I Feel Your Pain: The Moderating Effect of Care Recipient Health on the Relationship between Work Hours and Care Recipient and Caregiver Psychological Outcomes

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Public policy based on a pro-work philosophy has encouraged the employment of people with disabilities. Using a national sample of 170 care recipient–caregiver cohabiting dyads, we investigated a model linking the care recipient’s weekly work hours (0–45) to the psychological outcomes experienced by the care recipient and his or her caregiver. For care recipients in poor health, longer work hours were associated with a lower sense of accomplishment. Further, the negative psychological outcomes experienced by the care recipient were associated with greater caregiver stress. These results suggest that public policy concerning the employment of people with disabilities should be evaluated within the context of the caregiving relationship. Efforts to engage people with disabilities in employment should be accompanied by strategies to remove workplace stressors that negatively impact care recipients in poor health.

Many social policies are based on an underlying philosophy that employment is fundamentally good for people. Welfare-to-work programs that encourage

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people to transition from state-based subsidies to paid employment are expected to reduce the strain on governmental resources while simultaneously enhancing the participant’s competence, self-sufficiency, self-esteem, and self-confidence (Cancian, 2001). The belief that “work is good” is regularly reaffirmed by politicians and policymakers. For example, the United States government has publicly emphasized that “employment is a key to independence, empowerment, and improved quality of life” (New Freedom Initiative Progress Report, 2002).

Unfortunately, people with disabilities have lower workforce participation rates than people without disabilities, and are more likely to be underemployed relative to their skills and qualifications (Australian Bureau of Statistics [ABS], 2011; International Labor Organisation, 2009). Governments, therefore, have initiated large scale reforms designed to facilitate the entry of people with a disability into work (OECD, 2010; 2011). In Australia, for example, the current government’s National Disability Strategy (2010) aims to promote the workforce participation of people with disabilities in order to create a more inclusive society and reduce dependence on welfare. Employing people with disabilities has been described as the “cornerstone” of contemporary disability policy (Smits, 2004: 647), and legislative efforts are supported by a variety of government-sponsored programs designed to encourage people with disabilities to enter the workforce, and to encourage employers to hire them.

Our study seeks to inform both policymakers and interest groups about the impact of number of work hours (zero hours to fulltime working hours) on care recipients—and their caregivers—with a particular focus on care recipients in poor health. In Australia, 2.5 million people (21% of the population) provide informal, unpaid care for a family member (or other dependent) with a disability (Carers Australia, 2011). Caregivers help people with disabilities to cope by assisting with basic physical and household needs (e.g., medication, personal hygiene, meal preparation, physical transport, financial management). However, research has not addressed the complex nature of these caring relationships (Lloyd, 2000). Further, previous research has been restricted to employees and does not permit a comparison of individuals across the full range of work hours (ranging from zero work hours through part-time employment to full-time employment). In fact, 40% of people with disabilities do not work, and those who do work are likely to be part-timers (OECD, 2010).

Work Is Good (for Some People)

Work creates opportunities to socialize, provides a sense of purpose, and encourages activity (Jahoda, 1982; Lysaght, Cobigo, & Hamilton, 2012). It offers several distinct personal benefits, such as opportunity for skill use, access to
money, and interpersonal contact (Warr, 1987). Psychological benefits accrue as a person moves from the home into work, increasing as more time is spent in the workplace. Evidence suggests that, providing work hours are not excessive (i.e., fewer than 60 hours per week), individuals benefit from longer hours of work (Sparks & Cooper, 1997). Nonexcessive work hours are associated with work centrality, promotion and career progression (Ng & Feldman, 2008) and, for part-time workers, participation in extra-organization activities with colleagues (Feldman, 1990).

Working in paid employment is generally expected to deliver these individual-level benefits to people with disabilities, including boosts to self-esteem and self-confidence (Cancian, 2001). Much research has been conducted into the work experience of people with disabilities (e.g., Chapin & Holbert, 2010; Dag & Kullberg, 2010; Goggin & Newell, 2005; Jahoda, Kemp, Riddel, & Banks, 2008; Ren, Paetzold, & Colella, 2008; Seltzer et al., 2009b) and, in general, findings demonstrate working increases a disabled care recipient’s quality of life and wellbeing. Participation in work by people with disabilities, therefore, should also ease the burden of caregivers.

However, questions have been raised as to whether pro-work policies are achieving their anticipated benefits in relation to all groups of people with disabilities. A 20-year review of empirical studies found evidence of care recipients who experienced a low sense of accomplishment as a result of their involvement in work (Jahoda et al., 2008). Work may be a particularly problematic experience for a person in poor health. Poor health limits the quality or amount of work that individuals are able to perform in a given time period (Eisner, Yellin, Trupin, & Blanc, 2002), and negatively affects interactions with coworkers (Smith et al., 2002). Those who perform poorly may feel a sense of failure as measured against objective standards, feedback from authority figures, social comparison and internalized standards (Bear, Minke, Griffin, & Deemer, 1998; Smith, Webber, Graffam, & Wilson, 2004). If the environment generates a sense of lack of accomplishment in the worker, the consequences of spending more time at work may be negative rather than positive (Alaszewski, Alaszewski, Potter, & Penhale, 2007). In tandem, therefore, high work hours and poor health are likely to generate negative, rather than positive, consequences for people with disabilities.

