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Longitudinal Changes in Disabled Husbands' and Wives' Receipt of Care

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Purpose of the Study*:** This study contrasts 2-year adjustments in disabled husbands' and wives' amount of received care following both worsening and recovery in personal (activities of daily living [ADLs]) and routine care (instrumental activities of daily living [IADLs]) disability. ***Design and Methods*:** Using longitudinal data on 789 husbands and 778 wives from the Health and Retirement Study (2000 and 2002), changes in marital partners' monthly hours of spousal and nonspousal care were jointly modeled using bivariate Tobit models. In addition, asymmetry in the magnitude of responses to worsening and improvement of function was examined. ***Results*:** Disabled husbands receive more hours of spousal and nonspousal care following worsening in ADL function than wives. Conversely, disabled wives lose more spousal and nonspousal care hours following improvements in ADL disability than husbands. Moreover, wives recovering in ADL function lose more hours of spousal care than they receive following worsening in personal care disability. There is no evidence of corresponding gender differences in the dynamics of assistance received following changes in IADL function. ***Implications: Compared with husbands, disabled wives are disadvantaged in the adjustment of their personal care hours. Although disabled married community residents receive more hours of care than their unmarried counterparts, there are important gender differences in the advantages offered by marriage.

Key Words: Spouses, Care receipt, Longitudinal, Disability, Gender

Close to 40% of all older disabled adults living in the community are married (Wolff & Kasper, 2006). Consistent evidence indicates that married disabled elderly receive more care than unmarried elderly, owing to their greater availability of resources (Boaz & Hu, 1997; Freedman, Aykan, Wolf, & Marcotte, 2004; Spillman & Pezzin, 2000; Spitze & Ward, 2000). Specifically, spouses are more likely to act as primary caregivers (Lima, Allen, Goldscheider, & Intrator, 2008; Spillman & Pezzin), provide more hours of care (Wolff & Kasper), help with a broader range of disabilities (Stoller & Miklowski, 2008), and are less likely to relinquish their caregiving role (Seltzer & Li, 2000) than other helpers. Although spouses receive less assistance with their caregiving tasks (Wolff & Kasper), prior research also suggests that spouses may mobilize additional help, particularly from adult children (Boaz & Hu).

Although it is well established that the marital context offers care-receipt advantages, gender differences in these benefits have not been examined with equal scrutiny. Our current knowledge regarding differences between disabled community-dwelling husbands' and wives' receipt of care relies almost exclusively on a small number of cross-sectional studies (Allen, 1994; Boaz & Hu, 1997; Katz, Kabeto, & Langa, 2000). Such a perspective is limited because it ignores inherent changes over time in functionally impaired older adults' levels of disability (Freedman et al., 2004; Seltzer & Li, 2000; Szinovacz & Davey, 2007). Yet, prior research suggests that disability at old ages is a dynamic process rather than a state (Freedman et al.; Grundy & Glaser, 2000) and that patterns of care receipt consequently vary over time (Seltzer & Li; Szinovacz & Davey). Cross-sectional data provide insight into gender differences in married elderly's care receipt, but they cannot inform differences in *changes* in husbands' and wives' receipt of assistance.

In contrast to the paucity of research on gender variations in disabled spouses' receipt of care, there exists a large body of studies examining gender differences in the care provided by husbands and wives to a disabled partner (Allen, 1994; Burton, Zdaniuk, Schulz, Jackson, & Hirsch, 2003; Lima et al., 2008; Navaie-Waliser, Spriggs, & Feldman, 2002; Neal, Ingersoll-Dayton, & Starrels, 1997; Spitze & Ward, 2000; Stoller & Cutler, 1992; Stoller & Miklowski, 2008). Although spouses typically act as primary caregivers, some spouses provide little to no assistance and a substantial minority of disabled husbands and wives rely either partly or exclusively on help from nonspousal informal (usually unpaid) and formal (usually paid) caretakers (Allen, Goldscheider, & Ciambrone, 1999; Feld, Dunkle, & Schroepfer, 2005; Feld, Dunkle, Schroepfer, & Shen, 2006; Lima et al.; Wolff & Kasper, 2006). Thus, because it ignores assistance from a variety of nonspousal caregivers, the current focus on gender differences in spouses' provision of care offers only a partial view of gender variations in the overall amount of care received by disabled husbands and wives.

By adopting a dynamic perspective and by examining care received from both a spouse and nonspousal caretakers, this study extends prior research on gender differences in disabled married elderly's care receipt. Based on nationally representative panel data from the Health and Retirement Study (HRS), I examined longitudinal changes in disabled husbands' and wives' volume of received care following worsening and recovery of function. Recognizing that differences in the adjustment of care hours may vary according to the domain of physical functioning, I distinguish between changes in difficulty performing relatively more basic personal care tasks (activities of daily living [ADLs]) and routine daily tasks (instrumental activities of daily living [IADLs]).

Conceptual Background

Two related theoretical frameworks inform gender differences in husbands' and wives' receipt of care: gender role socialization and the gendered division of domestic labor (Lee, Dwyer, & Coward, 1993). The latter proposes that informal caregiving to kin may be explored with models available to examine other forms of unpaid family labor, such as housekeeping and childcare (Finley, 1989). Among these, the specialization-of-tasks hypothesis indicates that husbands and wives specialize in different tasks that maximize the well-being of the family as a whole (Finley). Because males typically earn higher wages on the labor market, they specialize in working outside the home. Wives typically bear a greater responsibility for family and routine care within the household (Spitze & Ward, 2000; Stoller & Cutler, 1992), thus rendering husbands more likely to receive spousal care than wives. Spousal caregiving has been described as a natural continuation of prior exchanges of support (Seltzer & Li, 2000), shaped by existing expectations relating to gender roles within the marital context (Spitze & Ward; Stoller & Cutler). Therefore, personal caregiving to a spouse often requires that husbands assume new tasks for which they are typically less skilled than wives (Allen, 1994; Stoller & Miklowski, 2008; Walker, Pratt, & Eddy, 1995).

