

# PARENTAL CAREGIVING FOR A CHILD WITH SPECIAL NEEDS, MARITAL STRAIN, AND PHYSICAL HEALTH: EVIDENCE FROM NATIONAL SURVEY OF MIDLIFE IN THE U.S. 2005

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## ABSTRACT

*Purpose – Guided by a life course theoretical perspective, this study aimed to examine associations between providing caregiving for a young or adult son or daughter with special needs and multiple dimensions of physical health status among married midlife and older adults, as well as moderation of these associations by gender and marital quality (i.e., marital strain).*

*Method – Regression models were estimated using data from 1,058 married adults aged 33–83 (National Survey of Midlife in the U.S. (MIDUS), 2005).*

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*Findings – Parental caregiving for a young or adult child with special needs (in contrast to no caregiving) was linked to poorer global health and more physical symptoms among both fathers and mothers. Father caregivers reported slightly more chronic conditions than noncaregiving men, regardless of marital quality. By contrast, mother caregivers reported a much higher number of chronic conditions when they also reported a high level of marital strain, but not when they reported a low level of marital strain.*

*Originality/value – Overall, results provide evidence from a national sample that midlife and older parents providing caregiving for a child with special needs are at risk for poorer health outcomes, and further tentatively suggest that greater marital strain may exacerbate health risks, particularly among married mother caregivers.*

**Keywords:** Child with special needs; parental caregiving; life course perspective; marital quality; marital strain; physical health; gender

More than 65 million people, 29% of the U.S. population, provide care for a chronically ill, disabled, or aged family member or friend during any given year. About 14% of family caregivers care for a son or daughter with special needs, including an estimated 16.8 million persons caring for children with special needs under 18 years old (Caregiving in the U.S., 2009). Nearly all of the 5.9 million children in the United States with severe disabilities are cared for at home (Perrin, 2002), depending heavily on parents to take on unexpected informal caregiving careers that require extraordinary physical, emotional, social, and financial resources – often throughout their life course (Murphy, Christian, Caplin, & Young, 2006; Raina et al., 2005).

Empirical studies regarding the well-being risks of providing caregiving for a son or daughter with special needs have suggested that lifelong informal caregiving for a child with disabilities or chronic illness may be associated with poorer emotional and physical health among aging caregivers (Seltzer, Floyd, Song, Greenberg, & Hong, 2011). However, caregiving studies overall have often clustered different relationship types of caregiving together, even though differentiating relationship types of caregiving has been found to be important (Lin, Fee, & Wu, 2012; Marks, Lambert, & Choi, 2002; Seltzer & Li, 2000); they have often been limited to clinical or

regional samples; they have often lacked a noncaregiver comparison group; they have tended to emphasize mental health outcomes more than physical health outcomes; and they have thus far not fully explored how differences in marital role experience might condition the experience and physical health outcomes of caregiving for a son or daughter with special needs. To address some of the limitations of previous research, the purpose of this study was to use data from a U.S. national survey to examine the linkages between parental caregiving for a young or adult child with special needs and four aspects of physical health (self-assessed health, functional limitations, physical symptoms, and physical chronic conditions), and to explore how these links also might be conditioned by gender and marital quality (specifically, marital strain).

## THEORETICAL AND EMPIRICAL FOUNDATION

### *Life Course Perspective*

This study was guided by a life course theoretical perspective on caregiving. The life course principle of “linked lives” (Elder, Johnson, & Crosnoe, 2003) draws attention to how family members’ developmental trajectories (including mental and physical health trajectories) are consequentially interdependent and “linked” across time, such that transitions and experiences of one member of a family (e.g., a young or adult child with a disability or experiencing a transition to disability) can be expected to have developmental consequences for other members of the family (e.g., a parent who takes on the unexpected role of extraordinary caregiving for a young or adult child with a health condition or other special needs).

The life course perspective additionally guides us to consider important contextual factors when considering the developmental effects of a role, such as a caregiving role (Bengtson & Allen, 1993; Settersten, 2003; Wheaton, 1990). There is considerable evidence that in contemporary society the social script for a caregiver role is gendered; that is, normative expectations for caregiving are typically different for women in contrast to men (Campbell & Martin-Matthews, 2003; Yee & Schulz, 2000). Women more often assume the role of primary caregiver (in contrast to secondary caregiver) than men (Montgomery, 1992); women typically engage in more hands-on tasks especially intimate personal care, than men (Campbell & Martin-Matthews, 2003; Yee & Schulz, 2000); women are socialized to

view caregiving as a more salient role in their role-identity repertoires than men, thereby making them even more vulnerable to compromised well-being when stresses in this role occur (Glenn, 2010; Kessler & McLeod, 1984; Miller, 1990). Furthermore, the overall structural disadvantages of women in gender relations in contemporary societies (e.g., lower incomes in similar work roles, more responsibilities for other extended kinship care, greater overall economic vulnerability) would lead us to expect that men might suffer less and women might suffer more in a caregiving role (Calasanti & King, 2007; Glenn, 2010). Nonetheless, an alternative hypothesis might be that due to being less socialized to anticipate a caregiving role, less socialized to feel comfortable seeking help when stresses accumulate, and perhaps having less access to a larger social support network, men might have their own unique health risks in a caregiving role (Kramer, 2001). Therefore, in the case of taking on a caregiving role for a young or adult child with special needs, the life course perspective guided us to evaluate whether gender might moderate the physical health effects of this role.

Another feature of life course theorizing about social roles and their developmental effects emphasizes that the experience and developmental consequences of any particular role are likely to be importantly conditioned by the overall role context of that role; that is, developmental consequences of roles are dependent on interdependence and congruency of roles, as well as the role quality of other roles (Settersten, 2003). For example, married adults providing caregiving for a young or adult child with special needs may have differential health effects in the presence of better marital role quality – for example, limited marital strain – in contrast to poor marital role quality – for example, greater marital strain. Therefore, we were guided to examine differences in marital quality (marital strain) as a moderator of caregiving in this study.

*Parental Caregiving for a Young or Adult Child with  
Special Needs and Physical Health*

A number of studies have indicated a risk for health problems among parents who provide caregiving for their children due to their chronic illness or disabilities, although these studies tend to be limited to regional or local samples. Overall evidence suggests that providing caregiving for a young or adult child with special needs is linked to poorer physical health among caregivers. For example, Seltzer et al. (2011) found that parents of individuals with intellectual and developmental disabilities had poorer physical

health and mental health by their early old age. In another study, a majority of mothers of children with physical disabilities reported low back pain (Tong et al., 2003). Compared to other parents, parents of children with a physical disability (i.e., cerebral palsy) have been found to report more back pain, migraine headache, and stomach/intestinal ulcers (Brehaut et al., 2004). Furthermore, a focus group study done with parents of children with developmental disabilities found that parents reported that their health had worsened over the past year (Murphy et al., 2006). Therefore, guided by the “linked lives” assumption of the life course perspective, and the accumulating overall evidence suggesting a link between caregiving for a child with special needs and negative effects on physical health, *we hypothesized that parental caregiving for a young or adult child due to an illness, disability, or other mental or physical health condition would be associated with poorer physical health.*