Figure 1 illustrates the proposed impact of the care recipient’s number of work hours on the care recipient’s and caregiver’s psychological outcomes. The model suggests that the psychological impact of a care recipient’s number of work hours is first experienced by the care recipient. More hours of work reduce a care recipient’s sense of accomplishment for care recipients in poor health. This negative experience then crosses over to the caregiver. More hours of work performed by a care recipient increase a caregiver’s stress when the care recipient is in poor health.
Spillover: The Impact of Hours of Work on the Care Recipient’s Sense of Accomplishment

Negative work experiences have been demonstrated to negatively affect an individual’s self-efficacy (Gecas, 1989)—a person’s belief that he or she has the capability to act on situational demands (Wood & Bandura, 1989). While self-efficacy may be task-specific, a generalized sense of self-efficacy emerges through accumulated experience (Eden & Kinnar, 1991; Gardner & Pierce, 1998) and encompasses an individual’s judgment of his or her overall capability to deal successfully with life’s challenges (Boyar & Mosley, 2007; Judge, Locke, & Durham, 1997). Given the significant role that work plays in the lives of many people, success on the job is likely to be a major contributor to generalized self-efficacy (Axtell & Parker, 2003; Parker, 1998; Parker & Sprigg, 1999).

We anticipate that a care recipient’s employment will have a negative effect on self-efficacy, because people with disabilities are likely to be placed in jobs with few psychological benefits (Perry, Hendricks, & Broadbent, 2000), narrow responsibilities (Wells, 2001), limited opportunity for growth or achievement (Capella, 2003), and unsupportive work environments (Robert, 2003). Further, after controlling for job and demographic characteristics, people with disabilities earn about 8 percent less than their nondisabled peers and experience greater job insecurity (Schur, Kruse, Blasi, & Blanck, 2009). As a result, the jobs occupied by people with disabilities are neither economically nor psychologically rewarding (Schur et al., 2009). These work characteristics operate as job stressors, and their negative effects intensify as an employee spends more hours immersed in the work role (Steinmetz, Frese, & Schmidt, 2008).

Work may be a particularly problematic experience for people with disabilities who are in poor health. People may experience pain, fatigue, depression, or anxiety as secondary conditions that stem from a primary disability, and these conditions limit the type or amount of work they are able to perform (Eisner et al., 2002), and negatively affect interactions with coworkers (Smith et al., 2002). For disabled individuals with poor health, the stress resulting from these secondary conditions
is likely to aggravate the stressors they already confront in employment (Iwasaki & Mactavish, 2005).

Moreover, low self-esteem experienced in the workplace may spill over into the everyday life of a person with a disability, affecting his or her general levels of self-confidence (Demerouti, Bakker, & Schaufeli, 2005). Experiences in the work domain can be transferred to and interfere with nonwork domains (Demerouti et al., 2005). In particular, negative work experiences deplete a person’s psychological resources, making it more difficult for the person to cope with challenges both at work and outside of work (Westman, Keinan, Roziner, & Benyamini, 2008). Therefore, the negative work experiences of people who are in poor health are likely to contribute to a generalized level of sense of accomplishment.

_Hypothesis 1_: Longer hours of work per week by a care recipient in poor health will be associated with a lower sense of accomplishment.

**Crossover: The Impact of Hours of Work on the Caregiver’s Stress**

Crossover effects result when the psychological strain experienced by one person affects the level of stress of another person in the same social environment (Westman & Etzion, 1999; Westman, 2001; Haines, Marchand, & Harvey, 2006). Crossover effects may result from several underlying mechanisms (Westman, 2001; Westman, Etzion, & Danon, 2001), including the direct transmission of strain from one person to the other. According to this explanation, the strain of one partner produces distress in the other partner as an empathic reaction (“I feel your pain”). In spousal relationships, for example, men lean heavily (even exclusively) on their life partner for emotional support, and “off-load” stress to the detriment of the female partner’s mental health (Crossfield, Kinman, & Jones, 2005). In a very real way, “what happens to one member of a dyad . . . affects the other” (Westman & Etzion, 1999: 269).

Crossover effects have been extensively studied within spousal relationships (e.g., Demerouti et al., 2005; Takeuchi, Yun, & Tesluk, 2002) but they may operate for any closely connected individuals who care for each other and share the greater part of their lives together (Westman, Etzion, & Horovitz, 2004). Crossover effects are likely to be observed within the care recipient–caregiver dyad, because caregiving usually evolves from a family or friendship relationship (Talley & Crews, 2007). Closeness springs directly from the caregiving relationship; the dependency of the care recipient on the caregiver creates a particularly tight and intimate connection (Ashworth & Baker, 2000).