The second model posits that gendered roles and attitudes learned during the socialization process influence men's and women's involvement in caregiving for frail relatives. The socialization hypothesis argues that nurturance is a more central component of women's self-concepts (Walker, 1992) and implies that wives have greater feelings of obligation to care for a disabled spouse. Consistent with this view, there is some evidence that while wives emphasize the obligation to care for their spouse, husbands view their caring role as a choice rather than an obligation (Chappell & Kuehne, 1998; Stoller & Miklowski, 2008). Because sentiments of obligation are important antecedents to caregiving (Stoller & Miklowski), wives are more likely to care for a frail husband and consequently, husbands are advantaged in their receipt of spousal care.

In addition to shaping care provision to a spouse, these theoretical frameworks have implications for gender differences in nonspousal care receipt. From a static perspective, they suggest that disabled wives are less likely to rely on spousal care and more likely to receive assistance from outside the marital dyad than disabled husbands (Allen, 1994; Katz et al., 2000; Spitze & Ward, 2000; Stoller & Cutler, 1992). However, by contributing to the perception that caregiving is a natural role for wives, women's socialization into the caregiving role and the gendered division of labor are also likely to constrain the adjustment of nonspousal care hours received by married women faced with changes in disability relative to their male counterparts (Stoller & Miklowski, 2008). In sum, these theoretical traditions suggest that overall, husbands are advantaged in their hours of received spousal and nonspousal care following changes in disability over time.

Prior Evidence on Gender Differences in Spouses' Receipt of Care

Prior cross-sectional studies show that married men benefit from more spousal care than their female counterparts (Katz et al., 2000; Spitze & Ward, 2000). Women are more likely than men to serve as primary caregivers to their spouse (Allen et al., 1999; Lima et al., 2008) and wives continue providing care to a husband longer (Seltzer & Li, 2000) and at greater levels of functional disability than husbands (Stoller & Cutler, 1992). Relative to women, men are more likely to expect assistance from a spouse when it is needed (Spitze & Ward).

Recent evidence indicates that disabled husbands are over three times more likely to rely solely on their wives for ADL assistance (Feld et al., 2005) and that disabled wives are 57% less likely to rely exclusively on their spouse for IADL care (Feld et al., 2006). In particular, disabled wives have been found to be much more strongly reliant on assistance from adult children and other relatives than disabled husbands (Katz et al., 2000).

Prior studies have emphasized variations in the likelihood of marital partners' care receipt rather than differences in the *amount* of care received. In one of the few studies to focus on the volume of assistance that married disabled elderly receive from a spouse, Allen (1994) reports that wives offered approximately twice as many hours of help as their husbands to a spouse suffering from cancer. However, this finding cannot be generalized to married disabled elderly with less severe functional disabilities, and the study did not examine gender differences in the volume of care received from nonspousal helpers. Indeed, a review of published studies on elderly spouses' care receipt revealed only two nationally representative studies focusing on gender differences in the total amount of care received by community-dwelling married disabled elderly. Boaz and Hu (1997) addressed gender differences in the amount of care received by elderly spouses based on the 1989 National Long-Term Care Survey. They observed suggestive evidence that wives received about 2.5 fewer weekly hours of care in total than their husbands. However, their finding was not statistically significant and did not distinguish between care received from a spouse and from outside the marital dyad. The study by Katz and colleagues (2000) examined weekly hours of received formal and informal care in a sample of disabled husbands and wives aged 70 years and older. Disabled wives received significantly fewer hours of informal care than disabled husbands. Owing to adult children's greater provision of care to disabled wives than to disabled husbands, gender disparities in the amount of received informal care diminished with increasing levels of disability. Husbands and wives did not substantially differ in the amount of received in-home formal care.

The studies by Boaz and Hu (1997) and Katz et al. (2000) did not distinguish between personal care and routine care disabilities. Yet, prior research indicates important differences in elderly husbands' and wives' sources of assistance with ADLs and IADLs. Significantly greater proportions of couples experiencing difficulties with IADLs receive assistance from nonspousal caregivers (Stoller & Cutler, 1992). Furthermore, difficulty performing ADLs is indicative of greater levels of functional limitations than difficulty with IADLs and thus imposes a greater burden on caretakers (Burton et al., 2003).

There exists only indirect evidence on variations over time in marital partners' receipt of care. Focusing on 3-year changes in wives' roles as caregivers to a disabled spouse, Seltzer and Li (2000) report that approximately 12% of noncaregiving wives at baseline had entered into the caregiving role by the end of the observation period. Burton and colleagues (2003) find that 15% of all noncaregiving spouses had transitioned into a caregiving role and about 20% of spousal caregivers had relinquished caregiving within 5 years. There were no gender differences in married partners' likelihood of initiating or terminating caregiving to their spouse.

This study contributes to the literature on changes over time in disabled spouses' receipt of care by examining three interrelated questions: (a) Do disabled husbands and wives differ in the increased amount of care they receive following worsening disability? (b) Do disabled husbands and wives differ in the amount of care reduction associated with improvements in disability? and (c) Are care-hours responses to disability declines and improvements symmetric for husbands and for wives? That is, are responses to worsening disability of comparable magnitude as responses to improving disability for husbands and wives?

Methods

Data Source and Study Design

The data come from the HRS, an ongoing biennial panel study that began in 1992 (Juster & Suzman, 1995). The HRS is designed to examine the health and retirement decisions of older Americans (and of their spouses, regardless of age) and to investigate older adults' and their families' responses to health declines that occur in mid-to-late life. Although respondents were originally from the 1931–1941 birth cohorts, members of additional birth cohorts were added in 1998, thereby creating a nationally representative sample of noninstitutionalized respondents and their spouses born in 1947 or before. Based on changes made to the HRS data collection instruments throughout successive rounds of interviewing, the analysis used longitudinal data from Waves 5 and 6 (2000 and 2002). Specifically, the HRS started asking about the amount of care received by disabled elderly in 1998. However, not until 2000 did the survey collect information on hours of care provided by both spousal and nonspousal caregivers.

