Published in final edited form as:

Psychol Aging. 2009 March ; 24(1): 177. doi:10.1037/a0014760.

Perceived Income Inadequacy as a Predictor of Psychological Distress in Alzheimer's Caregivers

Fei Sun,

School of Social Work, Arizona State University, and Center for Mental Health and Aging, University of Alabama

Michelle M. Hilgeman,

Center for Mental Health and Aging and Department of Psychology, University of Alabama

Daniel W. Durkin,

Center for Mental Health and Aging and School of Social Work, University of Alabama

Rebecca S. Allen, and

Center for Mental Health and Aging and Department of Psychology, University of Alabama

Louis D. Burgio

Center for Mental Health and Aging, University of Alabama, and School of Social Work, University of Michigan

Abstract

The authors examined perceived income inadequacy as a predictor of self-reported depressive symptomatology and anxiety in the original sites of the Resources for Enhancing Alzheimer's Caregiver Health I project. Perceived income inadequacy, self-reported household income, and control factors (e.g., subjective health) were entered into hierarchical regression analyses predicting psychological distress. Findings suggest that perceived income inadequacy and not household income significantly predicted more self-reported depressive symptomatology and greater self-reported anxiety. This supports previous findings that objective income measures alone are not adequate indicators of socioeconomic status in older adults.

Keywords

financial strain; income inadequacy; Alzheimer's caregiving; depression; anxiety

Decades of research on informal caregiving for older adults has demonstrated that informal caregivers experience multiple stressors that negatively affect their mental and physical well-being (Family Caregiver Alliance, 2006). For example, research has consistently shown that caregivers are at an increased risk for depression and have higher mortality rates when compared with similar noncaregiving populations (Family Caregiver Alliance, 2006). Several conceptual models have been developed to assist researchers and practitioners in the assessment of and intervention with informal caregivers of older adults. The stress process model (SPM) developed by Pearlin, Mullan, Semple, and Skaff (1990) is perhaps the most frequently used model in elder caregiving research and has been endorsed by the Family Caregiver Alliance for use in both research and practice. The Pearlin SPM identifies multiple

stressors that contribute to caregiver well-being and has been found to be useful with caregivers from diverse backgrounds (e.g., Hilgeman et al., in press). Although extensive research has examined the role of objective stressors directly related to the caregiving role (e.g., assistance with activities of daily living) and the subjective appraisal of these stressors (e.g., caregiver burden), stressors not directly related to the caregiving context have received less attention in the elder caregiving literature.

One stressor identified by the Pearlin SPM that has received little attention in the elder caregiving literature is financial strain. In the Pearlin SPM, financial strain, although not directly related to the provision of care, is conceptualized as a secondary stressor that influences and disrupts the caregiver's life. The role of financial strain in the SPM deserves particular attention because, according to Kahn and Pearlin (2006), "among the array of chronic stressors that people may confront in their daily lives, there is probably none more pivotal than economic hardship" (p. 18). Numerous studies have linked financial strain with negative physical and mental health outcomes throughout the life course (Hanratty, Holland, Jacoby, & Whitehead, 2007). Although rates of poverty are higher earlier in the lifespan, financial strain has been identified as an important stressor experienced most frequently in later life (Lincoln, 2007). Members of minority groups, in particular, may experience greater financial strain throughout the life course because of disproportionate levels of poverty, compared with Whites (Lincoln, 2007). Furthermore, financial strain has been identified as a significant predictor of depression in older African American adults (Lincoln, 2007), with chronic financial strain and discrimination linked to reduced status attainment among this population (Pearlin, Schieman, Fazio, & Meersman, 2005).

For caregivers, when the primary stress of caring for a dependent loved one is exacerbated by the secondary stress of financial strain, the risks for adverse physical and emotional outcomes are heightened (Pearlin et al., 1990). In the elder caregiving literature, financial strain has been found to be related to poor physical health, low quality of life, and more depressive symptoms (Drentea & Goldner, 2006; Pinquart & Sörensen, 2007; Vellone, Piras, Talucci, & Cohen, 2007). Lack of financial resources has also been found to substantially reduce the odds of placing care recipients in institutional care, even though in-home care might not meet the needs of the care recipients (Aneshensel, Pearlin, & Schuler, 1993). After placement of their care recipients in institutions, caregivers with lower socioeconomic status (SES) reported more feelings of guilt than those with higher SES, in spite of the fact that the former group visited their care recipients more frequently (Anderson, Jao, Pearlin, Zarit, & Gaugler, 2005). Thus financial strain affects the quality of care provided to the care recipient and the health and well-being of caregivers.

