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A Comparison of Physical Health Outcomes for Caregiving Parents and Caregiving Adult Children

Using data from the National Survey of Midlife Development in the United States and using the stress process model, this study compared caregiving parents and caregiving adult children with regard to health outcomes. The study sample consisted of 74 caregiving parents and 219 caregiving adult children. Predictors included type of family relationship, provision of activities of daily living, duration of caregiving, and family demands. Social support did not mediate the relations between significant predictor variables and health outcomes. The type of family relationship was associated with health outcomes with caregiving parents demonstrating poorer self-perceived health and more chronic conditions than caregiving adult children. Perceived family demands were associated with increased number of chronic conditions for caregiving adult children and caregiving parents. Unlike previous studies that measured objective family demands, perceived family demands was found to have a strong association with the number of chronic health conditions for both groups of caregivers.

In 2009, the Caregiving in the U.S. survey (National Alliance for Caregiving in collaboration with AARP, 2009) estimated 65.7 million people in the United States were family

caregivers to either an adult or child with a disability, which constituted 29% of the population at that time. As the baby boomer generation ages, and as advanced medical techniques keep people alive longer, the need for family caregivers will not lessen but will actually grow. Although there are institutional options such as nursing homes and residential services, the need exceeds the feasibility of institutional care and the demand for it. The shortage of institutionalized placement is not expected to change in the foreseeable future (Yamaki, Hsieh, & Heller, 2009), and families do not always wish to place family members in an institutionalized setting. Therefore, the need for family caregivers will not diminish but will continue to increase.

Research has determined that the health of caregivers is generally poorer than that of the noncaregiving population (Blake, 2008; Hoyert & Seltzer, 1992). Poor physical health is not only a risk to the caregiver, but also has potentially negative risks for the care recipient as well (Gonzalez, Polansky, Lippa, Walker, & Feng, 2011). Caregivers who are unable to care for themselves eventually are unable to care for others. Thus, the study of caregiver health is important not only for the caregiver, but also for the care recipient and the care recipient's extended family, as all of these people rely heavily on the ability of the caregiver to provide care. Society also relies on family caregivers as the service these caregivers provide eliminates the need for governments and insurance companies to fund care.

Family caregiving is not a "family problem" as society benefits greatly from the services of the family caregiver. U.S. policy and practice

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process model.

are structured such that family members have no choice about providing care (Bogenschneider & Corbett, 2010; Singer, Biegel, & Ethridge, 2010). Care provision by family members to family members may not always be in the best interests of individuals, families, or society. Attention to quality-of-life issues associated with the well-being of caregivers and care receivers may help us to determine when and under what circumstances care provision by family members is reasonable and sustainable. In the meantime, examining the health outcomes of caregiving for caregivers can inform our understanding of issues that would need to be resolved before recommending changes in policy and practice.

Because not all family caregivers experience the same health outcomes, and caregiver health differs based on the relationship of the caregiver with the care recipient (Corry & While, 2009), the focus of this study was the physical health outcomes of those who provided care to their child with a disability (caregiving parents) and those who provided care to an aging parent (caregiving adult children).

THE STRESS PROCESS MODEL: CONCEPTS AND MEASUREMENTS

The stress process model, which was used to guide this study, links the context within which care is given with primary and secondary stressors to explain outcomes for caregivers (Pearlin, Mullan, Semple, & Skaff, 1990). This model allows the researcher to examine the caregiving role from a holistic perspective, using a multifaceted approach. The stress process model has been used in many studies of caregiver health (Blieszner & Roberto, 2010; Hilgeman et al., 2009; Park, 2009). Figure 1 demonstrates the interactions between the various components of the stress process model.

Four domains make up the stress process model: background and context, stressors, mediators of stress, and outcomes of stress (Pearlin et al., 1990). The background and context of a caregiving relationship describes the circumstances within which caregiving takes place; it is the environment of the caregiving situation. Stressors are the conditions, experiences, and activities that create problems for people (Pearlin et al., 1990). When examining caregiving relationships, stressors can be divided into two categories: primary and secondary stressors.

Primary stressors are those stresses that are related directly to the needs of the care recipient and can include the physical needs, cognitive status, or behaviors of the recipient (Pearlin et al., 1990). Secondary stressors come from the encroachment of caregiving stressors into the other areas of the caregiver's life. These types of stressors derive from caregivers' interactions with others around the caregiving situation (Raina et al., 2004). Research on family caregiving has typically defined outcomes as well-being, physical health, and/or mental health. These are the effects that are manifested in the caregiver from the caregiving experience (Pearlin et al., 1990; Raina et al., 2004). A mediator can influence the association between a cause and an effect. A mediator may be how the caregiver copes with primary and secondary stressors.