Of the 11,060 married individuals followed by the HRS between 2000 and 2002, 1,706 respondents reported difficulty performing at least one ADL (walking, dressing, eating, bathing, toileting, and transferring in and out of bed) or IADL (managing money, preparing meals, getting groceries, using the telephone, and taking medications) at the initial interview (2000). The questions on functional disability were formulated to limit any inherent gender bias in the performance of IADLs (Walker et al., 1995). Although disabled elderly may suffer from a variety of impairments resulting in a wide array of needs for support, ADLs and IADLs are the single most commonly used summary measures of disability (Wunderlich, 2009) and have previously been used to assess changes in disability over time (Freedman et al., 2004). To maintain national representation of the data, age-ineligible respondents (N = 73) and respondents who were living in a nursing home in either wave (N = 66) were excluded from this analysis. Separate analyses by gender were based on the resulting samples of 778 wives and 789 husbands. The vast majority (75%) of the husbands and wives included in the sample were drawn from independent marital dyads. For 14.5% of the men and women in the sample who were unable or unwilling to respond to interviewers, information was provided by a proxy (usually a spouse). Because proxy and self-respondents did not generally differ on disability and changes in care volume, no explicit control for proxy status was introduced.

Dependent Variables

The study examined two main outcomes: (a) the interwave difference in the monthly amount of care received from a spouse and (b) the interwave difference in the monthly amount of care received from nonspousal helpers. In both waves, disabled respondents who obtained help with an ADL or an IADL could name multiple caregivers and reported their relationship to each helper. In addition, respondents provided the number of days in the month preceding the interview during which they had received help from each caregiver and the approximate number of daily hours of assistance. In a few cases, respondents reported the number of days of help received in the previous week. Weekly values were translated into monthly values by multiplying them by 4.33, the average number of weeks in a month. Similarly, when respondents reported receiving assistance every day of the month, they were considered to have received assistance 30.42 days, the average number of days in a month. Wave-specific monthly hours of help were calculated by multiplying the number of monthly days of help by the daily hours of received care.

Nonspousal hours of care include assistance provided by a variety of helpers, primarily adult children and their spouses (71.3% and 63.7% of nonspousal helpers in 2000 and 2002, respectively), and other relatives (11.7% and 15.3% of nonspousal helpers in 2000 and 2002, respectively). In addition, a small proportion of nonspousal helpers were employees of an organization who received payment in exchange for their assistance (5.1% and 8.8% of nonspousal helpers in 2000 and 2002, respectively).

Independent Variables

Disability Dynamics.—The primary variables of interest are measures of 2-year changes in respondents' ADL and IADL function. Comparing the total count of ADL (IADL) limitations in 2002 and 2000 allowed for identification of respondents who experienced (a) an increase in number of ADL (IADL) limitations, (b) a decrease in number of ADL (IADL) limitations, and (c) no change in number of ADL (IADL) limitations (reference). To insure that the results reflect solely the influence of changes in disability over time, the models include a measure of the number of ADL and IADL disabilities at baseline.

Other Care Recipient Characteristics.—The models include a number of variables (measured in 2000) reflecting the preferences, needs, and care availability of older disabled individuals and shown to be related to care hours in past studies. These covariates include age (Lima et al., 2008; Miner, 1995), race (Wallace, Levy-Storms, Kington, & Andersen, 1998), and education (Kemper, 1992). Wealth was classified as low (reference), medium, and high on the basis of the respondent's household net worth (total assets and home equity) thirdtile derived from the entire 2000 HRS sample (Freedman et al., 2004; Lima et al., 2008). In addition, several variables served as further measures of disability severity and comorbidity (Lima et al.). Following Walsh Wu, Mitchell, and Berkmann (2003), cognitive function was defined as low, moderate, and high (reference). For self-respondents, cognitive status was based on the Telephone Interview for Cognitive Status, a validated cognitive screening instrument designed specifically for population studies (Herzog & Wallace, 1997). When a direct interview could not be obtained, a proxy's assessments of the respondent's memory, judgment abilities, organizational skills, propensity to get lost in familiar places, and tendency to wander off were used (Langa et al., 2001). Four medical conditions were measured as respondents' reports of ever having been diagnosed with diabetes or high blood sugar, stroke, heart disease, and cancer. Prior research has shown that married disabled elderly rely heavily on care from their adult children (Boaz & Hu, 1997; Katz et al., 2000) and that the availability of children influences received hours of care (Wolf, Freedman, & Soldo, 1997). Furthermore, children's care provision varies by gender (Wolf et al.) and marital status (Gerstel & Sarkisian, 2007). Accordingly, the potential supply of children's care hours was represented by four dummy variables measuring the count of respondents' sons and daughters by marital status (married and unmarried).

Spousal Characteristics.—Because the HRS interviewed both married respondents and their spouses, it was possible to account for spousal characteristics that may influence a partner's ability to provide care. The models include measures of spouses' age, cognitive function, baseline disability, and change in disability. Consequently, the effect of changes in husbands' and wives' disability on the hours of care they receive is independent of changes in spousal disability.

