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Psychosocial and Cognitive Health Differences by Caregiver Status Among Older Mexican Americans

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Abstract

This study identifies the risk and protective factors associated with informal caregiving by older (≥70 years) Mexican Americans and profiles caregiving arrangements. Overall, a greater number of informal caregivers ($n = 92$) were married and female. They also had higher physical functioning and better cognition than non-caregivers ($n = 1,888$) but fewer visited a physician regularly. Informal caregivers also showed an increased risk of depressive symptoms. A third of caregivers spent more than 20 h/day caregiving and the majority (84%) of care recipients were family members. In order to support the efforts of this disproportionately burdened caregiver group, increased social support and healthcare services are needed.

Keywords

Informal caregiving; Depression; Cognition; Mexican Americans

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Introduction

Informal caregivers form the basis of the long-term care system in the US at an estimated yearly economic value of $450 billion (Feinberg et al. 2011). Caregivers are especially prevalent in Hispanic households. According to a national survey of caregiving, over one-third of Hispanic households reported at least one family caregiver and almost 20% of the nation's 44 million caregivers are of Hispanic origin. The majority of Hispanic caregivers are female (74%) with an average age of 43 years (Evercare and National Alliance for Caregiving (NAC), 2008). In the coming decades, the burgeoning and aging Hispanic population will place serious demands on informal caregivers, particularly given the rise of disabling chronic diseases among Mexican Americans (Angel and Whitfield 2007). Furthermore, traditional family networks may be diminishing as more Mexican American women enter the workforce and geographic distance increases between adult children and their aging parents (Phillips and Crist 2008; Ruiz 2007). These trends may further entrench caregivers in their roles without the relief of additional family help, thus necessitating a deeper reliance on older family members who play caregiving roles and a recognition of the circumstances in which they find themselves.

Caregiving at an older age is particularly challenging because, compared with younger adults, older caregivers are more likely to have their own health problems (Crimmins 2004; Manton 2008) and be sole unpaid caregivers without the support of other unpaid caregivers (National Alliance for Caregiving 2009). Older adults' social support networks often shrink as a result of retirement, death of loved ones, and disabling conditions that limit their social interaction (McPherson et al. 2006; Ajrouch et al. 2005). Furthermore, older caregivers are more reluctant to seek outside help or mobilize family members to coordinate care activities (Hayden and Heller 1997).

The task of coordinating care and navigating health services may be especially challenging for older Mexican Americans because of the predominance of lower literacy rates and higher poverty rates compared to other ethnic groups, language barriers, and a lack of familiarity with the US healthcare system and in-home and community services (Crist 2002). Thus, older Mexican American caregivers may be especially vulnerable to the effects of caregiving because they perform their tasks in the face of socioeconomic, structural, and linguistic barriers (Crist 2002; Crist et al. 2009a; Herrera et al. 2008; Mendez-Luck et al. 2009). The process of acculturation, or adjusting to life in the US, would be expected to mitigate the effects of caregiving because caregivers are likely more capable of overcoming linguistic and socioeconomic barriers. However, studies show that the effects of acculturation on the experience of caregiving are complex. While some studies indicate acculturation has little or no effect on the burden of caregiving (Coon et al. 2004; Crist et al. 2009; Mier 2007), others indicate more acculturated older Mexican American caregivers report higher levels of depressive symptoms (Hahn et al. 2011). This negative effect of acculturation is thought to be related to the breakdown of the family unit and a reduction in the obligation to provide care for ill family members that is associated with Mexican American culture (Hahn et al. 2011). In contrast to the hypothesis that acculturation results in a greater caregiving burden, other research shows that acculturation significantly decreases the incidence of frailty in older Mexican Americans (Masel et al. 2010), a fact that may allow older adult caregivers to function more effectively in their roles, despite the challenges.

It is unclear how increased demand for informal caregiving will affect the emotional and physical health of older Mexican Americans. The added emotional and physical health burden of informal caregiving may pose additional health risks to already high-risk and chronically ill older Mexican Americans. Informal caregiving is often accompanied by high levels of perceived burden and greater overall morbidity (Crist et al. 2009; Dyck et al. 1999). Compared with non-caregivers, caregivers of any age tend to experience more depressive symptoms, poorer physical health, increased mortality, lower immune function, and more cognitive decline (Gallagher-Thompson et al. 2006; Pinquart and Sörensen 2007; Schulz and Beach 1999; Vitaliano et al 2009). They also spend more time on caregiving-related tasks. For instance, compared with non-Hispanic caregivers, Hispanic caregivers spend more hours per week caring for frail elderly (37 vs. 31 h) and tend to be in more demanding caregiving situations (63 vs. 51%); they also provide more assistance with Activities of Daily Living (help with 2.6 vs.1.9 ADLs) (Evercare and National Alliance on Caregiving 2008). For this reason, it is not surprising that Mexican American caregivers experience greater caregiver burden and are in worse physical and mental health, when compared to their non-Hispanic white caregiver counterparts (Aranda et al. 2003). Yet, most research on Hispanic caregivers has not focused exclusively on the additional challenges faced by older adult caregivers.

Research into the relationship between caregiving and caregiver’s physical and mental health has often been guided by various stress and coping theories (Brannen and Petite 2008; Lazarus and Folkman 1984; Pearlin et al. 1996). For example, the sociocultural stress and coping model proposed by Aranda and Knight (1997) and recently updated by Knight and Sayegh (2010), incorporates culture as a mediator between caregiving and health and purports that cultural values influence the availability and use of coping strategies by caregivers to manage their situations. Two such coping strategies are religion and social support, which are often cited as being central components of Hispanic culture (Chappell and Dujela 2009; Herrera et al. 2009; Pearce 2005; Shirai et al. 2009). Religiosity has been shown to provide some resiliency against poor physical and mental health outcomes (Levin and Chatters 1998; Matthews et al. 1998; Powell et al. 2003), and used as a coping mechanism by caregivers (Chang et al. 1998; Pearce 2005). Religiosity seems especially important for Hispanic caregivers, given their higher church attendance and more frequent prayer practices, compared to their non-Hispanic White counterparts (Mausbach et al. 2003). Additionally, a recent study of Mexican American family caregivers found that caregivers with religion as a central and organizing principle of their lives had lower levels of perceived burden; however, those who viewed caregiving as a punishment reported higher levels of depressive symptomology (Herrera et al. 2008). Thus, religiosity may serve as a coping strategy while simultaneously influencing caregivers’ perceptions about social support from family and faith communities.