#### *Gender Differences in Linkages between Caregiving and Health*

Although there is not total consistency in results across studies, the predominance of evidence suggests that, overall, women experience more burden and psychological distress in the caregiving role than men (Marks et al., 2002; Montgomery, 1992; Yee & Schulz, 2000), and a more limited number of studies examining physical health outcomes also provide evidence of gender differences (Pinquart & Sorensen, 2006). For example, Vitaliano, Zhang, and Scanlan (2003) found five studies (Gallant & Connell, 1997; Grafstrom, Fratiglioni, Sandman, & Winblad, 1992; Neundorfer, 1991; Rose-Rego, Strauss, & Smyth, 1998; Sparks, Farran, Donner, & Keane-Hagerty, 1998) to allow them to estimate point-biserial correlations using a random-effects model for studies of gender moderation in the influence of caregiving for a family member with Alzheimer’s disease on self-reported health. They found evidence that, overall, women caregivers reported poorer global health than did men caregivers. Additionally, a study by Son et al. (2007) suggests that women caregivers reported poorer self-reported health over time than men caregivers. Thus, guided by the life course perspective’s emphasis on heterogeneity in developmental outcomes (including health) due to gendered differences in the caregiving role for women in contrast to men, as well as the available empirical research, *we hypothesized that women providing caregiving for a young or adult child with special needs would report poorer physical health than men providing caregiving for a young or adult child with special needs.*

*Parental Caregiving for a Young or Adult Child with Special Needs,  
Marital Quality, and Health*

We were not able to locate any studies that evaluated marital quality as a moderator of the impact of caregiving for a young or adult child with special needs on physical health. However, some related research provided additional rationale for our focus on this particular moderator. First, there is a considerable literature that has demonstrated that adults who are married tend to report better health and have lower rates of mortality than adults who are unmarried (Lillard & Waite, 1995; Waite & Gallagher, 2000). Additionally, more recent research has focused on how marital quality, rather than marriage, per se, may be the important factor influencing health (Bookwala, 2005; Choi & Marks, 2008; Hawkins & Booth, 2005; Umberson, Williams, Powers, Liu, & Needham, 2006; Williams & Umberson, 2004). Research also suggests that poorer marital quality is linked to greater depression (Beach, Katz, Kim, & Brody, 2003; Choi & Marks, 2008; Whisman, 2001; Whisman & Bruce, 1999). And, again, as a stressor, the distress of a poor marriage may also, in turn, have a negative impact on physical health. Additionally, studies have indicated that there are significant elevations in marital distress and divorce rates among couples with children with special needs compared to couples with typically developing children (Risdal & Singer, 2004). Also, parents of individuals with autism spectrum disorders were found to be more vulnerable to marital disruption (Hartley et al., 2010).

We expected that having an extraordinary parental role in caregiving for a young or adult child with a physical or mental illness, disease, or condition in combination with a marital role could result in two potential interaction effects on health. In a good quality marriage, where marital strain is minimized, marriage might be a social support for the caregiver, and thereby buffer some of the negative effects of caregiving on health. Nonetheless, in a poor quality marriage, where marital strain is high, we might expect that a strained marital role might exacerbate the stress of caregiving, and increase the risks of poorer health outcomes (Choi & Marks, 2006). Examining mental health outcomes, a few research studies have suggested that poorer marital quality can interact with caregiving to lead to poorer *mental* health (Choi & Marks, 2006; Stephens & Townsend, 1997; Voydanoff & Donnelly, 1999). Therefore, guided by the life course perspective's emphasis on heterogeneity of role effects due to role context differences, together with previous related research, *we hypothesized that parental caregiving for a young or adult child with special needs in the context of*

*poorer marital quality (i.e., higher marital strain) would be linked to poorer physical health outcomes.*

In addition, empirical studies indicate that marital quality matters more to women than men for their personal well-being (Moberg & Lazarus, 1990; Thompson & Walker, 1989; Whisman, 1999). For example, a recent meta-analytic study about marital quality and personal well-being indicated stronger associations between marital quality and well-being in samples comprised only of women in contrast to samples comprised only of men (Proulx, Helms, & Buehler, 2007). Therefore, guided by the life course perspective's emphasis on heterogeneity of role effects due to role context differences, together with previous related research related to gender differences in the impact of marital quality on well-being, *we hypothesized that greater marital strain in interaction with a parental caregiving role for a young or adult child with special needs will be associated with even more problematic impact on physical health for women in contrast to men.*

#### *Sociodemographic Control Variables*

Previous studies have indicated that age, income, education, race-ethnicity, parental status, and employment status are associated with physical health (e.g., Asch et al., 2006; Lubetkin, Jia, Franks, & Gold, 2005). Therefore, we also controlled for these factors in our analyses to avoid confounding effects.

#### *Hypotheses*

In sum, guided by the principles of the life course theoretical perspective, this study aimed to evaluate evidence from a U.S. national population study for four hypotheses:

**Hypothesis 1.** Parental caregiving at midlife and older ages for a young or adult child due to an illness, disability, or other mental or physical health condition will be associated with poorer physical health (i.e., poorer self-assessed global health, more functional limitations, higher levels of reported physical symptoms, higher levels of reported chronic conditions).

**Hypothesis 2.** Mothers providing caregiving for a young or adult child with special needs will report poorer physical health than fathers providing caregiving for a young or adult child with special needs.

**Hypothesis 3.** Parental caregiving for a young or adult child with special needs in the context of poorer marital quality (i.e., high marital strain) will be linked to poorer physical health outcomes than parental caregiving in the context of better marital quality (i.e., low marital strain).

**Hypothesis 4.** Greater marital strain in interaction with a parental caregiving role for a young or adult child with special needs will be associated with even more problematic impact on physical health for women in contrast to men.

## METHOD

### *Data and Analytic Sample*

Data for our analyses came from the national random digit-dialing (RDD) sample of the National Survey of *Midlife in the U.S. (MIDUS, 2005)*. The MIDUS included 3,487 noninstitutionalized, English-speaking adults living in the United States at Time 1 (1995–1996), and included a telephone survey and a mailback self-administered questionnaire. Follow-up data collection took place about nine years later (Time 2: 2004–2006). A detailed description of the data set and data collection procedure can be obtained at the MIDUS website (<http://midmac.med.harvard.edu/research.html>).

The analytic sample for this study included 1,058 primary respondent married adults aged 33–83 at Time 2. In the phone questionnaire of MIDUS at Time 2, caregiving status was assessed (see more in the section “Independent Variables”). Due to our research focus on the relationship between parental caregiving for a child with special needs, marital quality, and physical health, we limited our analytic sample to Time 2 respondents who were married and who in the telephone survey reported either (1) providing caregiving to a son or daughter of any age due to their mental or physical illness, condition, or disability, or (2) providing no caregiving to any other family members or nonkin (see more under the section “Caregiving Status”).

### *Outcome Variables*

Physical health has been determined to be a multidimensional construct (Patrick & Bergner, 1990), and a meta-analysis of studies of linkages



between caregiving and health suggested multiple dimensions of health be considered in future research in this area (Vitaliano et al., 2003). Therefore, we examined four relatively distinct self-reported health outcomes, reflecting three dimensions of physical health – self-rated global health (indicator of the “health perceptions” dimension), functional limitations (indicator of the “functional status” dimension), as well as reported physical symptoms and health conditions (both indicators of the “impairments” dimension) assessed at T2 (Patrick & Bergner, 1990).

#### *Self-Rated Global Health*

A single self-administered item asked participants to rate their physical health on a 5-point Likert scale (1 = *excellent*, 2 = *very good*, 3 = *good*, 4 = *fair*, 5 = *poor*). This indicator, modeled in many ways, including as a continuous variable with ordinal categories as we do in this analysis, has been widely studied in studies across many countries (e.g., Krause, Newsom, & Rook, 2008; McCullough & Laurenceau, 2004; Singh-Manoux et al., 2006), and it has been found to be an efficient and reliable predictor of mortality, above and beyond clinical reports (Idler & Benyamini, 1997). Responses were reverse-coded so that higher scores reflected better physical health. There were no missing cases for this variable. Table 1 presents descriptive statistics for this, and all other, analytic variables.

