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## Health of Vietnamese Older Adults and Caregiver's Psychological Status in the United States: Result from the Vietnamese Aging and Care Survey

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### Abstract

**Objective:** We examined the association between care recipient's physical, mental, and cognitive health conditions and caregivers' psychological distress in Vietnamese older care recipients and their caregivers.

**Methods:** The Vietnamese Aging and Care Survey was developed for care recipients, and adult-child and spousal caregivers, and inquired about their sociodemographics and health-related variables.

**Results:** Data were collected on 58 caregiver-care recipient dyads. Adult-child and spousal caregivers were on average 43 and 70 years-old respectively. The vast majority were female (76%) and born in Vietnam (97%). Adult-child caregivers reported more caregiver burden than spousal caregivers. Care recipients were on average 75 years-old. Care recipients of adult-child caregivers reported more depressive symptoms than care recipients of spousal caregivers and were more likely to have mild dementia. Care recipients' health had no effect on caregiver depressive symptoms but their educational attainment was associated with caregiver burden and depressive symptoms.

**Conclusions:** This study showed care recipient and caregivers' years of education were negatively associated with caregivers' psychological distress. Vietnamese families lived in ethnic enclaves and shared caregiving responsibilities within the family. However, using available outside resources may alleviate psychological distress of not only caregivers but also families as a whole.

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Declaration of Interest Statement

This is to declare that we have no financial interest or benefit that has arisen from the direct applications of our research.

**Clinical Implications:** Healthcare professionals should encourage educated caregivers and educated care recipients to use outside resources to ease caregiving duties.

### Keywords

burden; caregiver; caregiving; cognitive; depressive symptoms; education; mental; older; older adults; Vietnamese

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### Introduction

As the older population continues to grow and live longer, the number of family caregivers will also increase. Approximately 34.2 million individuals in the United States (U.S.) provide care for an adult older than 50 years old (National Alliance on Caregiving (NAC) and AARP, 2015). While caregiving is associated with some positive outcomes such as a sense of purpose and giving back (Roberto & Jarrott, 2008), an extensive literature has documented the negative health and mental health effects of caregiving for an ill family member (Vitaliano et al., 2009). Pinquart and Sorensen's seminal meta-analysis (2005) found that Asian American dementia family caregivers reported greater depression as well as economic and linguistic barriers than non-Hispanic white caregivers. This is troubling because Asian Americans are the fastest-growing ethnic group in the U.S. (Lopez, Ruiz, & Patten, 2017) and their familial obligations and cultural expectations to care for family members (Weng & Nguyen, 2018) might also prevent them from accessing support services.

Asian American caregiving studies in the U.S. are sparse. The available data suggests that Asian Americans provide more caregiving than the national average (NAC & AARP, 2009), and spend more years caregiving compared to non-Hispanic whites (Miyawaki, 2016). Vietnamese Americans are one of the four largest Asian subgroups in the U.S. (approximately 2 million), however, very little is known about the health of Vietnamese caregivers and their care recipients.

Pearlin's stress-process model provides a guiding framework for identifying individual differences in caregiving variables (Pearlin, Mullan, Semple, & Skaff, 1990). The revised sociocultural stress and coping model adds an additional component of race/ethnicity and the influence of the social context on caregiver stress and outcomes (Knight & Sayegh, 2010). Dilworth-Anderson and Anderson (1994) combined concepts from stress and coping and ecological-contextual theories to posit that differences in possible resources (e.g., socioeconomic status) play a role in caregiving stressors and outcomes. Among Asian ethnic groups, Vietnamese have lower levels of English language proficiency, education, and income (Meyer, Liu, Nguyen, Hinton, & Tancredi, 2018). Limited evidence suggests that Vietnamese caregivers report the most psychological distress and the poorest self-rated health among Asian American groups (Meyer et al., 2018), potentially because of cultural values such as filial piety (Weng & Nguyen, 2018). In addition, lack of culturally and linguistically appropriate services may engender the use of family members as the sole supporters of ill older adults, making caregivers more vulnerable to distress (Han et al., 2008).