Although few studies have examined the availability of social support for older Mexican American caregivers, other research has found support from family, friends, and support groups to be associated with reduced loneliness in older caregivers of persons with Parkinson’s disease (McRae et al. 2009) and lower reported stress and burden among caregivers to persons with traumatic brain injury (Ergh et al. 2002), stroke survivors (Grant et al. 2006), and family members with Alzheimer’s disease (Roth et al. 2005). Social support has also been linked to decreased caregiver depression in Mexican-origin adults (Malone-Beach and Zarit 1995). Despite these reported findings, a systematic review of the caregiving literature found no positive association between social support and caregiver well-being in 61% of the studies reviewed (Smerglia et al. 2007).

As the numbers of older Mexican American caregivers increase, it is critical that we identify the sociodemographic and health characteristics of these caregivers, as well as whether known protective resources (e.g. emotional and family support, religiosity) for caregivers remain intact and relevant for all Mexican Americans as they age. The principal aims of this cross-sectional study were to: (1) describe differences in the characteristics of older adult

Mexican American family caregivers and non-caregivers in terms of sociodemographics, physical and mental health status, and protective resources (emotional support, family support and religiosity); (2) describe informal caregiving arrangements; and (3) identify significant characteristics associated with caregiving status in older Mexican Americans. Based on the prior research detailed above, the hypotheses of this study are that: (1) the majority of older Mexican American caregivers will be female, care for a family member, be less acculturated, and have greater protective resources such as emotional support and religiosity than non-caregivers; and (2) older Mexican American informal caregivers will have poorer physical and mental health than non-caregivers.

Methods

Parent Study

The Hispanic Established Population for the Epidemiologic Study of the Elderly (H-EPESE) is a longitudinal representative study of Mexican Americans, aged 65 years and older, living in Arizona, California, Colorado, New Mexico, and Texas (Black et al. 2003). The overarching goal of the H-EPESE is to estimate the prevalence of, and changes in, physical and mental health conditions among older Mexican Americans, and compare the changes over time with other ethnic groups (Markides 1999). This ongoing 16-year landmark study has been a primary source of epidemiological data on the health of older Mexican Americans.

The original cohort of 3,050 were first interviewed in 1993–1994 (Wave 1), and re-interviewed in subsequent waves: 1995–1996 (Wave 2), 1997–1998 (Wave 3), 2000–2001 (Wave 4), 2004–2005 (Wave 5), and 2006–2008 (Wave 6). An additional 902 new subjects, aged 75 and older, were recruited during Wave 6. Participants were interviewed face-to-face in their homes in their language of preference: Spanish or English. In the case of individuals unable to complete the entire interview themselves because of infirmity or cognitive incapacity, information was obtained from a knowledgeable proxy, such as a primary caregiver or close relative (e.g., spouse or adult child). Interviews took an average of 1 h and 45 min to complete and included self-reported items covering a range of sociodemographic, cultural, and health-related measures (Black et al. 1998). Since its inception, the H-EPESE survey instrument has undergone changes in response to the population’s shifting health profile and public health priorities. A unique change during Wave 3 (1998–1999) was the addition of a series of items pertaining to the role of study participants as caregivers.

Present Study and Sample

For this study, we restricted our analyses to Wave 3 (1998–1999), which included 1,980 participants (age ≥70 years) and a subsample of 92 informal caregivers. As mentioned above, it was in Wave 3 that participants were first asked detailed questions regarding their role as informal caregivers and the nature and scope of these activities. Participants in Wave 3 were considered informal caregivers if they responded affirmatively to the question, “Do you now provide care for a relative or other person who is disabled or has memory problems?” Care recipients included older adults such as a spouse, parent, or sibling, as well as sons/daughters, grandchildren, nieces/nephews, and unrelated persons. Of the 1,980 participants, questions regarding caregiving practices had a high response rate (92%). Proxies were not prompted regarding caregiving status or practices, and thus excluded from this portion of the study. Typically, the majority (74%) of Mexican American caregivers are females in their mid-40 s (Evercare and National Alliance on Caregiving 2008). The present representative study sample of older Mexican Americans allows us to focus on describing a lesser studied group of caregivers, that of older caregivers (age ≥70 years). In this study, we examined caregiving broadly by including respondents who furnish informal (unpaid) care to disabled persons of various ages including relatives and non-relatives. The University of Texas Medical Branch's institutional review board granted study approval.

Measures

Caregiver Background Characteristics

Demographics: Demographics assessed included the caregiver's age (continuous), sex, marital status (married or living with a partner vs. other), and educational attainment (number of years of schooling). Annual household income was measured as an ordinal variable, from 1 to 8, with 1 = $0–4,999 and 8 = $50,000 or higher.

Caregiver Mental and Physical Health

Depressive Symptomatology: Depressive symptoms were measured with the Center for Epidemiologic Studies Depression Scale (CES-D), designed specifically to measure depressive symptoms in survey research (Radloff 1977). The 20-item CES-D scale is not considered a diagnostic or clinical tool (Radloff 1977; Zarit and Zarit 2007) but has been validated as a measure of psychological distress in studies among older adults (Mirowsky and Ross 2003), including Spanish-speaking populations (Angel and Guarnaccia 1989). The Spanish-translated version used in this study was originally developed for the Hispanic Health and Nutrition Examination Survey (Moscicki et al. 1989), and produced a moderately high internal consistency reliability coefficient of 0.88. A score of 16 or higher on the CES-D scale indicates a heightened probability of clinical depression (Zarit and Zarit 2007). CES-D was entered into our logistic regression analysis as a continuous variable using summary scores. Dichotomized scores (<16 = low level of depressive symptoms; ≥16 = probable depression) are shown for the subsample of 92 informal caregivers for ease of interpretation.

Cognitive Impairment: Cognitive impairment was measured with the Mini Mental State Exam (MMSE), a brief standardized method that evaluates cognitive status (Nguyen et al. 2003). The MMSE assesses memory and cognitive abilities, including orientation, attention, immediate and short-term recall, and the ability to follow simple verbal and written commands. A score of 17 or lower indicates definite cognitive impairment (Folstein et al. 1975). In the general population of older (≥65 years) adults scores of 17 or lower would be coded as severe cognitive impairment; 18–23 as mild to moderate cognitive impairment; and 24–30 as normal. However, we used a validated modified scale and cut-off points appropriate for elderly Hispanics to reduce racial and language biases (Mulgrew et al. 1999). Cognitive ability was assessed in four categories: 0 = 29–30 (high/normal), 1 = 25–28 (normal), 2 = 22–24 (normal/low), 3 = 0–21 (cognitively impaired). For ease of interpretation, in the subsample of 92 informal caregivers the four categories were collapsed into the dichotomous variables: 1 (cognitively impaired, 0–21) and 0 (low/normal/high, 22–30).

