Caregivers indicated whether or not their care receiver was able to get all the long-term care services that he/she needed: receives all needed services or does not need any services versus not receiving all needed services. Long-term care services considered for this question represent home- and community-based services and included home health care, visiting nurse services, homemaker services, home-delivered meals, transportation, care management, and adult day programs. This measure came from the 1987 Connecticut Long-term Care Needs Assessment (Lusky & Rosen, 1987).

Analyses
To address the first hypothesis, the analyses explored whether caregivers and noncaregivers differ in terms of the specified health and psychosocial outcomes. First, Pearson chi-square tests of statistical significance were used to identify sociodemographic differences between caregivers and noncaregivers. Tests with a p value of less than .05 were considered statistically significant. Then, adjusting for the significant factors, logistic regression analyses examined the relationship between caregiving and each of five outcomes. This analysis excluded the outcome of missing work due to caregiving, as it did not apply to noncaregivers.

To address the second hypothesis, we tested a series of logistic regressions for the six health and psychosocial outcomes. Independent variables entered each logistic regression model in two blocks to allow comparison within and across specific sets of predictors. Exploratory bivariate analyses confirmed expected significant correlations among cohort, caregiver/care receiver relationship, and living arrangement, but these three indicators still measured independent characteristics with all Pearson correlation coefficients below .48. Therefore, including all three measures as independent variables does not place the logistic regression models at risk of multicollinearity. The first block included only the demographics and characteristics of the caregiving situation in order to reveal the independent impact of each factor on the psychosocial and health outcomes. Specifically, the first block included gender, cohort, living arrangement, caregiver/care receiver relationship, and care receiver memory problems.

Block 2 added two indicators of socioeconomic status, whether the caregiver works and if he/she had an adequate income and a measure of unmet need for paid community-based long-term care services. Adding these measures in a separate block allowed examination of any changes in the effects of demographic and caregiver situational characteristics when socioeconomic indicators and inadequate services were considered.

Models for each of the six outcomes included a common set of factors to facilitate comparisons across the models. Odds ratios and 95% confidence intervals indicated the effect of each predictor and whether it met statistical significance. Chi-square tests and log likelihood indicate whether the set of factors in each model reliably predicts the outcome. Nagelkerke’s statistic (pseudo $R^2$) shows the total variance accounted for in the models. Statistical Package for Social Sciences software (version 16.0) was used to analyze all data.

Results

Characteristics of Caregiving Situation

Nineteen percent of the 4,041 respondents reported that they currently provided unpaid care and assistance to a relative or friend who lived in Connecticut, because of old age, disabilities, or other problems, comparable to the national
rate of 19% (Table 1). Of these caregivers, more than a quarter (26%) lived with the person they cared for. More than three quarters (79%) cared for an older relative, 12% cared for a spouse or someone in their same generation, and 8% cared for someone younger, usually an adult child with disabilities. Two thirds of care recipients had some degree of memory problems. Almost one third (29%) of caregivers reported that the person they cared for did not get the paid long-term care services that he/she needed.

Compared with noncaregivers, more caregivers were women and members of the baby boomer cohort (Table 2). Notably, however, over one third of caregivers were older adults themselves. Caregivers were more likely to be employed than noncaregivers (51% vs. 40%). About 10% of both groups did not have enough money at the end of the month to make ends meet.

**Health and Psychosocial Effects of Caregiving**

The next set of analyses addressed the potential effects of caregiving on an array of five health and psychosocial outcomes. Logistic regressions adjust for the three factors that differ significantly between caregivers and noncaregivers: gender, age cohort, and work status. Table 3 shows that caregiving had either no effect or, in the case of self-rated health and dental cleanings, a positive relationship with the outcomes examined (Table 3). That is, caregivers reported better overall health and were more likely to have had their teeth cleaned in the past year than noncaregivers. Caregivers were no different from noncaregivers in their experiences of depressive symptoms, feelings of social isolation, or likelihood of having a wellness visit, when gender, age, and work status were considered.

