Published in final edited form as:

Home Health Care Serv Q. 2013 January ; 32(1): 35–56. doi:10.1080/01621424.2012.755143.

Variation in Older Americans Act Caregiver Service Use, Unmet Hours of Care, and Independence Among Hispanics, African Americans, and Whites

Angelica P. Herrera, DrPH, MPH,

University of Maryland, Baltimore County, Baltimore, Maryland, USA

Rebecca George,

University of Texas, Austin, Austin, Texas, USA

Jacqueline L. Angel,

University of Texas, Austin, Austin, Texas, USA

Kyriakos Markides, and

University of Texas, Medical Branch, Galveston, Texas, USA

Fernando Torres-Gil

University of California, Los Angeles, Los Angeles, California, USA

Abstract

Home- and community-based services (HCBS) are underused by minority seniors and their caregivers, despite greater rates of disability. We examined racial/ethnic variation among 1,749 Hispanic, African American, and Whites receiving Older Americans Act Title III caregiver services in 2009. In addition, we identified the volume of services used by caregivers, their unmet hours of respite care, and the relationship between service use and seniors' ability to live independently. Minority caregivers cared for seniors in urban areas who had higher rates of disability, poverty, and Medicaid coverage. Hispanics had the highest rate of unmet hours of care, while caregiver services were less likely to help African Americans remain at home. Minorities sought services through community agencies and were more educated than demographically similar national cohorts. Greater efforts to reach minority caregivers of less educated, disabled seniors in urban areas and through community agencies may reduce unmet needs and support independent living.

Keywords

African Americans; caregiver support services; Mexican Americans; Older Americans Act

INTRODUCTION

One of the most challenging issues facing Americans of all races and ethnicities is that of maintaining dignity and independence in old age. As physical disability takes its toll, a lifetime of self-sufficiency must give way to some degree of dependency. High rates of chronic illness among older African American and Hispanic seniors place them at risk of dependency in later life, (Cowie et al., 2010; Demirovic et al., 2003; Fryar, Hirsch,

Address correspondence to Angelica P. Herrera, University of Maryland, Baltimore County, Health Administration and Policy Program, Department of Sociology and Anthropology/Center for Aging Studies, 252 Public Policy Building, 1000 Hilltop Circle, Baltimore, MD 21250, USA. angelph@umbc.edu.

Ederhardt, Yoon, & Wright, 2010). However, a combination of financial restraints, financial constraints, and culturally incongruent long-term care services means they will be cared for at home by family members (Cai, Warren Salmon, & Rodgers, 2009; Herrera, Lee, Palos & Torres-Vigil, 2008). Family caregiver support services offered by the Older Americans Act (OAA) provide one fountain of resources for family members caring vulnerable seniors. To date, however, no independent study has characterized the racial/ethnic make-up of its users, examined the reach of this program to the growing demographic of minority seniors and their caregivers, nor explored its utility in keeping these seniors at home. Toward that end, this paper provides a descriptive analysis of the variation in the use of OAA caregiver services by a multi-ethnic group of caregivers, identifies rates of unmet hours of respite care, and examines the association between caregiver service use and seniors' ability to live independently. We draw on publicly available OAA data of randomly sampled and telephone surveyed caregiver service users from 2009, and center our analysis on a subset of Hispanic, African American and White caregivers.

Given the growing population of older minorities (Vincent & Velkoff, 2010), their rising longevity, at least among Hispanics (Markides & Eschbach, 2005), and disproportionate rates of chronic illness and dementia (Cowie et al., 2010; Demirovic et al., 2003; Fryar, Hirsch, Ederhardt, Yoon, & Wright, 2010) it is likely that an increasing number of older minorities will utilize costly, but preventable, emergency room visits and trips to acute care facilities. The use of HCBS by older adults and their families offers considerable cost savings for both the patient and the healthcare system (Arno, 2006; Kaye, Harrington, & LaPlante, 2010).