#### *Functional Limitations*

Two self-administered items asked respondents about how much their health limited them when performing basic activities of daily living (ADLs), including (a) bathing or dressing yourself, and (b) walking one block (after reverse coding, response categories were 1 = *not at all*, 2 = *a little*, 3 = *some*, 4 = *a lot*). The mean score of answered items was used for to create this ADLs variable if respondents answered at least one of the two items (Cronbach's alpha = 0.68). Seven additional self-administered items asked respondents how much their health limited them when performing various instrumental activities of daily living (IADLs), including (a) lifting or carrying groceries; (b) climbing several flights of stairs; (c) bending, kneeling, or stooping; (d) walking more than a mile; (e) walking several blocks, (f) vigorous activities (e.g., running, lifting heavy objects); (g) moderate activities (e.g., bowling, vacuuming) (with the same response categories as ADLs). The mean score was used from answered items if respondent answered at least one of the items (Cronbach's alpha for the seven items was 0.94). We created our summative *functional limitations* measure by adding the mean number of functional limitations in basic ADLs and

**Table 1.** Descriptives for All Analytic Variables.

Variables	Mean	SD	Range
<i>Caregiving status</i>			
No care <sup>a</sup> ( <i>n</i> = 1,037)	0.98	0.14	0–1
Parental care ( <i>n</i> = 21)	0.02	0.14	0–1
<i>Health outcomes</i>			
Self-reported health	3.56	0.98	1–5
Functional limitations	2.99	1.38	2–8
Number of symptoms	10.01	5.80	0–25
Number of conditions	2.54	2.44	0–17
<i>Marital quality</i>			
Marital strain	–0.01	0.61	–1.14–1.86
<i>Sociodemographic factors</i>			
Gender			
Female ( <i>n</i> = 498)	0.47	0.50	0–1
Male <sup>a</sup> ( <i>n</i> = 560)	0.52	0.50	0–1
Age	56.03	12.42	33–83
Household income	66,169.93	51,904.21	0–300,000
Educational attainment <sup>b</sup>			
Less than high school ( <i>n</i> = 65)	0.06	0.24	0–1
High school graduate ( <i>n</i> = 292)	0.28	0.45	0–1
Some college ( <i>n</i> = 282)	0.27	0.44	0–1
BA or more ( <i>n</i> = 418)	0.40	0.49	0–1
Race/ethnicity			
Non-Hispanic white <sup>a</sup> ( <i>n</i> = 970)	0.92	0.28	0–1
Black ( <i>n</i> = 33)	0.03	0.17	0–1
Other race/ethnicity ( <i>n</i> = 55)	0.05	0.22	0–1
Parental status			
Currently a parent ( <i>n</i> = 988)	0.93	0.25	0–1
Currently not a parent <sup>a</sup> ( <i>n</i> = 70)	0.07	0.25	0–1
Employment status			
Not employed <sup>a</sup> ( <i>n</i> = 355)	0.34	0.47	0–1
Employed part-time ( <i>n</i> = 222)	0.21	0.41	0–1
Employed full-time ( <i>n</i> = 481)	0.45	0.50	0–1

Notes: Data from the National Survey of Midlife in the U.S. (MIDUS) (analytic sample *N* = 1,058). Means for dichotomous variables are proportions.

<sup>a</sup>Reference group for categorical variable.

<sup>b</sup>Categories for educational attainment total 1,057 due to one case with missing data excluded from regression analyses. Proportions for educational attainment total more than 100 due to rounding error.

mean number of functional limitations in IADLs by adding the scores for these two scales (range: 2–8). There were seven missing cases for this outcome.

#### *Number and Frequency of Physical Symptoms*

Respondents were asked in the self-administered questionnaire to rate how often they had experienced five types of physical symptoms during the past 30 days on a 6-point scale (1 = *almost every day*; 2 = *several times a week*; 3 = *once a week*; 4 = *several times a month*; 5 = *once a month*; 6 = *not at all*), including (a) headaches; (b) backaches; (c) aches or stiffness in joints; (d) trouble getting to sleep or staying asleep; (e) pain or aches in extremities (arms/hands/legs/feet). Responses were reverse-coded so that higher scores reflect more symptoms and more frequent symptoms. Scores across the five items were summed. Only 2% of respondents were missing data for this index so listwise deletion was used for missing items on this scale, allowing it to remain a cumulative measure of symptom problems. Cronbach's alpha for this index was 0.72.

#### *Number of Chronic Conditions*

In the telephone interview at T2, respondents reported whether they had ever had a heart attack or cancer. In the self-administered questionnaire, respondents further indicated whether in the past 12 months they had experienced or been treated for each of 30 chronic conditions (e.g., asthma/bronchitis/emphysema; arthritis/rheumatism/other bone or joint diseases; sciatica/lumbago/recurring backache; high blood pressure/hypertension; diabetes/high blood sugar). A summative measure was created by adding the "yes" responses across the index items for all respondents who provided at least one valid answer to this total of 32 questions, and this resulted in no cases missing on this outcome. For this analytic sample the range was 0–17.

### *Independent Variables*

#### *Caregiving Status*

In the phone questionnaire at T2, participants were asked if during the last 12 months they had given personal care for a period of one month or more to a family member or friend because of a physical or mental condition, illness, or disability. Respondents who answered "yes" were asked to indicate to whom they gave the most personal care (i.e., relationship type).

Two percent of all married T2 respondents (2.2% of women,  $n=12$ ; 1.5% of men,  $n=9$ ) indicated providing care to a son or daughter of any age. As noted above, this study was limited to respondents indicating either providing care to a young or adult child (coded 1 on a variable for *parental caregiver*) or providing no care to any family members or nonkin – 90% of the total sample at T2 (87% of women,  $n=486$ ; 92% of men,  $n=551$ ) (coded 0 for *parental caregiver*). The remaining approximately 8% of the total survey sample who reported providing care to other relationship types (e.g., spouse, parent, parent-in-law, friend) were excluded from these analyses.

### *Marital Strain*

In the self-administered survey, respondents were asked to rate six items assessing respondents' marital strain: (a) how often does your spouse or partner make too many demands on you; (b) how often does he or she argue with you; (c) how often does he or she make you feel tense; (d) how often does he or she criticize you; (e) how often does he or she let you down when you are counting on him or her; (f) how often does he or she get on your nerves, on 4-point scale (1 = *often*, 2 = *sometimes*, 3 = *rarely*, 4 = *not at all*). Items were reverse-coded so that higher scores reflect higher levels of marital strain. The mean score across items was used for this variable if respondents answered at least one item on the scale. The 18 persons missing data on all items of the scale were excluded from our analyses. Cronbach's alpha for this index was 0.92 at T2. The marital strain variable was centered.

### *Sociodemographic Control Variables*

As noted previously, all our models adjusted for several sociodemographic factors: gender (dichotomous, 1 = *female*), respondents' *age* (continuous), *household income* (continuous, including respondents' reports of income from all sources, as well as their reports of all spousal income), educational attainment (categorical, *high school grad* [includes general education – GED-degree], *some college* [includes associate degrees and all training less than a bachelor's degree], and *bachelor's degree or more* [includes all bachelor's and graduate degrees], reference category was *less than high school*), race/ethnicity (categorical, *Black*, *other race/ethnicity* [includes missing on race/ethnicity], reference category was *non-Hispanic white*), parental status at T2 (dichotomous, 1 = *currently a parent* [includes parents of a living biological, adoptive, step-, or foster child co-residing or living elsewhere of

any age]), and employment status at T2 (categorical *part-time* = currently employed less than 40 hours per week [includes missing on work hours coded to the mean work hours], *full-time* = currently employed 40 or more hours a week, reference category was *not employed for pay*).