Estimation

Longitudinal changes in the amount of care received from a spouse and from nonspousal caregivers are likely to be jointly determined and simultaneously influenced by unobserved factors, such as preferences and attitudes (Freedman et al., 2004). In addition, although the continuous outcome variables are unbounded at the *population* level, the *individual* level changes in monthly hours between 2000 ($t1$) and 2002 ($t2$)—denoted $\Delta Y_i^{t1,t2}$—are constrained. For respondents receiving no care in 2000 (i.e., $Y_i^{t1} = 0$), $\Delta Y_i^{t1,t2}$ must be 0 or greater. For respondents receiving some care in 2000 (i.e., $Y_i^{t1} > 0$), reductions in care hours are bound by Y_i^{t1} (i.e., $\Delta Y_i^{t1,t2} \geq -Y_i^{t1}$). Because, as I show in the Results section, a substantial proportion of the sample received no hours of care in 2002 (i.e., $Y_i^{t2} = 0$), these constraints manifest themselves in the data as heaping at $-Y_i^{t1}$. Following prior studies in the caregiving literature (Freedman et al.; Wolf et al., 1997), I address these issues by modeling the changes in the amount of spousal and nonspousal care using a bivariate Tobit with respondent-specific censoring at $-Y_i^{t1}$ (Amemiya, 1984; Greene, 2008). The bivariate stipulation allows for joint estimation of the outcomes and for nonzero correlation between residuals in each equation (ρ). The Tobit specification models an underlying latent outcome variable, $\Delta Y_i^{*t1,t2}$. The latent variable can be thought of as a respondent's propensity to experience a change in care hours, of which $\Delta Y_i^{t1,t2}$ is the realized observation, only if the propensity exceeds the censoring point $-Y_i^{t1}$ (Breen, 1996, p. 12). Values of $\Delta Y_i^{*t1,t2}$ equal to or smaller than $-Y_i^{t1}$ have an identical score on the realized variable of $-Y_i^{t1}$ Formally (for conciseness, the t1 and t2 superscript have been omitted on the change variables),

$$\Delta Y_i = \Delta Y_i^* \text{ if } \Delta Y_i^* > -Y_i^{t1} \tag{1}$$

$$\Delta Y_i = -Y_i^{t1} \text{if } \Delta Y_i^* \leq -Y_i^{t1}$$

The bivariate Tobit equations for individual *i*'s changes in hours of spousal (ΔY_i^{*S}), and nonspousal (ΔY_i^{*NS}) care are represented as follows:

$$\Delta Y_i^{*S} = \alpha_1 \mathrm{inc}_i + \beta_1 \mathrm{dec}_i + \delta_1 x_i + \varepsilon_{1i} \qquad (2)$$

$$\Delta Y_i^{*NS} = \alpha_2 \mathrm{inc}_i + \beta_2 \mathrm{dec}_i + \delta_2 x_i + \varepsilon_{2i}$$

where inc and dec represent increases and decreases in the number of ADL and IADL disabilities, respectively; x is a vector of control variables and ε_1 and ε_2 are independent and normally distributed respondent-specific errors with a zero mean and constant variance σ^2. In order to correct for overrepresentation of African Americans, Hispanics, and residents of Florida, all reported estimates were based on weighted data. The models were estimated using SAS/STAT 9.2.

Results

Descriptive Results

Table 1 shows respondents' own and spousal characteristics at baseline. The mean number of ADL disabilities was 1.3 for husbands and 1.6 for wives. The average number of IADL disabilities was 0.8 among husbands and 0.7 among wives. Respondents were 66 years on average and 86% Caucasian. Approximately 60% of the sample received a high school degree or more.

Two-year changes in husbands' and wives' number of disabilities between 2002 and 2000 are presented in Table 2. In order to account for severity of disability at baseline (Grundy & Glaser, 2000), results are reported separately for the mutually exclusive subsamples of respondents with no ADL and one IADL, respondents with no ADL and two or more IADLs, and respondents with one or more ADL(s).

Approximately one fifth of the sample did not experience any change in number of difficulties between survey waves. Interwave stability was most common among the relatively less disabled, reporting no ADL and a single IADL. Of the roughly 80% of respondents who had experienced longitudinal change in disability count, the vast majority reported an improvement in disability levels. The greatest improvements were observed among the least severely disabled husbands and among the most severely disabled wives. Worsening disability was most common among moderately disabled respondents (i.e., no ADL but two or more IADLs).

Figure 1 details the magnitude of husbands' and wives' disability changes. Overall, variations in the count of disabilities were of relatively small sizes, with the majority of respondents experiencing change either acquiring or losing one or two ADL or IADL disabilities.

Table 3 reports proportions receiving care and mean hours of care received in both survey years. These results show that more than half the disabled husbands and wives received no care in 2000 and in 2002. Even among relatively severely disabled respondents with at least one ADL, the proportions receiving neither spousal nor nonspousal care are notable. Indeed, a slightly larger proportion of respondents with at least one ADL received no

Table 1. Disabled Husbands' and Wives' Characteristics at Baseline, Health and Retirement Study 2000[a]

	Husbands	Wives
Own characteristics		
Number of ADLs	1.3 (0–6)	1.6 (0–6)
Number of IADLs	0.8 (0–5)	0.7 (0–5)
Cognitive function		
Low	27.6	28.5
Moderate	56.6	57.2
High	15.8	14.3
Diabetes	21.9	22.2
Stroke	14.6	13.1
Heart disease	33.8	27.6
Cancer	13.0	13.1
Age	66.2 (52–97)	65.5 (52–98)
White	86.4	85.9
Education		
Less than high school	40.1	35.4
High school	30.0	32.3
More than high school	29.9	32.3
Couple's net worth		
Low	33.1	35.5
Middle	31.8	34.6
High	35.1	29.9
Number of married sons	1.0 (0–7)	1.1 (0–6)
Number of married daughters	1.0 (0–9)	1.1 (0–9)
Number of unmarried sons	0.7 (0–5)	0.6 (0–5)
Number of unmarried daughters	0.7 (0–9)	0.6 (0–9)
Spousal characteristics		
Number of ADLs	0.4 (0–6)	0.4 (0–6)
Number of IADLs	0.2 (0–5)	0.2 (0–5)
Cognitive function		
Low	21.4	20.9
Moderate	62.1	58.1
High	16.5	21.0
Age	61.3 (23–95)	66.6 (45–94)
Sample size	789	778

Notes: ADL = activities of daily living; IADL = instrumental activities of daily living.