Although there is no clear link between dementia and SES, some of the secondary consequences associated with this disease are more likely to surface among caregivers with low SES (Pearlin et al., 2005). For example, dementia caregivers with lower SES may experience financial strain and/or difficulties in reconciling the demands of employment with caregiving. However, progress in our understanding of financial strain and its relation to caregiver outcomes has been constrained because of difficulties in disentangling financial strain as a subjective stressor from more objective indicators such as household income and SES, measurement issues, and inconsistent terminology.

Researchers have long considered the importance of accounting for financial indicators of well-being, such as SES, when appraising physical and mental health across populations. Low SES has been found to be an important predictor of a range of health outcomes and behavior dysfunctions (Baum, Garofalo, & Yali, 1999) and has been linked to health-related stressors (Pearlin et al., 2005), which in turn have been shown to affect mood and cognitive function (Baum et al., 1999). In a recent report titled *Healthy People 2010*, the Office of Disease

Prevention and Health Promotion of the U.S. Department of Health and Human Services (2000) prioritized 10 health indicators as areas of major concern. Several health indicators are directly related to low SES, including environmental quality and access to health care, and the remaining are indirectly linked to low SES, including obesity, tobacco use, and substance abuse.

The measurement of SES has been consistently problematic. This is particularly true for older adults, for whom accepted proxies of SES such as occupational status and education are less reliable predictors of financial well-being (Matthews, Smith, Hancock, Jagger, & Spiers, 2005). Household income, though closely related to access to resources, may also capture other aspects of social class such as power and lifestyle (Orpana & Lemyre, 2004); yet measurements of household income may fail to capture assets, debt, and other indicators of wealth. In addition, older adults often have changes in spending and taxation, paid-off mortgages, postretirement earnings, increased reliance on savings, employer benefits, and other aspects of finances that can be difficult to quantify (e.g., Cutler & Gregg, 1991).

Further complicating the construct of financial indicators of well-being are the numerous inconsistent terms used in the research literature. For example, economic hardship, economic strain, income adequacy (Williamson, 2000), financial strain, subjective SES (Ostrove, Adler, Kuppermann, & Washington, 2000), wealth span, financial stress (Skinner, Zautra, & Reich, 2004), and financial well-being (Cutler & Gregg, 1991) are among the many terms used. Many of these terms have emerged in an attempt to capture the more subjective nature or meaning underlying the more objective monetary constructs (i.e., SES or household income). Although the use of the terms *subjective* and *objective* can be confusing, for the purposes of this article, subjective indicators refer to constructs relating to the perception of strain or hardships felt as a result of the underlying financial situation, whereas objective indicators are used to describe monetary constructs that may be quantifiable by an observer. It is worth noting that many times, objective measures are, in fact, assessed through self-report techniques, which means they can also be influenced by the individual's perceptions.

Despite issues of terminology and measurement, stress researchers have long recognized that the perception of stress may be more important than exposure to stress (e.g., Lazarus & Folkman, 1984). Research has suggested that financial strain is related to, but independent of, household income (Kahn & Pearlin, 2006). In other words, people who have similar incomes may experience significantly different levels of financial strain. Chan, Ofstedal, and Hermalin (2002) further this argument by suggesting that the reason there is a low correlation between objective financial circumstances and subjective well-being is because people may tend to adjust their situation as their material conditions improve or may adapt to misfortunes.

Need for Study

Psychological distress and increased risk for depression are consistently associated with caregiving (e.g., Levine, 2003). One of the most commonly used methods of tapping subjective financial strain is through measurement of the perception of income inadequacy to meet basic needs (Chan et al., 2002). Perceived income inadequacy has been associated with both the prevalence and the onset of disability (Matthews et al., 2005) and depression (St. John, Blandford, & Strain, 2006) in older adults. By identifying individuals most at risk, as indicated by those who report the highest levels of strain, practitioners, researchers, and policy makers can be better informed and support can be allocated to those most in need.

Although financial strain is potentially an important source of stress in the Pearlin SPM, the relation between perceived income inadequacy and psychological distress in Alzheimer's caregivers remains unclear. One of the reasons is that few caregiving studies have examined a subjective measure of income. For example, in a recent meta-analysis on the relation between

SES and caregiver subjective health, Pinquart and Sörensen (2007) concluded that lower income is related to poorer physical health status among caregivers. Notably, all studies reviewed for this meta-analysis included subjective measures of health; however, there was no mention of subjective measures of financial strain or economic hardship.

This study addresses two aims. First, we explore the bivariate relation between household income and perceived income inadequacy and measures of psychological distress (self-reported depressive symptomatology and anxiety) among Alzheimer's caregivers. Specifically, we hypothesize the following: (a) Higher levels of income inadequacy will be related to more depressive symptomatology, and (b) higher levels of income inadequacy will be related to higher levels of anxiety. Our second aim is to determine the extent to which household income and perceived income inadequacy explain additional variance in the models beyond covariates recommended by the Pearlman SPM. Specifically, we hypothesize the following: (a) Perceived income inadequacy will be a stronger predictor of caregiver self-reported depressive symptomatology than household income alone when controlling for variables related to care recipient functioning, subjective health, social support, and sociodemographic characteristics; and (b) perceived income inadequacy will be a stronger predictor of self-reported anxiety than household income alone when controlling for variables related to care recipient functioning, subjective health, social support, and sociodemographic characteristics.