Moreover, much less is known about how the health status of older family members impact caregivers' psychological distress in the Vietnamese community. Vietnamese older adults reported poorer health with more chronic conditions than is the case in other Asian-origin groups (Mui & Shibusawa, 2008). They also reported higher levels of depressive symptoms (Leung, Cheung & Cheung, 2010), and physical disabilities than other Asian-origin groups (Kim et al., 2010), which may very well be partly due to war trauma and the refugee experience.

We used a modified version of the sociocultural stress and coping model, as our conceptual model (Figure 1) to examine how caregiver and care recipient characteristics are associated with caregiver health in the Vietnamese community in Houston, Texas. The purpose of the study was to examine the association between care recipients' physical, mental, and cognitive health and caregivers' psychological health as measured by caregiver burden and depressive symptoms.

## Methods

### Research Design

This study used a cross-sectional design. Since there was no health survey conducted specifically for Vietnamese older adults and their caregivers in the U.S., we first formed a Vietnamese Community External Advisory Board consisting of five Vietnamese-origin professionals, shared the drafts of the surveys, and in consultation with the Principal Investigator (PI) of the Hispanic Established Populations for Epidemiologic Studies of the Elderly (H-EPESE) (Markides, Chen, Angel, Palmer, & Graham, 2016), three versions of the Vietnamese Aging and Care Survey (VACS) were developed for: (1) Vietnamese care recipient; (2) adult-child caregiver; and (3) spousal caregiver. Both English and Vietnamese versions were developed. The VACS care recipient survey included inquiries on sociodemographics, global health, physical, mental, and cognitive health status, social service use, social support, and filial expectations of caregiving. The VACS caregiver survey consists of sociodemographic background, caregiving context variables, health and mental health, stress, social support, family interactions, assessments of care recipients' health needs, social service use, and adult children's sense of filial responsibility.

### Sampling Strategy (Inclusion Criteria)

Care recipients (1) were 65 years-old and older; (2) community-dwelling; (3) self-identified as Vietnamese; (4) had a family caregiver; (5) spoke Vietnamese and/or English; and (6) lived in Houston, Texas. Caregivers: (1) were an adult-child caring for parent(s) 65 years and older or a spouse caring for the past six months; (2) self-identified as Vietnamese; (3) spoke Vietnamese and/or English; and (4) lived in Houston at the time of caregiving.

### Data Collection

Utilizing a study flyer in English and Vietnamese and with the help of bilingual/bicultural Vietnamese research assistants (RAs), we recruited study participants primarily through Vietnamese community gate keepers and social service key personnel in 2018. Caregiver surveys were self-report or conducted by RAs in Vietnamese if the caregivers were unable to

do so by themselves, and RAs interviewed all care recipients. Written informed consent was obtained before conducting the surveys/interviews. The approval of human subjects research was obtained by the PI's university Institutional Review Board.

## Measures

Caregiver and care recipient's demographic data (i.e., age, gender, marital status, nativity status, age at immigration, years of formal education, annual household income, and length of time caregiving) were collected. Care recipients' physical disability (ADL) was reported by both care recipients and caregivers. A self-reported number of care recipients' disabilities with complex skills (Instrumental activities of daily living (IADL) was also counted. The Mini-Mental State Examination (MMSE) (Folstein, Folstein, & McHugh, 1975) was used to measure care recipient's cognitive function. A 12-item Zarit Burden Interview (Bédard, Molloy, Squire, Dubois, Lever, & O'Donnell, 2001) was used to measure caregiver burden. Caregiver and care recipient's depressive symptoms were measured by the 20-item Center for Epidemiologic Studies Depression Scale (CES-D) (Radloff, 1977).