**Effects of Stressful Caregiving Conditions**

The remaining analyses focused solely on caregivers to examine the independent effects of potentially stressful caregiving conditions on the six health and psychosocial outcomes of interest. Tables 4 and 5 display the results of logistic regressions for each outcome. Table 4 includes reduced and full models for depressive symptoms, missed work, and social isolation. Table 5 shows both models for self-rated health, dental cleaning, and wellness visits. For each outcome, the first block includes demographic indicators and characteristics of the caregiver situation. The second block shows the impact on the reduced models of adding the socioeconomic measures of work status and inadequate income and an indicator of unmet need for formal long-term care services.

A similar pattern plays out across all six outcomes examined. In the first block, characteristics of the caregiving situation, such as living arrangement, caregiver/care receiver relationship, and care receiver memory problems, are significant predictors of multiple outcomes. However, adding work status, income adequacy, and unmet need for services in the full models overrides the effects of the caregiver situational factors for several outcomes.

Specifically, living with the care receiver, caring for a younger person, and caring for someone with memory problems all predict depressive symptoms in Block 1 (Table 4). But in the full model, only caregivers with inadequate income and those who reported unmet need for services have more symptoms of depression. Caregivers with inadequate income were more than four times as likely to have depressive symptoms; unmet need for long-term care services increased the likelihood of feeling depressed by 65%.

The full model results show that among caregivers who work, women missed work due to caregiving responsibilities twice as often as men, baby boomers missed work twice as often as employed older adults, and caregivers reporting unmet need for services missed work twice as often as their counterparts with adequate services (Table 4). Although significant in the Block 1 model, memory problems in the care receiver do not predict missing work in the full model.

Living with the care receiver predicts social isolation in both the reduced and full models, in addition to unmet need for services (Table 4). Caregivers who coreside with their family members are 2.5 times as likely to feel isolated, and unmet need for long-term care services relates to an almost fourfold increase in social isolation.
The full model for self-rated health shows that working caregivers are more than three times as likely to describe their health as good or excellent than those who do not work (Table 5). Caregivers whose finances do not cover their monthly expenses rate their health significantly lower than those with adequate income. Although significant in Block 1, caring for someone in the same generation (vs. an older care receiver) does not affect self-rated health in the full model.

The likelihood for caregivers of having a regular dental cleaning is significantly reduced for those who live with their family members or have inadequate income (Table 5). Again, Block 1 shows that caregivers of someone in a younger generation (vs. an older generation) are less likely to receive dental care, but this factor is no longer significant in the full model.

Neither the reduced nor the full model for the likelihood of having had a wellness visit in the previous 2 years shows any significant predictors in this analysis (Table 5).

**Discussion**

The findings reported here contribute to the body of informal caregiver research in several ways. The study utilized a representative sample of baby boomers and older adults, both caregivers and noncaregivers. Much of the research on the effects of caregiving focuses on depression and stress. These analyses considered a wide array of health and well-being outcomes within the same sample population. Finally, the results identified the independent effects of a broad range of demographic factors, specific characteristics of the caregiving situation, socioeconomic indicators, and unmet need for formal long-term care services by including these factors in the same models.

The first hypothesis was not supported. Caregivers reported better overall health and use of preventive dental health care than noncaregivers and no difference in depressive symptoms, social isolation, or poor self-rated health, nor do their use of preventive wellness checkups or dental cleanings suffer compared with noncaregivers.

This study intentionally defined caregiving broadly to capture the wide range of informal assistance provided by families and friends. Nineteen percent of all survey respondents were currently caregivers to a Connecticut resident. It is reassuring that simply taking on this role in any capacity...