Method

Participants

This study used data from the Resources for Enhancing Alzheimer's Caregiver Health I (REACH) study (REACH, 2001). Data for the study were collected through in-home interviews during the baseline phase. Six research sites (Birmingham, Boston, Memphis, Miami, Palo Alto, and Philadelphia) and a coordinating center (Pittsburgh) focused on characterizing and testing the most promising home- and community-based interventions for maintaining and improving the health and quality of life of Caucasian, African American, and Latino caregivers of dementia patients. The original sample consisted of 1,222 caregivers of persons with Alzheimer's disease or related disorders. Seven participants who had only screening data were eliminated, which led to a total sample of $N = 1,215$ (Wisniewski et al., 2003). In the hierarchical regression analysis, missing values were deleted with the listwise deletion method. Thus, those who had missing values were not analyzed. The hierarchical regression analysis predicting depressive symptomatology had a sample size of 1,049, and the one predicting anxiety had a sample size of 1,074.

Measures

Indicators of income—Self-reported household income was defined by 10 categories of income ranging from 0 = *less than \$5,000* to 9 = *more than \$70,000* based on a response to the question "Which category best describes your yearly household income before taxes?" (skewness = 0.37, kurtosis = -0.54). Perceived income inadequacy was measured by four categories ranging from 1 = *not difficult at all* to 4 = *very difficult* based on a response to the question "How hard is it for you to pay for the very basics like food, housing, medical care, and heating?" (skewness = 0.18, kurtosis = -1.3).

Psychological distress—Self-reported depressive symptomatology was measured with the 20-item Center for Epidemiologic Studies Depression Scale (Radloff, 1977). A sum score was calculated (range: 0–56), with higher scores indicating more depressive symptoms. Cronbach's alpha for this sample was .72. Anxiety was measured with the Anxiety Inventory, a 10-item measure modified from the Spielberger State-Trait Anxiety Inventory (Spielberger,

Gorsuch, Lushene, Vagg, & Jacobs, 1983). A sum score was calculated (range: 10–40), with higher scores indicating higher levels of anxiety. Cronbach's alpha for this sample was .89.

Control factors—The number of people in the household, caregiver education, race/ethnicity of the caregiver, caregiver subjective health, social support, and factors related to care recipient physical and cognitive functioning were included as control variables on the basis of their relevance in the caregiving literature as well as their potential influence on income variables.

Number of people in the household was defined as a number based on a response to the question “How many people are living with you in your home excluding yourself?” The average number of people in the household was 2 ($SD = 1.2$), with a maximum number of 9. Caregiver education was measured with one item, with possible responses ranging from 0 = *no formal education* to 17 = *doctoral degree*. Race/ethnicity was dummy coded, with White/Caucasian set as the reference group.

Caregiver subjective health was defined by the sum of four items of self-perceived health status adapted from the SF-36 health survey (Ware, Snow, Kosinski, & Gandek, 1993). Responses ranged from 1 = *poor* to 5 = *excellent* or 1 = *definitely false* to 5 = *definitely true*, and a sum score was calculated based on responses to the following statements: “In general, would you say your health is ...,” “I seem to get sick a little easier than other people,” “I am as healthy as anybody I know,” and “I expect my health to get worse.” Total score of the scale ranges from 4 to 20, with higher scores indicating better health. Cronbach's alpha for this sample was .78. The sample had an average score of 13.7 ($SD = 3.7$).

Caregiver-perceived social support was measured by a 17-item measure of social support developed specifically for the REACH project. The scale was designed to measure multiple dimensions of social support known to affect health and well-being. It included the 4-item Krause (1995) measure of negative interactions (e.g., “How often have others taken advantage of you?”), 10 items based on questions from the Lubben Social Network Index (Lubben, 1988) asking about specific help received (e.g., “How often has someone helped you with shopping?”), and 3 items measuring satisfaction with tangible, emotional, and informational support received (Krause, 1995; Krause & Markides, 1990). Total score of the combined scale ranges from 0 to 51, with a Cronbach's alpha value of .82. The sample had an average score of 26.4 ($SD = 8.2$).

