

Association between caregivers' characteristics and older care recipients' well-being among Vietnamese immigrant families in the United States

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Abstract

Aims: We examined the association between caregivers' psychological status and their older family members' (care recipients) mental health in the Vietnamese American community ($N = 58$ dyads).

Methods: Logistic regression models were used.

Results: Caregivers and care recipients were on average 53 and 75 years old, immigrated at ages 32 and 51, and had 10 and 6 years of formal education, respectively. Approximately two-thirds of caregivers provided care for 20+ h/week for 7 years with the majority of care recipients reporting fair or poor health. Care recipients' physical and cognitive health had a significant association with their depressive symptoms. However, care recipients acting as burdened caregivers' "company" helped themselves and felt less depressed ($OR = 0.89$, 95% CI: 0.80, 0.99).

Conclusion: Leveraging the tradition of Vietnamese multi-generation households, we should promote being a good company to each other that will help the caregiver-care recipient dyad, as well as their family unit when planning future interventions.

KEYWORDS

care recipients, caregiver burden, caregivers, depressive symptoms, dyads, Vietnamese

1 | INTRODUCTION

Asian Americans (AAs) are the fastest-growing major racial/ethnic group in the United States. Between 2000 and 2019, their population grew from 11.9 million to 23.2 million (95% increase) and is expected to grow to 46 million by 2060 (Budiman & Ruiz, 2021). Similarly, the population of older AAs (65 years and older) was 2.3 million in 2017 and is expected to increase to 7.9 million by 2060 (Administration for Community Living, 2019). Despite these trends, research on aging and health among AAs has been limited (American Association of Retired Persons [AARP], 2014; George et al., 2014).

Among AAs, one of the fastest-growing populations is Vietnamese Americans (Budiman & Ruiz, 2021). After the fall of Saigon, Vietnamese refugees arrived in the United States in three distinct waves starting from 1975 through the 1990s (Alperin & Batalova, 2018; Klineberg & Wu, 2013). Currently, Vietnamese Americans constitute the sixth-largest foreign-born population (U.S. Census Bureau, 2017a) and the fourth largest Asian-origin subgroup (Reeves & Bennett, 2004). The vast majority of the first wave of Vietnamese refugees who arrived in the United States as middle-aged adults are now older with many of them in need of assistance with their activities of daily living (ADLs) or instrumental activities of daily living (IADLs) (Fuller-Thomson et al., 2011; Kim et al., 2010). Those who came as young children are now middle-aged adults and many are raising their US-born children while attending to their aging parents' needs.

Although AA ethnic groups are heterogeneous, AAs also share common cultural backgrounds and practices. For example, many Asian countries value collectivistic ideas and religious beliefs. Despite religious diversity across Asian origins, family-focused traditions and intergenerational supports are predominant (Kramer et al., 2002). Elder caregiving is one of the traditional cultural aspects with the concept of filial piety based on Confucianism, being highly valued and emphasized intergenerationally (AARP, 2014; Kramer et al., 2002). Multigeneration households are common (Weng & Nguyen, 2011) and reciprocal caregiving between generations is embedded in Asian cultures (AARP, 2014; Miyawaki, 2015) including among Vietnamese (Yeo et al., 2002). Along with the fact that Vietnamese families in the United States are more likely to live in multigeneration households (32%) compared to all Asian (26%) and overall US households (19%) (Cohn & Passel, 2018; Pew Research Center, 2017), family members often share caregiving responsibilities of older family members (Miyawaki, Chen, et al., 2020).

A number of studies of the health of Vietnamese immigrants and refugees have reported poorer health and mental health compared to other racial/ethnic groups in the United States (Fu & Van Landingham, 2012; Sorokin et al., 2008), especially with respect to the prevalence of depressive symptoms (Kim-Mozeleski et al., 2018; Leung et al., 2010). However, there is limited information about the health status of Vietnamese older adults and their family caregivers, as well as any data on their elder caregiving practices. Based on this background, we developed the *Vietnamese Aging and Care Survey* (VACS) and collected data on Vietnamese older adults and their family caregivers in Houston, Texas ($N = 199$) in 2018. Houston has the third-largest Vietnamese-origin population in the United States after San Jose and Los Angeles in California with around 81,000 in 2016 (Leung et al., 2010; U.S. Census Bureau, 2017b; von der Mehden, 2017). How caregivers' caregiving experiences influence their own physical and mental health (Pinquart & Sorensen, 2003) and how care recipients' behaviors and health affect caregivers' health (Pinquart & Sorensen, 2007) including one study with the Vietnamese population (Miyawaki, Meyer, et al., 2020) have been investigated. These studies concluded that not only caregivers' caregiving experiences, but also care recipients' behaviors and health conditions were highly associated with caregivers' physical and mental health. However, few studies have explored the association between caregivers' caregiving experiences and care recipients' health. Although very limited, previous studies reported care recipients' poor health if their caregivers were burdened or stressed (Buck et al., 2015; McClendon & Smyth, 2015; Spillman & Long, 2009). Thus, there may be a potential link between caregivers' certain characteristics and care recipient's health—how caregivers' health and psychological health affect care recipients' well-being in a dyadic relationship (Ejem et al., 2015; Pristavec, 2019).