## Analytic Strategy

Descriptive statistics were used to summarize the characteristics of caregiver-care recipient dyads. Associations were examined with Chi-square tests or Fisher's exact tests. Multivariable linear regressions were performed to examine the effects of care recipient's level of disability (ADL, IADL), depressive symptoms (CES-D), and cognitive function (MMSE) on caregiver burden and depressive symptoms. All tests of statistical significance were two-sided with a  $p$ -value  $< 0.05$ . All analyses were performed using SAS version 9.4 (SAS Institute, Inc., Cary, NC).

## Results

We surveyed 132 Vietnamese older adults (65 years) and 67 caregivers. For the purposes of this paper, we focused on the 58 caregiver-care recipient dyads who were adult-child and spousal relationships.

### Characteristics of caregiver and care recipients (Table 1).

Adult-child caregivers ( $n = 36$ ) were on average 43 years-old while spousal caregivers ( $n = 22$ ) were on average, 70 years-old. The vast majority were female (76%) and 97% were born in Vietnam. Adult-child caregivers had more education (11.4 years) than spousal caregivers (8.6 years) but the difference was not significant ( $p=0.11$ ). The vast majority of adult-child caregivers (89%) were employed; however, their household income (78%) was less than \$25,000/year. Length of time caregiving for adult-child caregivers and spousal caregivers was similar (around 7.3 years) but adult-child caregivers felt more caregiver burden ( $M = 8.1$ ) compared to spousal caregivers ( $M = 5.1$ ) ( $p=0.08$ ). Care recipients were on average 75 years-old. Two-thirds of adult-child caregivers cared for their mothers who were widowed, whereas most spousal caregivers cared for their husbands (82%) ( $p<0.01$ ). Adult-child caregivers' care recipients were slightly less educated (5.3 years) compared to spousal caregivers' care recipients (7.6 years).

Care recipients' ADL (1.7 out of 7) and IADL (2.2 out of 9) disabilities were fairly low, but adult-child caregivers' care recipients tended to experience more depressive symptoms (8.9 out of 30 points) compared to spousal caregivers (6.4) ( $p=0.05$ ). As for their cognitive health, while spousal caregivers' care recipients showed few signs of dementia (24.8 out of 30 on the MMSE), adult-child caregivers' care recipients potentially had mild dementia (23.9) as scores between 20 and 24 are considered as mild dementia (Folstein, Folstein, & McHugh, 1975).

Tables 2 and 3 present the results of linear regression analyses predicting caregiver burden and depressive symptoms respectively. Care recipient's physical disability (ADL), depressive symptoms (CES-D), and cognitive function (MMSE) were not significantly associated with caregiver burden and depressive symptoms. But care recipients' age and education (Table 2, Model 5) and care recipients' education (Table 3, Model 3) were associated with both caregiver burden and depressive symptoms. Care recipients' age ( $b=0.39$ ,  $p=0.01$ ) and education ( $b=0.47$ ,  $p<0.01$ ) were positively associated with caregiver burden. Similarly, care recipients' education was positively associated with caregiver's depressive symptoms ( $b=0.14$ ,  $p=0.04$ ).

In terms of caregiver's characteristics, caregiving length and gender did not seem to matter for psychological distress. However, caregiver education was positively associated with caregiver burden (Table 2, Model 5) and depressive symptoms (Table 3, Model 3). More educated caregivers felt more caregiver burden ( $b=0.39$ ,  $p=0.01$ ) and depressive symptoms ( $b=0.13$ ,  $p=0.06$ ).

## Discussion

We examined the relationship between Vietnamese older adults' physical, mental and cognitive health and their adult-child and spousal caregiver's burden and depressive symptoms. Adult-child caregivers cared for widowed (50%) mothers (64%) whereas spousal caregivers cared for their husband (82%). As adult-child caregivers' care recipients experienced worse mental and cognitive health conditions (see Table 1), adult-child caregivers tended to experience higher levels of caregiver burden (e.g., MMSE:  $b=0.58$ ,  $p=0.01$ ) and depressive symptoms (e.g., MMSE:  $b=0.16$ ,  $p=0.03$ ) (tables not shown).