We expect, therefore, that negative psychological outcomes experienced by a care recipient in poor health as a result of his or her work will be transmitted to their caregiver. Caregivers feel an acute responsibility to facilitate the well-being of people in their care (Cummins, 2005), and caregivers who perceive
a care recipient as being stressed experience reduced psychological well-being themselves (Scharlach, Li, & Dalvi, 2006). Under the best of circumstances, caregivers face challenges that may cause stress and threaten their own physical and mental health (Seltzer, Greenberg, Floyd, Pettee, & Hong, 2001). For example, in comparison to parents of children without disabilities, parents of children with disabilities exhibit elevated levels of stress, negative affect, and physical symptoms on a daily basis (Seltzer et al., 2009a) and greater vulnerability to depression and alcoholism at mid-life (Seltzer et al., 2001). Providing social support to a stressed care recipient can further deplete personal resources and increase stress levels in the caregiver (Westman, 2001). If the care recipient is experiencing negative psychological outcomes resulting from their work role, caregivers may be unable to see how their efforts are contributing to the care recipient’s well-being—and this will cause considerable distress to the caregiver.

**Hypothesis 2:** Longer hours of work per week by a care recipient who is in poor health will be associated with greater caregiver stress, transmitted via the care recipient’s lower sense of accomplishment.

**The Current Research**

To test our hypotheses, we use a national dataset of people with disabilities and their caregivers in Australia. Our analysis is restricted to households containing the main recipient of care and his or her primary caregiver, both of whom were of working age. This analysis enables us to examine the effects of outside work undertaken by the care recipient, controlling for household effects (e.g., income) that might affect psychological outcomes. As a result, we are able to observe the impact of outside work on the person with a disability and his or her primary caregiver.

**Method**

The data were derived from the fourth in a series of large-scale government national surveys conducted by ABS—the *Survey of Disability, Ageing and Carers, 1998*. The survey is part of Australia’s official government census, conducted every 5 years, and persons who are contacted are legally obliged to respond.

ABS surveys employ the International Classification of Impairments, Disabilities and Handicaps (ICIDH; World Health Organization, 1980). Persons are categorized as having a disability if they have one or more restrictive impairments that have lasted, or are likely to last, for more than 6 months. The ICIDH categorizes restrictive impairments as follows: difficulties in carrying out physical activities such as gripping with arms, fingers, legs or feet; impairments on activities such as seeing, hearing, talking, breathing, learning/understanding; and
restrictions on activities due to blackouts/fits, pain/discomfort, nerves/emotions, mental illness or head injury. Caregivers are defined in the survey as persons who provide regular, ongoing and unpaid assistance to a person with a disability. A primary caregiver provides the most help or supervision.

The 1998 survey was sent to a stratified sample that includes people in urban and rural areas in all Australian states and territories except the most remote and sparsely populated areas. Full details of the sampling procedures are discussed in McLennan (1999). An initial questionnaire was sent to 15,715 dwellings and elicited a household response rate of 93%. All those who identified themselves as care recipients or as caregivers were sent a second questionnaire. This questionnaire was completed by 94.4% of those contacted.

There were 2,684 primary caregivers in the sample. Of these, 726 provided care to person(s) with disabilities with whom they lived. Our concern was to examine the impact of a care recipient working outside the home on the care recipient and his or her primary caregiver living in the same household. Care recipient and caregiver data were listed as separate records in the ABS database released to the public. Using a lengthy iterative process in which we compared the personal, residential and household characteristics in every caregiver record with those in the records of respondents with a disability, we were able to identify 721 unique, unambiguous matches between an individual caregiver’s record and the record associated with his or her main recipient of care.

We selected households from this sample in which both the main care recipient and primary caregiver were of working-age. In Australia, compulsory schooling laws require that students remain in school until their 15th birthday in all states except Western Australia (where students remain in school until the end of the calendar year in which they turn 15) and Tasmania (where students remain in school until their 16th birthday). There is no statutory retirement age in Australia but the average age of retirement (for those who retired in the last 5 years) is 60 years (ABS, 2006). Therefore, we defined the lower working-age limit as the school-leaving age of 15, and the upper working-age limit as the average Australian retirement age of 60. We excluded households in which either party was in full-time education or carried out paid work in the home. In order to distinguish the psychological impact of number of work hours on each role (care recipient and caregiver), we restricted the sample to households in which persons with a disability were not caregivers and caregivers were not care recipients.

After applying these constraints, our sample consisted of 170 care recipient–primary caregiver dyads. The vast majority (89%) of the care recipients had severe or profound impairments. All caregivers provided care to recipients who were family members. In 99 (57%) households, the caregiver was the spouse of the care recipient; in 37 (22%), the caregiver was the mother; in 5 (3%), the father; in 20 (12%), the child; and in 9 (5%), another relative. In all cases, caregiving
was voluntary and unpaid, though state benefits were received by 117 (70%) households.