Pearlin's (2010) stress process model guided a basic framework for this study. The model theorized that caregivers' experiences (i.e., caregiver burden) as primary stressors, and caregivers' socio-contextual background (i.e., demographics, employment status) as secondary stressors are directly or indirectly associated with care recipients' mental health (i.e., depressive symptoms). Considering the small sample size of this study ($N = 116$), Figure 1 shows the final conceptual model. The purpose of this study was to examine the association between caregivers' characteristics (socio-contextual and psychological) and care recipients' mental health (depressive symptoms) in the US Vietnamese community.

2 | METHODS

2.1 | Research design, sample, and data collection

Guided by the Principal Investigator (PI) of the Hispanic Established Populations for Epidemiologic Studies of the Elderly (H-EPESE) (Markides et al., 2016), as well as reviewed by a Vietnamese Community External Advisory Board with five Vietnamese healthcare- and education-related professionals, three versions of the Vietnamese Aging and Care Survey (VACS) were developed in English and Vietnamese: Vietnamese care recipient; adult-child caregiver; and spousal caregiver surveys. All the survey versions covered sociodemographic, physical, mental, and cognitive health, as well as social support and caregiving-related assessments. More details on how the VACS was developed, the method of data collection, and all the included variables in the three surveys are described elsewhere (Miyawaki, Chen, et al., 2020; Miyawaki, Meyer, et al., 2020). The PI of this study received approval from her university Institutional Review Board in regard to the Federal Policy for the Protection of Human Subject (STUDY00000419).

Eligibility criteria for inclusion in the study included self-identification as being of Vietnamese origin; Vietnamese and/or English language ability and Houston area residence. Care recipients were 65 years old and older living in the community who had a family caregiver who provided help at least twice a week for 8 h per week or more. Caregivers were adult-children or spouses/partners of persons aged 65 years and older and cared for them for 6 months or longer. If a care recipient had multiple caregivers, we collected data on all caregivers, however, we used the primary caregivers, those who provided the care the most, only for the analysis.

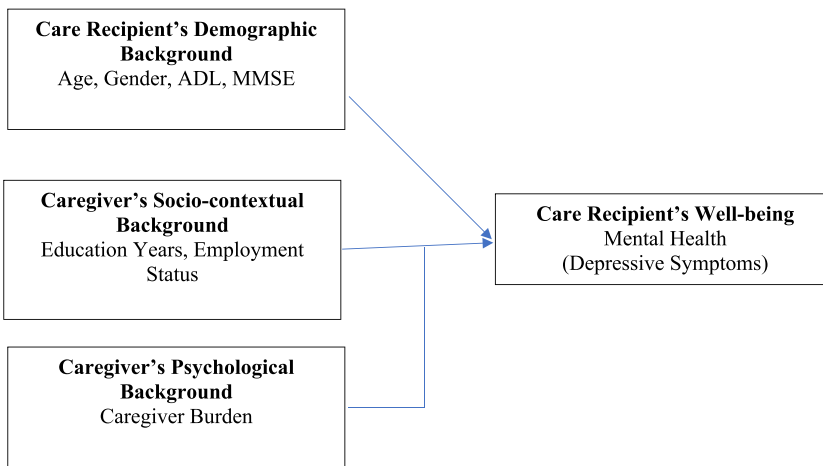


FIGURE 1 Conceptual model of care recipient outcome

Study flyers both in English and Vietnamese were used widely to recruit the study sample. Several years before the start of the study, the PI had established rapport with local Vietnamese social service agencies, Vietnamese faith organizations, and Vietnamese community gatekeepers. We hired bilingual/bicultural Vietnamese-origin research assistants (RAs) who were familiar with the Vietnamese history, Vietnamese traditional culture, and communication style and the PI trained them how to obtain the participants' informed consent and interview older participants who may have physical and cognitive disabilities. RAs assisted caregivers in filling out the surveys and interviewed all the care recipients in person upon their written consent.