### *Data Analysis*

Ordinary least squares multiple regression models were estimated (employing listwise deletion for missing cases) using unweighted data to investigate the linkages between parental caregiving and each physical health outcome. All models included all demographic control variables, as well as the measure of marital strain. To test Hypothesis 1, regarding the main effect of filial caregiving on physical health outcomes, we estimated models for each outcome in which each aspect of health was regressed on a dichotomous variable indicating whether respondents were parental caregivers or noncaregivers (Model 1 (M1)). To examine Hypothesis 2, regarding moderator effects of gender on linkages between parental caregiving and physical health, Model 2 (M2) began by adding the interaction term *Female* × *Parental caregiver*. To test our Hypotheses 3 and 4 regarding moderator effects of marital strain, Model 3 (M3) added first *Marital strain* × *Parental caregiver* alone (without gender interactions), Model 4 (M4) again added in the *Female* × *Parental caregiver* interaction (along with the *Marital strain* × *Parental caregiver* interaction variable), Model 5 (M5) examined the three-way interaction between parental caregiving, marital strain, and gender by adding variables for *Female* × *Marital strain*, and *Female* × *Marital strain* × *Parental caregiver*. In yet other supplementary analyses (not shown) we estimated models with weighted data. We did not find major differences in results using weighted data in contrast to unweighted data; therefore, we report results from unweighted data here because they have more reliable standard errors (Winship & Radbill, 1994).

## **RESULTS**

### *Parental Caregiving for a Child with Special Needs, Gender, Marital Strain, and Global Self-Assessed Health*

Results from models indicating differences in global self-assessed health among married parental caregivers and married noncaregivers are provided

in Table 2, M1 through M5. We predicted that parental caregiving for a young or adult child due to a long-term mental or physical condition, illness, or disability would be linked to poorer physical health among married parental caregivers in contrast to married noncaregivers. Supportive of our Hypothesis 1, findings from M1 revealed a significant global difference in self-assessed health for parental caregivers in contrast to noncaregivers (Table 2, M1,  $b = -0.43$ ,  $p \leq .05$ ).

We predicted that married mothers would experience more problematic health when providing care to a child with special needs than married fathers (Hypothesis 2). No evidence was found for a difference by gender in the association between global self-assessed health and caregiving

**Table 2.** Estimated Unstandardized Regression Coefficients for the Associations between Parental Caregiving, Gender, Marital Strain, and Self-Reported Health.

	Models				
	M1	M2	M3	M4	M5
Female	0.12*	0.13*	0.12*	0.13*	0.13*
Marital strain	-0.05	-0.05	-0.06	-0.06	-0.04
No caregiving (omitted)	—	—	—	—	—
Parental caregiver	-0.43*	-0.19	-0.44*	-0.20	-0.27
Female $\times$ Parental caregiver		-0.44		-0.43	-0.35
Marital strain $\times$ Parental caregiver			0.15	0.14	0.66 +
Female $\times$ Strain					-0.03
Female $\times$ Strain $\times$ Parental caregiver					-0.97 +
Age	-0.01 +	-0.01 +	-0.01 +	-0.01 +	-0.01 +
Household income	-0.00**	-0.00**	-0.00**	-0.00**	-0.00**
High school graduate <sup>a</sup>	0.35**	0.34**	0.35**	0.34**	0.33**
Some college <sup>a</sup>	0.49***	0.49***	0.50***	0.49***	0.48***
BA or more <sup>a</sup>	0.78***	0.77***	0.78***	0.77***	0.76***
Black <sup>b</sup>	-0.41*	-0.41*	-0.41*	-0.41*	-0.41*
Other race/ethnicity <sup>b</sup>	-0.28*	-0.27*	-0.28*	-0.27*	-0.27*
Parental status (parent = 1)	-0.07	-0.07	-0.07	-0.07	-0.07
Employed part-time <sup>c</sup>	0.22**	0.22**	0.22**	0.21**	0.21**
Employed full-time <sup>c</sup>	0.34***	0.34***	0.34***	0.34***	0.33***
Constant	3.03***	3.05***	3.03***	3.04***	3.06***
$R^2$	0.13	0.13	0.13	0.13	0.14

Note: + $p \leq .10$ ; \* $p \leq .05$ ; \*\* $p \leq .01$ ; \*\*\* $p \leq .001$  (two-tailed tests) ( $N = 1,058$ ).

<sup>a</sup>Categorical variable: reference group is less than high school educational attainment.

<sup>b</sup>Categorical variable: reference group is non-Hispanic white race/ethnicity.

<sup>c</sup>Categorical variable: reference group is not employed for pay.

among parental caregivers in contrast to noncaregivers (Table 2, M2,  $b=0.44$ , n.s.).

We also predicted that higher levels of marital strain would be associated with an exacerbation of the negative impact of caregiving for a child with special needs on health among married parental caregivers (Hypotheses 3 and 4). However, there was no evidence that this was the case in terms of prediction of global health (Table 2, M3,  $b=15$ , n.s.), and only evidence at a marginal level of significance of gender moderating the interaction of parental caregiving with higher levels of marital strain (Table 2, M5,  $b=-0.97$ ,  $p \leq .10$ ), suggesting that mothers providing special caregiving for a child might report poorer global health in the presence of greater marital strain than fathers.

In sum, we found evidence that providing caregiving for a child of any age with special needs was associated with reports of poorer global health among both mothers and fathers. There was not robust evidence to clearly demonstrate moderation by gender and/or marital strain for this health outcome.

#### *Parental Caregiving for a Child with Special Needs, Gender, Marital Strain, and Functional Limitations*

Results from models indicating differences in functional limitations among married parental caregivers and married noncaregivers are provided in Table 3, M1 through M5. There was only evidence at a marginal level of significance that parental caregiving might be linked to higher levels of functional limitations in our first model (Table 3, M1,  $b=0.53$ ,  $p \leq .10$ ). No robust gender or marital strain moderator effects were revealed in subsequent models.

In sum, findings indicated only marginal evidence that providing parental caregiving for a child with special needs might be associated with higher levels of functional limitations among both mothers and fathers.

#### *Parental Caregiving for a Child with Special Needs, Gender, Marital Strain, and Physical Health Symptoms*

Results from models indicating differences in physical health symptoms among married parental caregivers for a child with special needs and married noncaregivers are provided in Table 4, M1 through M5. Findings regarding a global main effect of providing parental caregiving for a young

**Table 3.** Estimated Unstandardized Regression Coefficients for the Associations between Parental Caregiving, Gender, Marital Strain, and Functional Limitations.

