

Does Social Support Mediate the Association between Functional Disability and Depression?

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## Introduction

Family and other informal caregivers play a central role in maintaining the well-being of frail older adults. More than three quarters of disabled older adults reside in the community (Manton, Gu, and Lamb 2006), and two thirds of community-dwelling older adults rely on spouses, children, other family members, and nonfamily members for care (Spillman and Black 2005). In 2007, 52 million family caregivers provided support and health-related interventions to older adults with functional disability (Houser and Gibson 2008). The monetary value of the care from family and other informal caregivers is estimated to be worth about \$375 billion a year, which exceeds total Medicaid spending and approaches 90% of the entire expenditure on Medicare (Houser and Gibson 2008).

Stressor-distress theory has been widely used to understand the relations among stressors, distress, and social support. Ensel and Lin (1991) proposed two models to elaborate the relations. One is called the counteractive model, which assumes that stressors will mobilize social support and the support will suppress the effects of stressors on distress. The other is called the deterioration model, which postulates that stressors may exhaust social support and thus the support cannot continuously suppress the effect of stressors on distress. The size of social network appears to influence whether social support will be mobilized or exhausted. For older adults who have larger social networks and presumably more sources of social support, they are more likely to obtain help when stressors emerge. Also, they are more likely to rotate the sources of support, which avoids the risk of exhausting resources. By contrast, older adults with smaller social networks tend to have fewer people to rely on, suggesting that they have more difficulties to mobilize social support and their resources of support are more likely to be exhausted.

One caveat of stressor-distress theory lies in its assumption that resources are beneficial for older adults and that the more social support older adults receive, the less likely they feel distressed. Some researchers have found contrary findings, however. Specifically, Lee, Netzer, and Coward (1995) and Silverstein, Chen, and Heller (1996) have found that receiving help from adult children increases rather than decreases older adults' depressive symptoms. These negative effects of support may occur because receiving help from adult children reminds older adults of their loss of independency and consequently hurts their self-esteem and lowers their psychological well-being. The negative effect of social support does not appear to occur for spousal support, suggesting that accumulated reciprocity between spouses may minimize the sense of losing autonomy when receiving help from spouses. The different effects of spousal support and children's support on older adults' well-being highlight the possibility that different types of support differ in their roles in suppressing the effects of disability on depression. Few studies have carefully examined this possibility, however.

Some researchers have suggested that depression may make older adults vulnerable to functional limitations (Bruce 2001; Ormel et al. 2002). Thus, depression could be a stressor, leading to functional disability. To take into account the reciprocal effect of depression on disability, we will also examine whether older adults' depression mobilizes social support and whether social support reinforces older adults' functional limitations by increasing their dependency on the support of spouses, adult children, other family members, and nonfamily members.

Additionally, researchers often use cross-sectional data to examine the mediating effect of social support on the association between stressors and distress. Cross-sectional data do not allow researchers to differentiate the temporal orders of stressors, distress, and social support and thus are not adequate for the examination of the associations. In recent years, researchers have used panel data to examine the associations. However, most of these studies only re-interview older adults for two or three time points and often cover a short period of time. Thus, these longitudinal studies have not provided a complete view on the mediating role of social support.

The aim of the study is to provide a longitudinal examination of the mediating effect of informal care on the association between functional disability and depression among older adults. This study extends stressor-distress theory by examining whether mediating effects differ for different sources of social support – spouses, children, other family members, and nonfamily members. Additionally, this study examines whether the mediating effects differ for ADL limitations and IADL limitations. Finally, this study uses five-wave panel data that follow a nationally representative sample of older adults for almost a decade. This study answers four questions: (1) whether functional disability triggers or exhausts social support, (2) whether social support reduces or increases depression, (3) whether depression triggers social support, and (4) whether social support fosters disability.