2.2 | Measures

Since there were no Vietnamese versions of the survey instruments except the Center for Epidemiologic Studies Depression Scale (CES-D) (Radloff, 1977), we translated all the instruments and sociodemographic questions from English to Vietnamese. A bilingual, native Vietnamese Master's level school social worker conducted forward translations from English into Vietnamese and another bilingual, native Vietnamese post-doctoral medical sociologist performed backward translation. All the five Vietnamese Community Advisory Board members who were bilingual in English and Vietnamese approved the translation.

Care recipients' sociodemographic characteristics included age, gender (male = 0, female = 1), years of education, marital status (single/never married/separated/divorced/widowed = 0, married/partnered = 1) and employment status (not employed = 0, employed = 1). The number of ADL (Katz et al., 1970) and IADL (Lawton & Brody, 1969) tasks that care recipients could independently perform was also obtained (no = 0, yes = 1). Caregivers' socio-contextual variables included age, employment status, self-rated health (poor/fair = 0, good/excellent = 1) and hours spent caregiving (<20 h/week = 0, ≥20 h/week = 1).

2.2.1 | Cognitive function

The Mini-Mental State Examination (MMSE) (Folstein et al., 1975) was used to assess care recipients' cognitive function. The scores range from 0 to 30 and the higher scores indicate better cognitive function. We used the cut-off point of <21 for cognitive impairment that has been used for immigrants with low education levels in previous studies (Garcia et al., 2018). We considered this cut-off point because 100% of older Vietnamese respondents in this study were born and educated in Vietnam with an average formal education of 6.1 years and immigrated to the United States later in life (50.7 years old). Cronbach's alpha in this study was 0.87.

2.2.2 | Caregiver burden

The Zarit Burden Interview (Bédard et al., 2001) was used. It is a 12-item instrument measuring caregiver's self-reported subjective burden with a five-point Likert scale with scores ranging from 0 to 48. Higher scores indicate more burden. Cronbach's alpha was 0.86 in this study.

2.2.3 | Depressive symptoms

The 20-item Center for Epidemiological Studies Depression Scale (CES-D) (Radloff, 1977) was used for both caregivers and care recipients to assess the level of depressive symptoms during the past week. It is a four-point Likert scale from 0 to 3 (scores range from 0 to 60), with higher scores indicating a greater level of depressive

symptoms. A score of 16 or greater was set to identify an individual at risk of experiencing clinical depression. We dichotomized this variable as $<16 = 0$: not depressed and ≥ 16 : likely clinically depressed. We used the validated Vietnamese version of the CES-D that has proven to work well with Vietnamese-origin older adults (Tran et al., 2003). Cronbach's alpha for this study was 0.89.

3 | DATA ANALYSIS

Means and standard deviations for continuous variables and frequencies and proportions for categorical variables were used to describe sample characteristics. Chi-square tests and *t* tests were used to compare these characteristics between adult-child and spousal caregivers. To examine the association between caregivers' psychological characteristics (caregiver burden) and care recipients' mental health (depressive symptoms), we used logistic regression models with care recipients' depressive symptoms treated as a binary outcome. Given the small sample size, we calculated pairwise correlation coefficients and examined collinearity using the Collin command in Stata. No multicollinearity was found based on a variance inflation factor cut-off score of greater than 10. We then conducted bivariate analyses between depressive symptoms and each covariate and identified those covariates with a *p* value of less than 0.1. We further examined covariates that were significant from the theoretical and clinical standpoints. The final covariates in the full model included caregiver burden, care recipients' demographic and health-related characteristics (age, gender, ADL independence, MMSE), and caregivers' socio-contextual characteristics (education years, employment status). Three models were conducted. In Model 1, we included caregivers' psychological status (caregiver burden). In Model 2, we added care recipients' demographic and health-related characteristics (age, gender, the number of ADLs that care recipients can perform by themselves) as well as cognitive function. In Model 3, we added caregivers' education years and employment status. Person-mean imputation on missing data was used for the CES-D. Odds ratios and confidence intervals were reported; a *p* value of less than 0.05 was considered statistically significant. All analyses were conducted in Stata 15.0 (StataCorp., 2017).

4 | RESULTS

Table 1 presents the characteristics of the caregivers and care recipients. There were 58 caregiver-care recipient dyads in this study ($N = 116$). Caregivers were on average 53 years old (age range from 21 to 82 years). The vast majority (97%) were born in Vietnam and immigrated to the United States at an average age of 32 years old. Their average education was ten years and 66% were currently employed. The majority (84%) lived with their care recipients and provided care for more than 20 h a week (69%) over an average of seven years. Around 76% of them rated their health as good or excellent. They tended to be relatively healthy as their levels of caregiver burden, stress, and depressive symptoms were low and their caregiving experiences were generally positive. Care recipients were on average 75 years old (age range from 65 to 90 years). All were born in Vietnam and immigrated around the age of 51 years old (age range from 34 to 64 years). They had an average of six years of formal education. Most (81%) rated their health fair or poor and needed assistance in their IADL such as shopping, transportation, medication management, and financial matters. About 40% of them had a risk of being clinically depressed based on the established clinical cutoff score of the CES-D (16 points) in Western samples (Berkman et al., 1997). The average score of MMSE was 24.2. Because the care recipients' average formal education years was 6.1, the average MMSE score of 24.2 was considered cognitively sound; however, about 21% of them were cognitively impaired based on the education adjusted cut-off score (<21).