DETERMINANTS OF CAREGIVERS' USE OF HOME- AND COMMUNITY-BASED SERVICES

Most older adults prefer to "age in place" and rely on family caregivers to avoid entry into assisted living or nursing facilities (Kane & Kane, 2001; Kaye, Harrington & LaPlante, 2010; Sergeant, Ekerdt, & Chapin, 2010), particularly in ethnic minority communities (Arno, 2006). However, this arrangement is compromised by increasing social and financial strains (Angel, Angel, Aranda & Miles, 2004; Phillips & Crist, 2008; Ruiz, 2007; Wolf, 2001). Increases in the number of minority women working outside the home and decreasing fertility rates among minority populations may be leading to a decline in the availability of family caregivers (Phillips & Crist, 2008; Ruiz, 2007). In fact, despite older adults' preference to age in place, rates of entry into nursing homes among ethnic minorities have increased over the last 10 years (Feng, Fennell, Tyler, Clark, & Mor, 2011). This suggests that family supports assumed to be in place in these communities may actually be lacking. As the conduits of HCBS, it is critical that aging service providers understand how various factors - such as, family and social support, sociocultural perspectives, barriers to access, and financial resources - affect minority groups' patterns of HCBS use (Angel, Angel, Aranda, & Miles, 2004; Crist et al., 2009; Herrera, Lee, Palos, & Torres-Vigil, 2008).

Caregivers of chronically ill older adults report poor that the burden of caregiving can lead to poor emotional and physical health, depression, higher mortality, and lower immune function (Cuijpers, 2005; Ory, Hoffman, Yee, Tennstedt, & Schulz, 1999; Pinquart & Sorenson, 2007; Schulz & Beach, 1999). Respite care and HCBS can reduce this burden and stress (Gaugler et al., 2003; Sussman & Regehr, 2009). The use of respite care and HCBS are also more cost-effective than long-term care (Kaye, Harrington & LaPlante, 2010; Kaye, LaPlante, & Harrington, 2009; Mitchell, Salmon, Polivka, & Soberon-Ferrer, 2006), as the cost of institutionalization can be up to five times as high as community-based care (Kaye, Harrington & LaPlante, 2010). Despite the increased cost, nursing homes that predominantly serve minorities are typically of lower quality, have fewer resources, and provide inferior care (Fennell, Feng, Clark, & Mor, 2010; Mor, Zinn, Angelelli, Teno, & Miller, 2004; Smith, Feng, Fennell, Zinn, & Mor, 2007).

Despite a plethora of caregiver support services, many caregivers from minority groups fail to use such services, or only use them late in the caregiving process (Kadushin, 2004; Wallace, Levy-Storms, & Ferguson, 1995). Although HCBS use among ethnic minority groups has risen in recent years (Laditka, Laditka, & Fisher Drake, 2006), only one-third of caregivers have used home-based services, and less than 17% have used meal delivery, support, transportation, or respite care services (Casado, van Vulpen, & Davis, 2011).

Moreover, ethnic specific difference may also account for the underuse of HCBS. For instance, among Mexican American family caregivers, use of HCBS is higher among those with Medicaid coverage, and lower levels of familism, and these caregivers report varying awareness and preferences by service type (e.g. homemaker services, nutrition, transportation) (Herrera, Lee, Palos & Torres-Vigil, 2008). Unmet needs for HCBS among older adults, for example, are associated with African American race/ethnicity, greater care needs, and less informal support (Casado, Vulpen & Davis, 2011). Yet, when African Americans do access longer-term support services, they access the largest number of total services, followed by Hispanics and then Whites (Laditka et al., 2006). This pattern may indicate that African Americans are heterogeneous in their use and knowledge of services available African American caregivers are also much more likely to seek multiple long-term care services than Whites (Hong, 2010). These findings emphasize the need for flexibility in the services offered to specific subgroups of minority elders and caregivers, as well as for scrutinizing the quality of individual services.

OLDER AMERICANS ACT (OAA) TITLE III-E CAREGIVER SUPPORT SERVICES

Since the Older American Act (OAA) was passed in 1965, the Administration on Aging (AoA) has provided services to Americans aged 60 and over, designed to mitigate the effects of declining physical health and help them maintain independence (O'Shaughnessy, 2012). AoA, now part of the newly formed Administration for Community Living (ACL), administers support services under OAA to seniors and the disabled through its "Aging Services Network," which includes State Units on Aging, Area Agencies on Aging (AAAs), and tribal partners. In addition to caregiver services, AoA provides a range of free community-based services, including home-delivered and congregate meals, case management, homemaker services, and transportation. Caregiver services have traditionally been offered under the better-known program, The National Family Caregiver Support Program, authorized under OAA Title III in 2000, which provides caregivers with a range of services, including respite and supplemental services. HCBS recipients tend to be vulnerable older adults, and 91% of this population has four or more chronic conditions. Of those with multiple chronic conditions, 42% have three or more limitations in Activities of Daily Living (ADL)(O'Shaughnessy, 2011).