	Models				
	M1	M2	M3	M4	M5
Female	0.08	0.08	0.08	0.08	0.08
Marital strain	0.08	0.08	0.10	0.10	0.04
No caregiving (omitted)	—	—	—	—	—
Parental caregiver	0.53 +	0.44	0.57*	0.51	0.55
Female × Parental caregiver		0.15		0.11	0.06
Marital strain × Parental caregiver			-0.55 +	-0.55	-0.84 +
Female × Strain					0.11
Female × Strain × Parental caregiver					0.53
Age	0.02***	0.02***	0.02***	0.02***	0.02***
Household income	-0.00***	-0.00***	-0.00***	-0.00***	-0.00***
High school graduate <sup>a</sup>	-0.36*	-0.36*	-0.37*	-0.37*	-0.36*
Some college <sup>a</sup>	-0.50**	-0.50**	-0.51***	-0.51***	-0.50**
BA or more <sup>a</sup>	-0.79***	-0.79***	-0.80***	-0.80***	-0.80***
Black <sup>b</sup>	-0.37	-0.36	-0.37	-0.37	-0.37 +
Other race/ethnicity <sup>b</sup>	0.10	0.10	0.10	0.10	0.10
Parental status (parent = 1)	-0.12	-0.12	-0.12	-0.12	-0.12
Employed part-time <sup>c</sup>	-0.54***	-0.54***	-0.54***	-0.54***	-0.53***
Employed full-time <sup>c</sup>	-0.70***	-0.70***	-0.70***	-0.70***	-0.69***
Constant	3.04***	3.04***	3.05***	3.04***	3.03***
R <sup>2</sup>	0.20	0.20	0.20	0.20	0.20

Note: + $p \leq .10$ ; \* $p \leq .05$ ; \*\* $p \leq .01$ ; \*\*\* $p \leq .001$  (two-tailed tests) ( $N = 1,058$ ).

<sup>a</sup>Categorical variable: reference group is less than high school educational attainment.

<sup>b</sup>Categorical variable: reference group is non-Hispanic white race/ethnicity.

<sup>c</sup>Categorical variable: reference group is not employed for pay.

or adult child indicated that respondents who reported they were providing parental caregiving for a child with special needs reported more physical health symptoms than respondents who reported they were not providing any type of caregiving (Table 4, M1,  $b = 2.82$ ,  $p \leq .05$ ). However, no subgroup difference by gender was found in linkages between physical health symptoms and caregiving among parental caregivers and noncaregivers (Table 4, M2,  $b = 3.19$ , n.s.), and no additional moderation by marital strain (Table 4, M3,  $b = -0.83$ , n.s.) or marital strain by gender (Table 4, M6,  $b = 2.01$ , n.s.) was in evidence.

In sum, findings indicated that higher levels of physical health symptoms were observed among married parental caregivers for a child with special



**Table 4.** Estimated Unstandardized Regression Coefficients for the Associations between Parental Caregiving, Gender, Marital Strain, and Number of Symptoms.

	Models				
	M1	M2	M3	M4	M5
Female	0.31	0.25	0.31	0.25	0.24
Marital strain	0.99***	1.00***	1.02***	1.03***	1.12**
No caregiving (omitted)	—	—	—	—	—
Parental caregiver	2.82*	1.08	2.88*	1.17	1.28
Female × Parental caregiver		3.19		3.14	3.00
Marital strain × Parental caregiver			-0.83	-0.74	-1.82
Female × Strain					-0.18
Female × Strain × Parental caregiver					2.01
Age	0.02	0.02	0.02	0.02	0.02
Household income	-0.00	-0.00	-0.00	-0.00	-0.00
High school graduate <sup>a</sup>	-1.07	-1.01	-1.01	-1.03	-1.01
Some college <sup>a</sup>	-0.59	-0.55	-0.62	-0.57	-0.54
BA or more <sup>a</sup>	-3.07***	-3.01***	-3.09***	-3.03***	-3.01***
Black <sup>b</sup>	-0.98	-0.97	-0.99	-0.97	-0.96
Other race/ethnicity <sup>b</sup>	-0.88	-0.92	-0.88	-0.92	-0.93
Parental status (parent = 1)	0.42	0.42	0.42	0.42	0.42
Employed part-time <sup>c</sup>	-0.85 +	-0.82	-0.83	-0.81	-0.80
Employed full-time <sup>c</sup>	-1.07*	-1.04*	-1.06*	-1.04*	-1.05*
Constant	11.07***	10.96***	11.08***	10.97***	10.97***
R <sup>2</sup>	0.09	0.09	0.09	0.09	0.09

Note: + $p \leq .10$ ; \* $p \leq .05$ ; \*\* $p \leq .01$ ; \*\*\* $p \leq .001$  (two-tailed tests) ( $N = 1,058$ ).

<sup>a</sup>Categorical variable: reference group is less than high school educational attainment.

<sup>b</sup>Categorical variable: reference group is non-Hispanic white race/ethnicity.

<sup>c</sup>Categorical variable: reference group is not employed for pay.

needs in contrast to married noncaregivers. Neither gender nor marital quality moderated this association.

*Parental Caregiving for a Child with Special Needs, Gender, Marital Strain, and Chronic Physical Conditions*

Results from models indicating differences in chronic physical conditions among married parental caregivers and married noncaregivers are provided in Table 5, M1 through M5. Findings from M1, examining the main effect

of parental caregiving, indicated that parental caregivers reported higher levels of reported chronic conditions than noncaregivers (Table 5, M1,  $b = 1.81, p \leq .001$ ). However, a subgroup difference by gender was found in the linkage between reported chronic conditions and parental caregiving (Table 5, M2,  $b = 2.51, p \leq .05$ ), and furthermore, a significant three-way interaction was revealed for marital strain (Table 5, M5,  $b = 3.70, p \leq .001$ ).

To better interpret these results, Fig. 1 displays predicted scores from Table 5, M5, calculated separately for men and women one standard deviation above the mean on marital strain (high strain) and one standard deviation below the mean on marital strain (low strain) who reported either (1) providing caregiving for a child with special needs or (2) providing no

**Table 5.** Estimated Unstandardized Regression Coefficients for the Associations between Parental Caregiving, Gender, Marital Strain, and Number of Physical Chronic Conditions.

	Models				
	M1	M2	M3	M4	M5
Female	0.32*	0.28 +	0.32*	0.28 +	0.27 +
Marital strain	0.18	0.18	0.18	0.18	0.25
No caregiving (omitted)	—	—	—	—	—
Parental caregiver	1.81***	0.45	1.81***	0.44	0.66
Female $\times$ Parental caregiver		2.51*		2.52*	2.24*
Marital strain $\times$ Parental caregiver			0.03	0.09	-1.89*
Female $\times$ Strain					-0.13
Female $\times$ Strain $\times$ Parental caregiver					3.70***
Age	0.03***	0.04***	0.03***	0.04***	0.04***
Household income	-0.00	-0.00	-0.00	-0.00	-0.00
High school graduate <sup>a</sup>	-0.74*	-0.70*	-0.74*	-0.69*	-0.66*
Some college <sup>a</sup>	-0.72*	-0.68*	-0.71*	-0.68*	-0.63*
BA or more <sup>a</sup>	-1.17***	-1.13***	-1.17***	-1.13***	-1.09***
Black <sup>b</sup>	-0.04	-0.04	-0.04	-0.04	-0.02
Other race/ethnicity <sup>b</sup>	-0.30	-0.34	-0.30	-0.34	-0.35
Parental status (parent = 1)	-0.40	-0.40	-0.40	-0.40	-0.40
Employed part-time <sup>c</sup>	-0.73***	-0.71***	-0.73***	-0.71***	-0.69***
Employed full-time <sup>c</sup>	-0.93***	-0.91***	-0.93***	-0.91***	-0.91***
Constant	2.42***	2.33***	2.42***	2.33***	2.27***
$R^2$	0.14	0.14	0.14	0.14	0.15

Note: + $p \leq .10$ ; \* $p \leq .05$ ; \*\* $p \leq .01$ ; \*\*\* $p \leq .001$  (two-tailed tests) ( $N = 1,058$ ).

<sup>a</sup>Categorical variable: reference group is less than high school educational attainment.

<sup>b</sup>Categorical variable: reference group is non-Hispanic white race/ethnicity.

<sup>c</sup>Categorical variable: reference group is not employed for pay.