Contexts of Caregiver Health

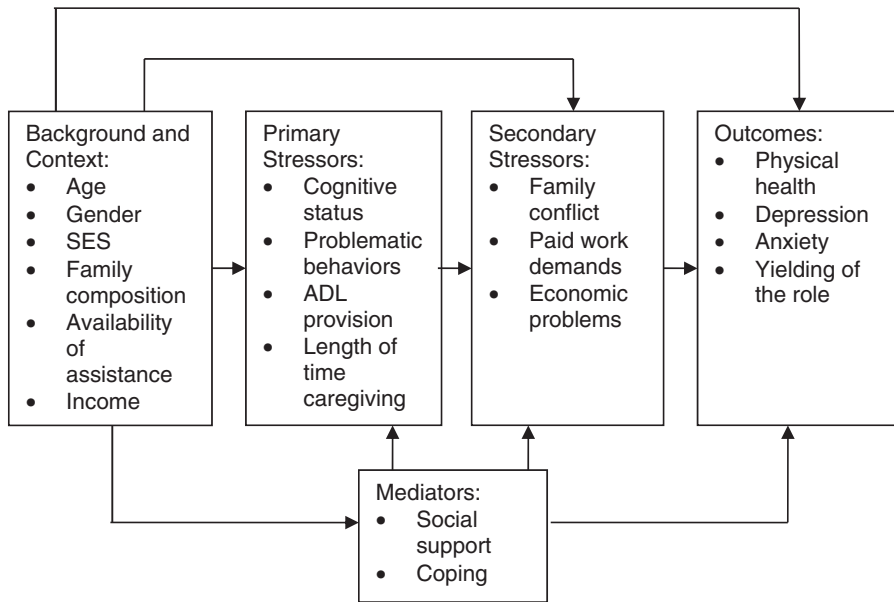
Poor health has been reported by a variety of family caregivers: wives who cared for husbands (Hoyert & Seltzer, 1992; Sparks, Farran, Donner, & Keane-Hagerty, 1998), mothers who cared for children with a disability (Raina et al., 2004; Wallander et al., 1989), and daughters who cared for aging parents (Sparks et al., 1998).

Not all research on family caregivers, however, found caregiver health to be negatively influenced by caregiving. A review of 16 longitudinal caregiving research articles found that caregiving did not necessarily result in decreased physical health over time (Salter, Zettler, Foley, & Teasell, 2010). This review, however, studied only caregivers of a family member with a stroke, and the studies only followed caregivers for up to 2 years. The conflicting results of these studies suggest caregiving may affect caregivers health differently depending on unique caregiving situations.

Primary and Secondary Stressors

Family relationship between caregiver and care recipient. Research has been inconsistent with regard to the association of caregiver health with the family relationship to the care recipient. Some researchers have found no association between the caregiver and care recipient relationship (Robinson, Fortinsky, Kleppinger, Shugrue, & Porter, 2009; Soskolne et al., 2007), however, several have found an association. Marks, Lambert, and Choi (2002)

FIGURE 1. THE STRESS PROCESS MODEL.



Note: Adapted from Pearlin, Mullan, Semple, & Skaff (1990), p. 586.

found providing care for primary kin (parent, child, spouse) demonstrated negative effects for the caregiver, but providing care for more distant kin did not. Corry and While (2009) found the needs of spouses were different from the needs of other family caregivers when caring for someone with multiple sclerosis. Studies that have delineated the differences in caregiver’s health outcomes by the relationship with the care recipient (e.g., Blake, 2008) have all found differences in the health outcomes of caregivers depending on the family relationship with the care recipient.

Caregiving parents compared to caregiving adult children. Very little research has examined the differences or similarities of health outcomes or health influences in caregiving parents. Studies have found that caregiving parents of children of all ages had poorer health than their noncaregiving counterparts (Brehaut et al., 2009; Yamaki et al., 2009). Parents who cared for their children with disabilities faced a commitment of responsibility for many years. Often the role of caregiver ended only with the death of the caregiving parent (Seltzer & Seltzer, 1992).

More research exists on adult caregiving children, although still little on actual physical health. Seltzer and Seltzer (1992) reported that

the average length of time an adult child spent caring for a parent was 5 years, with the role often ending with the death of the care recipient. Unlike caregiving parents who care for their child with a disability for many years, some primary caregiving adult children were replaced by a sibling over a 2-year period (Szinovacz & Davey, 2007). Because few studies have been conducted specifically on the physical health of adult caregiving children, assumptions must be made from the mental health literature for these caregivers. Marks, Lambert, Jun, and Song (2008) found that a poor relationship with a parent prior to a caregiving relationship led to decreased psychological wellness for sons once caregiving began. Similarly, studies have reported adult caregiving daughters demonstrate higher depression scores than noncaregivers (Hoyert & Seltzer, 1992), and poorer self-rated health when compared with caregiving sons (Mui, 1995).