One notable finding is that caregiver and care recipient education levels were associated with caregiver burden and depressive symptoms. Caregivers with higher education experienced more caregiver burden and depressive symptoms regardless of care recipients' physical, mental and cognitive health. This finding was striking because previous literature consistently showed opposite patterns: lower educated caregivers typically experienced higher caregiver burden (Yakubu & Schutte, 2018; Zincir et al., 2014) and more depressive symptoms (Leung et al., 2010; Liang et al., 2016; Piercy et al., 2013). More educated caregivers may be more aware of their care recipients' health conditions and thus, more likely to report their own psychological distress (Meyer et al., 2018). Many caregivers (e.g., adult-child caregivers: 90%) were employed at the time of survey. Previous studies have shown that employed caregivers expressed more psychological distress than non-employed caregivers (Kohl, Mossakowski, Sanidad, Bird, & Nitz, 2018; Roth, Fredman, & Haley,

2015) and more educated employees tended to hold more demanding jobs (Kline, 2019). Therefore, these conditions may influence caregivers' stress levels. More educated care recipients compared to less educated care recipients had caregivers who reported more burden and depressive symptoms. This finding was striking and to our knowledge, there has been no study reporting on caregivers' health by care recipients' education level. Leung and colleagues (2017) reported more educated Vietnamese older adults experienced more depressive symptoms in their study; however, the contributing factor was unknown. Reasons could be that if the care recipients were more educated, they were more likely to articulate their needs and possibly request more assistance. That could potentially become more demanding on their caregivers. Further investigation is warranted.

This project was a pilot, dyadic study using a small, convenience sample (N = 58 dyads) to predict preliminary findings (Wave 1), and thus, has limitations. We plan to go back to the same participants and collect additional data to have a robust sample size at Wave 2. Respondents were recruited from Vietnamese churches and senior centers in Houston. Many of them lived in multi-generational households surrounded by other relatives and were strongly connected to Vietnamese communities. Future research should include a socioeconomically and geographically more diverse sample.

Despite these limitations, this study was the first dyadic study of Vietnamese caregivers and care recipients in the community in the United States. A notable contribution has been the important finding relating educational level to caregivers' burden and depressive symptoms. Living in ethnic enclaves, helping one other and sharing caregiving responsibilities within multigenerational households is an excellent way to handle caregiving challenges (Torr & Walsh, 2018). In fact, this may be the only way for older care recipients to protect themselves because the vast majority of currently middle-aged and older Vietnamese immigrants in this study came to the U.S. as refugees after the end of the Vietnam war in 1975 and they are first-generation new immigrants. Older care recipients may be impacted by trauma from the Vietnam War along with separation from their family members still back in Vietnam. Many of them did not have formal education in Vietnam and do not speak English. Their adult-child caregivers have to learn the new U.S. healthcare system while supporting their aging parents and potentially their own families (Miller, 1981). Educated adult-child caregivers are most likely responsible for all household affairs, and their lifestyle could result in greater psychological distress and caregiving burden. Thus, education was a protective factor against psychological distress for non-Hispanic white and Mexican American caregivers, but not for Chinese and Vietnamese caregivers (Meyer et al., 2018). Benefits of respite care have been well-studied (National Academies of Sciences, Engineering, and Medicine, 2016). Leveraging and encouraging more acculturated (or more educated) adult-child caregivers to start using available outside resources such as adult day centers for their care recipients and respite care for themselves may ease the psychological distress of not only caregivers, but also their families as a whole.