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**Table 3. Adjusted Logistic Regressions Comparing Caregivers with Noncaregivers on Five Outcomes**

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Caregiver Odds Ratio (95% CI)</th>
<th>p Value</th>
<th>B</th>
<th>Chi-square (df, p value)</th>
<th>Log Likelihood</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depressive symptoms</td>
<td>1.18 (0.97, 1.43)</td>
<td>.10</td>
<td>0.16</td>
<td>33.05 (4, .000)</td>
<td>3,989.07</td>
</tr>
<tr>
<td>Social isolation</td>
<td>1.22 (0.85, 1.76)</td>
<td>.29</td>
<td>0.20</td>
<td>50.81 (4, .000)</td>
<td>1,502.57</td>
</tr>
<tr>
<td>Self-rated health</td>
<td>1.34 (1.03, 1.75)</td>
<td>.03</td>
<td>0.30</td>
<td>128.15 (4, .000)</td>
<td>3,002.53</td>
</tr>
<tr>
<td>Dental cleaning</td>
<td>1.28 (1.04, 1.57)</td>
<td>.02</td>
<td>0.25</td>
<td>62.33 (4, .000)</td>
<td>4,212.36</td>
</tr>
<tr>
<td>Wellness visit</td>
<td>1.04 (0.88, 1.24)</td>
<td>.62</td>
<td>0.04</td>
<td>41.20 (4, .000)</td>
<td>5,083.71</td>
</tr>
</tbody>
</table>

*Note: All models were adjusted for gender, age cohort, and work status. CI = confidence interval.*

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**Table 4. Predictors of Depressive Symptoms, Missed Work, and Social Isolation: Logistic Regressions: Blocks 1 and 2**