**Predictor Variable**

*Care recipient’s number of work hours.* Following Flodenus, Hagman, Aronssung, Marlund, and Wilman (2009), number of work hours—including zero hours to take account of those who did no outside work—was measured on a continuous scale. It ranged from 0 hours per week to 45. Individuals responded to a survey scale that included absolute numbers and ranges: no outside work (0 hours), 1–15 hours, 16–24 hours, 25–34 hours, 35–39 hours, 40 hours, 41–48 hours, and 49–69 hours. This scale was designed to reflect the most frequent responses in the underlying distribution (e.g., 0 hours associated with no outside work, and 40 associated with a full-time job) as well as ranges meaningful to the respondents (e.g., 1–15, 16–24, and 25–34 hours reflect typical Australian part-time alternatives). In order to deal with these inconsistent scale values, we used the absolute numbers and the range midpoints to create a continuous measure of hours worked (Ross & Taylor, 2000).

**Moderator**

*Care recipient health problems.* Persons with a disability responded to four questions designed to assess their health impairment. They were asked about the frequency of the following concerns over the previous 4 weeks (0 = none of the time, 1 = a little of the time, 2 = some of the time, 3 = a good bit, 4 = most of the time, 5 = all of the time): How often have your physical/emotional problems interfered with social activity? How often have you had a lot of energy (reverse-scored)? How often have you felt down? How often have you felt calm and peaceful (reverse-scored)? We averaged the four items to create a variable assessing the overall level of the care recipient’s health problems with higher scores indicating more severe problems; Cronbach’s alpha = .78.

**Mediator**

*Care recipient sense of accomplishment.* Care recipients responded to two questions about their sense of accomplishment (1 = yes; 0 = no): Have you accomplished less than you would like during the last 4 weeks due to your physical health? (reverse scored); Have you accomplished less than you would like during the last 4 weeks due to emotional problems? (reverse scored). Responses to these questions were summed (0–2) to create an overall outcomes index with higher scores reflecting a higher sense of accomplishment; Cronbach’s alpha = .74.
Outcome Variable

Caregiver stress. Caregivers responded to six questions (1 = yes, 0 = no) about their psychological well-being: Has your physical or emotional well-being declined due to your caring role? Do you frequently feel weary or lack energy due to your caring role? Do you frequently feel worried or depressed due to your caring role? Have you been diagnosed with a stress-related illness? Do you frequently feel angry or resentful? Do you feel satisfied due to your caring role (reverse-scored)? Responses to these questions were summed (0–6) to create an overall outcomes index, with higher scores reflecting a larger number of negative outcomes experienced by the caregiver; Cronbach’s alpha = .70.

Control Variables

Based on previous literature (Bainbridge, Cregan, & Kulik, 2006; Bookwala & Schulz, 2000; Kossek, Noe, & DeMarr, 1999; Pinquart & Sorensen, 2003), we included several care recipient, caregiver, and household variables as controls. We included the sex (1 = male; 0 = female) and age (15–60 years) of the care recipient and the caregiver, the amount of time spent in outside work by the caregiver (using the same scale as care recipient work hours), and the relationship of the caregiver to the care recipient (1 = spouse; 0 = other). Weekly income per person in the household (measured as a continuous variable) and federal benefits received by the household (1 = yes; 0 = no) were included as financial indicators. Finally, we constructed a dichotomous disability type variable based on ABS (ICIDH) classification (1 = mental illness; 0 = no mental illness).

The independence of the three main constructs—care recipient health, care recipient sense of accomplishment, and caregiver stress—was assessed with a confirmatory factor analysis, performed using AMOS 20.0. The measures were demonstrated to be distinct through comparison of the three factor model with alternative models (Bentler & Bonett, 1980). The unconstrained model that freely estimated the correlations between the three latent variables yielded a good fit to the data ($\chi^2 = 101.65$, df = 51, $p < .01$; RMSEA = 0.08, IFI = 0.94, CFI = 0.94). Although the chi-square was significant, a CFI at or above .90 (Medsker, Williams, & Holahan, 1994) and RMSEA values around .05 (Hu & Bentler, 1999) indicate a good model fit. This model was superior to alternative models including additional control variables on the predicted relationships. These included: household socioeconomic status (reported in deciles, 1 = lowest; 9 = highest); care recipient education (measured by a series of questions about specific educational levels and scored 1 = yes; 0 = no); met/unmet health-related welfare needs (measured by a series of questions about assistance with care, transportation, etc. and scored 1 = not met; 2 = partly met; 3 = fully met); effect of caregiving on the relationship between caregiver and care recipient (1 = brought closer together; 2 = unaffected; 3 = become more strained). Including these variables had no impact on the pattern of results reported in Tables 2 and 3.
those that constrained measures of health problems and stress to a single latent variable ($\chi^2_{diff} = 162.37, \Delta df = 2, p < .01; \text{RMSEA} = .16; \text{IFI} = 0.75, \text{CFI} = 0.74$), health problems and accomplishment to a single latent variable ($\chi^2_{diff} = 44.16, \Delta df = 2, p < .01; \text{RMSEA} = .10; \text{IFI} = 0.89, \text{CFI} = 0.89$), and accomplishment and stress to a single latent variable ($\chi^2_{diff} = 111.15, \Delta df = 2, p < .01; \text{RMSEA} = .10; \text{IFI} = 0.81, \text{CFI} = 0.81$). It was also superior to a nested one factor model ($\chi^2_{diff} = 248.62, \Delta df = 3, p < .01; \text{RMSEA} = 0.18, \text{IFI} = 0.65, \text{CFI} = 0.64$).