Although OAA funds HCBS through the Aging Services Network, these services are also commonly paid for by Medicaid and are regularly coordinated at the local level. In fact, supportive services program mandated by OAA are relatively small in comparison with HCBS offered by Medicaid and associated waivers. In 2008, 42% of Medicaid long-term care spending was targeted at HCBS (Kaiser Commission on Medicaid and the Uninsured, 2011). This funding is divided between three programs, the 1915(c) HCBS waiver program, the mandatory home health benefit, and an optional state plan personal care services benefit, with 65% of total funding directed toward waiver programs. Financial and functional eligibility criteria, enrollment limits, and waiting lists are used by various states to contain program costs. In 2009, the average time on a waiting list for waiver services was almost two years, reflecting the high demand for these services and the difficulties that older adults experience accessing them (Kaiser Commission on Medicaid and the Uninsured, 2011). The comparison in size and scope between OAA and Medicaid HCBS is important, given these

resources are regularly intertwined and coordinated at the local level. Together, they still fall short of meeting demands for services.

As institutional long-term care costs continue to escalate and traditional family caregiving arrangements in minority communities dwindle, we can expect increased pressure on federal agencies to prioritize expanded access to quality HCBS to the growing population of older minority adults and their caregivers. Understanding sources of variations in ethnic minorities' use of OAA caregiving services, as well as disparities in service provision and outcomes, may inform the development of effective services and policies to ensure they are equally targeted. This is particularly salient, as legislatures comb through the OAA in Congress in 2012 as they consider revisions in the process of reauthorization. To achieve this, this study sets out to: 1) establish the social and demographic profile of Hispanic, African American, and White caregivers receiving Older Americans Act Title III caregiver support services and the seniors (age 60+) they care for; 2) identify the relationships between caregiver services use and participants' ability to live independently at home; and 3) determine if OAA caregiver services are reaching the most vulnerable Hispanic and African American seniors with caregivers by comparing service users to demographically similar cohorts in the Health Retirement Survey (HRS) and Hispanic Established Populations for Epidemiologic Studies of the Elderly (H-EPESE)..

METHODS

SAMPLE POPULATION

We completed our analyses on a final subsample of 1,749 participants comprising 96 Hispanic, 240 African American, and 1,406 White caregivers (of any age) and the relative they care for, aged 60 years and older, from the Fifth National Survey of OAA Participants. Data for both care recipient and caregiver were gathered from telephone interviews with the caregiver. These findings (on the elderly care recipient as reported by the caregiver) were then cross-walked to nationally representative comparable demographic sample of older adults (i.e. reported by care recipient or proxy) along key known risk factors for institutionalization, such as functional status and living alone. Although the comparison to nationally representative datasets, such as the Health Retirement Survey, may seem exhaustive, it is a methodology that AoA has employed to assess whether OAA services are reaching the most vulnerable seniors. For consistency and to permit comparisons, we have adopted a similar strategy

The OAA survey on which this data gathered from telephone surveys conducted in 2009 by Westat, Inc., were administered to nearly 5,500 caregivers who reported receiving Title III services. Interviewers offered participants the option to find their own translator to serve as a proxy; however, the survey was carried out only in English. The survey used a two-stage sample design, first selecting a sample of AAAs, and then randomly sampling participants from each selected AAA by service type. Approximately half of the AAAs were selected (312 of the nation's total 637) in five strata based on the square root of budget size. All AAAs in the first (largest budget) strata were selected, and each AAA in the remaining strata had an equal probability of selection. The number of participants selected from each AAA was proportional to the number of participants served in that particular service by the sampled AAA. All analyses in this study apply sample weights to account for this design. More detailed documentation on the Fifth National Survey and other AoA data sources are available on the new interactive Aging Interactive Database at <http://data.aoa.gov>.

MEASURES

Outcome measures—Outcomes of interest included the 1) volume of caregiver and other support services use, 2) unmet hours of respite care, and 3) living independently. *Service use* was measured as count data by the total number of other AAA services (e.g. transportation, case management) used in conjunction with caregiver support services. *Unmet hours of respite care* were calculated by subtracting the total hours of care received per week from caregivers' estimates of hours of care needed. This was then dichotomized to differentiate between those receiving fewer hours of care than needed from those receiving at least the needed hours of paid support or more. Caregivers also reported whether the services they received enabled them to provide better care. *Living independently* was used to indicate whether the use of caregiver services helped to the care recipient to live independently and remain in their own home. The survey questions explicitly asked whether the care recipient would be able to remain in their residence if support services for the caregiver were not available.