Functional Physical Health: Functional physical health was assessed using self-reported information from the activities of daily living (ADLs) and instrumental activities of daily living (IADLs) scales, developed by Katz et al. (1970) and Lawton and Brody (1969). The Katz Index of Activities of Daily Living is a 6-item scale that assessed caregivers' independence in bathing, dressing, toileting, transferring, continence, and feeding. The Lawton Instrumental ADL is an 8-item scale used to assess more complex skills necessary for living independently in the community (e.g., ability to use telephone, shopping, food preparation, housekeeping, laundry, transportation, responsibility for taking medications, and financial management). ADL total scores ranged from 0 (completely independent) to 23 (completely dependent) while the IADL summary scores ranged from 0 (high function, independent) to 7 (low function, dependent).

Health Service Use: Participants reported the number of visits to a doctor, excluding hospital stays, in the past 12 months. This was recoded as “no visits” (0) and “at least one visit” (1).

Cultural Values

Acculturation: The level of acculturation in caregivers in this study was measured as a summary score using 9 of 16 items on the Hazuda scale, a standardized, well-validated assessment of language proficiency and use (Hazuda et al. 1988). During Wave 1, H-EPESE subjects were asked 16 language-based acculturation questions that: (a) assessed participants’ ability to speak, read, and understand spoken English, scored on a 4-point scale from “very well” (1) to “not at all” (4); and (b) measured patterns of language use among family members, friends, neighbors, or co-workers, and of the use of print, visual, and audio materials, scored on a 5-point scale from “only English” (1) to “only Spanish” (5). Following a factor analysis, seven items were omitted from our analysis because of a large number of missing values (33–61%) and failure to properly load onto any given factor. Excluded items were those that asked about language use with co-workers, spouse/partners, and parents, because many in the sample were retired, widowed, or their parents had passed away. Scores from the nine final items were summed (range: 9–44), with higher scores indicating higher levels of acculturation. The internal consistency reliability coefficient of this scale was 0.93.

Social Support and Coping Strategies

Emotional Support: Emotional support was measured with two items: “In times of trouble, can you count on at least some of your family or friends” and “Can you talk about your deepest problems with at least some of your family or friends?” Responses for each item were scored from “most of the time” (1) to “hardly ever” (3), with higher scores indicating lower emotional support.

Family Support: Family support was defined as the availability of possible instrumental support from family with two items: the number of participants’ living adult children (continuous) and the number of children they reported seeing at least once a month (continuous).

Religiosity: Caregivers’ level of religiosity was measured by beliefs and behaviors associated with the belief in a higher power, irrespective of a particular doctrine. Religiosity was measured using two items. The first asked “To what extent is your religion involved in understanding or dealing with stressful situations in any way?” this was assessed on a 4-point categorical response scale, ranging from “not involved all” (1) to “very involved” (4). The second question asked “Using your own definition of a religious person, how religious are you?” to which respondents answered on a 4-point scale, from “not at all religious” (1) to “very religious” (4). The two items were summed (range: 2–8) with higher scores indicating greater levels of religiosity. This measure has demonstrated validity in prior studies employing this dataset (e.g. Reyes-Ortiz et al. 2009).

Caregiving

Care Recipients’ Health Needs: Care recipients’ physical health was defined by their need for assistance with activities of daily living (ADL) as reported by the caregiver using the Katz ADL scale as described above. Care recipients requiring help with ≥1 ADL were scored 1; and those requiring no help were scored 0. Caregivers were also asked to indicate the reasons they provided assistance to the care recipient. This was then scored as 1 if they cared for someone with “Alzheimer’s disease or memory problems”; and scored as 0 if they did not.

Caregiving Arrangements: Caregivers were asked about their relationship to the care recipient, whether they lived with the recipient or not, how long they had been caregiving, and the hours of daily care they undertook. Caregivers who lived with the care recipient were scored 0; and scored 1 if they did not live with the care recipient; all the other measures are described as frequencies.

Analysis

The Statistical Package for Social Sciences (SPSS v.17) was used for all analyses. Descriptive statistics and proportions were computed for all dependent variables and covariates using Student’s *t* tests for continuous data and Chi-squared tests for categorical data to present comparisons between informal caregivers and non-caregivers. Following the comparison between informal caregivers and non-caregivers in the full sample of 1,980, we then examined only the subset of 92 informal caregivers to describe caregiving profile traits, including the hours of care provided and the care recipients’ health needs. Binary logistic regressions were then used to identify the significant characteristics associated with informal caregiving. The multivariate binary logistic regression analyses were performed on the full sample of 1,980 with the binary outcome variable being caregiver status, which was defined as informal caregiver versus non-caregiver. The independent variables were selected based on our review of the literature and bivariate analysis, and entered simultaneously into the equation to identify associations between caregiving status and measures such as depressive symptom level and cognitive impairment, adjusted for physical functioning, sociodemographic and emotional resources. Odds ratios with 95% confidence intervals were calculated. Diagnostics for multi-collinearity were examined at each step and deemed appropriate. Typically, the smaller group in this type of analysis should be no less than 10–20% of the total sample. Because our sample of informal care-givers ($n = 92$) accounts for only 5% of the full sample of older Mexican Americans ($n = 1{,}980$), we further scrutinized contingency tables to assess the accuracy of their classification as informal caregiver or non-caregiver. Using a cut-point of 0.25, the estimated prevalence of caregiving among older adults, we found the overall rate of correct classification to be excellent at 93.5% [100(6 + 638)/689], with a sensitivity of 33% (6/18) and specificity of 95.1% (638/671).

Results

Table 1 describes various mean characteristics of the two groups of older (aged ≥70) Mexican Americans included in this study—informal caregivers and non-caregivers. Compared with non-caregivers, a greater percentage of caregivers were female (71.7 vs. 58.9%, $p < 0.05$) and married (68.5 vs. 48.5%, $p < 0.001$). There was no significant difference in age (76.57 ± 0.05 vs. 77.10 ± 0.14), years of schooling, income, or acculturation between the two groups. In terms of psychological health, informal caregivers had a significantly higher mean cognitive function score compared with non-caregivers (24.20 ± 0.51 vs. 21.62 ± 0.16, $p < 0.001$). Informal caregivers also had higher levels of physical functioning as they were significantly more independent for ADLs (0.07 ± 0.04) than non-caregivers (0.70 ± 0.04) ($p < 0.001$). This difference was also found for IADLs, with informal caregivers being more independent (1.26 ± 0.23) than their non-caregiver counterparts (2.26 ± 0.08) ($p < 0.01$). Levels of family support did not differ significantly between caregivers and non-caregivers. In addition, a smaller percentage of informal caregivers (0.80 ± 0.04) than non-caregivers (0.90 ± 0.01) had visited a medical doctor in the past year ($p < 0.01$).