Results

Means, standard deviations and zero-order correlations for all variables are shown in Table 1.

The model depicted in Figure 1 involves mediated moderation (Muller, Judd, & Yzerbyt, 2005) in which the interaction between care recipient’s hours of work and health problems impacts caregiver stress via the care recipient’s sense of accomplishment. The conventional approach to analyzing mediated moderation models is Baron and Kenny’s (1986) causal steps model. However, the Baron and Kenny approach to mediation has been criticized on many grounds (see Hayes, 2009, for an extensive review). Therefore, we used the approach recommended by Preacher, Rucker, and Hayes (2007) and the MODMED macro developed by Hayes (2011). The Preacher et al. (2007) method avoids several problems associated with the Baron and Kenny methodology. In particular, it does not assume that the mediator is normally distributed, and it minimizes the number of inferential tests, thereby reducing the likelihood of Type 1 error (Taylor, MacKinnon, & Tein, 2008).

The Preacher et al. (2007) methodology for assessing mediated moderation relies on two regressions. We tested Hypothesis 1 in the first regression, using care recipient sense of accomplishment as the outcome variable. We employed the procedures recommended by Aiken and West (1991), creating an interaction term by multiplying the care recipient’s mean-centered hours of work by the care recipient’s mean-centered health problems. The regression results are presented in Table 2.

Control variables were entered in the first step of the regression (Table 2, Step 1). The predictor and moderator variables were entered in the second step of the regression (Table 2, Step 2). Care recipient hours of work was nonsignificant ($b = -.01, p = \text{ns}$). The care recipient’s health problems, however, were associated with a lower sense of accomplishment ($b = -.74, p < .01$). The interaction term was entered in the final step of the regression (Table 2, Step 3). The care recipient hours of work × care recipient health problems interaction was significant ($b = -.01, p < .05$) and there was a significant increase in the explanatory power of the model (change in $R^2 = .02, p < .05$).
<table>
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<tr>
<th>Variable</th>
<th>Mean</th>
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<td>2. Age caregiver</td>
<td>43.56</td>
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<td>3. Caregiver no. of work hours</td>
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<td>4. Spouse</td>
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<td>5. Weekly income per person</td>
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<td>6. Household benefits</td>
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<td>.07</td>
<td>-.47**</td>
<td>.08</td>
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<td>0.50</td>
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<td>-.02</td>
<td>-.16*</td>
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<td>-.15*</td>
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<td>9. Type of disability</td>
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<td>.17*</td>
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<td>10. Care recipient no. of work hours</td>
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<td>-.10</td>
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<td>11. Care recipient health problems</td>
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<td>.07</td>
<td>-.05</td>
<td>-.16*</td>
<td>-.01</td>
<td>-.21**</td>
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<td>12. Sense of accomplishment</td>
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<td>-.02</td>
<td>-.07</td>
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<td><strong>Outcome variable</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Caregiver stress</td>
<td>2.02</td>
<td>1.61</td>
<td>-.08</td>
<td>.06</td>
<td>.01</td>
<td>.08</td>
<td>.03</td>
<td>.09</td>
<td>.12</td>
<td>-.03</td>
<td>.06</td>
<td>.01</td>
<td>.36**</td>
<td>-.27**</td>
</tr>
</tbody>
</table>