Caregiver characteristics—The sociodemographic characteristics of caregivers were also examined for significant differences. Caregivers reported age (59, 60–64, 65–74, 75–84, 85+ years); gender; and household income above or below \$20,000 (at or below \$1,666 or above \$1,667 and above per month). The three possible living arrangements included were living alone, living with spouse only, and living with anyone else (regardless of spousal presence). We also reported caregivers' relationship to care recipients (spouse/parent, child/son or daughter in-law, sibling, extended family, non-relative), and residence (urban, suburban, rural). Family support for caregiving services was indicated by the binary response to the question "Do your friends or family help arrange services for the care recipient?" Caregivers' one-item self-rated health was coded as '1' for Excellent, '2' for Very good, '3' for Good, '4' for Fair, and '5' for Poor. Race/ethnicity of the care recipient (Hispanic, White, and African American) was constructed from two questions: whether the respondent identified as Hispanic, and self-reported race. Respondents may have identified as belonging to more than one racial or ethnic group. Persons identifying as Hispanic, regardless of their racial identification, were included in the Hispanic category. If a respondent identified as both African American and White, they were classified as African American. Respondents in all three categories may also have identified with other races/ethnicities, such as Asian or Native American.

Care recipient functional capacity and health conditions—In addition to age and gender, caregivers reported care recipients' Instrumental Activities of Daily Living (I-ADLs) and Activities of Daily Living (ADLs). Caregivers were asked if they provided help to the care recipient with activities such as dressing, eating, bathing or getting to the bathroom; medical needs such as taking medicine or changing bandages; keeping track of bills, checks, or other financial matters; household chores such as preparing meals, doing laundry, or cleaning the house; local trips, such as going shopping or to the doctor's office; and arranging for care or services provided by others. Items were summed to create summary variables for ADLs and I-ADLs to describe care recipients' functional capacity.

Caregivers were queried regarding whether the care recipient had ever been informed they were diagnosed with a range of conditions. These were then grouped into the following categories: neurological, which included seizures and epilepsy, multiple sclerosis, and Parkinson's disease; geriatric, which included urinary tract infection, joint pain, osteoporosis, hearing problems, vision problems, arthritis, or rheumatism; and mental health conditions, such as Alzheimer's disease, dementia, or psychiatric disorders. We report on the percentage of OAA participants citing they had at least one condition in that respective cluster of related health conditions.

Access to additional support services—Lastly, information on the caregiver/care recipient's use of additional services was reported as 'yes' or 'no' for each service. Federally funded sources of support were captured, including Medicaid, food stamps, energy assistance, housing assistance, and other OAA/AAA services (e.g. transportation, care management). Also considered was caregivers' use of respite care, both in-home respite and adult day care, and supplemental services under the National Family Caregiver Support Program, such as home modifications, nutritional supplements, assistive devices, emergency response systems or specialized equipment.

MULTIVARIATE ANALYSIS

All analysis was performed in STATA v 11.2. Multivariate analysis was implemented to profile the demographic characteristics of care recipients and their caregivers, as well as to describe the differences between OAA caregiver service users along with key risk factors for institutionalization (e.g., functional disability, Medicaid coverage). Poisson regression was used to analyze caregiver services used by caregivers (defined as total number of AAA services used in conjunction with caregiver services accessed). Logistic and Poisson regression identified significant predictors of the binary outcome variables, unmet needs (sufficiency in caregiver hours of respite care service needs vs. services received) and living independently (enablement of independence and the ability to age in place).

Potential confounders were incorporated into the models, first in groups by type of confounder and then simultaneously. These groups were: (1) caregiver and care recipient socio-demographics (e.g. age, race/ethnicity, gender, income, living arrangements); (2) care recipient health and disability (e.g. I-ADL assistance, health conditions) and caregiver self-rated health; and (3) concurrent use of other AAA services, health-related services, or federally-funded programs.

To determine whether OAA Title III-e caregiver services are reaching the most vulnerable, we compared our ethnically diverse sample of OAA caregiver service users to representative samples of demographically similar older adults. First, we identified two excellent data sources that would provide us with compatible variables, the Hispanic Established Populations for Epidemiologic Study of the Elderly (H-EPESE) and the Health Retirement Survey (HRS). Secondly, we isolated key variables from each data source and operationalized them for maximum comparability. In some cases, this required that we reset thresholds in our OAA sample, such as with income categories. These risk factors were coded as follows: age (60–64, 65–74, 75–84, and 85+ years); gender; education (less than high school, high school/GED; any college and above); household income <\$15,000 (in US \$); living arrangements (alone, with spouse, other); any Medicaid coverage; and difficulties with ADLs or need for assistance with I-ADLs (each as 0, 1–2, or 3 or more).