Figure 1 illustrates various aspects of the profile of informal caregivers within the H-EPESE sample population ($n = 92$) including the caregiver’s relationship to the care recipient, caregiving arrangements, the caregivers’ mental health, the length of time caregivers had been in their role, the hours spent caregiving per day, and the care recipients’ health needs. The largest group of caregivers cared for a spouse (43.5%), nearly a third cared for a child (30.4%), and the remaining caregivers providing care to a grandchild, parent, sibling, other relative, or non-relative. The majority of these caregivers lived with the care recipient (80.4%). In terms of the mental health of the caregivers, 14.1% reported a CES-D score of 16 or greater indicating a level of depressive symptoms indicative of probable depression. Over 27% scored 21 or lower on the MMSE indicating they were cognitively impaired. At least one third (38.0%) of caregivers had been in their caregiving role for more than 10 years. Only 14.1% had been providing care for less than 1 year, 32.6% had been providing care for one to 5 years, and 8.7% had been caring for someone for between 6 and 10 years. In terms of the amount of care provided each day, 37.0% of the caregivers provided between 1 and 9 h of care, 17.4% provided 10–19 h of care per day, and a surprising 31.5% reported caregiving for 20 or more hours per day. Approximately two-thirds (62%) of the care recipients required help with one or more ADL, and 17% had a physical disability stemming from chronic disease, general frailty, or extended illness. In addition, 16.3% of care recipients had Alzheimer’s disease or memory problems, 10% were bedridden, and 31% had unspecified conditions.

After controlling for confounding variables, such as age, sex, and physical functioning (see Table 1), we found that informal caregivers were significantly more likely to report higher levels of depressive symptoms (OR = 1.05, 95% CI [1.01, 1.09], $p < 0.01$) and cognitive impairment (OR = 1.10, 95% CI [1.02, 1.19], $p < 0.01$), when compared to their non-caregiver counterparts. This is in contrast to the comparison of the overall mean data for the two groups (see Table 1). The Hosmer–Lemeshow test for this model yielded χ^2 (8, 1980) = 6.51, which was insignificant ($p = 0.59$), indicating a well-fit model. The complete model explained 6% (Cox and Snell R^2) to 17.1% (Nagelkerke R^2) of the variance, with 94.3% accuracy in the correct classification of cases.

As shown in Table 2, the binary logistic regressions also indicated that caregivers were more than four times more likely to be female (OR = 4.12, 95% CI [1.74, 9.78], $p < 0.01$) and nearly three times more likely to be married (OR = 2.97, 95% CI [1.39, 6.46], $p < 0.01$). In addition, although a comparison of the mean age of informal caregivers and non-caregivers showed no difference, the binary logistic regression indicated that informal caregivers were significantly more likely to be older than their non-caregiver counterparts (OR = 1.09, 95% CI [1.01, 1.17], $p < 0.05$).

Discussion

The Characteristics of Older Mexican American Informal Caregivers

Among the older Mexican Americans (≥70 years) in this study, a direct comparison of the mean characteristics of informal caregivers and non-caregivers indicated that the typical caregiver was female, married, and had a higher level of physical and cognitive function, as measured by caregivers’ ability to complete ADL/IADL and by their mean MMSE score. The finding that a high percentage of caregivers were female and married is similar to previous studies of the general population of informal caregivers (Evercare and National Alliance for Caregiving (NAC), 2008). In contrast, the lack of a significant difference in mean CES-D score and a significantly greater level of physical and cognitive function do not agree with previous studies into the physical and mental health effects of caregiving in the general population (Pinquart and Sörensen 2007; Schulz and Beach 1999; Vitaliano et al. 2009), in Hispanic populations (Aranda et al. 2003; Gallagher-Thompson et al. 2006), and in older Mexican Americans (Hahn et al. 2011; Hernandez and Bigatti 2010), which indicate that caregiving is associated with a decline in physical and mental health.

Although we expected older Mexican Americans assuming a caregiving role to have higher levels of religiosity and cultural values (e.g., stronger or larger support networks), significant differences for these variables were not observed based on caregiving status in our study. However, our findings are supported by Crist et al. (2009b) who found familism and acculturation to be associated with caregiving but not in the predicted direction: familism was higher, rather than lower, for the more highly acculturated caregivers. One interpretation of such a finding is that perhaps Mexican American caregivers do not lose their sense of dedication to the family as they become more acculturated. In fact, they may actually become more cognizant of their role in supporting the family and elder as they spend more time negotiating their role in an Anglo-dominated culture. Thus, our finding suggests that religion and physical and emotional support from family hold similar importance in terms of cultural values and coping strategies for both caregiving and non-caregiving older Mexican Americans.

The Risks Associated with Informal Caregiving in Older Mexican Americans

A direct comparison between caregivers and non-caregivers seemed to indicate that older caregivers were not suffering from any adverse effects of caregiving. However, in the binary logistic regression analysis, after controlling for confounding variables such as sex, age, and physical and mental health functioning, we found that informal caregivers were more at risk of depressive symptoms and cognitive impairment, when compared to non-caregivers, which agrees with previous studies in populations of younger caregivers (Aranda et al. 2003; Gallagher-Thompson et al. 2006; Pinquart and Sörensen 2007; Schulz and Beach 1999; Vitaliano et al. 2009) and also with more recent studies in older Mexican American caregivers (Hahn et al. 2011; Hernandez and Bigatti 2010). In addition, the analysis indicated that caregivers were more likely to be older than non-caregivers.

This apparent inconsistency in the results may be due to the highly diverse nature of the older Mexican American caregivers and their roles. For example, 37% of caregivers spent less than 9 h a day caregiving but 32% spent more than 20 h a day caregiving. Equally, nearly half of the caregivers had been in their role less than 5 years while 38% had been caregiving for more than 10 years. These dichotomies and their effects are likely to be lost in the descriptive comparison of mean population data but the potential risks of caregiving in older Mexican Americans becomes more clear with more in depth analysis. It may be for example, that all of the caregivers who spent more than 20 h a day caregiving had been doing it for more than 10 years and exhibited high levels of mental health problems. This association would then be identified by the regression analysis but not by the descriptive comparison if the remaining caregivers were healthier than the general population of non-caregivers. Although causality cannot be inferred using these cross-sectional data, it could be suggested that Mexican American older adults who are healthier either (1) enter the caregiving role and later experience negative health outcomes or (2) enter the caregiving role later in life after already experiencing compromised health. Regardless of the direction of these relationships, these findings highlight a potential gap between what less healthy caregivers may require to adequately fulfill their caregiver role and the actual amount of support they receive from family, friends and faith communities.