Data

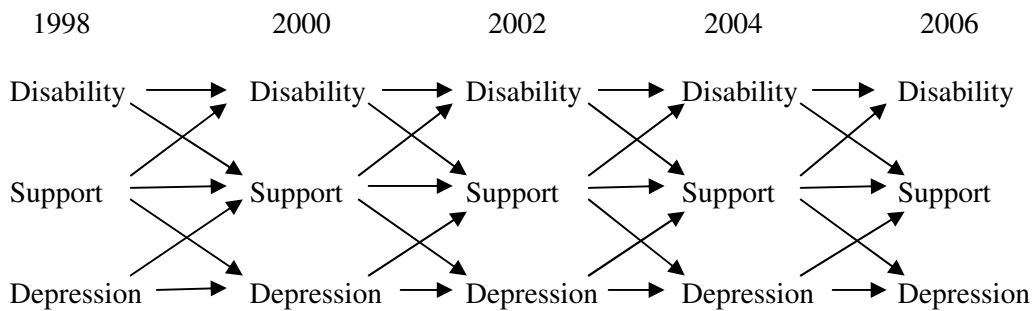
The Health and Retirement Study (HRS) will be used in the study. The HRS is a longitudinal study of nationally representative cohorts of individuals born before 1953 in the United States. The study consists of five cohorts who entered the study in four different years. The 1931 – 1941 cohort of the original HRS sample was first interviewed in 1992 and followed up biennially. The 1890 – 1923 cohort was first interviewed in 1993 as the sample of the study of Assets and Health Dynamics among the Oldest Old (AHEAD), re-interviewed in 1995, and finally combined with the HRS in 1998. The 1924 – 1930 cohort of Children of Depression Age (CODA) and the 1942 – 1947 cohort of War Babies (WB) were first interviewed as part of HRS sample in 1998. All of these four cohorts of respondents and their spouses have been re-interviewed every other year since 1998. Recently, a new cohort of early boomers, born between 1948 and 1953, was added to the HRS sample in 2004 (for detailed information on study design, see <http://hrsonline.isr.umich.edu>).

The study will use data collected from the first four cohorts between 1998 and 2006 and exclude the early-boomer cohort. Different from the other four cohorts, the early-boomer cohort was only between the age of 53 and 58 in 2006. Since the target population of this study is older adults, this cohort is excluded. Also, the four cohorts of respondents (HRS, AHEAD, CODA, and WB) entered the HRS study at different time points. Because the question wording of functional disability and the sources of informal care are not completely comparable before and after the 1998 survey, this study uses only the data collected in and after 1998 in order to maximize the size of older-adult samples.

## Analytic Strategy

The study will estimate a cross-lagged regression model in which disability and depression measured at time  $t-2$  affect the receipt of support at time  $t$ , and the receipt of support at time  $t$  subsequently affect disability and depression at time  $t+2$ . The model is illustrated in Figure 2. All concurrent measures of disability, support, and depression are allowed to be freely correlated but not shown to simplify the figure.

**Figure 2 Cross-lagged Model**



Although it is not shown in Figure 2, all four sources of informal care (i.e., spouses, adult children, other family members, and nonfamily members) will be included in the same model to examine whether different sources of care have different mediating effects. Moreover, the same model will be estimated separately for ADL limitations and IADL limitations to understand which source of informal care is likely to suppress or reinforce what type of functional disability.

## Preliminary Results

The preliminary results shown in Table 2 suggest that older adults' ADL difficulties are positively related to support from spouses and adult children but IADL difficulties have a stronger association with adult children's support than spouses'. The receipt of ADL or IADL support from spouses or children is positively related to older adults' depressive symptoms. Older adults' depression is negatively associated with spouses' ADL support but positively associated with adult children's IADL assistance. Finally, the receipt of ADL or IADL support from spouses or children is positively related to older adults' functional limitations.

#### Next steps

In the next few months, we will refine the model to improve the model's goodness-of-fit (e.g., adding correlated errors for the same types of measures across time and direct effects from disability to depression and vice versa). Second, we will investigate the inconsistent results across different waves of data. Third, we will conduct statistical tests to examine the relative importance of path coefficients across different types of functional disability and different sources of support. Finally, we will add other covariates that may confound the association between functional disability, support, and depression. These variables include older adults' age, gender, resources, and needs.