[a] Percentages are shown for dummy variables, means are shown for continuous variables, and ranges are in parenthesis.

Table 2. Two-Year Changes in Husbands' and Wives' Number of ADL and IADL Difficulties (%), Health and Retirement Study 2000–2002

	Husbands				Wives			
2000 Disability	No change	Increase	Decrease	Sample size	No change	Increase	Decrease	Sample size
0 ADL and 1 IADL	24.6	9.0	66.4	172	26.0	22.2	51.8	97
0 ADL and 2 or more IADLs	20.8	34.7	44.5	45	13.5	43.6	42.9	22
1 or more ADL(s)	21.5	20.8	57.7	572	18.0	24.3	57.7	659
All	22.2	18.8	59.0	789	18.8	24.6	56.6	778

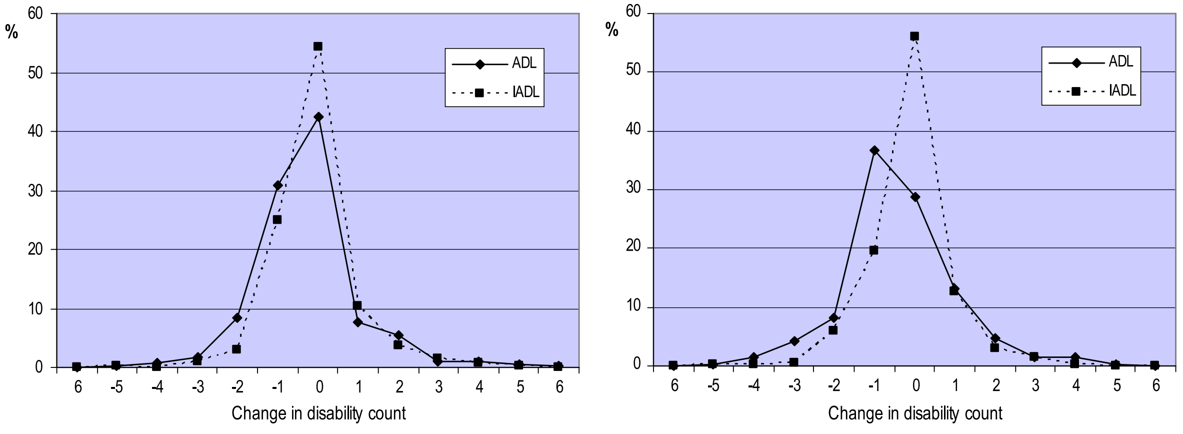
Notes: ADL = activities of daily living; IADL = instrumental activities of daily living.

care, suggesting that more severely disabled individuals may have greater difficulty in obtaining care. The table reflects spouses' preeminence as caregivers to the married disabled regardless of gender and disability levels. Care was overwhelmingly provided by a spouse alone, and roughly 7%–10% of respondents received care from both a spouse and nonspousal helpers. Receipt of nonspousal care appeared generally independent of disability severity. However, in agreement with prior cross-sectional studies (Feld et al., 2005, 2006; Katz et al., 2000; Spitze & Ward, 2000), wives reported the largest proportions receiving assistance from outside the marital dyad. Overall, respondents reporting moderate (zero ADLs and two or more IADLs) and high (at least one ADL) levels of disability received more hours of both spousal and nonspousal care than those reporting low levels of functional impairment (zero ADL and one IADL). Care volume provided by spouses alone and by nonspousal caregivers alone was generally of the same order of magnitude. The greatest volume of care was observed among respondents receiving assistance from both spousal and nonspousal caregivers.

Dynamics of Husbands' and Wives' Receipt of Spousal Care

Table 4 shows estimates of the effects of 2-year changes in ADL and IADL disabilities on changes in hours of received care, obtained from separate bivariate Tobit models for husbands and wives. Although Table 4 reports only the primary variables of interest, the models include all control variables (see Table 5 for other model coefficients). In most cases, care received from both types of providers increased with worsening levels of disability and decreased with improved disability.

There are important gender differences in the relationship between married disabled elderly's ADL disability dynamics and the amount of care received from a spouse. Husbands who worsened in ADL function receive 156 additional monthly hours of care from their wives ($p \leq .01$). In contrast, increases in disabled wives' number of ADL



Husbands

Wives

Figure 1. Changes in husbands and wives count of activity of daily living (ADL) and instrumental activity of daily living (IADL) disabilities, Health and Retirement Study 2000–2002.

Table 3. Proportions of Disabled Husbands and Wives Receiving Care and Mean Number of Hours Received, Health and Retirement Study 2000–2002