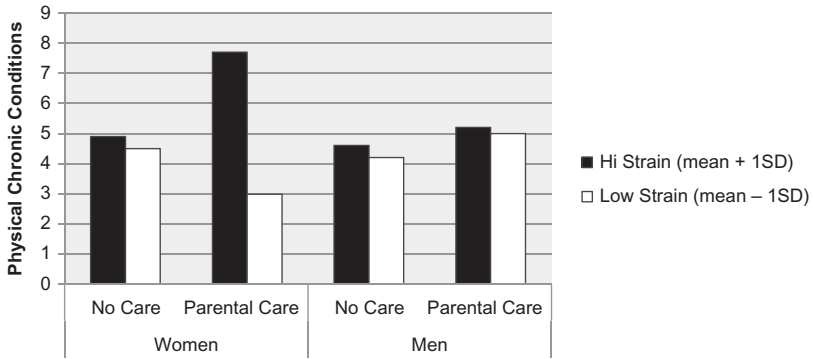


Fig. 1. Predicted Scores of Physical Chronic Conditions for Married Women and Men Parental Caregivers and Married Women and Men Noncaregivers Who Reported Experiencing either High Strain or Low Strain with Their Spouses.

caregiving. (Note: For this figure the baseline model for the predicted scores assumes a respondent who is at the mean on all continuous variables in the model that are not involved in the interaction, and in the zero category for all dichotomous or categorical variables not involved in the interaction.) Women who were providing caregiving for a child with special needs and reporting high strain from their spouses demonstrated considerably higher levels of chronic conditions than women who were not providing caregiving for a child and reporting high strain from their spouses, whereas women who were providing caregiving for a child with special needs and reporting low strain from their spouses actually reported lower levels of chronic conditions than women who were not providing caregiving and reporting low strain from their spouses. The pattern was different for men; men reported somewhat higher levels of chronic conditions when they were giving care for a child with special needs, and differences in marital strain did not moderate this association.

In sum, although initial findings indicated that midlife and older caregivers for a young or adult child with special needs (when contrasted with noncaregivers) reported higher levels of reported chronic conditions, both gender and marital quality moderated this association. Specifically, women parental caregivers who reported high strain from their spouses were found to be at more risk for much higher levels of chronic conditions while those who reported low strain from their spouse were not. Men providing caregiving to a young or adult child with special needs reported somewhat

more chronic conditions, and better marital quality did not buffer this negative effect for them.

## DISCUSSION

Guided by a life course perspective, this study aimed to examine population evidence to investigate whether parental caregiving for a young or adult child with special mental or physical health needs is linked to physical health risks for midlife and older married parental caregivers, as well as to evaluate whether gender and marital quality moderate these health risks.

Overall, consistent with our first main effects hypothesis, and consistent with some other studies (e.g., Brehaut et al., 2009; Davis et al., 2009; Klassen et al., 2008; Miodrag & Hodapp, 2010), our findings indicated that providing parental caregiving for a son or daughter with special needs was associated with an overall problematic main effect on self-assessed global health and higher levels of physical symptoms for all married parental caregivers. There was also marginal evidence that caregiving for a child with special needs might be linked to more functional limitations.

In the case of chronic conditions, however, we found new, suggestive evidence that for married adults marital role quality may be an important factor in conditioning the linkage between providing parental caregiving to a young or adult child with special needs and physical health, especially among married mother caregivers. Specifically, the problematic effect of parental caregiving on chronic conditions was eliminated for women (but not men) in the presence of good marital quality – that is, low marital strain; whereas in the presence of worse marital quality – that is, high marital strain – the problematic effects of parental caregiving on chronic conditions were exacerbated for women (but not men).

Thus, overall, mother caregivers for a young or adult child with special needs were more influenced by marital quality than father caregivers for this important health outcome. These results for chronic conditions are consistent with other evidence suggesting marital quality is a more important factor for conditioning the impact of caregiving on women's well-being in contrast to men's (Voydanoff & Donnelly, 1999).

Our results provide additional support for taking a life course perspective on caregiving (Bengtson & Allen, 1993; Elder et al., 2003; George, 1993; Settersten, 2003; Wheaton, 1990), which emphasizes heterogeneity in experience of roles, which can moderate the developmental (including

health) impacts of different roles. Like others, we found some evidence, although not consistent evidence, that gender is an important moderator of the impact of caregiving on health, but most particularly, our results further indicate that to some extent it may be gender in combination with marital quality that is important in helping determine the health risks of parental caregiving for a child with special needs.

Despite this study's conceptual and methodological strengths, several limitations need to be acknowledged. Due to the lack of measurement of caregiving at T1 in MIDUS, we needed to conduct a cross-sectional analysis here, even though the data set is longitudinal. Thus, to some extent our imputations of causality must be considered tenuous (although in the case of caregiving for a child with special needs, the potential for parents with poorer health "selecting into" providing care is less plausible than it might be for other more "voluntary" types of caregiving roles).

Another limitation of our study is our relatively small sample of parental caregivers. Because this is a relatively low prevalence group, even using population sample data, we were forced to examine a small sample. This definitely reduced the power of our analysis and increased the probability that outliers in the sample (e.g., on a health outcome) might unduly influence significance tests. This limitation definitely argues for additional studies to replicate, in particular, our suggestive findings regarding moderation by gender and marital quality. Nonetheless, given our reduced power it still remains suggestive that we found the main effects that we did, and the interaction effects that we did. In fact, our low power may well have prevented us from finding effects where they do truly exist in the population (Type II error).

A further limitation of our study is the fact that due to the limitation in our caregiving measure, respondents were classified as caregivers without taking into account how long they had been providing caregiving, intensity of caregiving (e.g., hours per week), and reasons for caregiving (e.g., mental illness vs. physical handicap). All these factors might be additional moderators of caregivers' health risk and would be beneficial to include in future research.

Although it was not the focus of our study, we note that congruent with much previous research, higher age, lower income, lower education, and/or nondominant group race/ethnicity were also associated with poorer health in a many of our estimated models. We did not have the sample size power to pursue this, but future research in this area might also very usefully explore additional interactions between these factors of disadvantage and caregiving to better understand how caregivers with these disadvantaged

statuses might or might not be further compromised in health outcomes (see, e.g., Marks, Lambert, Jun, & Song, 2008).

## IMPLICATIONS

Contemporary society is experiencing a “care crisis” (Glenn, 2010). Several macrosocial trends have converged to create a growing population of individuals needing care to help them with basic and instrumental activities of daily life while at the same time there is a declining population of individuals with the time and resources available to provide help with these caregiving needs. Most of public attention goes to the growing aging population that is in need of help with personal care, but concurrently there is also a growing population of young and adult children with special needs (both physical and mental) who are surviving to live longer lifetimes, requiring the need for parental caregiving, often for decades longer than might have been expected. Long-term institutionalization for children with special needs is now relatively rare – and budget cuts in spending on social and health services often leave parents with little respite and/or formal help with caregiving. Hospital help for acute crises often results in discharge of patients at all ages “sooner and sicker,” again putting pressure on family members (especially women) to fill caregiver roles. Yet, increasingly family household economies also rely on women as well as men to engage in paid-employment to pay the bills (Glenn, 2010).

It is within this challenging macrosociological context that contemporary adults – young, midlife, and older-aged – who are undertaking a parental caregiving role for a young or adult child with special needs find themselves. Results from this study, which document linkages between providing parental caregiving for a young or adult child with special needs and multiple dimensions of poorer health status (poorer self-reported global health and higher levels of physical symptoms among all parental caregivers; higher levels of chronic conditions among all father caregivers and among mother caregivers experiencing high marital strain) utilizing data from a national sample of midlife and older adults (adjusting additionally for many sociodemographic factors also associated with health) provide additional empirical support for the public health importance of enacting policies and practices supportive of all parental caregivers for children with special needs (Gitlin & Schulz, 2012; Glenn, 2010).