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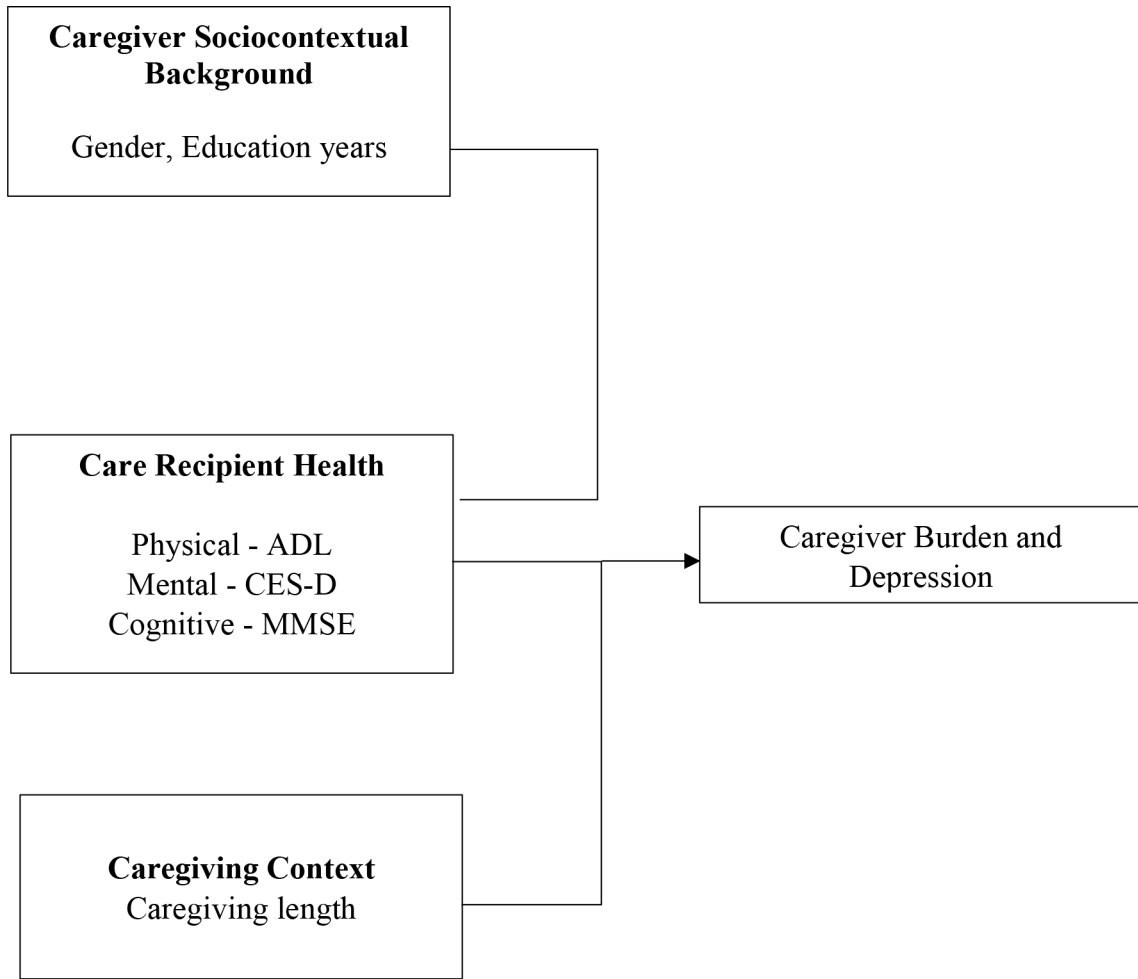
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### Clinical Implications

- Providing health information to and educating not only caregivers, but also care recipients
- Encourage more educated Vietnamese caregivers and educated care recipients to work with healthcare professionals



**Figure 1.**  
Conceptual model of variables related to caregiver burden and depression.

Table 1.