	Husbands				Wives			
	2000		2002		2000		2002	
	Proportion receiving	Mean number of hours (*SE*)	Proportion receiving	Mean number of hours (*SE*)	Proportion receiving	Mean number of hours (*SE*)	Proportion receiving	Mean number of hours (*SE*)
0 ADL and 1 IADL								
No care	50.0	—	34.4	—	47.3	—	34.7	—
Spousal care only	42.8	59.8 (130.5)	45.9	91.4 (189.5)	32.3	49.2 (89.5)	34.7	84.1 (190.7)
Nonspousal care only	5.4	27.9 (37.7)	8.2	18.0 (10.4)	12.9	33.3 (40.7)	22.4	36.5 (48.2)
Spousal and nonspousal care	1.8	138.5 (122.4)	11.5	166.4 (269.1)	7.5	190.2 (288.3)	8.2	116.0 (74.3)
0 ADL and 2 or more IADLs								
No care	17.9	—	7.4	—	28.6	—	10.0	—
Spousal care only	64.1	115.7 (156.5)	74.1	263.1 (286.9)	47.6	130.1 (125.8)	50.0	82.1 (125.1)
Nonspousal care only	5.1	48.0 (66.5)	11.1	142.7 (132.2)	9.5	149.0 (134.3)	20.0	20.6 (15.1)
Spousal and nonspousal care	12.8	138.3 (143.1)	7.4	71.0 (9.9)	14.3	502.5 (433.1)	20.0	31.5 (0.7)
1 or more ADL(s)								
No care	56.5	—	37.3	—	52.6	—	35.2	—
Spousal care only	33.1	97.9 (174.3)	40.2	146.4 (203.4)	29.2	122.2 (204.2)	33.3	132.5 (202.6)
Nonspousal care only	2.7	96.3 (118.1)	4.3	210.5 (271.9)	5.1	125.7 (203.0)	12.6	144.2 (211.5)
Spousal and nonspousal care	7.7	375.2 (329.3)	18.2	316.2 (266.4)	13.1	230.9 (298.1)	18.9	237.6 (251.8)
All								
No care	53.1	—	62.3	—	51.3	—	58.1	—
Spousal care only	36.8	89.8 (163.2)	25.0	150.0 (212.8)	30.1	112.8 (191.0)	21.6	128.2 (203.2)
Nonspousal care only	3.4	68.9 (97.7)	3.2	159.0 (224.6)	6.2	102.6 (175.9)	8.8	120.4 (194.0)
Spousal and nonspousal care	6.7	338.1 (317.7)	9.5	267.4 (267.4)	12.4	236.6 (302.0)	11.5	224.1 (244.1)

Notes: ADL = activities of daily living; IADL = instrumental activities of daily living.

Table 4. Bivariate Tobit Estimates of the Effects of ADL and IADL Disability Changes on Changes in the Monthly Hours of Care Received by Husbands and Wives, Health and Retirement Study 2000–2002[a]

	Husbands				Wives			
	Change in spousal hours		Change in nonspousal hours		Change in spousal hours		Change in nonspousal hours	
Outcome variable	Coefficient (*SE*)	χ^2 for test of symmetry[b]	Coefficient (*SE*)	χ^2 for test of symmetry[b]	Coefficient (*SE*)	χ^2 for test of symmetry[b]	Coefficient (*SE*)	χ^2 for test of symmetry[b]
Change in ADL (ref. no change)								
Increase in ADL	156.1** (32.7)	2.36	105.2** (32.4)	1.48	−1.2 (33.9)	8.55**	30.3 (27.8)	1.04
Decrease in ADL	−77.7** (30.9)		−43.4 (31.5)		−164.8** (34.4)		−78.8** (29.2)	
Change in IADL (ref. no change)								
Increase in IADL	179.4** (31.7)	0.34	94.2** (30.7)	0.16	106.6** (33.7)	0.25	83.9** (27.6)	0.59
Decrease in IADL	−149.1** (34.8)		−73.4* (36.3)		−79.3* (37.1)		−48.4 (31.8)	

Notes: ADL = activities of daily living; IADL = instrumental activities of daily living.

[a] The bivariate Tobit models were estimated separately for husbands and wives and include all control variables (see Table 5 for other variable coefficients); changes in disability and in care hours were measured between 2000 and 2002.

[b] Wald tests for H_0: $\alpha = -\beta$, where α is the coefficient associated with an increase in ADL or IADL disability and β is the coefficient associated with a decrease in ADL or IADL disability; chi-square statistics are reported (1 *df*). $^{\dagger}p \leq .10$. $^{*}p \leq .05$. $^{**}p \leq .01$ (two tailed).

disabilities are not met with any additional hours of care from their husbands. Received care hours' adjustments to improvements in ADL function exhibit the opposite gender pattern. That is, declines in spousal hours of care associated with improved ADL disabilities are more than twice as large among wives than among husbands.

There are no corresponding gender differences in the relationship between changes in IADL disability and spousal care dynamics. Overall, husbands receive more spousal care hours following an increase in IADL disability than wives. Similarly, husbands lose more hours of care from their partner following improvements in IADL disability than wives lose from their spouse.

Longitudinal Changes in Husbands' and Wives' Receipt of Nonspousal Care

Disabled husbands who experience worsening in ADL function receive 105 additional monthly hours of care from nonspousal helpers ($p \leq .01$). In contrast, the estimates in Table 4 show that married women do not receive additional care hours from nonspousal helpers following worsening ADL disability. An examination of reductions in hours of nonspousal care associated with improvements in ADL disability reveals that wives experienced a loss of 79 hr ($p \leq .01$), whereas their male counterparts maintain their hours of nonspousal care. In sum, results pertaining to gender variation in the dynamics of nonspousal care associated with changes in ADL disabilities mirror the findings for spousal care hours; although husbands benefit from increased hours of care following worsening ADL disability, wives experience greater loss of care hours following improvement in ADL function.

Worsening in IADL function results in comparable increases in received nonspousal care hours among husbands and wives (+94, $p \leq .01$ and +84, $p \leq .01$, respectively). In contrast, improving IADL disability is associated with a decrease in nonspousal hours of care among husbands (−73, $p \leq .01$) but not among wives.