**Note.** N = 170.

*p < .05, **p < .01.
<table>
<thead>
<tr>
<th>Predictor</th>
<th>Step 1</th>
<th>Step 2</th>
<th>Step 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Constant</strong></td>
<td>1.42*</td>
<td>1.70**</td>
<td>1.82**</td>
</tr>
<tr>
<td></td>
<td>(0.66)</td>
<td>(0.54)</td>
<td>(0.54)</td>
</tr>
<tr>
<td><strong>Controls</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Sex caregiver</td>
<td>0.03</td>
<td>0.09</td>
<td>0.14</td>
</tr>
<tr>
<td>(1 = \text{male}; 0 = \text{female})</td>
<td>(0.35)</td>
<td>(0.29)</td>
<td>(0.29)</td>
</tr>
<tr>
<td>Age caregiver</td>
<td>0.02</td>
<td>0.01</td>
<td>0.01</td>
</tr>
<tr>
<td>(\text{continuous } 15–60)</td>
<td>(0.01)</td>
<td>(0.01)</td>
<td>(0.01)</td>
</tr>
<tr>
<td>Caregiver no. of work hours</td>
<td>0.01</td>
<td>0.01</td>
<td>0.01</td>
</tr>
<tr>
<td>(\text{continuous } 0–59)</td>
<td>(0.01)</td>
<td>(0.01)</td>
<td>(0.01)</td>
</tr>
<tr>
<td>Spouse</td>
<td>−0.04</td>
<td>−0.05</td>
<td>−0.01</td>
</tr>
<tr>
<td>(1 = \text{spouse}; 0 = \text{other relative})</td>
<td>(0.21)</td>
<td>(0.17)</td>
<td>(0.17)</td>
</tr>
<tr>
<td>Weekly income per person</td>
<td>−0.01</td>
<td>−0.01</td>
<td>−0.01</td>
</tr>
<tr>
<td>(\text{continuous } $0–640)</td>
<td>(0.01)</td>
<td>(0.01)</td>
<td>(0.01)</td>
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<tr>
<td>Household benefits</td>
<td>0.21</td>
<td>0.12</td>
<td>0.11</td>
</tr>
<tr>
<td>(1 = \text{yes}; 0 = \text{no})</td>
<td>(0.28)</td>
<td>(0.23)</td>
<td>(0.23)</td>
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<tr>
<td>Sex care recipient</td>
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<td>0.02</td>
<td>0.01</td>
</tr>
<tr>
<td>(1 = \text{male}; 0 = \text{female})</td>
<td>(0.33)</td>
<td>(0.27)</td>
<td>(0.27)</td>
</tr>
<tr>
<td>Age care recipient</td>
<td>−0.02</td>
<td>−0.01</td>
<td>−0.02</td>
</tr>
<tr>
<td>(\text{continuous } 15–60)</td>
<td>(0.01)</td>
<td>(0.01)</td>
<td>(0.01)</td>
</tr>
<tr>
<td>Type of disability</td>
<td>−0.73</td>
<td>−0.62</td>
<td>−0.59</td>
</tr>
<tr>
<td>(1 = \text{mental}; 0 = \text{nonmental})</td>
<td>(0.38)</td>
<td>(0.32)</td>
<td>(0.31)</td>
</tr>
<tr>
<td><strong>Predictor</strong></td>
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<td></td>
<td></td>
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<tr>
<td>Care recipient no. of work hours</td>
<td>−0.01</td>
<td>−0.01</td>
<td>−0.01</td>
</tr>
<tr>
<td>(\text{continuous } 0–45)</td>
<td>(0.01)</td>
<td>(0.01)</td>
<td>(0.01)</td>
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<td><strong>Moderator</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Care recipient health problems</td>
<td>−0.74**</td>
<td>−0.75**</td>
<td></td>
</tr>
<tr>
<td>(\text{continuous } 0–5)</td>
<td>(0.08)</td>
<td>(0.08)</td>
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</tr>
<tr>
<td><strong>Interaction</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Care recipient no. of work hours</td>
<td></td>
<td>−0.01*</td>
<td></td>
</tr>
<tr>
<td>(\times) care recipient health problems</td>
<td></td>
<td></td>
<td>(0.01)</td>
</tr>
<tr>
<td>(R^2)</td>
<td>.07</td>
<td>.39</td>
<td>.41</td>
</tr>
<tr>
<td>(R^2) change</td>
<td></td>
<td>.32**</td>
<td>.02*</td>
</tr>
</tbody>
</table>

Note. Table entries are unstandardized regression coefficients, with standard errors in parentheses. 
\(N = 170\). 
*\(p < .05\), **\(p < .01\).

To better understand the significant interaction, we plotted the overall regression equation using procedures recommended by Aiken and West (1991). We plotted separate regression lines for high and low values of the care recipient health problems variable. The plots are shown in Figure 2. An inspection of the simple slope coefficients demonstrates that when the care recipient had a high level of health problems (poor health), more hours spent at work were associated with a lower sense of accomplishment \((b = −.02, p < .05)\). There was, however, no significant effect for care recipients in good health \((b = .01, p = \text{ns})\). Hypothesis 1 was supported.

We tested Hypothesis 2 in a second regression predicting caregiver stress. The regression model included the control variables, care recipient hours of work, care...
recipient health problems, and the hours of work × health problems interaction. In addition, the regression model included care recipient sense of accomplishment (mediator). The regression results are presented in Table 3.

The regression results indicate that the care recipient hours of work × care recipient health problems interaction term is not significant ($b = .01, p = ns$), but care recipient sense of accomplishment (mediator) is significant ($b = –.27, p < .05$). This pattern suggests that the care recipient’s sense of accomplishment mediates the interactive effects of care recipient hours of work and care recipient health problems on caregiver stress.