The **Hispanic Established Populations for Epidemiologic Study of the Elderly (H-EPESE)** is a large multi-stage probability sample of Mexican Americans age 65 and over who reside in Texas, California, New Mexico, Arizona, and Colorado (Markides et al., 1997). The H-EPESE was funded by the National Institute on Aging (NIA), and constitutes a benchmark investigation of this population's mental and physical health, psychosocial characteristics, and health and long-term care use. Baseline data were collected during 1993–94 (wave 1), with follow-up interviews of the survivors in 1995–96 (wave 2), 1998–99 (wave 3), 2000–01 (wave 4), and 2004–05 (wave 5) that also included a new cohort of those age 75 and older, and 2007 (wave 6). Respondents completed the interview in their language of preference, Spanish or English, and information from a knowledgeable proxy was sought for infirm or cognitively impaired individuals. In the analyses, we restricted our sample to survivors 75 years and over from the sixth wave (n= 3,050).

The **Health Retirement Survey (HRS)** is also funded by the NIA and includes health and socio-economic information from a nationwide sample of Americans born between 1931 and 1941 and their spouses, and studies the health and retirement behaviors of the elderly in the U.S. dating back to 1992. The study contains an oversampling of African Americans and Hispanics, as well as residents of Florida. We drew on data from the most current survey, conducted in 2008 (wave 9). Wave 9 has a total sample size of 17,217. However, we restricted our analysis to persons age 60 and older and excluded individuals of races/ethnicities other than White, African American, and Hispanic, giving us the final sample size of 13,230.

RESULTS

CAREGIVER AND CARE RECIPIENT CHARACTERISTICS

In this study, all information about the caregiver, the care recipient and other individuals was gathered through self-reports of the caregiver, rather than from the elderly care recipient. As shown in Table 1, caregivers were most likely to be female across all racial/ethnic groups. Hispanic and African American caregivers (65.4% and 63.3%, respectively) were more likely to be <64 years of age than Whites (46.7%), ($p < .05$). African American caregivers were slightly more likely to be female (80.2%) than Hispanic (72.4%) and White caregivers (71.9%). African American caregivers were least likely to report a household annual income above \$20,000 (56.3%), followed by Hispanic (65%), and Whites (76.9%). Hispanic (67.0%) and African American caregivers (52.8%) were significantly more likely ($p < .01$) to reside in urban environments than Whites (38.2%). Those receiving care from Hispanic caregivers were approximately equally likely to be living alone as those whose caregivers were White or African American. However, Hispanics were significantly more likely to live with others, including a spouse (52.0%), compared with African Americans (43.1%) and Whites (27.9%), $\chi^2 = 53.4$, $p < .001$.

CARE RECIPIENTS' FUNCTIONAL STATUS

Those receiving care from minority caregivers under the OAA are more disabled than those whose caregivers are White according to several observations. Hispanic caregivers' were most likely to report 3+ IADLs (99.0%), followed by African Americans (93.7%) and Whites (89.5%), $p < .01$ (see Table 2). African Americans had the highest proportion (91.2%) of care recipients reporting conditions in the category of hypertension, high cholesterol, diabetes, and kidney disease, followed by Hispanics (84.3%), and Whites (78.3%), $p < .001$. There was no statistically significant difference in the age and gender of the care recipients.

SOURCES OF INSTRUMENTAL SUPPORT AND USE OF ADDITIONAL SERVICES

When the three racial/ethnic groups were compared by utilization of instrumental support services, we found significant differences in the use of federally funded, non-Title III services in conjunction with OAA caregiver support service, including food stamps ($p < .0001$), energy assistance ($p = .014$), Medicaid ($p < .0001$), and housing assistance ($p = .04$). In addition, we found that Hispanic caregivers were less likely to report that supportive services were paid for by the care recipient or other family members (see Figure 1). Hispanic caregivers were more likely to access support services from community-based agencies, and least likely from AAAs. African Americans were more likely than other ethnic groups to rely on AAAs to facilitate access to support services.