Care recipient functional status was measured with the Activities of Daily Living Scale (Katz, Ford, Moskowitz, Jackson, & Jaffe, 1963) and the Instrumental Activities of Daily Living Scale–Frequency (Lawton & Brody, 1969). The seven-item Activities of Daily Living Scale (Cronbach's alpha in the current sample = .86) assessed the care recipient's ability to perform basic tasks of daily functioning independently (e.g., bathing, dressing, toileting, eating, grooming, and transfer). Similarly, the eight-item Instrumental Activities of Daily Living Scale–Frequency (Cronbach's alpha = .70) assessed the assistance needed to perform higher level tasks such as shopping, operating the telephone, preparing meals, doing housework or laundry, and managing finances or medications. Total level of assistance needed for activities of daily living (ADL) and instrumental activities of daily living (IADL) were summed separately, with higher scores indicating more functional impairment. This sample reported an average of 3.9 ($SD = 2.5$) ADL difficulties and 7.3 ($SD = 1.3$) IADL difficulties.

Care recipient cognitive status was measured with the Mini-Mental State Examination (MMSE; Folstein, Folstein, & McHugh, 1975). The MMSE is a brief assessment of a person's orientation to time and place, recall ability, short-term memory, and arithmetic ability. Scores range from 0 to 30, with scores equal to or below 24 indicating cognitive impairment. The sample had an average MMSE score of 12.6 ($SD = 7.7$).

Care recipient frequency of behavior problems and behavioral bother were measured with the Revised Memory and Behavior Problem Checklist (Teri et al., 1992). The checklist consists of 24 items that inquire about behavior problems that the care recipient might have exhibited in three specific areas: memory-related problems, depression, and disruptive behaviors. The sample had an average number of 10.2 ($SD = 4.1$) behavior problems. In the REACH version of the measure, caregivers were asked to indicate whether the behavior problem had occurred during the past week. If it had, the caregivers rated the degree to which they were bothered or upset by the behavior. Response options ranged from 0 = *not at all* to 4 = *extremely*, with 0 given to a behavior not present. A conditional behavioral bother score was obtained by averaging these ratings across all reported problems. Cronbach's alpha obtained for this sample was .87. The mean of the conditional behavior bother score was 1.5 ($SD = 0.91$).

Data Analyses

Descriptive analyses were used to explore demographic, financial and psychosocial characteristics of caregivers. Pearson correlation analyses were run to determine the bivariate relations between household income, perceived income inadequacy, and caregiver psychological distress as measured by depressive symptomatology and anxiety levels. Hierarchical regression models were developed to examine the independent contributions of two income measures to the explanation of psychological distress when controlling for race/ethnicity, education, number of people in the home, self-reported subjective health, social support, behavioral bother, and care recipient functional status (e.g., ADL and IADL), MMSE, and behavior problem frequency.

Results

Caregivers Characteristics

For sample characteristics, see Table 1. The vast majority (81.3%) of the participants in this study were women. The average age of this sample was 62 years old at the time of interview. More than half were Caucasian; African American caregivers accounted for 24%, and Latinos made up 19.1% of the sample. Approximately half of the caregivers had a high school education. Caregivers reported caring for their family members an average of 4.3 years. With regard to household income, 11.5% reported an annual income below \$10,000, 50.7% reported an income ranging from \$10,000 to \$40,000, and 27.9% reported an income equal to or greater than \$40,000. In terms of perceived income inadequacy, 44.7% reported that it was "somewhat difficult" or "very difficult" for them to pay for basic needs, and slightly more than half of participants reported "not very difficult" or "not difficult at all" paying for their basic needs.

Generally, caregivers appraised their health status as good, as indicated by the average score of 13.9 on a scale from 4 to 20. Caregivers varied with respect to scores on the self-reported depressive symptomatology and anxiety measures. The mean Center for Epidemiologic Studies Depression Scale score was 16, with a range from 0 to 56. The mean score of anxiety was 21.5 on a scale ranging from 10 to 40.

Aim 1: Bivariate Correlations

Household income was negatively related to perceived income inadequacy ($r = -.43, p \leq .01$) such that people with more financial resources tend to perceive less difficulty paying for basics. Household income was found to be negatively correlated with self-reported depressive symptomatology ($r = -.14, p \leq .01$) and anxiety ($r = -.09, p \leq .01$). As predicted, perceived income inadequacy was found to be positively correlated with self-reported depressive symptomatology ($r = .20, p \leq .01$) and anxiety ($r = .20, p \leq .01$) such that those who reported more difficulty paying for basics reported higher depressive symptoms and anxiety.

Aim 2: Predicting Psychological Distress

We used three-step hierarchical regression analyses to test for additional variance explained by household income and perceived income inadequacy. The three-step hierarchical regression model included three blocks. The first block included covariates suggested by the Pearlin SPM (see Table 2); household income was then entered in the second block, and then perceived income inadequacy was entered in the third block.