We used 5,000 bootstrapped samples to estimate bias corrected confidence intervals around the indirect effect (via care recipient sense of accomplishment) of care recipient hours of work on caregiver stress at low and high values of the moderator (care recipient health problems). Bootstrapping is recommended to avoid power problems introduced by unrealistic distributional assumptions associated with the Sobel test (e.g., Edwards & Lambert, 2007; MacKinnon, Lockwood, & Williams, 2004). The bootstrap results revealed that, when the care recipient had a high level of health problems (poor health), care recipient hours of work had a positive and significant indirect effect on caregiver stress, with a 95% bias-corrected confidence interval of 0.0003 to 0.0118. When the care recipient had a low level of health problems (good health), however, the indirect effect of care recipient hours of work was nonsignificant, with a 95% bias-corrected confidence interval of –0.0089 to 0.0009. In combination, the regression and bootstrapping results support Hypothesis 2. For care recipients in poor health, the care recipient’s sense of accomplishment mediates the relationship between the care recipient’s hours of work and caregiver stress.

![Fig. 2. Hours of work × health problems interaction effect on care recipient sense of accomplishment.](image-url)
In this research, we explored the impact of outside employment on people with disabilities and their caregivers. The results demonstrate that the longer the hours worked by care recipients in poor health, the lower their sense of accomplishment. The negative consequences of longer work hours that were experienced by a care recipient in poor health as a lower sense of accomplishment were transmitted to the caregiver, who experienced greater stress. This shows that the caregiver is vulnerable to “catching” the psychological distress experienced by the care recipient.
Implications for Theory and Research

This research first demonstrates the spillover effects experienced by a care recipient in poor health. High-quality work has a positive impact on psychological well-being (Handel, 2005; Jahoda, 1982; Kinicki, Prussia, & McKee-Ryan, 2000). But people with disabilities experience severe restrictions in job choice (Goggin & Newell, 2005; Perry et al., 2000) and are more likely to work in jobs that offer few psychological benefits (Perry et al., 2000; Schur et al., 2009). Care recipients in poor health are additionally constrained in the type or amount of work they can perform (Eisner et al., 2002). These work characteristics generate job stress, and more stress is experienced as the care recipient spends more time at work (Steinmetz et al., 2008). Negative workplace experiences spill over into everyday life, contributing to a generalized low level of a sense of accomplishment for care recipients in poor health (Demerouti et al., 2005).

This research also extends the theoretical literature on crossover effects by demonstrating that these effects happen in caregiving relationships. The caregiving relationship is sufficiently intimate (Ashworth & Baker, 2000; Williams & Mfoafo-M’Carth, 2006) to promote the development of empathic bonds (Westman, 2001; Westman et al., 2001). Caregivers may be particularly attuned to the psychological well-being of the person they assist (Cummins, 2005), facilitating crossover effects.

Policy Implications

The results have important implications at a time when welfare-to-work policies for people with disabilities are proliferating. OECD reports from 2005 to 2011 (OECD, 2011) conclude that existing disability benefit systems are too costly and steer people with disabilities into welfare dependency. Correspondingly, recent government initiatives have increased compliance requirements and provided greater incentives for people with disabilities to seek employment. In Australia, legislation now specifies that if a person seeking a disability pension is assessed as capable of 15–29 hours of work per week, the person is obliged to seek part-time work and their pension is adjusted to reflect their capacity to work (Australian Government, 2009).

The move to involve people with disabilities in employment is part of a general “prowork rhetoric” (Cancian, 2001: 309) that assumes work is the norm, work leads to self-sufficiency, and work is good for families. However, our study results caution policymakers against policies that create a compulsion to work for people with disabilities in poor health. Unless welfare-to-work policies are accompanied by supportive government strategies to generate high-quality work options for people with disabilities, care recipients in poor health—and also their unpaid caregivers—may be psychologically worse off, the longer hours they work. We
recommend further research with regard to national strategies that will provide support to people with disabilities, especially those in poor health. These strategies include the education of employers and the general public (Pransky, Shaw, Franche, & Clarke, 2004), investment in resources for job placement and support (Burns et al., 2007), workplace based rehabilitation interventions (Williams, Westmoreland, Lin, Schmuck, & Creen, 2007), and training that focuses on increasing self-efficacy, coping, and stress management skills of people with disabilities (De Vente, Kamphuis, Ernmelkamp, & Blonk, 2008; Smeets, Van Lierop, Vanhoutvin, Aldenkamp, & Nijhuis, 2007).

Legislation that seeks to increase workplace participation by people with a disability should simultaneously motivate workplaces to establish supportive working environments for people with disabilities. Workplaces need to “adapt their methods of communication (speaking, nonverbal signaling, written communications), their premises (steps, badly lit areas, induction loops, minicomms, flashing fire alarms, specialist fire evacuation procedures), their locations (accessibility) and all of their job and work station designs” (Woodhams & Danieli, 2000: 413). Flexible boundaries between work and home should be allowed, particularly in relation to the time and location in which work tasks may be carried out (Rosenzweig et al., 2011). Unfortunately, while the websites of most Fortune 100 companies demonstrate a recognition of the importance of diversity, empirical studies show that less than half (42%) have adopted policies and procedures that explicitly include people with disabilities; of those companies who are inclusive, very few explicitly target people with disabilities with regard to recruitment and retention (Ball, Monaco, Schmeling, Schartz, & Blanck, 2005). Some organizations, however, have provided clear support for employees with disabilities, for example, in the form of establishing resource or interest groups, such as Microsoft (Sandler & Blank, 2005), JP Morgan Chase, and Merrill Lynch (Ball et al., 2005). In the UK, DIY retailer B&Q developed a disability program that led to a threefold increase in its number of employees with disabilities within 18 months (Anon., 2001).