Provision of activities of daily living. Research on caregiver health and activities of daily living (ADLs) provision is divided. Not measuring physical health, but instead depression, Covinsky et al. (2003) found that caregivers of individuals with decreased ADL function had a higher incidence of depression than those who

cared for individuals who could perform ADLs independently. Other research has found that caregivers who cared for those with difficulties in performing ADLs had high levels of emotional and physical strain (Ory, Hoffman, Yee, Tenstedt, & Schultz, 1999) and burden (Razani et al., 2007). Conversely, Zarit, Femia, Kim, and Whitlach (2010) did not find any significant association between ADL provision and health outcomes in their study of 67 caregivers providing care to a family member with dementia.

Duration of caregiving responsibilities. Multiple studies have found that the cumulative effect of stress over time left those who provided care for long periods of time more vulnerable to physical and mental health difficulties than those who provided care for a short period of time (Hoyert & Seltzer, 1992; Rezende, Coimbra, Costallat, & Coimbra, 2010; Sparks et al., 1998). Not all research, however, has found the relationship between duration of caregiving and health to be negative. No significant association was found between duration of care and physical health (McConaghy & Caltabiano, 2005), depression, or the number of medical illnesses in caregivers (Saunders, 2009).

Family demands. The literature on family demands and health outcomes is limited and inconsistent. Researchers typically measured family demands in an objective fashion using quantifiable measures such as the number of people living in the home younger than age 15 (Artazcoz, Borrell, Benach, Cortes, & Rohlf, 2004; Regidor et al. 2010), the number of dependents within the home (Melchior, Berkman, Niedhammer, Zins, & Goldberg, 2007), or who performed housework (Regidor et al., 2010).

Not surprisingly, with inconsistent measures of family demands, there is little consistency in the research findings. Studies have shown that family demands decrease health for some, but not all, people (Artazcoz et al., 2004; Regidor et al. 2010); and caregivers often neglect their own health needs because of high family demands (Daire, Torres, & Edwards, 2009). No research was available on how subjective family demands influenced health.

Perceived Social Support as a Mediator

Perceived social support is the belief of the caregiver that assistance is available whenever

needed (Liu, Insel, Reed, & Crist, 2012). Social support can come from family members, friends, or social institutions (Pearlin et al., 1990). Physical health has not been the focus of most research on social support, and the research is divided as to the mediation effects of social support on caregiver outcomes. Perceived support has been found to mediate the relation between optimism and subjective well-being (Ferguson & Goodwin, 2010), disability and depressive symptoms (Taylor & Lynch, 2004), and family conflict and mental health (Butterworth, Pymont, Rodgers, Windsor, & Anstey, 2010). Other studies, however, have found that social support did not mediate caregiver outcomes of optimism, well-being, and resilience (Ekas, Lickenbrock, & Whitman, 2010; Wilks & Croom, 2008).

Outcome Measures of Health

Self-rated health. Caregiving health research has relied heavily on self-rated health (Marks et al., 2008; Soskolne, Halevy-Levin, & Ben-Yehuda, 2007). Most studies conducted in the United States have asked participants to rate their health on a 5-item scale ranging from *poor* to *excellent* (Jylha, 2009). In general, self-rated health is a good indicator of health (Segovia, Bartlett, & Edwards, 1989) and has been shown to be a better predictor of mortality than a medical diagnosis (Idler & Benyamini, 1997).

Count of chronic conditions. Another measure of health in the caregiving literature is a count of chronic conditions or comorbidity (Brehaut et al., 2009; Sparks et al., 1998). The chronic conditions count was often performed by the researcher asking participants if they had ever been diagnosed with one or more of a list of specific conditions. To date, there does not appear to be one standardized list of conditions, with the number of conditions asked about ranging from 10 to 30. Despite variations in the number of conditions counted, most researchers agree that the greater the number of chronic conditions, the greater the risk of mortality (Sparks et al., 1998). It also was found that the number of chronic conditions increased with age (Yamaki et al., 2009).

This Study

Drawing from the literature, this study examined the physical health outcomes of caregiving

parents and caregiving adult children. It is evident that caregiving challenges differ by the relationship of the caregiver to the care recipient, and there are multifactorial influences on the health of both groups. Caregiving parents provide care on the average for a much longer time (Seltzer & Seltzer, 1992), but the adult caregiving children face a change in roles, from the child who was once cared for to the child now providing care (Ron, 2006).

Little research has studied the physical health of caregiving adult children, and even less compare caregiving parents and caregiving adult children. The primary goal of this study was to determine influences on the physical health of caregivers and whether and how health outcomes differed for each of the caregiving groups studied. It was anticipated that (a) the duration of caregiving would be associated with health outcomes, thus, caregiving parents would have lower self-rated health and more chronic health conditions than caregiving adult children; (b) that ADL provision and family demands would be associated with physical health outcomes in a negative way; and (c) that perceived social support would act as a mediator with regard to caregiver health outcomes.