<table>
<thead>
<tr>
<th>Predictors</th>
<th>Depressive Symptoms</th>
<th>Missed Work</th>
<th>Social Isolation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Odds Ratio (95% CI)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Block 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>0.98 (0.64–1.50)</td>
<td>0.98 (0.57–1.70)</td>
<td>0.98 (0.57–1.70)</td>
</tr>
<tr>
<td>Block 2</td>
<td>1.03 (0.65–1.63)</td>
<td>1.63 (0.98–2.73)</td>
<td>1.67 (0.98–2.73)</td>
</tr>
<tr>
<td>Men</td>
<td>0.47 (0.23–0.93)</td>
<td>0.47 (0.23–0.93)</td>
<td>0.47 (0.23–0.93)</td>
</tr>
<tr>
<td>Block 2</td>
<td>0.94 (0.49–1.87)</td>
<td>0.47 (0.23–0.93)</td>
<td>0.47 (0.23–0.93)</td>
</tr>
<tr>
<td>Older adult cohort group</td>
<td>0.95 (0.52–1.87)</td>
<td>0.95 (0.52–1.87)</td>
<td>0.95 (0.52–1.87)</td>
</tr>
<tr>
<td>Block 2</td>
<td>0.78 (0.39–1.59)</td>
<td>0.78 (0.39–1.59)</td>
<td>0.78 (0.39–1.59)</td>
</tr>
<tr>
<td>Living with care receiver</td>
<td>1.85 (1.14–2.99)</td>
<td>1.44 (0.74–2.79)</td>
<td>1.44 (0.74–2.79)</td>
</tr>
<tr>
<td>Block 2</td>
<td>1.63 (0.98–2.73)</td>
<td>1.47 (0.75–2.79)</td>
<td>1.47 (0.75–2.79)</td>
</tr>
<tr>
<td>Caring for someone of the same generation</td>
<td>0.98 (0.52–1.87)</td>
<td>1.47 (0.75–2.79)</td>
<td>1.47 (0.75–2.79)</td>
</tr>
<tr>
<td>Block 2</td>
<td>0.78 (0.39–1.59)</td>
<td>1.47 (0.75–2.79)</td>
<td>1.47 (0.75–2.79)</td>
</tr>
<tr>
<td>Caring for someone of the younger generation</td>
<td>2.08 (1.07–4.06)</td>
<td>2.08 (1.07–4.06)</td>
<td>2.08 (1.07–4.06)</td>
</tr>
<tr>
<td>Block 2</td>
<td>1.69 (0.81–3.54)</td>
<td>1.69 (0.81–3.54)</td>
<td>1.69 (0.81–3.54)</td>
</tr>
<tr>
<td>Caring for someone of the younger generation</td>
<td>1.78 (1.15–2.75)</td>
<td>1.78 (1.15–2.75)</td>
<td>1.78 (1.15–2.75)</td>
</tr>
<tr>
<td>Block 2</td>
<td>1.58 (0.99–2.54)</td>
<td>1.58 (0.99–2.54)</td>
<td>1.58 (0.99–2.54)</td>
</tr>
<tr>
<td>Caring for someone with memory problems</td>
<td>1.78 (1.15–2.75)</td>
<td>1.78 (1.15–2.75)</td>
<td>1.78 (1.15–2.75)</td>
</tr>
<tr>
<td>Inadequate income</td>
<td>1.65 (1.05–2.59)</td>
<td>1.65 (1.05–2.59)</td>
<td>1.65 (1.05–2.59)</td>
</tr>
<tr>
<td>Unmet need for long-term care services</td>
<td>1.65 (1.05–2.59)</td>
<td>1.65 (1.05–2.59)</td>
<td>1.65 (1.05–2.59)</td>
</tr>
<tr>
<td>Working</td>
<td>1.16 (0.72–1.87)</td>
<td>1.16 (0.72–1.87)</td>
<td>1.16 (0.72–1.87)</td>
</tr>
<tr>
<td>Inadequate income</td>
<td>4.65 (2.38–9.10)</td>
<td>4.65 (2.38–9.10)</td>
<td>4.65 (2.38–9.10)</td>
</tr>
<tr>
<td>Unmet need for long-term care services</td>
<td>1.65 (1.05–2.59)</td>
<td>1.65 (1.05–2.59)</td>
<td>1.65 (1.05–2.59)</td>
</tr>
<tr>
<td>Model summary</td>
<td>20.64 (6.002)</td>
<td>24.65 (6.000)</td>
<td>24.65 (6.000)</td>
</tr>
<tr>
<td>Chi square (df, p value)</td>
<td>45.25 (9.000)</td>
<td>30.14 (8.000)</td>
<td>30.14 (8.000)</td>
</tr>
<tr>
<td>Log likelihood</td>
<td>633.57</td>
<td>407.38</td>
<td>384.57</td>
</tr>
<tr>
<td>Nagelkerke</td>
<td>0.05</td>
<td>0.10</td>
<td>0.13</td>
</tr>
</tbody>
</table>

*Note: CI = confidence interval.*
does not automatically predispose close to one fifth of the population to the range of negative health and psychosocial outcomes studied here. This cross-sectional survey does not capture people who may have stopped caregiving for any reason, including physical or psychological distress of the caregiver or the care receiver’s changing needs. However, the random selection methodology of this survey compensates for this issue by taking a snapshot of the entire population at all points on the caregiving spectrum.

Although the mere fact of caregiving does not appear to be detrimental per se, an impressive array of previous studies have clearly demonstrated negative outcomes associated with caregiving. Hypothesis 2 sought to delve deeper into the specific characteristics of caregivers and their situations and to tease out which factors relate to specific outcomes, holding other factors constant. Previous research as described earlier has identified several particular conditions of caregiving as predictive of negative outcomes, including female gender, middle age (vs. older age), coresidence, caring for a spouse or sibling (vs. an older parent or other older relative), and caring for someone with a memory problem. Including related factors such as age, cohort, and caregiver/care receiver relationship in the same models identifies which of these measures have the strongest relationships with the outcomes. These same factors did predict at least some negative outcomes in this analysis as well.