Further, when viewing these findings in the context of the support and coping strategies available to older caregivers, our results suggest that caregivers either lack sufficient protective resources to offset poor mental health (i.e., as measured by cognitive impairment levels and depressive symptoms) or employ coping strategies that are ineffective to moderate the relationship between caregiving and health. Related findings from another study indicated that Mexican American caregivers did not have greater levels of social support, when compared to Anglo family caregivers (Phillips and Crist 2008). Taken together, this indicates that Mexican American caregivers may not have a sufficient pool of support to draw from and that the portrayal of the Mexican American family in the literature needs to be revisited. This issue needs to be explored further to develop a comprehensive profile of the older Mexican American family caregiver and to examine how the level of support available affects their mental and physical health. This is particularly crucial in the context of our finding that caregivers were significantly less likely than non-caregivers to have seen their primary care provider in the past year, which also places them at greater risk for illness and disability over time (Beesley et al. 2010; Cao et al. 2010; Ortiz et al. 2009).

Further Studies

Having described the profile of older Mexican American caregivers and identified some of the potentially detrimental health outcomes associated with caregiving at an older age the next step required is to examine the underlying relationships between caregiving and mental health in this population. For example, it is most plausible that compared with younger caregivers, older Mexican Americans caregivers’ physical functioning accounts for a large proportion of perceived and real burden on emotional and cognitive health. It is also possible that older Mexican American caregivers’ level of commitment to family is not defined by their relationship with the care recipients or their type of disease; rather, caregivers’ overall commitment to the caregiver role is more important than the recipient’s relationship or their disease status. A qualitative study on 41 female Mexican caregivers (Mendez-Luck et al. 2009) found that caregivers felt a moral duty to care for their relatives, which was reinforced by cultural expectations to fulfill their social roles as women. The study also found that caregivers assumed the caregiver role to prevent care recipients from experiencing initial health declines or further deficits in their physical and mental health, and that caregiving actually provided positive benefits for caregivers. Findings from Poulin et al. (2010) also support that providing care to valued loved ones may actually promote caregiver wellbeing.

Our inability to detect differences in the level of emotional and family support accessed by caregivers and non-caregivers may stem from limitations in our measurement of social support, which were not based on a validated psychometric instrument. The measure relied strictly on the frequency at which study participants could talk to and count on family or friends in difficult times, and the number of adult children and frequency of interaction with them. Future studies should compare more varied forms of social support to ascertain which types of social support are most helpful. Studies must also account for differences between formal and instrumental support accessed by the care recipient that may also provide extensive social support to the caregiver and help with providing care (e.g., home or community-based long-term care, skilled tangential support received by the caregiver through support groups or case management). In addition, studies should consider controlling for external competing stressors, such as the occurrence of major life events (e.g. marriage/divorce, death of a family member, relocating). The next step from this study would be to determine if a more rich and diverse support network, including coping and leisure activities, as well as formal support for the care recipient, influences the health and wellbeing of caregivers.

There are a few noteworthy limitations to this study. The cross-sectional analyses of the data limited our ability to assess the influence of changes over time in the care recipients’ disability and functional status on the caregivers’ depressive symptomatology and cognition. Similarly, because of the small sample size and heterogeneous nature of the caregiver population, it was difficult to examine the effects of caregiving and the characteristics of caregiving on the mental and physical health of the caregivers. For example, we were unable to examine the relative contributions of caring for elderly adults versus disabled non-elderly adults and children on caregivers' health. Caregiving for young children or adults with mental retardation may have markedly different health outcomes for adult caregivers compared to caregiving for older adults. For instance, according to Lefley (1987), the mental health system's inability to offer appropriate training in problem-solving and support to family caregivers of mentally disabled adults may result in undue stress for older adult caregivers. Also, according to Blacher (2001), caregiving for a young adult recipient may have critical implications when accounting for the caregiver's well-being because the developmental period between the ages of 18 and 26 marks an important transitional time to be considered when evaluating overall family well-being. As Mexican American caregivers age, it will be equally important to consider the added physical, emotional, and economic impact of caring for younger disabled children.

It should also be noted that approximately 5% of our sample self-described as an informal caregiver, which is much lower than estimates in the general population of Latino households, which average 20%. However, given the representative and large sample, the 5% rate of caregiving among those age 75 years and older likely comes close to an accurate prevalence rate. A final limitation is the fact that the data related to the care recipient was reported only by the caregiver and was not independently confirmed thereby relying on the accuracy of the caregiver's responses. Given the nature of the H-EPESE dataset obtaining data from care recipients was not possible but in future studies it might be useful to collect paired data from caregivers and their care recipients.

Conclusion

In conclusion, the results of this study indicate that, in common with the general Mexican American population, the majority of older Mexican American caregivers are female. They are also more likely to be married and, in general, to have better cognitive and physical functioning than non-caregivers. However, this positive overall profile hides a more complex picture where caregiving in older Mexican Americans is associated with an increased risk of depressive symptoms and cognitive decline which may be influenced by factors associated with the caregiver's role. Unfortunately the small sample size for caregivers ($n = 92$) limited the amount of detailed analysis that we could perform but given the dearth of literature on older Mexican American caregivers, our study is an important step in filling the gap in the literature in this area. Older Mexican Americans are being relied upon to provide care for family members at a time when their own health may be declining, exposing them to risk of adverse health effects, and highlighting the need for a greater understanding of the support that they require. Our descriptive study provides a foundation for future work to elucidate the extent to which older Mexican Americans' are charged with the responsibility of care of others, how they are selected into this role, and whether this poses a greater emotional and cognitive health burden.

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References

Ajrouch KJ, Blandon AY, Antonucci TC. Social networks among men and women: The effects of age and socioeconomic status. Journals of Gerontology Series B, Psychological Sciences and Social Sciences. 2005; 60:S311–S317.

Angel R, Guarnaccia PJ. Mind, body, and culture: Somatization among Hispanics. Social Science and Medicine. 1989; 28:1229–1238. [PubMed: 2660279]

Angel, JL.; Whitfield, KE. The health of aging hispanics. New York: Springer; 2007.

Aranda MP, Knight BG. The influence of ethnicity and culture on the caregiver stress and coping process: A sociocultural review and analysis. Gerontologist. 1997; 37(3):342–354. [PubMed: 9203758]

Aranda MP, Villa VM, Trejo L, Ramirez R, Ranney M. El Portal Latino Alzheimer's project: Model program for Latino caregivers of Alzheimer's disease affected people. Social Work. 2003; 48:259–271. [PubMed: 12718421]

Beesley VL, Price MA, Webb PM. Loss of lifestyle: Health behavior and weight changes after becoming a caregiver of a family member diagnosed with ovarian cancer. Supportive Care in Cancer. 201010.1007/s00520-010-1035-2

Blacher J. Transition to adulthood: Mental retardation, families, and culture. American Journal on Mental Retardation. 2001; 106:173–188. [PubMed: 11321608]

Black SA, Markides KS, Miller TQ. Correlates of depressive symptomatology among older community-dwelling Mexican Americans: The Hispanic EPESE. The Journals of Gerontology: Social Sciences. 1998; 53B:S198–S208.