METHOD

Sample

This study used data from the second wave of the Midlife Development in the United States (MIDUS, Brim et al., 2011) survey. Data were drawn from a nationally representative random-digit-dial sample of noninstitutionalized, English-speaking adults, ranging in age from 24 to 74, who lived in the continental United States. The MIDUS survey was conducted from 1995 to 1996. A second wave of the survey was conducted (MIDUS II; Ryff et al., 2012) 10 years later by resurveying the original respondents. The scope of the MIDUS II survey was expanded to include caregiving, stressful life events, cognitive functioning, and coping (a complete overview of MIDUS and MIDUS II is available at <http://midus.wisc.edu/puboverview.php>).

The population used for this study included self-identified family caregivers, specifically caregiving parents and caregiving adult children. Of the 4,963 respondents to the MIDUS II survey, 629 (13%) identified themselves as caregivers by responding *yes* to the question

“During the last 12 months have you, yourself, given personal care for a period of one month or more to a family member or friend because of a physical or medical condition, illness or disability?” Of those caregivers, 498 (79%) provided care to a family member. Seventy-four (12%) family caregivers provided care to a child with a disability, and 219 (35%) provided care for their mothers or fathers. Other family caregivers provided care to spouses, siblings, grandparents, or extended family members and were not included in this study.

Table 1 provides general characteristics of the sample. The sample of this study consisted of a total of 293 participants: 74 caregiving parents and 219 caregiving adult children. The average age of all caregivers in this sample was 53, with a standard deviation of 10.5 years. The caregivers were at least twice as likely to be women as men and were overwhelmingly White (89%). The education levels of both groups were distributed fairly evenly between high school or less and postgraduate education. Slightly fewer than one half (47%) of caregiving parents were employed compared to 70% of caregiving adult children. Caregiving parents were most likely to live in the same household as the care recipient (69%), unlike caregiving adult children (28%).

MEASURES

Dependent Variables

Self-rated health. The question, “In general, would you say your health is excellent, very good, good, fair, or poor?” was used to address self-rated health. These were coded in the MIDUS II data on a scale of 1 to 5, with 1 being *excellent* and 5 being *poor*. For the purposes of this study, the health variable was recoded so that the lower number represented poorer health. The self-rated health variable is now coded 1 = *poor*, 2 = *fair*, 3 = *good*, 4 = *very good*, and 5 = *excellent*. Self-rated health is believed to be a valid and useful indicator for measuring health (Jylha, 2009), and reliability has been established with men, women, and various age groups (Lundberg & Manderbacka, 1996).

Number of chronic conditions. Respondents were asked 30 questions addressing chronic health conditions such as asthma, diabetes, high blood pressure, and tuberculosis and if they had been diagnosed or treated for these conditions (see the appendix for the complete list); a yes-or-no response was recorded. A simple count

Table 1. *Sample Characteristics for Caregiving Parents (n = 74) and Caregiving Adult Children (n = 219)*

Characteristic	Caregiving parents		Caregiving adult children		<i>t</i> test	<i>p</i> value
Age (<i>m</i> in years)	55.75		52.05		2.23	.028
Range	34–81		34–84			
	<i>n</i>	%	<i>n</i>	%		
Education					-.27	.788
High school or less	24	32	62	28		
Some college	26	35	83	38		
College degree	10	14	36	16		
Postgraduate	14	19	38	17		
Gender					1.3	.18
Female	55	74	145	66		
Male	19	26	74	34		
Race					.92	.36
White	66	89	195	89		
Black/African American	1	1.5	14	6.5		
Native American	2	3	2	1		
Asian	0	0	1	0.5		
Other	5	6.5	7	3		
Current employment status					3.33	.001
Employed	35	47	153	70		
Unemployed	39	53	62	28		
Income adequacy					-1.65	.10
Not enough money	21	34	39	22		
Just enough money	29	47	93	53		
More than enough money	12	19	44	25		
Co-residing with care recipient	51	69	62	28	6.77	<.001
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>t</i> test	<i>p</i> value
Study variables						
Average years caregiving	9.76	12.37	3.7	4.17	3.9	<.001
Provision of activities of daily living (1 = yes)	0.39	0.49	0.63	0.48	-3.6	<.001
Family demands (0–3)	1.34	0.83	1.54	0.84	-1.6	.95
Number chronic conditions	4.1	4.47	2.8	2.48	2.18	.03
Self-rated health (1–5)	3.04	1.16	3.54	0.96	-3.34	.001

of reported chronic conditions was used to determine the number of chronic conditions for each respondent.