Among both husbands and wives, a greater number of disabilities at baseline are generally associated with increased spousal and nonspousal care hours over time (Table 5). However, there is no effect of baseline cognitive function and health conditions on the dynamics of care hours. Neither is the availability of care from adult children associated with changes in the monthly hours of care. Spousal characteristics are generally more relevant

Table 5. Bivariate Tobit Models Predicting Changes in the Monthly Hours of Care Received by Disabled Husbands and Wives, Health and Retirement Study 2000–2002

	Husbands		Wives	
	Change in spousal hours	Change in nonspousal hours	Change in spousal hours	Change in nonspousal hours
Outcome variable	Coefficient (*SE*)	Coefficient (*SE*)	Coefficient (*SE*)	Coefficient (*SE*)
Own characteristics				
Change in ADL (ref. no change)				
Increase in ADL	156.1** (32.7)	105.2** (32.4)	−1.2 (33.9)	30.3 (27.8)
Decrease in ADL	−77.7** (30.9)	−43.4 (31.5)	−164.8** (34.4)	−78.8** (29.2)
Change in IADL (ref. no change)				
Increase in IADL	179.4** (31.7)	94.2** (30.7)	106.6** (33.7)	83.9** (27.6)
Decrease in IADL	−149.1** (34.8)	−73.4* (36.3)	−79.3* (37.1)	−48.4 (31.8)
Baseline disability				
Number of ADLs	20.5** (8.4)	7.2 (7.5)	18.6† (9.9)	20.2** (8.0)
Number of IADLs	67.3** (13.0)	44.1** (12.3)	48.9** (15.8)	29.9* (12.7)
Cognitive function (ref. high)				
Low	−19.4 (40.8)	−11.0 (40.5)	−0.3 (48.0)	23.7 (41.2)
Moderate	−24.8 (35.2)	−19.7 (35.1)	−40.6 (39.4)	−13.2 (34.9)
Health conditions				
Diabetes	24.5 (28.7)	−41.6 (30.6)	17.2 (32.7)	−3.8 (27.2)
Stroke	−12.4 (32.4)	13.7 (30.4)	53.3 (39.2)	8.0 (32.6)
Heart disease	26.2 (26.5)	1.9 (27.3)	23.6 (30.0)	24.8 (24.4)
Cancer	34.4 (36.2)	8.0 (37.5)	9.4 (36.7)	26.3 (31.6)
Age	1.5 (2.6)	4.0 (2.5)	10.1** (2.4)	1.9 (2.0)
White (ref. non-White)	12.4 (43.3)	54.8 (42.1)	6.3 (41.8)	7.7 (32.6)
Education (ref. less than high school)				
High school	−3.3 (32.1)	24.4 (32.6)	49.1 (34.1)	5.7 (28.7)
More than high school	−20.9 (34.2)	−34.2 (38.0)	35.8 (36.8)	−33.1 (32.2)
Wealth (ref. low)				
Middle	−57.2† (32.4)	−86.0** (33.2)	8.2 (33.3)	−7.3 (28.3)
High	−48.5 (35.6)	−34.9 (35.0)	−71.9† (38.3)	−34.9 (33.0)
Child availability				
Number of married sons	5.2 (11.4)	−2.1 (11.2)	−3.3 (11.7)	−9.9 (9.9)
Number of married daughters	−1.5 (10.9)	2.2 (11.1)	−23.5† (13.0)	2.0 (10.3)
Number of unmarried sons	−4.8 (14.6)	16.4 (13.5)	−2.4 (16.5)	−2.4 (13.3)
Number of unmarried daughters	−11.5 (13.9)	10.4 (12.9)	−14.1 (17.2)	18.0 (13.2)
Spousal characteristics				
Disability changes				
Increase in ADL	−68.0 (65.5)	122.5** (48.3)	−16.9 (73.1)	13.3 (50.1)
Decrease in ADL	35.4 (55.3)	44.9 (45.4)	20.0 (53.3)	−9.4 (40.1)
Increase in IADL	−39.2 (74.1)	−55.0 (56.3)	52.9 (73.5)	92.8† (50.1)
Decrease in IADL	−67.0 (70.8)	−179.8** (64.5)	44.0 (66.0)	82.2† (46.6)
Baseline disability				
Number of ADLs	−44.4* (18.7)	9.4 (13.3)	−8.1 (18.8)	22.4† (12.9)
Number of IADLs	20.0 (25.7)	44.3** (18.3)	−29.5 (33.0)	−20.4 (20.6)
Cognitive function (ref. high)				
Low	53.2 (45.3)	1.4 (43.6)	−27.0 (43.6)	5.1 (34.3)
Moderate	63.1† (36.2)	−11.6 (36.1)	−0.9 (34.3)	−53.7† (29.3)
Age	3.1 (2.4)	−2.2 (2.2)	−7.3** (2.4)	1.0 (2.0)
Intercept	−569.6** (133.5)	−466.1** (132.9)	−363.1** (138.9)	−440.3** (117.2)
σ^2	232.4** (11.1)	154.1** (12.9)	253.7** (12.1)	175.0** (11.5)
ρ	0.1 (0.1)		0.2** (0.1)	
Log likelihood	−2262		−2675	

Notes: Changes in disability are measured between 2000 and 2002. All other variables are measured in 2000. ADL = activities of daily living; IADL = instrumental activities of daily living.

$^{\dagger}p \le .10$. *$p \le .05$. **$p \le .01$ (two tailed).

to husbands' than to wives' longitudinal changes in care hours. For instance, husbands' nonspousal care hours increased when their wives' ADL disability level worsened and decreased when their wives' IADL disability level improved. Similarly, more severe baseline ADL disability is associated with reductions in husbands' spousal care hours and more severe baseline IADL disabilities are associated with increases in husbands' nonspousal care hours.

Are Changes in Spousal and Nonspousal Hours of Care Symmetric?

In addition to model coefficients, Table 4 presents Wald tests comparing the magnitude of reductions in care hours following disability improvements with that of increases in care hours following disability declines for all combinations of caregiver and disability types (Freedman et al., 2004). Symmetry exists if the coefficients for *dec* are equal to the negative of the coefficients for *inc* in Equation (2) above. Thus, the Wald tests (performed using the covariance matrix of regression coefficients) examined the following null hypotheses: H_0: $\alpha_1 = -\beta_1$ and H_0: $\alpha_2 = -\beta_2$. Large chi-square test statistics reject the null hypotheses, indicating asymmetric changes in care hours.