With regard to depressive symptoms, caregivers who took care of a care recipient with more ADL limitations and more behavior problems, and caregivers who had higher behavior bother scores, poorer subjective health, and lower social support, tended to report more depressive symptomatology. The first model explained about 38% of the variance. The second model with household income did not significantly increase the explained variance, and household income did not predict self-reported depressive symptomatology. The third model with perceived income inadequacy showed statistically significant improvement, indicating that perceived income inadequacy explained additional variance above the other covariates (see Table 2).

Care recipient characteristics including ADL and behavior problems and caregiver characteristics including caregiver behavioral bother, subjective health, and social support were significant predictors of anxiety. Compared with White or Caucasian caregivers, African American caregivers reported lower levels of anxiety, and Hispanic or Latino caregivers reported higher levels of anxiety. The first model explained about 36% of the variance in anxiety scores. The second model with household income did not significantly increase the explained variance, and household income did not independently predict levels of anxiety. Finally, the third model with perceived income inadequacy showed statistically significant improvement, indicating that perceived income inadequacy explained additional variance above the other covariates (see Table 2).

Discussion

Our results suggest several implications for future research and clinical practice. Hierarchical regression analyses revealed that perceived income inadequacy is a stronger predictor of psychological distress such as self-reported depressive symptomatology and anxiety in Alzheimer's caregivers and explains greater variance than household income. This supports previous research that suggests that objective income measures alone are not adequate indicators of SES in older adults (Drentea, 2000; Huisman, Kunst, & Mackenbach, 2003; Matthews et al., 2005) and demonstrates that subjective measures of financial strain such as perceived income adequacy are related to psychological distress. Blazer, Sachs-Ericsson, and Hybels (2005) propose that perceived income inadequacy may directly and indirectly increase psychological distress and create both short-term and long-term stressors by reducing the availability of important resources. Within the context of the Pearlin SPM (Pearlin et al., 1990), our findings suggest that the assessment of financial strain as a stressor is an important consideration when developing interventions with dementia caregivers. Perceived income inadequacy may also affect other domains such as perceived ability to obtain needed health care and maintenance of a safe environment for living (Blazer et al., 2005), two important health indicators identified by *Healthy People 2010* (U.S. Department of Health and Human Services, 2000).

Like other subjective measures, perceived income inadequacy may be a more psychologically meaningful measure of the financial strain of the individual than a dollar amount alone. For example, individuals who spend beyond their means or have difficulties in budgeting may feel more strained financially regardless of income, representing a psychosocial stressor that would otherwise not be assessed. In their study on the relation between income and the onset of disability, Matthews et al. (2005) found that a relatively high proportion of older adults in their

sample who reported higher incomes also reported financial difficulty. In their study on income inadequacy among older adults, Hazelrigg and Hardy (1997) suggested that two persons who report the same income level, household size, and health condition may report different levels of income sufficiency if one of them has more ambitious or expensive goals. This may be particularly important with the aging of the baby boomer generation, who report taking greater financial risks, carrying larger debts over time, and saving less money than previous generations (Baek & DeVaney, 2004). Although other subjective measures such as subjective health have been accepted for their ability to supplement the constructs they evaluate (Jang, Poon, & Martin, 2004), this has been less true for topics involving finances and economic status.

It is worth noting that race/ethnicity has an impact on psychological distress independent of the effects of income and income inadequacy. Consistent with findings from other REACH studies (Coon et al., 2004; Haley et al., 2004; Roff et al., 2004), African American caregivers reported fewer depressive symptoms and lower anxiety levels than White or Caucasian caregivers, whereas Hispanic or Latino caregivers reported greater anxiety. Practitioners might want to tailor interventions for different racial/ethnic groups based on an understanding that there might be such variation across racial/ethnic groups.

In addition, practitioners and researchers should note that clients and research participants may be more willing to provide information about their perception of income inadequacy compared with a more objective measure such as household income. In our sample, the number of missing values of objective income was 30 as opposed to 2 for perceived income inadequacy. In a longitudinal study of older adults, Finlayson (2002) found that many participants were unwilling to provide objective income information but were consistently willing to rate the inadequacy of their income. Subjective measures may be perceived as less intrusive and may actually be a more accurate estimate of the financial situation for individuals who are uncertain of more objective numbers. Practitioners could easily assess clients' financial strain by asking about their difficulties in paying for life basics and use this information to plan interventions for financial and psychological distress as well.

This study has several limitations. Owing to the cross-sectional design, causality cannot be determined. It may be that financial strain leads to higher self-reported anxiety and depressive symptomatology or that having higher levels of psychological distress leads to the perception of higher financial strain. In addition, both measures of income in this study were only one item. There is a need to construct a stronger and more reliable tool to assess the multidimensional aspects of financial strain (e.g., lack of assets). For instance, Drentea (2000) examined the impact of high credit card debt on well-being, a factor that is rarely taken into consideration in many clinical and research settings. Finally, reliability of perceived income inadequacy estimates may be sensitive to context, mood, measurement instrument, and other factors (Hazelrigg & Hardy, 1997). Additional research on financial strain is certainly warranted.