Independent Variables

Type of family relationship of caregiver with care recipient. Respondents chose from a variety of relationships to answer the question, “To whom do you give the most personal care?” The options for this question ranged from *husband* (1) to *other* (13). This study focused specifically on caregiving parents and caregiving adult children. Those who cared for a child

were coded in MIDUS II as *son* (3) or *daughter* (4), and those who cared for a parent were coded *father* (5) or *mother* (6). Son and daughter were combined into one category (child) and father and mother combined into another (parent), creating a dummy variable to indicate the type of relationship with the care recipient: 0 = *caregiving parent*, and 1 = *caregiving adult child*.

Provision of ADLs. ADL provision was addressed with the question, “Because of (his/her) limitations (do/did) you provide (him/her) personal help with bathing, dressing,

eating, or going to the bathroom?" Respondents could respond either *yes* (1) or *no* (2). For this study, responses were recoded as 0 = *no* and 1 = *yes*.

Duration of caregiving. Respondents were asked what year they started providing care to the care recipient. Because the duration of caregiving was the variable sought, the year care was first provided was subtracted from 2005, the middle year of the 2-year survey. No respondents had begun providing care in 2005 or 2006, so there was no caregiver providing care for less than 1 year.

Family demands. To assess family demands, respondents were asked, "Not including your spouse or partner, how often do members of your family make too many demands on you?" They were able to choose between *often* (1), *sometimes* (2), *rarely* (3), and *never* (4). These responses were recoded to 0 = *never*, 1 = *rarely*, 2 = *sometimes*, and 3 = *often*.

Mediator Variable

Perceived social support. Social support was assessed by asking: "How much can you rely on them (your family) for help if you have a serious problem?" and "How much can you rely on them (your friends) for help if you have a serious problem?" Response options were: *a lot* (1), *some* (2), *a little* (3), or *not at all* (4). For this study, responses were recoded to 0 = *not at all*, 1 = *some*, 2 = *a little*, and 3 = *a lot*. Because most caregiving literature on social support reports on combined family and friend support (e.g., Butterworth et al., 2010; Ferguson & Goodwin, 2010), these variables were combined into one perceived social support variable.

Analytic Strategy

Analyses were performed using Stata 12 (Stata Corp., 2011) software. The first analysis addressed how self-rated health was associated with the predictor variables using linear multiple regression. To determine the association of the predictor variables on the number of chronic conditions of the caregivers a negative binomial regression was used. This type of analysis is used with dependent count variables that are skewed, and when the variance is larger than the mean (Long & Freese, 2006).

Finally, using the results from the regression analyses discussed earlier and the method outlined by Baron and Kenney (1986), social support was examined to determine if mediation occurred between the predictor and outcome variables. This method entails using three regressions to attempt to establish mediation. First, the predictor variables were regressed onto the dependent variables to determine whether a significant association existed. Then, each predictor variable found to be significantly associated with the outcome variable was regressed onto the proposed mediation variable to check for significance. If the proposed mediation variable was found to be associated with any of the predictor variables then a test of significance with the outcome variable was performed to determine if mediation had occurred.

Multiple imputation was used to manage missing data. Multiple imputation has been shown to work well with small samples such as in this study. The only variables that needed to be imputed were family demands and social support as 18% of the responses were missing for each variable. The family demand and social support variables were included in part of the survey that was to be mailed to the researchers.

RESULTS

This study examined associations of the health outcomes of caregiving parents versus caregiving adult children, and whether social support mediated those associations. A power analysis using G*Power 3 software was completed to determine the sample size necessary for multiple regression analysis with effect size of 0.1 (small to moderate), $\alpha = 0.05$, power of 0.95, and using five predictor variables. The minimum total sample size was determined to be 204, which the sample for this study of 293 participants exceeded. A correlation analysis was performed to rule out multicollinearity between variables (see Table 2). Although there were correlations between ADL provision and type of caregiver, and time caregiving with type of caregiver, both were well below the value of 0.60 that is considered problematic (Cohen, Cohen, West, & Aiken, 2002).