However, when the models included socioeconomic factors and unmet need for formal long-term care services, most of the other caregiving conditions were not significant predictors. As expected, women and baby boomers missed more work due to caregiving responsibilities, and coresiding with the care receiver increased the likelihood of social isolation and decreased the likelihood of preventive care. But the caregiver’s relationship to the care receiver and the existence of memory impairment were not associated with any of the outcomes. Importantly, depressive symptoms, which have shown the strongest relationship to various caregiving conditions in the literature, related only to income and long-term care service adequacy in this analysis.

Lack of adequate long-term care services and financial difficulty were clearly the strongest and most consistent predictors of the range of health and psychosocial outcomes considered here. Although findings from other studies support the importance of sufficient income for caregiver well-being, lack of needed community-based long-term care services has not been examined in research with caregivers to date. The policy implications of this finding are significant. Caregivers who do not have the support they need from the community-based formal long-term care system miss work and feel depressed and isolated, which may lead, in turn, to caregiver burnout and institutionalization of the care recipient.

In contrast to these findings, many studies have documented negative effects for caregivers related to memory problems in the care receiver. When considered here in the context of adequate finances and community services, memory problems no longer related to any outcomes, even when memory problems were examined at three levels (none, mild, and moderate/severe) instead of simple presence versus absence (data not shown). Some studies suggest that the presence of behavioral or neuropsychiatric symptoms relate to negative outcomes for dementia caregivers more consistently than cognitive symptoms (Hinton, Haan, Geller, & Mungas, 2003). Future research should investigate relationships among behavioral and cognitive symptoms of dementia, adequacy of caregivers’ financial and service resources, and caregiver health and well-being.

This study presents some limitations, which suggest a course for future research. The cross-sectional data prevented us from drawing definitive causal conclusions about

### Table 5. Predictors of Self-Rated Health, Dental Cleaning, and Wellness Visit: Logistic Regressions: Blocks 1 and 2

<table>
<thead>
<tr>
<th>Predictors</th>
<th>Self-Rated Health</th>
<th>Dental Cleaning</th>
<th>Wellness Visit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Block 1</td>
<td>Block 2</td>
<td>Block 1</td>
</tr>
<tr>
<td></td>
<td>Odds Ratio (95% CI)</td>
<td>Odds Ratio (95% CI)</td>
<td>Odds Ratio (95% CI)</td>
</tr>
<tr>
<td>Man</td>
<td></td>
<td>0.91 (0.56–1.48)</td>
<td>0.77 (0.46–1.30)</td>
</tr>
<tr>
<td>Unmet need for long-term care services</td>
<td>0.79 (0.41–1.54)</td>
<td>1.55 (0.81–2.99)</td>
<td>1.24 (0.82–1.87)</td>
</tr>
<tr>
<td>Inadequate income</td>
<td>0.29* (0.13–0.65)</td>
<td>0.53* (0.30–0.95)</td>
<td>0.75 (0.47–1.18)</td>
</tr>
<tr>
<td>Working</td>
<td>3.20* (1.58–6.48)</td>
<td>0.93 (0.43–2.04)</td>
<td>0.80 (0.44–1.45)</td>
</tr>
<tr>
<td>Unmet need for long-term care services</td>
<td>0.61 (0.24–1.58)</td>
<td>0.61 (0.27–1.39)</td>
<td>0.57 (0.31–0.85)</td>
</tr>
<tr>
<td>Caring for someone with memory problems</td>
<td>0.72 (0.39–1.35)</td>
<td>1.25 (0.75–2.08)</td>
<td>1.06 (0.73–1.53)</td>
</tr>
<tr>
<td>Working</td>
<td></td>
<td>1.23 (0.77–1.95)</td>
<td>1.25 (0.75–2.08)</td>
</tr>
<tr>
<td>Inadequate income</td>
<td>0.29* (0.13–0.65)</td>
<td>0.63 (0.38–1.07)</td>
<td>0.87 (0.57–1.32)</td>
</tr>
<tr>
<td>Working</td>
<td>0.79 (0.41–1.54)</td>
<td>0.85 (0.49–1.47)</td>
<td>1.04 (0.69–1.58)</td>
</tr>
<tr>
<td>Inadequate income</td>
<td>0.43* (0.21–0.87)</td>
<td>1.33 (0.66–2.68)</td>
<td>1.04 (0.69–1.58)</td>
</tr>
<tr>
<td>Unmet need for long-term care services</td>
<td>0.79 (0.41–1.54)</td>
<td>0.63 (0.38–1.07)</td>
<td>0.87 (0.57–1.32)</td>
</tr>
</tbody>
</table>