Black, SA.; Ray, LA.; Angel, RJ.; Espino, DV.; Miranda, M.; Markides, KS. Resource book of the Hispanic Established Population for the Epidemiological Study of the Elderly (Study No. 2851). Ann Arbor: National Archive of Computerized Data on Aging; 2003. Retrieved from http://www.icpsr.umich.edu

Brannen C, Petite K. An alternative framework for understanding women's caregiving stress. Journal of Health Psychology. 2008; 13(3):355–365. [PubMed: 18420770]

Cao V, Chung C, Ferreira A, Nelken J, Brooks D, Cott C. Changes in activities of wives caring for their husbands following stroke. Physiotherapy Canada. 2010; 62:35–43. [PubMed: 21197177]

Chang BH, Noonan AE, Tennstedt SL. The role of religion/spirituality in coping with caregiving for disabled elders. The Gerontologist. 1998; 38:463–470. [PubMed: 9726133]

Chappell NL, Dujela C. Caregivers—who copes how? International Journal of Aging &Human Development. 2009; 69(3):221–244. [PubMed: 20041567]

Coon DW, Rubert M, Solano N, Mausbach B, Kraemer H, Arguelles T, et al. Well-being, appraisal, and coping in Latina and Caucasian female dementia caregivers: Findings from the REACH study. Aging & Mental Health. 2004; 8:330–345. [PubMed: 15370049]

Crimmins EM. Trends in the health of the elderly. Annual Review of Public Health. 2004; 25(1):79–98.

Crist JD. Mexican American elders' use of skilled home care nursing services. Public Health Nursing. 2002; 19(5):366–376. [PubMed: 12182696]

Crist JD, Kim SS, Pasvogel A, Velazquez JH. Mexican American elders' use of home care services. Applied Nursing Research. 2009a; 22(1):26–34. [PubMed: 19171292]

Crist JD, McEwen MM, Herrera AP, Kim SS, Pasvogel A, Hepworth JT. Caregiving burden, acculturation, familism, and Mexican American elders' use of home care services. Research and Theory for Nursing Practice. 2009b; 23(3):165–180. [PubMed: 19769211]

Dyck G, Short R, Vitaliano PP. Predictors of burden and infectious illness in schizophrenia caregivers. Psychosomatic Medicine. 1999; 61:411–419. [PubMed: 10443748]

Ergh TC, Rapport LJ, Coleman RD, Hanks RA. Predictors of caregiver and family functioning following traumatic brain injury: Social support moderates caregiver stress. Journal of Head Trauma Rehabilitation. 2002; 17:155–174. [PubMed: 11909512]

Evercare and National Alliance on Caregiving. Evercare study of Hispanic family caregiving in the US: Findings from a national study. Minnetonka, MN: Evercare; Bethesda, MD: National Alliance on Caregiving; 2008. Retrieved from http://evercarehealthplans.com/pdf/HispanicCaregiversStudy.pdf

Feinberg, L.; Reinhard, SC.; Houser, A.; Choula, R. Valuing the invaluable: The growing contributions and costs of family caregiving (2011 update). AARP Public Policy Institute; 2011. Available from http://www.aarp.org/relationships/caregiving/info-07-2011/valuing-the-invaluable.html

Folstein MF, Folstein SE, McHugh PR. "Mini-mental state". A practical method for grading the cognitive state of patients for the clinician. Journal of Psychiatric Research. 1975; 12(3):189–198. [PubMed: 1202204]

Gallagher-Thompson D, Shurgot GR, Rider K, Gray HL, McKibbin CL, Kraemer H, et al. Ethnicity, stress, and cortisol function in Hispanic and non-Hispanic white women: A preliminary study of family dementia caregivers and non caregivers. American Journal of Geriatric Psychiatry. 2006; 14(4):334–342. [PubMed: 16582042]

Grant JS, Elliott TR, Weaver M, Glandon GL, Raper JL, Giger JN. Social support, social problem-solving abilities, and adjustment of family caregivers of stroke survivors. Archives of Physical Medicine and Rehabilitation. 2006; 87:343–350. [PubMed: 16500167]

Hahn EA, Kim G, Chiriboga DA. Acculturation and depressive symptoms among Mexican American elders new to the caregiving role: Results from the Hispanic-EPESE. Journal of Aging and Health. 2011; 23(3):417–432. [PubMed: 20852013]

Hayden MF, Heller T. Support, problem-solving/coping ability, and personal burden of younger and older caregivers of adults with mental retardation. Mental Retardation. 1997; 35(5):364–372. [PubMed: 9339065]

Hazuda HP, Stern MP, Haffner SM. Acculturation and assimilation among Mexican-Americans: scales and population-based data. Social Science Quarterly. 1988; 69:687–706.

Hernandez AM, Bigatti SM. Depression among older Mexican American caregivers. Cultural Diversity & Ethnic Minority Psychology. 2010; 16(1):50–58. [PubMed: 20099964]

Herrera AP, Lee JW, Palos G, Torres-Vigil I. Cultural influences in the patterns of long-term care use among Mexican-American family caregivers. Journal of Applied Gerontology. 2008; 27:141–165.

Herrera AP, Lee JW, Nanyonjo RD, Laufman LE, Torres-Vigil I. Religious coping and caregiver well-being in Mexican-American families. Aging and Mental Health. 2009; 13(1):84–91. [PubMed: 19197693]

Katz S, Downs TD, Cash HR, Grotz RC. Progress in development of the index of ADL. Gerontologist. 1970; 10(1):20–30. [PubMed: 5420677]

Knight BG, Sayegh P. Cultural values and caregiving: The updated sociocultural stress and coping model. The Journals of Gerontology Series B: Psychological Sciences and Social Sciences. 2010; 65B(1):5–13.

Lawton MP, Brody EM. Assessment of older people: Self-maintaining and instrumental activities of daily living. Gerontologist. 1969; 9:179–186. [PubMed: 5349366]

Lazarus, RS.; Folkman, S. Stress, appraisal, and coping. New York: Springer; 1984.

Lefley HP. Aging parents as caregivers of mentally ill children: An emerging social problem. Hospital & Community Psychiatry. 1987; 38:1063–1070. [PubMed: 3666695]

Levin J, Chatters L. Religion, health, and psychological well-being in older adults: Findings from three national surveys. Journal of Aging and Health. 1998; 10:504–531. [PubMed: 10346697]

MaloneBeach EE, Zarit SH. Dimensions of social support and social conflict as predictors of caregiver depression. International Psychogeriatrics. 1995; 7:25–38. [PubMed: 7579018]

Manton KG. Recent declines in chronic disability in the elderly U.S. population: Risk factors and future dynamics. Annual Review of Public Health. 2008; 29:91–113.