As longevity continues to expand, many individuals and their family caregivers will live longer on fixed incomes. The introduction of Social Security and Medicare in previous decades has been credited with drastically reducing the poverty rate among older adults. Emphasis needs to be placed on strengthening Social Security and health benefits for seniors to maintain financial security and mitigate some of the unavoidable costs (e.g., related to caregiving) associated with growing older (Chan et al., 2002). The role of researchers, clinicians, and practitioners in assessing the impact of financial burden on psychosocial and biomedical outcomes will continue to be an increasingly necessary part of the client-centered, translational research of the next decade.

References

- Anderson KA, Jao J, Pearlin JI, Zarit SH, Gaugler JE. Social class and the subjective adaptation of caregivers to institutionalization. *Journal of Social Work in Long-Term Care* 2005;3:45–67.
- Aneshensel CS, Pearlin LI, Schuler RH. Stress, role captivity, and the cessation of caregiving. *Journal of Health and Social Behavior* 1993;34:54–70. [PubMed: 8463635]
- Baek E, DeVaney SA. Assessing the baby boomers' financial wellness using financial ratios and a subjective measure. *Family and Consumer Science Research Journal* 2004;32:321–348.
- Baum, A.; Garofalo, JP.; Yali, AM. Socioeconomic status and chronic stress: Does stress account for SES effects on health?. In: Adler, NE.; Marmot, M.; McEwen, BS.; Stewart, J., editors. *Annals of the New York Academy of Sciences*. Vol. Vol. 896. New York: New York Academy of Sciences; 1999. p. 131-144.
- Blazer DG, Sachs-Ericsson N, Hybels CF. Perception of unmet basic needs as a predictor of mortality among community-dwelling older adults. *American Journal of Public Health* 2005;95(2):299–304. [PubMed: 15671468]
- Chan A, Ofstedal MB, Hermalin HI. Changes in subjective and objective measures of economic well-being and their interrelationship among the elderly in Singapore and Taiwan. *Social Indicators Research* 2002;57(3):263–300.
- Coon DW, Rubert M, Solano N, Mausbach B, Kraemer H, Arguëlles T, et al. Well-being, appraisal, and coping in Latina and Caucasian female dementia caregivers: Findings from the REACH study. *Aging & Mental Health* 2004;8(4):330–345. [PubMed: 15370049]
- Cutler NE, Gregg DW. The human “wealth span” and financial well-being in older age. *Generations* 1991;15:45–49.
- Drentea P. Age, debt and anxiety. *Journal of Health and Social Behavior* 2000;41(4):437–450. [PubMed: 11198567]
- Drentea P, Goldner MA. Caregiving outside of the home: The effects of race on depression. *Ethnicity and Health* 2006;11:41–57. [PubMed: 16338754]
- Family Caregiver Alliance. Caregiver assessment: Voices and views from the field. Vol. Vol. 2. San Francisco: Author; 2006.
- Finlayson M. Changes predicting long-term care use among the oldest-old. *The Gerontologist* 2002;42:443–453. [PubMed: 12145372]
- Folstein M, Folstein S, McHugh P. Mini-Mental State: A practical method for grading the cognitive state of patients for the clinician. *Journal of Psychiatric Research* 1975;12:189–198. [PubMed: 1202204]
- Haley WE, Gitlin LN, Wisniewski SR, Feeney Mahoney D, Coon DW, Winter L, et al. Well-being, appraisal, and coping in African-American and Caucasian dementia caregivers: Findings from the REACH study. *Aging & Mental Health* 2004;8(4):316–329. [PubMed: 15370048]
- Hanratty B, Holland P, Jacoby A, Whitehead M. Financial stress and strain associated with terminal cancer: A review of the evidence. *Palliative Medicine* 2007;21:595–607. [PubMed: 17942498]
- Hazelrigg LE, Hardy MA. Perceived income adequacy among older adults. *Research on Aging* 1997;19(1):69–107.
- Hilgeman MM, Durkin DD, Sun F, DeCoster J, Allen RS, Gallagher-Thompson D, Burgio LD. Testing a theoretical model of the stress process in Alzheimer's caregivers with race as a moderator. *The Gerontologist*. (in press).
- Huisman M, Kunst AE, Mackenbach JP. Socioeconomic inequalities in morbidity among the elderly: A European overview. *Social Science and Medicine* 2003;57(5):861–873. [PubMed: 12850111]
- Jang Y, Poon LW, Martin P. Individual differences in the effects of disease and disability on depressive symptoms: The role of age and subjective health. *International Journal of Aging and Human Development* 2004;59(2):125–137. [PubMed: 15453141]
- Kahn JR, Pearlin LI. Financial strain over the life course and health among older adults. *Journal of Health and Social Behavior* 2006;47:17–31. [PubMed: 16583773]
- Katz S, Ford A, Moskowitz R, Jackson B, Jaffe M. Studies of illness and the aged: The index of ADL, a standardized measure of biological and psychological function. *Journal of the American Medical Association* 1963;185:914–919. [PubMed: 14044222]