Our study, while requiring replication, is nonetheless also tentatively suggestive that policy-makers and practitioners may need to pay increased attention to how marital quality may condition the physical health effects of parental caregiving. We found that married mother caregivers for children with special mental or physical health needs were at greater health risk in terms of a greater number of physical conditions when they experienced poorer marital quality, but that better marital quality buffered health risks of parental caregiving for a child with special needs in the case of number of chronic physical conditions among married mother caregivers (but not married father caregivers).

Stated differently, our results therefore tentatively suggest that having access to a marital partner in and of itself does not always mitigate parental caregiving's risk to health. Marital quality may be an important factor among married mothers in determining whether caregiving for a child with special needs is likely to contribute to increased health risk or not. Programs and policies designed to support parental caregivers would do well to add or increase attention to taking into account a caregiver's reports (particularly, a mother's reports) of marital strains, and provide counseling and support, as needed, to help caregivers navigate the potential complexity of integrating caregiving with a marital relationship. Addressing marital quality issues among parental caregivers may be a valuable pathway to reducing the public health risk of parental caregiving, especially for midlife and aging mothers who are providing parental caregiving for their children due to a mental or physical illness or disability.

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## REFERENCES

- Asch, S. M., Kerr, E. A., Keeseey, J., Adams, J. L., Setodji, C. M., Malik, S., & McGlynn, E. A. (2006). Who is the greatest risk for receiving poor-quality health care? *The New England Journal of Medicine*, *354*, 1147–1156. doi:10.1056/NEJMsa044464
- Beach, S. R. H., Katz, J., Kim, S., & Brody, G. H. (2003). Prospective effects of marital satisfaction on depressive symptoms in established marriages: A dyadic model. *Journal of Social and Personal Relationships*, *20*, 355–371. doi:10.1177/0265407503020003005

- Bengtson, V. L., & Allen, K. R. (1993). The life course perspective applied to families over time. In P. G. Boss, W. J. Doherty, R. LaRossa, W. R. Schumm, & S. K. Steinmetz (Eds.), *Sourcebook of family theories and methods* (pp. 469–499). New York, NY: Plenum.
- Bookwala, J. (2005). The role of marital quality in physical health during the mature years. *Journal of Aging and Health, 17*, 85–104. doi:10.1177/0898264304272794
- Brehaut, J. C., Kohen, D. E., Garner, R. E., Miller, A. R., Lach, L. M., Klassen, A. F., & Rosenbaum, P. L. (2009). Health among caregivers of children with health problems: Findings from a Canadian population-based study. *American Journal of Public Health, 99*, 1254–1262.
- Brehaut, J. C., Kohen, D. E., Raina, P., Walter, S. D., Russell, D. J., Swinton, M., ... Rosenbaum, P. (2004). The health of primary caregivers of children with cerebral palsy: How does it compare with that of other Canadian caregivers? *Pediatrics, 114*, 182–191.
- Calasanti, T., & King, N. (2007). Taking “women’s work” “like a man”: Husbands’ experiences of care work. *The Gerontologist, 47*(4), 516–527.
- Campbell, L. D., & Martin-Matthews, A. (2003). The gendered nature of men’s filial care. *Journals of Gerontology, Social Sciences, 58B*(6), 350–358.
- Caregiving in the U.S. (2009). Retrieved from [www.caregiving.org](http://www.caregiving.org). Accessed on April 9, 2014.
- Choi, H., & Marks, N. F. (2006). Transition to caregiving, marital disagreement, and psychological well-being: A prospective U.S. National study. *Journal of Family Issues, 27*, 1701–1722. doi:10.1177/0192513X06291523
- Choi, H., & Marks, N. F. (2008). Marital conflict, depressive symptoms, and functional impairment. *Journal of Marriage and Family, 70*, 377–390. doi:10.1111/j.1741-3737.2008.00488.x
- Davis, E., Shelly, A., Waters, E., Boyd, R., Cook, K., & Darven, M. (2009). The impact of caring for a child with cerebral palsy: Quality of life for mothers and fathers. *Child: Care, Health, and Development, 36*, 63–73.
- Elder, G. H., Jr., Johnson, M. K., & Crosnoe, R. (2003). Perspective on the life course. In J. T. Mortimer & M. J. Shanahan (Eds.), *Handbook of the life course* (pp. 3–19). New York, NY: Kluwer Academic.
- Gallant, M. P., & Connell, C. M. (1997). Predictors of decreased self-care among spouse caregivers of older adults with dementing illnesses. *Journal of Aging and Health, 9*, 373–395. doi:10.1177/089826439700900306
- George, L. K. (1993). Sociological perspectives on life transitions. *Annual Review of Sociology, 19*, 353–373. doi:10.1146/annurev.soc.19.1.353
- Gitlin, L. N., & Schulz, R. (2012). Family caregiving of older adults. In T. R. Prohaska, L. A. Anderson, & R. Binstock (Eds.), *Public health for an aging society* (pp. 181–203). Baltimore, MD: Johns Hopkins University Press.
- Glenn, E. N. (2010). *Forced to care: Coercion and caregiving in America*. Cambridge: Harvard University Press.
- Grafstrom, M., Fratiglioni, L., Sandman, P. O., & Winblad, B. (1992). Health and social consequences for relatives of demented and nondemented elderly: A population based study. *Journal of Clinical Epidemiology, 45*, 861–870. doi:10.1016/0895-4356(92)90069-Y
- Hartley, S., Barker, E., Seltzer, M. M., Floyd, F., Greenberg, J., Orsmond, G., & Bolt, D. (2010). The relative risk and timing of divorce in families of children with an autism spectrum disorder. *Journal of Family Psychology, 24*, 449–457.