Note: CI = confidence interval.
the relationships between caregiver situations and the health and psychosocial factors examined. Although communities with higher proportions of minority residents were oversampled, African Americans were underrepresented in this data, which, therefore, may not be generalizable to African American caregivers. This sample may also underrepresent caregivers with less education. Future research should examine these relationships over time in broadly representative population-based samples. The impact of dementia care may be better understood by looking at behavioral symptoms of dementia in addition to the presence of related memory problems. We grouped caregivers of siblings and spouses together as well as caregivers of older parents and other older relatives. The large numbers of spouse and older parent caregivers in each of these groups most likely drive the results. Therefore, conclusions about caregivers for siblings, aunts, uncles, and other less common relationships are preliminary. Finally, this study assessed caregiving for parent caregivers in each of these groups most likely drive the results. Therefore, conclusions about caregivers for siblings, aunts, uncles, and other less common relationships are preliminary. Finally, this study assessed caregiving for people living only in Connecticut. It did not include information about care provided to people living in other states.

Caregivers in this study self-identified, based on the definition provided. This approach may exclude certain people who provide care but do not consider themselves caregivers, such as older spouses. A more restrictive definition of caregiving, for example, performing certain tasks or providing daily care, would likely capture a subset of caregivers with more intensive responsibilities and perhaps influence additional health outcomes (Fredman et al., 2004). In synthesizing results of studies focused on caregiver outcomes, attention must be paid to how caregiving is operationalized. This study focused on a macrolevel, population-based view of the impact of caregiving. Future work using more restrictive or specific definitions of caregiving may clarify or refine these findings.

The logistic regression models identifying correlates of caregiver health and psychosocial outcomes included a common set of independent predictors. Although this method enabled clear comparisons across the models, it is likely that ideal specification of each outcome would require somewhat divergent sets of predictors. For example, access to health insurance may drive preventive health behaviors but might not affect missing work or social isolation. This analysis sought to compare effects of specific caregiving characteristics and conditions across outcomes; using uniform sets of predictors accomplished this purpose. Work remains to refine individualized models for each outcome studied here.

Recently published national reports have highlighted the key role played by family caregivers in the U.S. long-term care system (Feinberg et al., 2004; Institute of Medicine, Committee on the Future Health Care Workforce for Older Americans, 2008). Needed supports identified for this group include training and education, respite, and physical and mental health care (Feinberg et al., 2004; Institute of Medicine, Committee on the Future Health Care Workforce for Older Americans, 2008; Talley & Crews, 2007). Results of this study add to the national conversation by suggesting that not all caregivers face increased risks for poor health and psychosocial outcomes. Rather, caregiver supports should target those at higher risk. For example, additional resources to reduce social isolation should be provided to caregivers who live with the care receiver. Coresiding caregivers may also benefit from increased access to dental care, but access to wellness checkups does not appear to be a particular need for caregivers given any specific condition. Financial problems and lack of needed community-based long-term care services related to multiple negative health and psychosocial outcomes. Organizations seeking to bolster the work done by family caregivers, including advocacy organizations and multiple levels of government, should support programs that connect caregivers to community long-term care services and financial resources.

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**Correspondence**

Address correspondence to Julie Robison, PhD, Center on Aging, Building 7, University of Connecticut Health Center, 263 Farmington Avenue, Farmington, CT 06030-6147. Email: jrobison@uchc.edu

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