## Characteristics of Caregiver (CG) and Care Recipient (CR) Dyads

Variables	Caregiver			Care Recipient (cared by)			p value
	All M $\pm$ SD, N (%)	ACCG M $\pm$ SD, N (%)	SCG M $\pm$ SD, N (%)	All M $\pm$ SD, N (%)	ACCG M $\pm$ SD, N (%)	SCG M $\pm$ SD, N (%)	
N	58	36	32	58	36	22	
<b>Background</b>							
Age	53.3 $\pm$ 16.7	43.1 $\pm$ 11.9	70.1 $\pm$ 6.5	74.9 $\pm$ 6.2	75.8 $\pm$ 6.8	73.4 $\pm$ 4.9	0.27
Female	44 (75.9%)	27 (75.0%)	17 (77.3%)	27 (46.6%)	23 (63.9%)	4 (18.2%)	<0.01
Married	45 (77.6%)	23 (63.9%)	22 (100%)	37 (63.8%)	18 (50.0%)	22 (100%)	<0.01
Vietnam-born	56 (96.6%)	34 (94.4%)	22 (100%)	58 (100%)	36 (100%)	22 (100%)	--
Immigration age (mean)	31.9 $\pm$ 16.3	23.7 $\pm$ 12.8	44.4 $\pm$ 13.0	50.7 $\pm$ 12.9	53.9 $\pm$ 12.3	45.4 $\pm$ 12.2	0.01
Education (years)	10.4 $\pm$ 6.4	11.4 $\pm$ 6.3	8.6 $\pm$ 6.4	6.2 $\pm$ 5.8	5.3 $\pm$ 5.5	7.6 $\pm$ 6.0	0.14
High education (>12 yrs)	21 (36.2%)	16 (44.4%)	5 (22.7%)	6 (10.5%)	3 (8.6%)	3 (13.6%)	0.67
Income (<\$25K)	49 (84.5%)	28 (77.8%)	21 (95.5%)	56 (96.6%)	35 (97.2%)	21 (95.5%)	1.00
Employment (yes)	38 (65.5%)	32 (88.9%)	6 (27.3%)	<0.01			
Caregiving length (year)	7.3 $\pm$ 7.5	7.2 $\pm$ 4.7	7.5 $\pm$ 10.7	0.14			
<b>CR Health Status</b>							
CR-reported ADLs				1.7 $\pm$ 2.3	1.7 $\pm$ 2.4	1.7 $\pm$ 2.3	0.89
CG-reported ADLs				2.2 $\pm$ 2.6	2.1 $\pm$ 2.6	2.4 $\pm$ 2.8	0.69
IADLs				5.3 $\pm$ 2.8	5.8 $\pm$ 2.6	4.5 $\pm$ 3.0	0.10
MMSE				24.2 $\pm$ 5.7	23.9 $\pm$ 6.1	24.8 $\pm$ 5.1	0.58
Depressive Symptoms				7.9 $\pm$ 5.2	8.9 $\pm$ 4.8	6.4 $\pm$ 5.4	0.05
<b>CG Health Outcome</b>							
Depressive Symptoms	4.0 $\pm$ 2.7	3.6 $\pm$ 2.5	4.5 $\pm$ 2.9	0.38			
Caregiver Burden	7.0 $\pm$ 8.0	8.1 $\pm$ 8.4	5.1 $\pm$ 7.0	0.08			

Note: ACCG = adult-child caregiver; SCG = spousal caregiver; M = mean; SD = standard deviation; ADLs = activities of daily living; IADLs = instrumental activities of daily living; MMSE = Mini Mental State Examination.