Self-Rated Health

When controlling for caregiver age, caregiver gender, education, employment, and marital

Table 2. Correlation Matrix of Dependent, Independent, and Potential Mediating Variables ($N = 229$)

	1	2	3	4	5	6	7
1. Self-rated health (1 = poor, 5 = excellent)	—						
2. Chronic conditions	-0.43***	—					
3. Type of caregiver (1 = caregiving adult child)	0.16*	-0.16*	—				
4. Activity of daily living provision (1 = yes)	0.01	-0.01	0.24***	—			
5. Time caregiving	-0.02	-0.02	-0.32***	-0.05	—		
6. Family demands (0 = not at all, 3 = often)	-0.1	0.12	0.11	-0.06	-0.07	—	
7. Social support (0 = not at all, 3 = a lot)	0.12	-0.08	0.03	0.03	-0.16*	-0.18**	—

* $p < .05$; ** $p < .01$; *** $p < .001$.

status, the regression model was significant, $F(10, 279) = 5.61, p < .001$. Table 3 represents the findings from this analysis. First, the control variables were entered into the model. Then the independent variables type of caregiver, ADL provision, family demands, and time caregiving were entered. Of the independent variables, only type of caregiver was found to be significant with regard to self-rated health, $t = 3.25, p < .01$. Type of caregiver distinguished between caregiving parents and caregiving adult children. Caregiving adult children had significantly better self-reported health than caregiving parents. ADL provision, family demands, and duration of caregiving were not associated self-rated health.

Chronic Health Conditions

Again, using the control variables caregiver age, caregiver gender, education, employment, and marital status, the negative binomial regression analysis for number of total chronic conditions was found to be significant, $F(9, 6.5e + 06) = 4.58, p < .001$ (see Table 4). As with the outcome of self-rated health, the total number of chronic conditions was associated with type of caregiver. This association was significant with $t = -2.47, p < .05$. In this calculation, it was determined that caregiving parents reported 34% more chronic health conditions than caregiving adult children.

Perceived family demands also were significantly associated with the number of chronic health conditions diagnosed in both groups, $t = 2.67, p < .01$. This finding indicated that there was a positive association between family demands and the number of chronic conditions reported by a caregiver. The results suggested an expected increase in total chronic health conditions for every one unit increase in family

demands is 18%. Type of caregiver and family demands were associated with the number of chronic conditions a caregiver reports. The first model was run with control variables only and was significant at $p < .001$. The second model included the control variables and predictor variables and also was significant at $p < .001$.

Perceived Social Support as a Mediator

Using the guidelines published by Baron and Kenney (1986), social support was tested to determine if it acted as a mediator between type of caregiver and self-rated health. No significant association was found between the type of caregiver and social support, $t = .80, p = .427$. Thus, no mediation was present. Social support was again tested for mediation between the number of chronic conditions and family demands. Neither of the two predictor variables had a significant association between type of caregiver, $t = .45, p = .65$, and family demands, $t = -1.54, p = .12$. Therefore, the pathways from type of caregiver and family demands to chronic health conditions were not mediated by social support.

Providing care to one's own child seemed to result in lower self-rated health and a higher number of chronic health conditions than providing care to a parent. Caregiving parents and caregiving adult children reported a higher number of chronic health conditions when demands from other family members were high. Social support did not appear to mediate the associations between type of caregiver and either of the health outcomes; neither did it mediate the association between family demands and number of chronic conditions.

DISCUSSION

In this study we examined how primary and secondary stressors identified by the stress process

Table 3. Summary of Regression Analysis for the Relation Between Predictor Variables and Self-Rated Health (N = 293)

Predictor	Model 1		Model 2			
	Self-Reported Health		Self-Reported Health			
Demographic variables						
Caregiver age	.004	.006	.036	.002	.006	.02
Gender (1 = female)	.11	.13	.05	.13	.13	.06
Education	.21***	.06	.21	.20***	.05	.20
Employment (1 = yes)	-.28***	.07	-.25	-.25***	.07	-.22
Marital status (0 = married)	-.11**	.04	-.15	-.11**	.04	-.15
Independent variables						
Type of caregiver (1 = caregiving adult child)				.48**	.15	.20
Activity of daily living provision (1 = yes)				-.007	.11	-.003
Family demands (0 = never, 3 = often)				-.15	.08	-.12
Time caregiving				.006	.008	.04
R ²	.12					
ΔR ²			.18			
F	7.97		5.57			
df	287		282			
ΔF			1.40			

*p < .05; **p < .01; ***p < .001.

Table 4. Summary of Negative Binomial Regression Analysis for Total Chronic Health Conditions (N = 239)

Predictor	Model 1		Model 2	
	Chronic Disease Index		Chronic Disease Index	
	b	SE b	b	SE b
Demographic variables				
Caregiver age	.001	.006	.004	.006
Gender (1 = female)	.18	.13	.15	.13
Education	-.11*	.06	-.10	.05
Employment (1 = yes)	.23***	.06	.20**	.06
Marital status (0 = married)	.07	.04	.07	.04
Independent variables				
Type of caregiver (1 = caregiving adult child)			-.34*	.14
Activity of daily living provision			.06	.12
Family demands (0 = never, 3 = often)			.18**	.07
Time caregiving			-.007	.009
F	5.60		4.58	
F Change			1.02	

*p < .05; **p < .01; ***p < .001.

model influenced caregiver health outcomes. This study is one of few that researched physical health outcomes of caregiving adult children and then compared those health outcomes with the health of caregiving parents. It is also one of the first studies to use a subjective measure of family demands to determine how family demands were associated with the health outcomes of the caregivers studied. Understanding the health of family caregivers is important not only because caregiver health determines the

potential for caregivers to continue to assist care recipients, but also to allow alternatives to family caregiving to be developed.