Table 2 shows the results of three logistic regression models predicting care recipients' depressive symptoms. In Model 1 (crude model), no statistically significant result was found between caregivers' caregiving burden and care recipient high depressive symptoms. In Model 2 adjusting for care recipients' demographic and

TABLE 1 Characteristics of caregivers and care recipients (N = 58 dyads)

Variables	Caregivers M ± SD, N (%)	Care recipients M ± SD, N (%)
Background		
Age	53.3 ± 16.7	74.9 ± 6.2
Female	44 (75.9%)	27 (46.6%)
Married	44 (75.9%)	37 (63.8%)
Vietnam-born	56 (96.6%)	58 (100%)
Immigration age (mean)	31.9 ± 16.3	50.7 ± 12.9
Years of residence in the United States (mean)	22.4 ± 11.5	24.2 ± 11.7
Education (years)(mean)	10.4 ± 6.4	6.1 ± 5.8
0 year	10 (17.2%)	21 (36.2%)
1–6 years	7 (12.1%)	12 (20.7%)
7–12 years	20 (34.5%)	19 (32.8%)
>12 years	21 (36.2%)	6 (10.3%)
Household income		
<\$25K	24 (42.1%)	53 (91.4%)
\$25K–\$50K	25 (43.9%)	3 (5.2%)
>\$50K	8 (14.0%)	2 (3.4%)
Employment (yes)	38 (65.5%)	
Language spoken at home		
Vietnamese	52 (91.2%)	57 (98.3%)
English and Vietnamese	5 (8.8%)	1 (1.7%)
Living arrangement with CR		
Live with CR	47 (83.9%)	
Within two blocks	5 (8.9%)	
Other	4 (7.1%)	
Caregiving length (year)	7.3 ± 7.5	N/A
Caregiving intensity (≥20 h/week)	40 (69.0%)	N/A
Health status		
Excellent	20 (34.5%)	0 (0%)
Good	24 (41.4%)	11 (19.0%)
Fair	14 (24.1%)	25 (43.1%)
Poor	0 (0%)	22 (37.9%)
Number of ADL independence	N/A	4.1 ± 2.9
Number of IADL independence	N/A	3.6 ± 2.8

TABLE 1 (Continued)

Variables	Caregivers M ± SD, N (%)	Care recipients M ± SD, N (%)
Psychological health		
Caregiver burden	7.0 ± 8.0	N/A
Perceived stress	3.3 ± 3.3	N/A
Positive aspects of caregiving	39.6 ± 8.0	N/A
Mean depressive symptoms	8.5 ± 4.5	14.7 ± 10.2
High depressive symptoms (<16)	5 (8.6%)	23 (39.7%)
No depressive symptoms	53 (91.4%)	35 (60.3%)
Cognitive health		
Mini-Mental State Examination		24.2 ± 5.7
	N/A	
Cognitively impaired	N/A	12 (20.9%)

Note: ADL scores: 0–7; IADL: 0–9; Caregiver burden: 0–48; Perceived stress: 0–16; Positive aspects of caregiving: 9–45; Depressive symptoms: 0–30; Mini Mental State Examination: 0–30.

Abbreviations: CR, care recipient; M, mean; SD, standard deviation.

TABLE 2 Results of logistic regression analysis predicting care recipient's high depressive symptoms (N = 116)

Variables	Model 1 OR (95% CI)	Model 2 OR (95% CI)	Model 3 OR (95% CI)
CG's psychological status			
Caregiver burden	0.42 (0.91, 1.04)	0.06 (0.83, 1.00)	0.89 (0.80, 0.99)*
CR's characteristics			
Age		1.09 (0.98, 1.22)	1.10 (0.98, 1.24)
Gender (ref. male)		2.13 (0.54, 8.43)	1.32 (0.29, 6.04)
Number of ADL independence		0.76 (0.60, 0.95)*	0.72 (0.56, 0.92)*
Cognitive Function (ref. no dementia)		5.21 (1.19, 22.84)*	8.87 (1.63, 48.28)*
CG's characteristics			
Education years			1.03 (0.91, 1.17)
Employment status (ref. employed)			0.30 (0.06, 1.43)

Abbreviations: 95% CI, confidence interval; CG, caregiver; CR, care recipient; OR, odds ratio.