Table 2:

Results of Linear Regression Analysis of **Caregiver Burden** on Care Recipient Disability, Depressive Symptoms, and Cognitive Function in **All Caregivers** (n=58)

Variables	Model 1		Model 2		Model 3		Model 4		Model 5	
	b (s.e)	p	b (s.e)	p	b (s.e)	p	b (s.e)	p	b (s.e)	p
<b>CR background</b>										
Age	0.46 (0.14)	< 0.01	0.44 (0.14)	< 0.01	0.44 (0.16)	< 0.01	0.43 (0.15)	< 0.01	0.39 (0.15)	0.01
Female	6.18 (1.79)	< 0.01	4.27 (1.96)	0.03	4.27 (2.02)	0.04	4.47 (2.24)	0.05	3.34 (2.14)	0.12
Education (years)	0.60 (0.16)	< 0.01	0.48 (0.16)	< 0.01	0.48 (0.16)	< 0.01	0.50 (0.17)	< 0.01	0.47 (0.16)	< 0.01
<b>CG background</b>										
Caregiving length			0.05 (0.12)	0.68	0.05 (0.12)	0.66	0.02 (0.12)	0.85	0.02 (0.12)	0.85
Female			2.21 (2.07)	0.29	2.21 (2.09)	0.29	3.06 (2.34)	0.20	2.23 (2.06)	0.28
Education (years)			0.40 (0.16)	0.01	0.41 (0.17)	0.02	0.43 (0.17)	0.01	0.39 (0.16)	0.01
<b>CG-reported ADLs</b>										
					0.01 (0.39)	0.99				
<b>CR-reported CES-D</b>										
							0.02 (0.20)	0.91		
<b>CR-reported MMSE</b>										
									-0.19 (0.18)	0.29
Intercept	-33.98		-37.44		-37.38		-37.52		-28.09	
R <sup>2</sup>	0.35		0.44		0.44		0.44		0.45	
Adjusted R <sup>2</sup>	0.32		0.36		0.36		0.36		0.37	

Note: s.e = standard error; CG = caregiver; CR = care recipient; ACCG = adult-child caregiver; SCG = spousal caregiver; ADLs = activities of daily living; MMSE = Mini Mental State Examination.

Table 3:

Results of Linear Regression Analysis of Caregiver Depressive Symptoms on Care Recipient Disability, Depressive Symptoms, and Cognitive Function in All Caregivers (n=58)

Variables	Model 1		Model 2		Model 3		Model 4		Model 5	
	b (s.e)	p	b (s.e)	p	b (s.e)	p	b (s.e)	p	b (s.e)	p
<b>CR background</b>										
Age	0.06 (0.06)	0.26	0.04 (0.06)	0.44	<0.01 (0.07)	1.00	0.05 (0.06)	0.37	0.02 (0.06)	0.80
Female	1.05 (0.73)	0.16	0.73 (0.80)	0.36	0.36 (0.83)	0.67	0.17 (0.89)	0.85	0.31 (0.86)	0.72
Education (years)	0.17 (0.06)	0.01	0.16 (0.07)	0.02	0.14 (0.07)	0.04	0.14 (0.07)	0.06	0.16 (0.07)	0.02
<b>CG background</b>										
Caregiving length			-0.08 (0.05)	0.10	-0.06 (0.05)	0.22	-0.08 (0.05)	0.11	-0.09 (0.05)	0.06
Female			1.19 (0.90)	0.19	1.17 (0.89)	0.19	1.19 (0.91)	0.20	1.30 (0.90)	0.15
Education (years)			0.09 (0.06)	0.15	0.13 (0.07)	0.06	0.09 (0.07)	0.16	0.09 (0.06)	0.16
<b>CG-reported ADLs</b>					0.23 (0.17)	0.17				
<b>CR-reported CES-D</b>							0.07 (0.08)	0.34		
<b>CR-reported MMSE</b>									-0.09 (0.07)	0.21
Intercept	-2.61		-2.16		0.50		-2.95		2.52	
R <sup>2</sup>	0.15		0.24		0.27		0.25		0.26	
Adjusted R <sup>2</sup>	0.09		0.14		0.15		0.13		0.15	

Note: s.e = standard error; CG = caregiver; CR = care recipient; ACCG = adult-child caregiver; SCG = spousal caregiver; ADLs = activities of daily living; MMSE = Mini Mental State Examination.