UNMET HOURS OF RESPITE CARE AND LIVING INDEPENDENTLY

Many African American caregivers (67.4%) reported that the care recipient would be able to remain in the same residence if caregiver support services became unavailable. This number was slightly lower for Whites (57.1%) and lowest for Hispanics (45.8%). Whites were significantly ($p = .024$) more likely than African Americans and Hispanics to report that the elderly care recipient's family enabled them to remain at home. Hispanic caregivers reported that 43.4% of care recipients received fewer hours of respite care than their estimated need, compared with 32.2% of African Americans and 28.4% of Whites, ($p < .01$).

The logistic and poisson regression analyses (see Table 3) showed that compared to Whites, care recipients living caregivers may be receiving fewer OAA services than those who did not (OR = 0.85, 95% CI [0.71, 1.01], $p = .06$). Caregivers who lived with others (with or without spouse) were almost twice as likely (OR = 1.71, 95% CI [1.00, 2.91], $p = .05$) to report that they and the care recipient were receiving fewer hours of care than needed. Those receiving care from African American caregivers were significantly less likely to remain at home and live independently than those with White and Hispanic caregivers (OR = 0.39, 95% CI [0.21, 0.73], $p < .0001$) as a result of OAA caregiver services. Care recipients who lived with their caregiver also had a high likelihood of remaining at home (OR = 0.54, 95% CI [0.31, 0.94], $p = .03$).

REACH OF OAA CAREGIVER SERVICES TO THE MOST VULNERABLE

When comparing the risk profile of OAA caregiver service users to the general population of seniors, we found OAA Title III services are reaching the most vulnerable populations according to most risk factors for institutionalization, such as disability, Medicaid coverage, and living alone; however, services are disproportionately reaching the caregivers of more highly educated minority seniors (see Table 4). Compared to the general population of Hispanic elderly, the Hispanic seniors cared for by OAA caregiver participants were significantly more likely to live alone (30.2% in OAA vs. 20.1% general population); were older (77.9% were age 75 years or older in OAA vs. 33.3%); more likely to be covered by Medicaid (58.4% vs. 27.1%); and had a greater number of disabilities (67.7% had at least 3 ADLs vs. 11.0% and 96.9% had at least 3 IADLs vs. 9.5%). On the other hand, Hispanics and African Americans were significantly more educated than minority seniors age 60 years and older on a national level in their respective racial/ethnic cohorts. Among OAA Hispanic participants, 81.2% had at least a high school education, compared with only 38.2% of average older Hispanics. For OAA African Americans, 85.4% had at least a high school education, higher than the national average (59.2%) for older African Americans.

DISCUSSION

Congressionally mandated OAA caregiver support services are intended to reach the most vulnerable seniors and their caregivers to improve their quality of life and help them live independently. We found that minority caregivers accessing OAA services are demographically different from other service recipients along several factors, including disability, poverty, location, and Medicaid coverage. This portrait is similar to OAA data, which indicates that in 2010, 30% of those who received regular or intensive services from Title III programs lived below the federal poverty level (O'Shaughnessy, 2012). Further, our descriptive findings show that Hispanics and African Americans relied on different sources of instrumental support. Both cited community-based resources more often than Whites. In addition, African Americans were most likely and Hispanics least likely to look to AAAs for resources and support. Our logistic regression analysis, found that race/ethnicity was associated with significant differences in the association of OAA caregiver services with elders' capacity to remain living at home independently, at least for African Americans.

While all caregivers reported substantial shortages in the hours of care needed by upwards of 25%, this was significantly higher for Hispanic caregiver/care recipients (43.4%), followed by African Americans (32.2%) and Whites (28.4%). Support services for African American seniors and their caregivers were considerably less likely to be associated with their ability to live independently. Lastly, when compared to ethnically similar representative national samples, OAA caregiver services are reaching the most vulnerable seniors along most documented risk factors for institutionalization, with the exception of education. OAA minority service users are substantially more educated than nationally representative samples within their racial/ethnic category.

Several factors may explain why older African Americans do not benefit as much as Whites from program participation. Many African American caregivers may lack awareness of caregiver and supportive services as a result of low health literacy. They may also not be strategically targeted by members of the Aging Services Network in their preferred setting, or refuse services due to inflexible features. One study found that the percentage of African Americans reporting they have no need for HCBS was higher than Whites, and that they most often attributed nonuse to unfamiliarity with the services (Casado, Vulpen & Davis, 2011). This is consistent with previous research that indicates African American caregivers have a higher level of resilience to the burden of caregiving (reviewed in Dilworth-Anderson, Williams, & Gibson, 2002), which may lead to an underestimated need for services.