Family Relationship Between Caregiver and Care Recipient

As anticipated, this study found that caregiving parents have poorer self-rated health and more chronic health conditions than caregiving adult children. This supports the prior research that

found that the family relationship between a caregiver and a care recipient influences health of the caregiver, and that not all family caregivers experience the same health outcomes (Blake, 2008; Marks et al., 2002). In this study, caregiving parents provided an average of 9.7 years of care, and caregiving adult children averaged 3.7 years. It was expected that parents would have poorer health because the length of time they provide care is greater than caregiving adult children. The duration of caregiving, however, did not significantly predict health outcomes in this study. This finding is similar to that of McConaghy and Calabiano (2005) and Saunders (2009), who also found no correlation between duration of caregiving and physical health.

Other researchers, however, have found that duration of caregiving does influence health outcomes (Rezende et al, 2010; Soskolne et al., 2007; Sparks et al., 1998), but they examined spouses and adult children as caregivers, and not parents. It is possible that caregiving parents who have provided care since the birth of their child may have adapted to the demands of caregiving over time. It is also possible that the care provided for a child becomes less physically taxing over time.

Provision of Activities of Daily Living

Much like the duration of caregiving, provision of ADLs did not influence health outcomes. This finding is consistent with Zarit et al. (2010), who also found no association between ADL provision and physical health. Little empirical research of the impact of the provision of activities of daily living on physical health exists. It is interesting, however, that in this study the caregiving adult children provided significantly more assistance with ADLs than caregiving parents. Perhaps provision of ADLs over a shorter period does not affect caregiver health, as we might expect if it were a long lasting period of time. It is also possible that the question asked of the participants as to whether they provided assistance with ADLs did not truly reflect the amount of care given as participants could only respond *yes* or *no*, and not explain the extent of the care provision.

Perceived Family Demands

As the stress process model predicted, this study found that perceived family demands were

associated with the total number of chronic conditions for caregiving parents and caregiving adult children. This finding was tested in a different manner than previous research, in that prior research has examined only objective family demands determined by the researcher. This study used perceived family demands, which allowed participants to determine the severity of the demands they experienced. Although research addressing the differences between subjective and objective family demands was not found, Montgomery, Gonyea, and Hooyman (1985) examined caregiving burden with respect to objective and subjective measures. They found that although subjective and objective burden were correlated, the factors that contributed to each burden were different. They also found that a family member may experience a high level of objective burden and a low level of subjective burden, or the reverse, simultaneously.

The distinction between objective and subjective measures may apply to the family demands that caregivers experience. It may be that the number of dependents in a household, or the number of family members younger than age 15, does increase family demands, but the family demands perceived by the caregiver may be of an entirely different nature and actually affect health more so. It is conceivable that perceived family demands influence the caregiver's health more strongly than do objective measures of family demands.

Social Support as a Mediator

Although it was anticipated that social support would act as a mediator between variables that significantly influenced health outcomes, this study did not find any mediation. The existing literature on the mediating effect of social support with health outcomes is divided with some studies demonstrating mediation (Butterworth et al., 2010; Ferguson & Goodwin, 2010; Taylor & Lynch, 2004) and others not (Ekas et al., 2010; Wilks & Croom, 2008). Note that physical health as an outcome was not studied in any of the previous research on the mediation of social support and health.

Limitations

As with all research, this study has limitations. When using an existing national data set, the

researcher is limited to the data available and does not always have access to information that directly parallels the theoretical model being employed. We were not able to determine the diagnoses of the care recipients to specific caregiver types. Although this may have been interesting, because the sample was small, breaking the sample into groups based on diagnoses may have been problematic. We had information as to if the caregiver and care recipient co-resided; however, we did not have information as to how long they had co-resided. Similarly, information with regard to multiple care recipients was not available; caregivers reported on providing care to one person but may have been providing care to more than one person at the same time. Also, we were unable to determine if the participant was the only caregiver for the care recipient. These factors could potentially influence the demands the caregiver experienced and resultant health outcomes. Finally, whenever a response to a question is limited to a yes or no answer, some details will be missed. The variable of ADL provision had this limitation. Because the respondents could answer only yes or no to whether they provided ADL assistance, there is no way of knowing just how much assistance was provided.

It must be recognized that caregivers who might add the most to this study may not have participated in the MIDUS II survey. To participate in this study, the caregiver needed to commit a substantial amount of time. It is possible that caregivers who were either very busy caregiving or in poor health might not have agreed to participate.