Table 1 Percentages of Older Adults Who Had ADL or IADL Difficulties, Their Sources of Support, and Depression Scores

	Had ADL difficulties	Among Older Adults with Difficulties, They Received Support from: <sup>a</sup>			
		Spouse	Child	Other family members	Nonfamily members
1998	11.75	16.17	9.14	3.66	5.91
2000	14.37	14.93	8.33	3.13	5.67
2002	16.04	15.50	11.94	3.77	7.23
2004	19.00	14.80	15.78	4.93	10.31
2006	26.43	17.29	18.77	6.52	14.65

	Had IADL difficulties	Among Older Adults with Difficulties, They Received Support from: <sup>a</sup>			
		Spouse	Child	Other family members	Nonfamily members
1998	8.21	32.80	35.81	11.27	8.05
2000	9.15	29.64	36.18	8.36	9.64
2002	12.46	31.13	38.27	10.51	14.69
2004	17.35	29.57	43.12	10.31	14.24
2006	23.70	30.86	46.40	13.24	17.77

Note: HRS 1998-2006. N = 6,273. All older adults were age 65 or above in 1998.

<sup>a</sup>Row total for sources of support is greater than 100% because some older adults received more than one type of support.



Table 2. Key Path Coefficients from the Cross-Lagged Models

Source of Support	t	t-2				t+2				t-2				t+2			
		ADL		CESD		ADL		CESD		IADL		CESD		IADL		CESD	
Spouse	1998					0.035		0.447	*					0.169		0.489	*
	2000	0.020	***	-0.001		0.318	*	0.286		0.012		0.001		0.265	**	0.305	
	2002	0.022	***	-0.003	**	0.526	***	0.338		0.022	**	-0.002		0.227	**	0.376	*
	2004	0.014	***	-0.003	**	0.777	***	0.580	***	0.007		-0.001		0.515	***	0.377	**
	2006	0.023	***	-0.004	**					0.013	**	-0.001					
Child	1998					0.376	*	0.665	*					0.177		0.700	***
	2000	0.022	***	0.000		0.572	**	-0.011		0.041	***	0.001		0.523	***	0.618	***
	2002	0.025	***	-0.001		0.487	**	0.571	*	0.034	***	0.004	*	0.347	***	0.387	**
	2004	0.028	***	-0.001		0.546	**	0.397	*	0.063	***	0.015	**	0.678	***	0.399	**
	2006	0.037	***	-0.001						0.037	***	0.006	***				
Other family members	1998					-0.071		0.890						0.197		0.547	
	2000	0.007	*	-0.001		-0.004		0.575		0.016	**	0.000		0.247		-0.012	
	2002	0.010	**	0.000		0.122		0.206		0.019	***	0.002	*	0.156		0.567	*
	2004	0.012	***	0.000		0.744	**	0.749		0.022	***	0.001		0.512	**	0.019	
	2006	0.013	**	-0.001						0.019	***	0.002					
Nonfamily members	1998					0.428		1.062	**					0.277		1.319	***
	2000	0.016	**	-0.001	*	0.747	**	0.381		0.023	***	0.000		0.255		0.095	
	2002	0.020	***	0.000		1.094	***	0.388		0.039	***	0.003	*	0.280	*	0.531	*
	2004	0.024	***	0.001		0.597	**	0.433	*	0.025	***	0.002		0.437	***	0.536	**
	2006	0.038	***	-0.002						0.034	***	0.000					

N=6273, X2=1342.191, df=271, CFI=0.907, TLI=0.856,  
RMSEA=0.025

N=6273, X2=1723.433, df=271, CFI=0.916, TLI=0.869,  
RMSEA=0.029

\* p < 0.05, \*\* p < 0.01, \*\*\* p < .001