African American caregivers also reported a significantly higher percentage of care recipients with health conditions such as hypertension, high cholesterol, diabetes, kidney disease, and high I-ADLs than Whites. African Americans, as well as Hispanics, also experienced a greater prevalence of poverty and were less likely to have at least a high school-equivalent education compared to Whites. Poverty and limited education may explain why both African American and Hispanic service users are more likely than Whites to concurrently use additional federally funded, non-Title III services such as Medicaid, food stamps, energy assistance, and housing assistance. This suggests that minority seniors and caregivers may require a larger menu of services and better coordination of care to achieve the same level of independence, posing potential challenges to aging service providers.

Despite the unmet hours of care found in this study, recent reports indicate that up to 71% of low-income seniors are not accessing benefits to which they are entitled (National Council on Aging, 2012). Outreach and communication efforts may be failing to reach broader segments of the senior population. Limited English-language proficiency and low health literacy among minority seniors may exacerbate this disconnect between service need and use. Studies indicate that health literacy is lower among Hispanics and African American elderly, the poor, and the less educated (Baker, Gazmararian, Sudano, & Patterson, 2000; Gazmararian et al., 1999; Lee, Gazmararian, & Arozullah, 2006). Persons with low health literacy are less knowledgeable about their diseases and plausible treatment methods, have higher hospitalization rates, exhibit poorer self-management and overall health, and have more difficulty navigating health services (Baker et al., 2007; Schillinger et al., 2002). The fact that health literacy is strongly associated with educational attainment poses a major barrier to Hispanic and African American elderly, as in the general population only 47% and 67%, respectively, have a high school education or above compared with 85% White elderly (US Census Bureau, 2012b). Low health literacy for Hispanic seniors is also compounded by limited English-language proficiency, with the preference for speaking Spanish being associated with worse access to care and health services (DuBard & Gizlice, 2008; Pearson, Ahluwalia, Ford, & Mokdad, 2008). Approximately 38% of Hispanics age 65 and older speak English “not well” or “not at all” (US Census Bureau, 2012a).

Compared to Whites, more Hispanics and African Americans sought out instrumental caregiver support services through community resources. Hispanics fare well with interventions that are delivered in their primary language, address cultural health beliefs, involve community health advisors, utilize low-literacy materials, promote social support, and invite family members' participation (Mauldon et al, 2006; Lorig et al, 2008). Similarly, African Americans respond well to culturally tailored interventions that address spirituality, involve the use of social and family support, and are delivered by a technically competent and professional primary care provider (Jimenez, Bartels, Cardenas, Dhaliwal, & Alegria, 2012; Johnson, Slusar, Chaatre, & Johnsen, 2006; Johnson, Elbert-Avila, & Tulskey, 2005; Leeman, Skelly, Burns, Carlson, & Soward, 2008). These variations in cultural preferences for healthcare services indicate the importance of developing culturally competent services at minority seniors' primary points of access.

A number of limitations in our findings stem from the survey's design itself, such as the small sample of Hispanic participants, its delivery in English only, and the cross-sectional nature of the study, which makes it difficult to generalize the information to the larger population and identify trends over time. Although respondents could elect their own translator as a proxy for telephone interview, if available, this may have deterred a large number of Hispanics from responding, given that nearly 40% of Hispanic seniors are limited in their English-language proficiency. Further limitations came from the comparison data used. The H-EPESE, for example, reflects mostly Mexican Americans in the Southwest region of the U.S. aged 65+ rather than 60+ as in the OAA survey. Although not representative of all Hispanic subgroups, the H-EPESE is one of the largest, longitudinal studies of Hispanic elderly and represents the largest subgroup of Hispanics, namely Mexican Americans.

The sample may also be biased to include persons who have felt greater satisfaction with OAA services and who felt they benefitted from them as they may be more inclined to remain in the program and respond to the survey. The survey did not assess why service users may have stopped using various services, so we can make associations but no causal inferences. In the future, a panel using longitudinal data that follows service users may elucidate the usefulness and patterns of particular services used in more detail. Where feasible, a number of study design changes could improve the value of OAA data: delivering the survey in multiple languages, conducting some surveys in person in community based settings, oversampling of underrepresented minorities, and experimenting with a cohort design. In addition, future evaluation of OAA programs may select qualitative methods to help verify and unravel why Hispanic and African American seniors and caregivers are receiving fewer hours of care than needed, and why minority seniors may not be benefiting equally from caregiver services.