- Krause N. Negative interaction and satisfaction with social support among older adults. *Journals of Gerontology: Series B: Psychological Sciences and Social Sciences* 1995;50B:P59–P73.
- Krause N, Markides K. Measuring social support among older adults. *International Journal of Aging and Human Development* 1990;30:37–53. [PubMed: 2407665]
- Lawton M, Brody E. Assessment of older people: Self-maintaining and instrumental activities of daily living. *The Gerontologist* 1969;9:179–186. [PubMed: 5349366]
- Lazarus, RS.; Folkman, S. Stress, appraisal, and coping. New York: Springer; 1984.
- Levine M. Elder neglect and abuse. A primer for primary care physicians. *Geriatrics* 2003;58(10):37–44. [PubMed: 14569641]
- Lincoln KD. Financial strain, negative interactions, and mastery: Pathways to mental health among older African Americans. *Journal of Black Psychiatry* 2007;33:439–462.
- Lubben JE. Assessing social networks among elderly populations. *Journal of Family and Community Health* 1988;11:42–52.
- Matthews RJ, Smith LK, Hancock RM, Jagger C, Spiers NA. Socioeconomic factors associated with the onset of disability in older age: A longitudinal study of people aged 75 years and over. *Social Science and Medicine* 2005;61:1567–1575. [PubMed: 16005788]
- Orpana HM, Lemyre L. Explaining the social gradient in health in Canada: Using the national population health survey to examine the role of stressors. *International Journal of Behavioral Medicine* 2004;11(3):143–151. [PubMed: 15496342]
- Ostrove JM, Adler NE, Kuppermann M, Washington AE. Objective and subjective assessments of socioeconomic status and their relationship to self-rated health in an ethnically diverse sample of pregnant women. *Health Psychology* 2000;19:613–618. [PubMed: 11129365]
- Pearlin LI, Mullan JT, Semple SJ, Skaff MM. Caregiving and the stress process: An overview of concepts and their measures. *The Gerontologist* 1990;30:583–594. [PubMed: 2276631]
- Pearlin LI, Schieman S, Fazio EM, Meersman SC. Stress, health, and the life course: Some conceptual perspectives. *Journal of Health and Social Behavior* 2005;46:205–219. [PubMed: 16028458]
- Pinquart M, Sörensen S. Correlates of physical health of informal caregivers: A meta-analysis. *Journals of Gerontology: Series B: Psychological Sciences and Social Sciences* 2007;62B:P126–P137.
- Radloff LS. The CES-D: A self-report depression scale for research in the general population. *Applied Psychological Measurement* 1977;3:385–401.
- Resources for Enhancing Alzheimer's Caregiver Health. *ClinicalTrials.gov* identifier: NCT00178165. 2001. [Data file]. Available from <http://clinicaltrials.gov/show/NCT00178165>
- Roff LL, Burgio LD, Gitlin LN, Nichols L, Chaplin W, Hardin MJ. Positive aspects of Alzheimer's caregiving: The role of race. *Journals of Gerontology: Series B: Psychological Sciences and Social Sciences* 2004;59B(4):P185–P190.
- Skinner MA, Zautra AJ, Reich JW. Financial stress predictors and the emotional and physical health of chronic pain patients. *Cognitive Therapy and Research* 2004;28:695–713.
- Spielberger, CD.; Gorsuch, RL.; Lushene, R.; Vagg, PR.; Jacobs, GA. Manual for the State-Trait Anxiety Inventory. Palo Alto, CA: Consulting Psychologists Press; 1983.
- St. John PD, Blandford AA, Strain LA. Depressive symptoms among older adults in urban and rural areas. *International Journal of Geriatric Psychiatry* 2006;21:1175–1180. [PubMed: 16988957]
- Teri L, Truax P, Logsdon R, Uomoto J, Zarit S, Vitaliano PP. Assessment of behavioral problems in dementia: The Revised Memory and Behavior Problems Checklist. *Psychology and Aging* 1992;7:622–631. [PubMed: 1466831]
- U.S. Department of Health and Human Services. Healthy People 2010. 2000 [Retrieved June 17, 2008]. from <http://www.healthypeople.gov>
- Vellone E, Piras G, Talucci C, Cohen MZ. Quality of life for caregivers of people with Alzheimer's disease. *Journal of Advanced Nursing* 2007;61:222–231. [PubMed: 18186913]
- Ware, JE., Jr; Snow, KK.; Kosinski, M.; Gandek, B. SF-36 health survey: Manual and interpretation guide. Boston: New England Medical Center, Health Institute; 1993.
- Williamson DL. Health behaviors and health: Evidence that the relationship is not conditional on income adequacy. *Social Science & Medicine* 2000;51:1741–1754. [PubMed: 11128263]