Markides, KS. Hispanic established populations for epidemiologic studies of the elderly, Wave III, 1998–1999, Arizona, California, Colorado, New Mexico and Texas [File No ICPSR04102-v2]. Ann Arbor, MI: Inter-University Consortium for Political and Social Research; 1999.

Masel MC, Howrey B, Peek MK. The effect of acculturation on frailty among older Mexican Americans. Journal of Aging and Health. 201010.1177/0898264310391786

Matthews D, McCullough M, Larson D, Koenig H, Swyers J, Milano M. Religious commitment and health status. Archives of Family Medicine. 1998; 7:118–124. [PubMed: 9519914]

Mausbach BT, Coon DW, Cardenas V, Thompson LW. Religious coping among Caucasian and Latina dementia caregivers. Journal of Mental Health and Aging. 2003; 9:97–110.

McPherson JM, Smith-Lovin L, Brashears ME. Social isolation in America: Changes in core discussion networks over two decades. American Sociological Review. 2006; 71:353–375.

McRae C, Fazio E, Hartsock G, Kelley L, Urbanski S, Russell D. Predictors of loneliness in caregivers of persons with Parkinson's disease. Parkinsonism and Related Disorders. 2009; 15(8):554–557. [PubMed: 19251464]

Mendez-Luck CA, Kennedy DP, Wallace SP. Guardians of health: The dimensions of elder caregiving among women in a Mexico City neighborhood. Social Science and Medicine. 2009; 68(2):228–234. [PubMed: 19028415]

Mier N. The caregiving experience among Hispanic caregivers of dementia patients. Journal of Cultural Diversity. 2007; 14:12–18. [PubMed: 19172968]

Mirowsky, J.; Ross, CE. Social causes of psychological distress. 2. Hawthorne, NY: Aldine de Gruyter; 2003.

Moscicki EK, Locke BZ, Rae DS, Boyd JH. Depressive symptoms among Mexican Americans: The Hispanic health and nutrition examination survey. American Journal of Epidemiology. 1989; 130(2):348–360. [PubMed: 2750730]

Mulgrew CL, Morgenstern N, Shetterly SM, Baxter J, Baron AE, Hamman RF. Cognitive functioning and impairment among rural elderly Hispanics and non-Hispanic whites as assessed by the Mini-Mental State Examination. The Journals of Gerontology Series B, Psychological Science and Social Sciences. 1999; 54(4):P223–P230.

National Alliance for Caregiving. Caregiving in the US: A focused look at those caring for someone age 50 or Older. Bethesda, MD, and Washington, DC: National Alliance for Caregiving and AARP; 2009.

Nguyen HT, Black SA, Ray LA, Espino DV, Markides KS. Cognitive impairment and mortality in older Mexican Americans. Journal of the American Geriatrics Society. 2003; 51(2):183–187.

Ortiz N, Lamdan R, Johnson S, Korbage A. Caregiver status: A potential risk factor for extreme self-neglect. Psychosomatics. 2009; 50:166–168. [PubMed: 19377027]

Pearce M. A critical review of the forms and value of religious coping among informal caregivers. Journal of Religion and Health. 2005; 44:81–119.

Pearlin, LI.; Aneshensel, CS.; Mullan, JT.; Whitlatch, CJ. Caregiving and its social support. In: Binstock, RH.; George, LK., editors. Handbook of Aging and the Social Sciences. 4. San Diego: Academic Press, Inc; 1996. p. 283-302.

Phillips LR, Crist JD. Social relationships among family caregivers: A cross-cultural comparison between Mexican-American and non-Hispanic White caregivers. Journal of Transcultural Nursing. 2008; 19(4):326–337. [PubMed: 18669901]

Pinquart M, Söensen S. Correlates of physical health of informal caregivers: A meta-analysis. The Journals of Gerontology Series B, Psychological Sciences and Social Sciences. 2007; 62(2):126–137.

Poulin MJ, Brown SL, Ubel PA, Smith DM, Jankovic A, Langa KM. Does a helping hand mean a heavy heart? Helping behavior and well-being among spouse caregivers. Psychology and Aging. 2010; 25(1):108–117. [PubMed: 20230132]

Powell LH, Shahabi L, Thoresen CE. Religion and spirituality: Linkages to physical health. American Psychologist. 2003; 58:36–52. [PubMed: 12674817]

Radloff LS. The CES-D scale: A self-report depression scale for research in the general population. Applied Psychological Measurement. 1977; 1:385–401.

Reyes-Ortiz CA, Rodriguez M, Markides KS. The role of spirituality healing with perceptions of the medical encounter among Latinos. Journal of General Internal Medicine. 2009; 24(3):542–547. [PubMed: 19842004]

Roth DL, Mittelman MS, Clay OJ, Madan A, Haley WE. Changes in social support as mediators of the impact of a psychosocial intervention for spouse caregivers of persons with Alzheimer's disease. Psychology of Aging. 2005; 20:634–644.

Ruiz ME. *Familismo* and filial piety among Latino and Asian elders: Reevaluating family and social support. Hispanic Health Care International. 2007; 5(2):81–89.

Schulz R, Beach SR. Caregiving as a risk factor for mortality: The Caregiver Health Effects Study. Journal of the American Medical Association. 1999; 282:2215–2219. [PubMed: 10605972]

Shirai Y, Silverberg Koerner S, Baete Kenyon D. Reaping caregiver feelings of gain: The roles of socio-emotional support and mastery. Aging & Mental Health. 2009; 13(1):106–117. [PubMed: 19197696]

Smerglia VL, Miller NB, Sotnak DL, Geiss CA. Social support and adjustment to caring for elder family members: A multi-study analysis. Aging and Mental Health. 2007; 11:205–217. [PubMed: 17453554]

Vitaliano PP, Zhang J, Young HM, Caswell LW, Scanlan JM, Echeverria D. Depressed mood mediates decline in cognitive processing speed in caregivers. The Gerontologist. 2009; 49(1):12–22. [PubMed: 19363000]

Zarit, SH.; Zarit, JM. Mental disorders in older adults: The fundamentals of assessment. 2. New York, NY: The Guilford Press; 2007.