- Hawkins, D. N., & Booth, A. (2005). Unhappily ever after: Effects of long-term, low-quality marriages on well-being. *Social Forces*, *84*, 445–465. doi:10.1353/sof.2005.0103
- Idler, E. L., & Benyamini, Y. (1997). Self-rated health and mortality: A review of twenty-seven community studies. *Journal of Health and Social Behavior*, *38*, 21–37.
- Kessler, R. C., & McLeod, J. D. (1984). Sex differences in vulnerability to undesirable life events. *American Sociological Review*, *49*(3), 620–631.
- Klassen, A. F., Klaassen, R., Dix, D., Pritchard, S., Yanofsky, R., O'Donnell, M., ... Sung, L. (2008). Impact of caring for a child with cancer on parents' health-related quality of life. *Journal of Clinical Oncology*, *26*, 5884–5889.
- Kramer, B. J. (2001). Men caregivers: An overview. In B. J. Kramer & E. H. Thompson (Eds.), *Men as caregivers: Theory, research, and service implications* (pp. 9–19). New York, NY: Springer.
- Krause, N., Newsom, J. T., & Rook, K. S. (2008). Financial strain, negative social interaction, and self-rated health: Evidence from two U.S. nationwide longitudinal surveys. *Ageing and Society*, *28*, 1001–1023.
- Lillard, L. A., & Waite, L. J. (1995). Til death do us part: Marital disruption and mortality. *American Journal of Sociology*, *100*, 1131–1156. doi:10.1086/230634
- Lin, I., Fee, H. R., & Wu, H. (2012). Negative and positive caregiving experiences: A closer look at the intersection of gender and relationship. *Family Relations*, *61*, 348–358. doi:10.1111/j.1741-3729.2011.00692
- Lubetkin, E. I., Jia, H., Franks, P., & Gold, M. R. (2005). Relationship among sociodemographic factors, clinical conditions, and health-related quality of life: Examining the EQ-5D in the U.S. general population. *Quality of Life Research*, *14*, 2187–2196. doi:10.1007/s11136-005-8028-5
- Marks, N. F., Lambert, J. D., & Choi, H. (2002). Transitions to caregiving, gender, and psychological well-being: A prospective U.S. national study. *Journal of Marriage and Family*, *64*, 657–667. doi:10.1111/j.1741-3737.2002.00657
- Marks, N. F., Lambert, J. D., Jun, H. J., & Song, J. (2008). Psychosocial moderators of the effects of transitioning into filial caregiving on mental and physical health. *Research on Aging*, *30*, 358–389. doi:10.1177/0164027507312998
- McCullough, M. E., & Laurenceau, J. P. (2004). Gender and the natural history of self-rated health. *Health Psychology*, *23*, 651–655. doi:10.1136/jech.2005.039883
- Midlife in the U.S. (MIDUS). (2005). Retrieved from <http://midmac.med.harvard.edu/research.html>
- Miller, B. (1990). Gender differences in spouse caregiver strain: Socialization and role explanations. *Journal of Marriage and the Family*, *52*, 311–321.
- Miodrag, N., & Hodapp, R. M. (2010). Chronic stress and health among parents of children with intellectual and developmental disabilities. *Current Opinion in Psychiatry*, *23*, 407–411.
- Moberg, P. J. M. A., & Lazarus, L. W. M. D. (1990). Psychotherapy of depression in the elderly. *Psychiatric Annals*, *20*, 92–96.
- Montgomery, R. J. V. (1992). Gender differences in patterns of child-parent caregiving relationships. In J. W. Dwyer & R. T. Coward. (Eds.), *Gender, families, and elder care* (pp. 65–83). Newbury Park, CA: Sage.
- Murphy, N. A., Christian, B., Caplin, D. A., & Young, P. C. (2006). The health of caregivers for children with disabilities: Caregiver perspectives. *Child Care, Health, and Development*, *33*, 180–187.

- Neundorfer, M. M. (1991). Coping and health outcomes in spouse caregivers of persons with dementia. *Nursing Research, 40*, 260–265. doi:10.1097/00006199-199109000-00002
- Patrick, D. L., & Bergner, M. (1990). Measurement of health status in the 1990s. *Annual Review of Public Health, 11*, 165–183.
- Perrin, J. M. (2002). Health services research for children with disabilities. *Milbank Quarterly, 80*, 303–324.
- Pinquart, M., & Sorensen, S. (2006). Gender differences in caregiver stressors, social resources, and health: An updated meta-analysis. *Journal of Gerontology: Psychological Sciences, 61B*, 33–45.
- Proulx, C. M., Helms, H. M., & Buehler, C. (2007). Marital quality and personal well-being: A meta-analysis. *Journal of Marriage and Family, 69*, 576–593.
- Raina, P., O'Donnell, M., Rosenbaum, P., Brehaut, J., Walter, S. D., Russell, D., ... Wood, E. (2005). The health and wellbeing of caregivers of children with cerebral palsy. *Pediatrics, 111*, 626–636.
- Risdal, D., & Singer, G. H. S. (2004). Marital adjustment in parents of children with disabilities: A historical review and meta-analysis. *Research and Practice for Persons With Severe Disabilities, 29*, 95–103.
- Rose-Rego, S., Strauss, M., & Smyth, K. (1998). Differences in the perceived well-being of wives and husbands caring for persons with Alzheimer's disease. *Gerontologist, 38*, 224–230.
- Seltzer, M. M., Floyd, F., Song, J., Greenberg, J., & Hong, J. (2011). Midlife and aging parents of adults with intellectual and developmental disabilities: Impacts of lifelong parenting. *American Association on Intellectual and Developmental Disability, 116*, 479–499.
- Seltzer, M. M., & Li, L. W. (2000). The dynamics of caregiving: Transitions during a three-year prospective study. *The Gerontologist, 40*, 165–178.
- Settersten, R. A., Jr. (2003). Propositions and controversies in life course scholarship. In R. A. Settersten (Ed.), *Invitation to the life course: Toward new understating of later life* (pp. 15–45). New York, NY: Baywood.
- Singh-Manoux, A., Martikainen, P., Ferrie, J., Zins, M., Marmot, M., & Goldberg, M. (2006). What does self rated health measure? Results from the British Whitehall II and French Gazel cohort studies. *Journal of Epidemiology and Community Health, 60*, 364–372. doi:10.1136/jech.2005.039883
- Son, J., Erno, A., Shea, D. G., Femia, E. E., Zarit, S. H., & Stephens, M. A. P. (2007). The caregiver stress process and health outcomes. *Journal of Aging and Health, 19*, 871–887. doi:10.1177/0898264307308568
- Sparks, M. B., Farran, C. J., Donner, E., & Keane-Hagerty, E. (1998). Wives, husbands, and daughters of dementia patients: Predictors of caregivers' mental and physical health. *Scholarly Inquiry for Nursing Practice: An International Journal, 12*, 221–233.
- Stephens, M. A. P., & Townsend, A. L. (1997). Stress of parent care: Positive and negative effects of women's other roles. *Psychology and Aging, 12*, 376–386. doi:10.1037//0882-7974.12.2.376
- Thompson, L., & Walker, A. J. (1989). Gender in families: Women and men in marriage, work, and parenthood. *Journal of Marriage and the Family, 51*, 845–871.
- Tong, H. C., Haig, A. J., Nelson, V. S., Yamakawa, K. S., Kandala, G., & Shin, K. Y. (2003). Low back pain in adult female caregivers of children with physical disabilities. *Archives of Pediatrics and Adolescent Medicine, 157*, 1128–1133.

- Umberson, D., Williams, K., Powers, D. A., Liu, H., & Needham, B. (2006). You make me sick: Marital quality and health over the life course. *Journal of Health and Social Behavior, 47*, 1–16. doi:10.1177/002214650604700101
- Vitaliano, P. P., Zhang, J., & Scanlan, J. M. (2003). Is caregiving hazardous for one's physical health? A meta-analysis. *Psychological Bulletin, 129*, 946–972. doi:10.1037/0033-2909.129.6.946
- Voydanoff, P., & Donnelly, B. W. (1999). Multiple roles and psychological distress: The intersection of the paid worker, spouse, and parent roles with the role of the adult child. *Journal of Marriage and Family, 61*, 725–738. doi:10.2307/353573
- Waite, L., & Gallagher, M. (2000). *The case for marriage: Why married people are happier, healthier, and better off financially*. New York, NY: Broadway Books.
- Wheaton, B. (1990). Life transitions, role histories, and mental health. *American Sociological Review, 55*, 209–233.
- Whisman, M. A. (2001). The association between depression and marital dissatisfaction. In S. R. H. Beach (Ed.), *Marital and family processes in depression: A scientific foundation for clinical practice* (pp. 3–24). Washington, DC: American Psychological Association.
- Whisman, M. A., & Bruce, M. L. (1999). Marital dissatisfaction and incidence of major depressive episode in a community sample. *Journal of Abnormal Psychology, 108*, 674–678. doi:10.1037//0021-843X.108.4.674
- Williams, K., & Umberson, D. (2004). Marital status, marital transitions, and health: A gendered life course perspective. *Journal of Health and Social Behavior, 45*, 81–98. doi:10.1177/002214650404500106
- Yee, J. L., & Schulz, R. (2000). Gender differences in psychiatric morbidity among family caregivers: A review and analysis. *The Gerontologist, 40*, 147–164.