Husbands' and wives' changes in hours of care received from nonspousal caretakers following changes in both ADL and IADL disabilities are symmetric. Similarly, the null hypothesis of symmetry for changes in the hours of spousal care associated with changes in IADL disability could not be rejected for either husbands or wives. In contrast, I find strong evidence of asymmetry in the amount of spousal care received by disabled wives following changes in ADL function. Although wives' improvements in ADL disability are associated with substantial reductions in hours of care from their husbands, worsening ADL function is not followed by correspondingly large increases in spousal hours of care ($\chi^2 = 8.55$, 1 *df*, $p \leq .01$). Although the relative magnitudes of the coefficients for the effects of husbands' changes in ADL disability on the hours of received spousal care suggest asymmetry in the opposite direction, the null hypothesis of symmetry could not be rejected ($\chi^2 = 2.36$, 1 *df*).

Discussion

The advantages of marriage for disabled community residents' receipt of care are well established. This study's goal was to investigate gender differences in these benefits. Expanding on current research, which relies exclusively on cross-sectional evidence, I adopted a dynamic perspective to examine adjustments in husbands' and wives' monthly hours of spousal and nonspousal care, following both worsening and improvement in ADL and IADL function. The results generally suggest that the benefits of the marital context in terms of care receipt are greater for husbands than they are for wives (Boaz & Hu, 1997; Katz et al., 2000; Spitze & Ward, 2000). These findings are consistent with predictions based on theories of gender role socialization and the gendered division of domestic labor. I report new evidence that gender differences in the dynamics of care receipt are largely confined to changes in the amount of assistance received for personal care tasks. In addition, relative to married men, married women are at a disadvantage in the receipt of personal care assistance when experiencing both worsening and improving ADL function. When faced with worsening ADL disabilities, disabled husbands receive increased hours of care from both a spouse and nonspousal helpers, whereas wives do not receive greater amounts of care from either spousal or nonspousal caretakers. Because the measure of worsening ADL function used in this study disproportionally encompasses declines in disability of small magnitudes, these results suggest that married women may need to experience relatively large declines in their ability to perform ADL tasks before they benefit from additional assistance. Conversely, wives lose more hours of care following improvements in ADL disability than their husbands. Furthermore, among wives, there is strong evidence of asymmetry in changes in the hours of spousal care associated with increases and decreases in ADL disabilities.

Although prior cross-sectional studies indicate that disabled wives rely more heavily on assistance from nonspousal helpers than disabled husbands (Allen, 1994; Katz et al., 2000), this study shows that disabled wives are disadvantaged in the *adjustment* of nonspousal care hours following changes in ADL function. This finding is consistent with prior suggestions that nonspousal helpers such as adult children perceive married women primarily as providers of personal assistance and are thus less likely to offer their support when it is needed (Stoller & Miklowski, 2008). It is also possible that wives' own understanding of their role as personal caregivers makes them less inclined to request additional personal assistance from nonspousal helpers or to insure that caregiving arrangements remain in place until they are no longer required (Stoller & Cutler, 1992).

In general, this study does not support similar gender differences with regard to adjustments of spousal care hours following IADL changes. Pinquart and Sörensen (2006) report a parallel finding in a recent review of gender differences in caregiving. Although their analysis was not restricted to married caregivers, they found gender differences in the number of personal care tasks performed by men and women but not in the number of household, financial help, transportation, and home maintenance tasks. These results likely reflect differences in the overall gendered nature of caregiving tasks associated with ADL and IADL disabilities. By and large, care associated with routine disability may require that husbands acquire fewer new skills than that associated with personal disabilities. Similarly, I found no gender differences with regard to changes in nonspousal care hours following worsening in IADL function. The only exception to the pattern of gender similarity in the adjustment of care hours following changes in IADL was found for changes in nonspousal hours of care following improvements in IADL. In that case, husbands lose nonspousal care, whereas wives retain their nonspousal assistance. Such a finding suggests that it may be worthwhile to further explore the circumstances under which caregiving kin continue to provide assistance to a disabled relative despite improvements in function.

Notwithstanding its strengths, the present study is limited in several important respects. First, because of the focus on receipt of care from inside and outside the marital dyad, the analysis does not specifically address married disabled elderly's use of formal in-home care over time. Moreover, the measures of disability changes are limited because they do not capture variations in the degree to which disabled individuals were able to perform a given activity. Third, although the models controlled for baseline disability, they did not distinguish between individuals experiencing changes in disability at high levels of impairment to those experiencing disability dynamics at low levels of impairment. Spouses may be less reluctant to assist a moderately disabled partner with additional needs than they are to respond to requirements for additional hours of care to a severely disabled partner (Allen, 1994). Fourth, although the measures of longitudinal changes in disability captured both increases and decreases in function, due to small sample sizes, it was not possible to examine gender differences in the effects of changes of varying magnitudes. Finally, although changes in disabilities often occur rapidly (de Leon, Guralnik, & Bandeen-Roche, 2002), this study was constrained by the 2-year interval used by the HRS. More research is needed to confirm this study's findings using smaller time intervals.

This study suggests several additional avenues for future research. Although I was able to account for characteristics of both a disabled spouse and their partner, future research is warranted to determine whether characteristics of the marriage itself (e.g., marital quality, emotional closeness) are associated with varying patterns of gender differentials in care adjustments (Allen et al., 1999; Spitze & Ward, 2000). In addition, it is conceivable that gender differences in the dynamics of care receipt are affected by the length of husbands' and wives' history of disability because husbands' caregiving role incongruence (Allen, 1994) and reported task-related burden (Mui, 1995) are greatest during the initial stages of functional impairment when partners have had little time to become accustomed to the care needs of a disabled spouse.

Although the findings of this study do not directly address the issue of adequacy of levels of care received, they suggests that disabled wives may be at a greater risk of unmet need for assistance with personal care tasks and thus more vulnerable to its adverse consequences (Desai, Lentzner, & Weeks, 2001) than disabled husbands.

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