Our study findings also suggest that policymakers should include formal assessments of the work capacity of people with disabilities in poor health within any strategy to increase workforce participation. Recent moves by the Australian Department of Education, Employment and Workplace Relations (DEEWR, 2011) to introduce a Job Capacity Assessment have been received favorably by the OECD (2007). In Australia, employment agencies now routinely conduct job capacity assessments to identify a person’s health related barriers to employment (e.g., Mission Australia, 2011). These assessments have contributed to the development and administration of interventions to overcome employment barriers (DEEWR, 2011; Killackey & Waghorn, 2008).

Finally, policymakers need to take a broader view of the “work is good” policy to consider the impact of work not just on person with a disability, but
on that person’s unpaid caregiver. Contemporary policies about people with dis-abilities and caregiving do “not address adequately the complex nature of caring relationships” (Lloyd, 2000: 136). This study suggests that initiatives encouraging into employment care recipients who have severe impairments and are in poor health can increase the stress of their caregivers. Consequently, moves to increase workplace participation of people with a disability in poor health may have adverse consequences for both the care recipient and caregiver. Over the long term this situation is unlikely to be unsustainable. High levels of caregiver stress are associated with health problems (Vitaliano, Zhang, & Scanlan, 2003) which in turn can reduce the quality of care received by the care recipient. The need for caregivers will only increase with an aging population. In the long run, the stress associated with caring for people with disabilities in poor health will result in significant costs to the caregiver and society. Policymakers are thus advised to recognize the interconnections between caregivers and care recipients and investigate ways to support both parties.

**Research Strengths and Limitations**

This study has considerable strengths. We used a national, government-collected dataset that gave us access to a large representative sample of people with disabilities who lived in the same households as their caregivers. The large starting sample (over 40,000 people with disabilities) enabled us to identify 170 caregiving household relationships in which both parties were of working age. This sample allowed us to test theoretically-derived hypotheses about the effects of employment on two people engaged in an intimate relationship while controlling for common stressors (e.g., household income). It is unusual to be able to study crossover effects using measures from both dyad members (Westman & Piotrkowski, 1999). Further, by examining the impact of number of work hours, we were able to take account of individuals who were not employed (zero work hours), who were employed at various levels of part-time work, and who were working full-time. In this way, we were able to examine the potential impact of social policies that stress the value of employment. Therefore our analysis makes a unique value-added contribution to the emerging literatures on caregiving and psychological spillover and crossover.

There are also limitations to the study. The results may not be generalizable to all caregiving dyads. Our sample consisted largely of households where the care recipient had a severe or profound impairment. These care recipients are most likely to be negatively affected by inflexible and impractical work accommodations, stereotyped because their disability is most clearly discernible (Tregaskis, 2002), and—when employed—disproportionately represented in low-level jobs (ANED, 2009; Goggin & Newell, 2005).
We suggested that the quality of the work available to people with disabilities was a source of stress (Capella, 2003; Perry et al., 2000; Wells, 2001) but job quality variables were not included in our dataset. Therefore, we used number of work hours as a proxy for these work stressors. While studies that utilize secondary data often make use of proxies (e.g., Zatzick & Iverson, 2006), further investigations should replicate our results using different sources of data that include measures of work quality as well as work quantity. For example, researchers might consider how negative job elements such as narrow responsibilities (Wells, 2001), limited opportunity for growth or achievement (Capella, 2003), few promotion opportunities (Hallock, Hendricks, & Broadbent, 1998), inadequate workplace accommodations (Balser, 2000; Robert, 2003) and low earnings (Schur et al., 2009) influence the workplace experience and resultant psychological outcomes of people with a disability.

We did not have access to parallel psychological measures for the care recipient and caregiver, and therefore we were limited to examining effects that originated from the care recipient and crossed over to the caregiver. But crossover effects within intimate relationships are bi-directional (Song, Foo, Uy, & Sun, 2011; Westman & Etzion, 1995), and ongoing reciprocal crossover effects will ultimately have a downstream effect on relationship satisfaction (Westman, 2001). We encourage future research to move beyond our cross-sectional methodology and use more dynamic data collection strategies (e.g., diary studies or experience sampling methodologies) to examine ongoing reciprocal crossover effects within caregiving dyads. All of our data were collected via self-report, and self-report data may artificially inflate the size of relevant relationships due to common method bias (Crampton & Wagner, 1994). Yet, our most important predictor variable (hours of work engaged in by the care recipient) is objective; objective variables are less vulnerable to common method bias (Podsakoff & Organ, 1986). Overall, despite these limitations, this is a unique study that identifies a subgroup of people with disabilities who, along with their caregivers, might be adversely affected by the well-intentioned strategies that drive contemporary government policy.

References


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