* $p < 0.05$.

health factors, the number of ADL independence was significantly associated with lower odds of high depressive symptoms (OR = 0.76, 95% CI: 0.60, 0.95). Care recipients with cognitive impairment experienced more than 5 times greater likelihood of reporting high depressive symptoms compared to those with no cognitive impairment (OR = 5.21, 95% CI: 1.19, 22.84). Model 3 shows that the relationship between care recipients' cognitive function and high depressive symptoms remained in the same direction: care recipients

with cognitive impairment were significantly more likely to report high depressive symptoms (OR = 8.87, 95% CI: 1.63, 48.28) compared to those with no cognitive impairment. Care recipients who were more independent remained less likely to report high depressive symptoms (OR = 0.72, 95% CI: 0.56, 0.92). The relationship between burdened caregivers and caregivers' depressive symptoms became statistically significant: care recipients who were cared for by burdened caregivers were significantly less likely to report high depressive symptoms (OR = 0.89, 95% CI: 0.80, 0.99). But caregiver's socio-contextual characteristics did not seem to matter for care recipients' mental condition.

5 | DISCUSSION

Using the VACS health data on Vietnamese older adults and their family caregivers in Houston, Texas ($N = 58$ dyads), we examined the association between caregivers' psychological status (caregiver burden) and care recipients' mental health (depressive symptoms). All the Vietnamese families in this study tended to live in ethnic enclaves and resided in multigeneration households, speaking the Vietnamese language at home and keeping their traditional house structure. Overall, care recipients appeared to be satisfied with their lives and reported low levels of depressive symptoms.

We found that when the caregivers were burdened, the care recipients reported fewer depressive symptoms. This finding was unexpected and rather surprising; however, this pattern has long been proposed and theorized as Social Exchange Theory (Homans, 1958). Social Exchange Theory posits that interaction between persons is an exchange of goods, material, and nonmaterial (p. 597), and our social behaviors often resonate and are assembled by the exchange. Ejem and colleagues' dyadic study (2018) ($N = 1279$ dyads) guided by the Social Exchange Perspective (Cook & Rice, 2003) is one relevant study that supports our finding. Social Exchange Perspective includes the physical (i.e., care recipient helping caregivers with chores), social (i.e., care recipient becoming a helpful company to caregivers), and psychological (i.e., care recipient making caregiver feel useful) exchange of subjective goods. Black caregivers having objective caregiver burden were more likely to report high depressive symptoms compared to nonblack counterparts. However, in terms of caregivers' subjective burden when Black care recipients exchanged the social good by playing a "helpful company" role (Ejem et al., 2018, p. 101)—by being a good company when their caregivers care for them—benefitted the Black care recipients, brought an exchange of a balance in the care relationship with caregivers and reduced caregivers' care burden. By doing so, care recipients felt better and showed fewer depressive symptoms. This interaction was found only with Black caregiver–care recipient relationships. It is possible that Vietnamese caregivers like African Americans tend to emphasize strongly the value of filial obligations which might reflect a potential cultural acceptance of interdependence between caregivers and care recipients (Ejem et al., 2018; Ta Park et al., 2019). It is possible that African Americans and Vietnamese may see caregiver burden differently from their white counterparts (Skolarus et al., 2017).

Some strengths of this study include the use of dyadic data which is rarely done as well as the focus on an understudied population. A significant limitation, however, is the reliance on cross-sectional data using a relatively small sample ($N = 58$ dyads). These associations can go from both ways—caregivers and care recipients. Thus, we cannot infer causal relationships requiring caution when interpreting the findings and the results are not generalizable. A cultural concept such as saving face—the ability to preserve the public appearance of the patient and family for the sake of community propriety (Kramer et al., 2002 p. 228)—is a common and important practice in Asian cultures (Kramer et al., 2002). This practice may prevent the study participants from providing honest answers to the survey questions as well as admitting having depressive symptoms. Social desirability bias can add another nuance to the survey answers. Further investigation with larger sample, longitudinal investigations, or in-depth face-to-face interviews is warranted.