Wisniewski SR, Belle SH, Coon DW, Marcus SM, Ory MG, Burgio LD, et al. The Resources for Enhancing Alzheimer's Caregiver Health (REACH): Project design and baseline characteristics. *Psychology and Aging* 2003;18(3):375–384. [PubMed: 14518801]

Table 1

Sample Characteristics

Variable	Sample characteristics (<i>N</i> = 1,215)			
	<i>M</i>	<i>SD</i>	<i>n</i>	%
Age	62	13.6		
Female			988	81.3
Race/ethnicity				
Black/African American			291	24.0
White/Caucasian			682	56.1
Hispanic/Latino			232	19.1
Other			10	0.8
Education (years)			12.7	2.8
Caregiving (years)			4.3	4.2
Income (<i>N</i> = 1,185)				
Less than \$10,000			136	11.5
\$10,000–\$19,999			309	26.1
\$20,000–\$39,999			410	24.6
\$40,000–\$69,999			231	19.5
\$70,000 or more			99	8.4
Income inadequacy (<i>N</i> = 1,213)				
Not difficult at all			409	33.7
Not very difficult			261	21.5
Somewhat difficult			375	30.9
Very difficult			168	13.8
CESD	16.0	11.5		
STAI	21.5	7.0		

Note. CESD = Center for Epidemiologic Studies Depression Scale; STAI = State-Trait Anxiety Inventory.

Table 2
Standardized Regression Coefficients Predicting Self-Reported Depressive Symptomatology and Anxiety

Predictor	CESD (N = 1,049)			STAI (N = 1,074)		
	Model 1 B (SE)	Model 2 B (SE)	Model 3 B (SE)	Model 1 B (SE)	Model 2 B (SE)	Model 3 B (SE)
Care recipient characteristics						
ADL	0.51 (.14)**	0.51 (.14)**	0.47 (.14)**	0.29 (.09)**	0.29 (.09)**	0.26 (.09)**
IADL	-0.21 (.24)	-0.22 (.24)	-0.23 (.24)	-0.09 (.15)	-0.10 (.15)	-0.11 (.15)
MMSE	-0.04 (.04)	-0.03 (.04)	-0.04 (.04)	-0.03 (.03)	-0.03 (.03)	-0.04 (.02)
Behavior problems	0.24 (.08)**	0.24 (.08)**	0.23 (.08)**	0.16 (.05)**	0.16 (.05)**	0.15 (.05)**
Caregiver characteristics						
Behavior bother score	3.81 (.35)**	3.80 (.35)**	0.23 (.08)**	2.61 (.22)**	0.26 (.22)**	2.56 (.22)**
Subjective health	-1.0 (.08)**	-0.97 (.08)**	-0.96 (.08)**	-0.58 (.05)**	-0.57 (.05)**	-0.56 (.05)**
Social support	-0.26 (.03)**	-0.26 (.03)**	-0.25 (.03)**	-0.08 (.02)**	-0.07 (.02)**	-0.07 (.02)**
Number in household	0.29 (.24)	0.37 (.24)	0.23 (.25)	0.20 (.15)	0.25 (.15)	0.13 (.15)
Education	-0.21 (.11)	-0.13 (.11)	-0.13 (.11)	-0.07 (.07)	-0.03 (.07)	-0.03 (.07)
White vs. Black ^a	-0.84 (.68)	-1.2 (.70)	-0.14 (.7)	-1.47 (.43)**	-1.66 (.45)**	-1.85 (.44)**
White vs. Hispanic ^a	1.64 (.84)*	1.43 (.84)	1.31 (.84)	1.78 (.52)**	1.66 (.52)**	1.55 (.52)**
Financial predictors						
Household income		-0.26 (.14)	-0.09 (.15)		-0.14 (.09)	0.00 (.09)
Income inadequacy			0.87 (.30)**			0.73 (.19)**
F(df)	57.9** (11, 1037)	53.5** (12, 1036)	50.4** (13, 1035)	55.7** (11, 1062)	51.4** (12, 1061)	49.2** (13, 1060)
Adjusted R ²	.38	.38	.39 ^b	.36	.36	.37 ^b

Note. CESD = Center for Epidemiologic Studies Depression Scale; STAI = State-Trait Anxiety Inventory; ADL = activities of daily living; IADL = instrumental activities of daily living; MMSE = Mini-Mental State Examination.

^aDummy-coded variables representing race/ethnicity in regression model.

^bIndicates a statistically significant R^2 change.

*
 $p \leq .05$.

**
 $p \leq .01$.