Implications

This study emphasizes the physical health differences between caregiving parents and caregiving adult children. Although previous research has been conducted regarding the health of caregiving parents, the physical health of caregiving adult children has received little attention. Additional research on the physical health outcomes of caregiving adult children would add to the understanding of how caregiving influences health.

Further research on family demands also is necessary to help researchers understand how these demands influence health. There is a paucity of information on the influence of

perceived family demands, with much to be learned on how it influences health outcomes. Although objective family demands have been studied, the research is limited, and there appears to be no standardized method for measuring demands. Studying objective and subjective family demands may help to explain the relationship between such demands and caregiver health.

Interventions that supply caregivers with skills and knowledge about caring for a family member may prove to be useful. For example, Resources for Enhancing Alzheimer's Caregiver Health (REACH) was established in 1995 to research and provide interventions designed to enhance family caregiving for Alzheimer's disease and related disorders. This intervention was found to improve self-rated health, lessen depression, and decrease subjective burden (Burgio et al., 2009). Research on interventions for caregivers who care for people with diagnoses other than Alzheimer's disease would be helpful. Other options need to be developed that allow caregivers to prioritize their own health. These options may include appropriate day care centers, in-home respite services, or skilled assistance. Research to determine the feasibility of such options would benefit caregivers and care recipients.

Regarding practical implications, the findings from this study emphasize the differences in health outcomes between the types of family relationships between caregivers and care recipients. Practitioners and caregivers need to understand the risks of caregiving in specific situations. Practitioners also need to assist caregivers to determine the risks involved with caregiving and how caregivers can best protect their own health. For example, if a caregiver is experiencing high subjective family demands, it may be reasonable for a health provider to suggest family counseling to try to decrease some of those demands. Similarly, checking-in with caregivers to remind them about simple preventative measures for health such as a flu shot or mammogram could assist the caregivers in caring for themselves.

Caregivers often are limited in alternative caregiving options as the cost of hiring a caregiver is often prohibitive, and the availability of qualified caregivers and residential care is limited. Family caregivers, however, should not be left to provide care at their own peril. At a minimum, research that demonstrates the health

outcomes of family caregivers as poorer than that of noncaregivers could provide impetus for policy makers to put into place options for caregivers that may include residential care, respite care, day care centers, and professionally trained care providers. Limiting potential negative outcomes of caregiving is an important place to begin to make changes for families faced with overwhelming tasks and responsibilities.

Caregivers who are unable to address their health may be unable or unwilling to continue to provide care, as health issues left unattended may lead to the caregivers own health problems that would interfere with their ability to provide care. Society cannot continue to assume that family members can and should be caregivers, regardless of their personal health and resources. Attention to quality of life for caregivers and care receivers seems critical in assessing the suitability of family caregiving. In the meantime, examining the physical health outcomes of caregiving for caregivers can inform our understanding of candidates for change in policy and practice.

CONCLUSION

This study found that, within the caregiving population, caregiving parents have poorer health outcomes than caregiving adult children. Also, regardless of family relationship, caregivers with high family demands experience more chronic health conditions than those with low family demands. This study adds to the literature on the importance of knowing the kind of caregiver relationship in a caregiving situation when studying health outcomes, it also adds to the current literature on the physical health outcomes of two types of family caregivers.

Parent caregivers could be made aware that they are at higher risk for health issues than noncaregivers and be cautioned to be more attentive to their own health needs than they may do so regularly. Likewise, caregiving parents and caregiving adult children report poor self-rated health when family demands are high, thus, family counseling may be an option for resolving any excessive demands and keeping the caregiver in a healthier situation. By understanding the variables that influence health, caregivers may be able to prevent or diminish some of the negative aspects of caregiving on their health.

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APPENDIX:

LIST OF CHRONIC CONDITIONS FROM THE MIDUS II SURVEY

1. Asthma/bronchitis/emphysema
2. Tuberculosis ever
3. Other lung problems ever
4. Joint/bone diseases
5. Sciatica/lumbago/backache

6. Persistent skin trouble
7. Thyroid disease
8. Hay fever
9. Stomach trouble
10. Urinary/bladder problems
11. Constipated all/most
12. Gall bladder trouble
13. Persistent foot trouble
14. Varicose veins
15. AIDS/HIV
16. Lupus/autoimmune disorder
17. Persistent gum/mouth trouble
18. Persistent teeth trouble
19. High blood pressure/hypertension
20. Anxiety/depression
21. Alcohol/drug problem
22. Migraine headaches
23. Chronic sleep problems
24. Diabetes/high blood sugar
25. Neurological disorder
26. Stroke
27. Ulcer
28. Hernia
29. Piles/hemorrhoids
30. Swallowing problems