6 | CONCLUSION

Our study suggested a hypothesis to examine if care recipients becoming a company to their caregivers and exchanging the balance of caregiver-care recipient relationships may reduce caregivers' burden and at the same time promote the care recipients' mental health as a future study. Given limitations inherent in cross-sectional data, it is strongly recommended that we use a larger caregiver-care recipient dyads data and examine this relationship longitudinally. Despite limitations, this study has contributed an additional layer to the existing caregiving literature by focusing on an understudied population and using dyadic data. The investigation on the association between caregivers' characteristics and care recipients' mental health is still relatively under-explored but a feasible area of research (Ejem et al., 2015). Our findings have implications for interventions aimed at reducing caregiver burden in the Vietnamese American community while promoting the well-being of dependent older adults. First, since Vietnamese people tend to live in multigeneration households, sharing their caregiving roles within their family and relatives can alleviate the primary caregiver's burden and stress. Because Vietnamese older adults and their caregivers are an underrepresented segment of the population, it is important to approach them in culturally and linguistically appropriate ways. For example, while we focus on caregivers and care recipients and consider interventions to mitigate their stress and depressive symptoms, we should treat them as a family unit because that is the Vietnamese tradition. Using bilingual and bicultural Vietnamese-speaking personnel, we may conduct qualitative interviews and solicit caregivers' and care recipients' perspectives on social and psychological exchange to promote being a good company to each other because these interventions may help not only caregivers and care recipients but also their family's health and mental health.

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CONFLICT OF INTERESTS

The authors declare that there are no conflict of interests.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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REFERENCES

- Administration for Community Living. (2019). 2018 Profile of Asian Americans Age 65 and over. U.S. Department of Health and Human Services. https://acl.gov/sites/default/files/Aging%20and%20Disability%20in%20America/2018AsA_OAPProfile.pdf
- Alperin, E., & Batalova, J. (2018). Vietnamese people in the United States. Migration Information Source. <https://www.migrationpolicy.org/article/vietnameseimmigrants-united-states-5>
- American Association of Retired Persons (AARP). (2014). Caregiving among Asian Americans and Pacific Islanders Age 50+. http://www.aarp.org/content/dam/aarp/research/surveys_statistics/general/2014/caregiving-among-asian-americans-and-pacific-islanders-age-50-plus.doi.10.26419%252Fres.00092.001.pdf