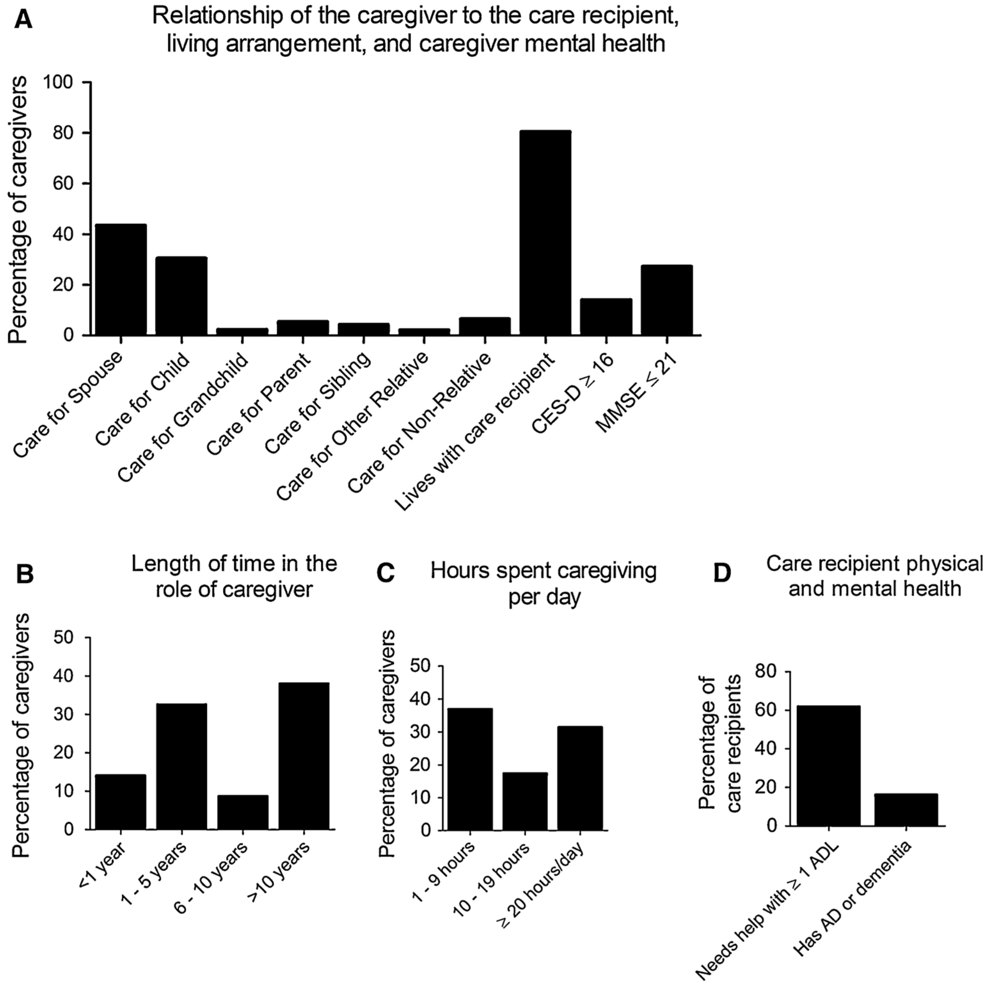

Fig. 1.

Caregiving profile of older (≥70) Mexican American caregivers (*n* = 92). *CES-D* Center for Epidemiologic Studies Depression Scale, *MMSE* Mini Mental State Examination, *ADL* Activities of Daily Living. Values may not add up to 100% due to missing data

Table 1

Differences between informal caregivers and non-caregivers by sociodemographic, health, and protective factors among Mexican Americans aged 70 and older (n = 1,980); 1997–1998

	Informal caregivers	**Non-caregivers**	**Total**	
	***n* (%) or Mean ± SE**	***n* (%) or Mean ± SE**	***n* (%) or Mean ± SE**	***t* or χ^2**
Total sample population	92	1,888	1,980	
Sociodemographic				
Female	66 (71.7)	1,021 (58.9)	1,081 (100)	5.97[*]
Married	63 (68.5)	843 (48.5)	906 (100)	13.75[***]
Age	76.57 ± 0.50	77.10 ± 0.14	77.40 ± 0.14	−1.01
Years of schooling	4.88 ± 0.46	4.94 ± 0.10	4.85 ± 0.07	−0.12
Income	3.12 ± 1.31	2.84 ± 1.31	2.84 ± 0.03	1.90
Acculturation	31.74 ± 1.28	33.10 ± 0.27	33.36 ± 0.19	−1.14
Psychological health				
CES-D	8.02 ± 0.87	8.31 ± 0.22	8.4 ± 0.21	−0.32
MMSE	24.20 ± 0.51	21.62 ± 0.16	21.05 ± 0.17	4.86[***]
Physical functioning				
ADL	0.07 ± 0.04	0.70 ± 0.04	0.93 ± 0.05	3.54[***]
IADL	1.26 ± 0.23	2.26 ± 0.08	2.6 ± 0.08	3.00[**]
Protective factors				
Emotional support				
Can count on someone	2.86 ± 0.04	2.78 ± 0.01	2.78 ± 0.01	1.48
Can talk to someone	2.77 ± 0.05	2.75 ± 0.01	2.75 ± 0.01	0.47
Family support				
No. of living adult children	4.75 ± 0.35	4.76 ± 0.08	4.75 ± 0.07	−0.03
No. of times see children/month	3.35 ± 0.24	3.47 ± 0.07	3.45 ± 0.06	−0.43
Visited doctor in past year	0.80 ± 0.04	0.90 ± 0.01	7.44 ± 0.28	2.85[**]
Religiosity	6.25 ± 0.15	6.04 ± 0.04	6.05 ± 0.04	0.20

CES-D Center for Epidemiological Study of Depression, *MMSE* Mini Mental State Examination, *ADL* Activities of Daily Living, *IADL* Instrumental Activities of Daily Living

[*] $p < 0.05$;

[**] $p < 0.01$;

[***] $p < 0.001$

Table 2

Binary logistic regressions depicting demographic, psychosocial and health correlates of informal caregiving, Mexican Americans, aged 70 and older ($n = 1{,}980$); 1997–1998

	Informal caregivers	
	OR	**95% CI**
Psychological health		
CES-D	1.05**	1.01, 1.09
MMSE	1.10**	1.02, 1.19
Physical functioning		
ADL	0.46	0.20, 1.08
IADL	1.02	0.85, 1.22
Sociodemographic		
Female	4.12**	1.74, 9.78
Married	2.97**	1.39, 6.46
Age	1.09*	1.01, 1.17
Years of schooling	0.98	0.87, 1.09
Income	1.22	0.96, 1.56
Acculturation	0.97	0.92, 1.02
Protective factors		
Emotional support		
Can count on someone	0.93	0.32, 2.64
Can talk to someone	1.07	0.43, 2.70
Family Support		
No. of living adult children	1.00	0.86, 1.16
No. of times see children/month	0.96	0.79, 1.17
Visited doctor in past year	0.47	0.18, 1.27
Religiosity	1.09	0.84, 1.41

Referent group non-caregivers, *CES-D* Center for Epidemiological Study of Depression, *MMSE* Mini Mental State Examination, *ADL* Activities of Daily Living, *IADL* Instrumental Activities of Daily Living

$^{*}p < 0.05$;

$^{**}p < 0.01$;

$^{***}p < 0.001$