- Bédard, M., Molloy, D. W., Squire, L., Dubois, S., Lever, J. A., & O'Donnell, M. (2001). The Zarit Burden Interview: A new short version and screening version. *The Gerontologist*, 41, 652–657. <https://doi.org/10.1093/geront/41.5.652>
- Berkman, A. T. F., Deeg, D. J. H., Van Limbeek, J., Braam, A. W., De Vries, M. Z., & Van Tilburg, W. (1997). Criterion validity of the Center for Epidemiologic Studies Depression scale (CES-D): Results from a community-based sample of older subjects in the Netherlands. *Psychological Medicine*, 27(1), 231–235. <https://doi.org/10.1017/S0033291796003510>
- Buck, H. G., Mogle, J., Riegel, B., McMillan, S., & Bakitas, M. (2015). Exploring the relationship of patient and informal caregiver characteristics with heart failure self-care using the actor-partner interdependence model: Implications for outpatient palliative care. *Journal of Palliative Medicine*, 18(12), 1026–1032. <https://doi.org/10.1089/jpm.2015.0086>
- Budiman, B., & Ruiz, N. G. (2021). Key facts about Asian Americans, a diverse and growing population. Pew Research Center. <https://www.pewresearch.org/fact-tank/2021/04/29/key-facts-about-asian-americans/>
- Cohn, D., & Passel, J. S. (2018). A record 64 million Americans live in multigenerational households. Fact Tank. Pew Research Center. <https://www.pewresearch.org/fact-tank/2018/04/05/a-record-64-million-americans-live-in-multigenerational-households/>
- Cook, K. S., & Rice, E. (2003). Social exchange theory. In J. Delamater (Ed.), *Handbooks of sociology and social research. Handbook of social psychology* (pp. 53–76). Kluwer Academic/Plenum Publishers.
- Ejem, D. B., Bauldry, S., Bakitas, M., & Drentea, P. (2018). Caregiver burden, care recipient depressive symptomatology, and social exchange: Does race matter? *Journal of Palliative Care*, 33(2), 100–108. <https://doi.org/10.1177/0825859718758120>
- Ejem, D. B., Drentea, P., & Clay, O. J. (2015). The effects of caregiver emotional stress on the depressive symptomatology of the care recipient. *Aging & Mental Health*, 19(1), 55–62. <https://doi.org/10.1080/13607863.2014.915919>
- Folstein, M. F., Folstein, S. E., & McHugh, P. R. (1975). Mini-mental state: A practical method for grading the cognitive state of patients for the clinician. *Journal of Psychiatric Research*, 12(3), 189–198. [https://doi.org/10.1016/0022-3956\(75\)90026-6](https://doi.org/10.1016/0022-3956(75)90026-6)
- Fu, H., & Van Landingham, M. J. (2012). Mental health consequences of international migration for Vietnamese Americans and the mediating effects of physical health and social networks: Results from a natural experiment approach. *Demography*, 49(2), 393–424.
- Fuller-Thomson, E., Brennenstuhl, S., & Hurd, M. (2011). Comparison of disability rates among older adults in aggregated and separate Asian American/Pacific Islander subpopulations. *American Journal of Public Health*, 101(1), 94–100. <https://doi.org/10.2105/AJPH.2009.176784>
- García, M. A., Reyes, A. M., Downer, B., Saenz, J. L., Samper-Ternent, R. A., & Raji, M. (2018). Age of migration and the incidence of cognitive impairment: A cohort study of elder Mexican-Americans. *Innovation in Aging*, 1(3), 1–11. <https://doi.org/10.1093/geroni/igx037>
- George, S., Duran, N., & Norris, K. (2014). A systematic review of barriers and facilitators to minority research participation among African Americans, Latinos, Asian Americans, and Pacific Islanders. *American Journal of Public Health*, 104(2), e16–e31. <https://doi.org/10.2105/AJPH.2013.301706>
- Homans, G. C. (1958). Social behavior as exchange. *American Journal of Sociology*, 63(6), 597–606.
- Katz, S., Down, T. D., Cash, H. R., & Grotz, R. C. (1970). Progress in the development of the index of ADL. *The Gerontologist*, 10(1), 20–30.
- Kim, G., Chiriboga, D. A., Jang, Y., Lee, S., Huang, C. -H., & Parmelee, P. (2010). Health status of older Asian Americans in California. *Journal of the American Geriatrics Society*, 58(10), 2003–2008. <https://doi.org/10.1111/j.1532-5415.2010.03034.x>
- Kim-Mozeleski, J. E., Tsoh, J. Y., Gildengorin, G., Cao, L. H., Ho, T., Kohli, S., Lam, H., Wong, C., Stewart, S., McPhee, S. J., & Nguyen, T. T. (2018). Preferences for depression help-seeking among Vietnamese American adults. *Community Mental Health Journal*, 54(6), 748–756. <https://doi.org/10.1007/s10597-017-0199-3>
- Klineberg, S. L., & Wu, J. (2013). Diversity and transformation among Asians in Houston: Findings from the Kinder Institute's Houston Area Asian Survey (1995, 2002, 2011). https://kinder.rice.edu/sites/g/files/bxs1676/f/documents/Kinder%20Institute%20Houston%20Area%20Asian%20Survey_0.pdf
- Kramer, E. J., Kwong, K., Lee, E., & Chung, H. (2002). Cultural factors influencing the mental health of Asian Americans. *Culture and Medicine*, 176, 227–231.
- Lawton, M. P., & Brody, E. M. (1969). Assessment of older people: Self-maintaining and instrumental activities of daily living. *The Gerontologist*, 9(3), 179–186.
- Leung, P., Cheung, M., & Cheung, A. (2010). Vietnamese Americans and depression: A health and mental health concern. *Social Work in Mental Health*, 8(6), 526–542. <https://doi.org/10.1080/15332985.2010.485092>
- Markides, K., Chen, N. -W., Angel, R., Palmer, R., & Graham, J. (2016). Hispanic established populations for the epidemiologic study of the elderly (HEPESE) Wave 7, 2010–2011 [Arizona, California, Colorado, New Mexico, and Texas]. Ann Arbor, MI: Inter-university Consortium for Political and Social Research [distributor]. <https://doi.org/10.3886/ICPSR36537.v2>
- McClendon, M. J., & Smyth, K. A. (2015). Quality of in-home care, long-term care placement, and the survival of persons with dementia. *Aging & Mental Health*, 19(12), 1093–1102. <https://doi.org/10.1080/13607863.2014.1003284>

- Miyawaki, C. E. (2015). A review of ethnicity, culture, and acculturation among Asian caregivers of older adults (2000-2012). *SAGE Open*, 5(1), 1-18. <https://doi.org/10.1177/2158244014566365>
- Miyawaki, C. E., Chen, N.-W., Meyer, O. L., Tran, M. T., & Markides, K. S. (2020). Vietnamese adult-child and spousal caregivers of older adults in Houston, Texas: Results from the Vietnamese Aging and Care Survey (VACS). *Journal of Gerontological Social Work*, 63(1-2), 5-18. <https://doi.org/10.1080/01634372.2019.1707735>
- Miyawaki, C. E., Meyer, O. L., Chen, N.-W., & Markides, K. S. (2020). Health of Vietnamese older adults and caregiver's psychological status in the United States: Result from the Vietnamese Aging and Care Survey. *Clinical Gerontologist*, 26, 1-9. <https://doi.org/10.1080/07317115.2020.1764157>
- Pearlin, L. I. (2010). The life course and the stress process: Some conceptual comparisons. *The Journals of Gerontology Series B: Psychological and Social Sciences*, 65, 207-215. <https://doi.org/10.1093/geronb/gbp106>
- Pew Research Center. (2017). Vietnamese in the U.S. fact sheet. <https://www.pewsocialtrends.org/fact-sheet/asian-americans-vietnamese-in-the-u-s-fact-sheet/>
- Pinquart, M., & Sorensen, S. (2003). Associations of stressors and uplifts of caregiving with caregiver burden and depressive mood: A meta-analysis. *The Journals of Gerontology Psychological Sciences*, 58, 112-126. <https://doi.org/10.1093/geronb/58.2.P112>
- Pinquart, M., & Sorensen, S. (2007). Correlates of physical health of informal caregivers: A meta-analysis. *The Journals of Gerontology. Series B, Psychological Sciences and Social Sciences*, 62(2), P126-P137. <https://doi.org/10.1093/geronb/62.2.p126>
- Pristavec, T. (2019). The caregiving dyad: Do caregivers' appraisals of caregiving matter for care recipients' health? *Archives of Gerontology and Geriatrics*, 82, 50-60. <https://doi.org/10.1016/j.archger.2019.01.020>
- Radloff, L. S. (1977). The CES-D scale: A self-report depression scale for research in the general population. *Applied Psychological Measurements*, 1(3), 385-401. <https://doi.org/10.1177/014662167700100306>
- Reeves, T. J., & Bennett, C. E. (2004). We the people: Asians in the United States. U.S. Department of Commerce, Economics and Statistics Administration. U.S. Census Bureau. <https://www.census.gov/prod/2004pubs/censr-17.pdf>
- Skolarus, L. E., Freedman, V. A., Feng, C., & Burke, J. F. (2017). African American stroke survivors: More caregiving time, but less caregiving burden. *Circulation: Cardiovascular Quality and Outcomes*, 10, e003160. <https://doi.org/10.1161/CIRCOUTCOMES.116.003160>
- Sorkin, D., Tan, A. L., Hays, R. D., Mangione, C. M., & Ngo-Metzger, Q. (2008). Self-reported health status of Vietnamese and non-Hispanic white older adults in California. *Journal of the American Geriatrics Society*, 56(8), 1543-1548. <https://doi.org/10.1111/j.1532-5415.2008.01805.x>
- Spillman, B. C., & Long, S. K. (2009). Does high caregiver stress predict nursing home entry? *Inquiry: A Journal of Medical Care Organization, Provision and Financing*, 46(2), 140-161. https://doi.org/10.5034/inquiryjrnl_46.02.140
- StataCorp. (2017). *Stata Statistical Software: Release 15*. StataCorp LLC.
- Ta Park, V. M., Tran, C. G. U., Meyer, O. L., Vuong, Q. N., Uyen, J. N., & Hinton, L. (2019). Working with Vietnamese American families. In G. Yeo, & D. Gallagher-Thompson (Eds.), *Ethnicity and the dementias* (3rd ed., pp. 338-352). Taylor & Francis.
- Tran, T. V., Ngo, D., & Conway, K. (2003). A cross-cultural measure of depressive symptoms among Vietnamese Americans. *Social Work Research*, 27(1), 56-64. <https://doi.org/10.1093/swr/27.1.56>
- U.S. Census Bureau. (2017a). American community survey (ACS). American Community Survey 1-Year Estimates. <https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=bkmk>
- U.S. Census Bureau. (2017b). American community survey (ACS). American FactFinder 2017. https://data.census.gov/cedsci/table?id=ACS%205-Year%20Estimates%20Data%20Profiles%26;table=DP05%26;tid=ACSDP5Y2018.DP05%26;g=0400000US48_1600000US4835000
- von der Mehden, F. R. (2017). *Vietnamese, handbook of Texas online*. Texas State Historical Association. <https://tshaonline.org/handbook/online/articles/pjv01>
- Weng, S. S., & Nguyen, P. V. (2011). Factors affecting elder caregiving in multigenerational Asian American families. *Families in Society*, 92, 329-335. <https://doi.org/10.1606/1044-3894.4133>
- Yeo, G., Tran, N. U., Hikoyeda, N., & Hinton, L. (2002). Conceptions of dementia among Vietnamese American caregivers. *Journal of Gerontological Social Work*, 36, 131-152. https://doi.org/10.1300/J083v36n01_08

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