Proposed OAA evaluation design changes require a monetary commitment from Congress. The Affordable Care Act §4302(a) contains provisions that charges the U.S. Department of Health and Human Services (DHHS) with reducing health disparities, in part, through improved monitoring of its services by collecting more detailed data on race, ethnicity, sex, primary language, and disability status. In 2012, the Obama administration established the Administration for Community Living (ACL), an agency that brings together the Office on Disability, the Administration on Developmental Disabilities as well as the AoA. This new agency presents the possibility of offering a higher level of integrated care and research into the needs of minority seniors (Gable, 2012), as well as further reinforcing efforts to establish a stronger network that enables 'community living', such as through expanded caregiver services..

The dramatic increase in population aging and diversity requires that greater attention be paid to the unique health care needs of minority elders and to devising culturally appropriate outreach efforts and services that address those perceived unmet needs. In particular, alternative and culturally relevant elder care services must become increasingly available for the most vulnerable populations. Although services are available through Title III-e of the OAA, for example, this study highlights areas where further research and work are necessary to address the unmet needs reported by Hispanic and African American older adults and their caregivers.

Acknowledgments

Support for this study was provided by a grant from the National Institute on Minority Health and Health Disparities (NCMHD), Grant #: R01MD005894 for Angelica P. Herrera and Jacqueline L. Angel; and the Health and Aging Policy Fellows Program, Atlantic Philanthropies, for Angelica P. Herrera. The authors also wish to thank the analytical support of doctoral students, Carlos Diaz and Stipica Mudrazija.

REFERENCES

- Angel JL, Angel RJ, Aranda MP, Miles TP. Can the family still cope? Social support and health as determinants of nursing home use in the older Mexican-origin population. *Journal of Aging and Health*. 2004; 16(3):338–354. [PubMed: 15155066]
- Arno, PS. Updated state-by-state analysis of 2004 national estimates. Kensington, MD: National Family Caregivers Association; San Francisco, CA: Family Caregiver Alliance; 2006. Prevalence, hours and economic value of family caregiving.
- Baker DW, Gazmararian JA, Sudano J, Patterson M. The association between age and health literacy among elderly persons. *The Journals of Gerontology. Series B, Psychological Sciences and Social Sciences*. 2000; 55:S368–S374.
- Baker DW, Wolf MS, Feinglass J, Thompson JA, Gazmararian JA, Huang J. Health literacy and mortality among elderly persons. *Archives of Internal Medicine*. 2007; 167(14):1503–1509. [PubMed: 17646604]
- Cai Q, Warren Salmon J, Rodgers ME. Factors Associated with Long-Stay Nursing Home Admissions Among the U.S. Elderly Population: Comparison of Logistic Regression and the Cox Proportional Hazards Model with Policy Implications for Social Work. *Social Work in Health Care*. 2009; 48(2): 154–168. [PubMed: 19197772]
- Casado BL, van Vulpen KS, Davis SL. Unmet needs for home and community-based services among frail older Americans and their caregivers. *Journal of Aging and Health*. 2011; 23(3):529–553. [PubMed: 21084723]
- Cowie CC, Rust KF, Byrd-Holt DD, Gregg EW, Ford ES, Geiss LS, Bainbridge KE, Fradkin JE. Prevalence of diabetes and high risk for diabetes using A1C criteria in the U.S. population in 1988–2006. *Diabetes Care*. 2010; 33(3):562–568. [PubMed: 20067953]
- 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*. 2009; 23(3):165–180. [PubMed: 19769211]
- Cuijpers. Depressive disorders in caregivers of dementia patients: as systematic review. *Aging and Mental Health*. 2005; 9(4):325–330. [PubMed: 16019288]
- Demirovic J, Prineas R, Loewenstein D, Bean J, R D, Sevush S, Szapocznik J. Prevalence of dementia in three ethnic groups: the South Florida program on aging and health. *Annals of Epidemiology*. 2003; 13(6):472–478. [PubMed: 12875807]
- Dilworth-Anderson P, Williams IC, Gibson BE. Issues of race, ethnicity, and culture in caregiving research: a 20-year review (1980–2000). *Gerontologist*. 2002; 42(2):237–272. [PubMed: 11914467]
- DuBard CA, Gizlice Z. Language spoken and differences in health status, access to care, and receipt of preventive services among US Hispanics. *American Journal of Public Health*. 2008; 98(11):2021–2028. [PubMed: 18799780]

- Feng Z, Fennell ML, Tyler DA, Clark M, Mor V. Growth of racial and ethnic minorities in US nursing homes driven by demographics and possible disparities in options. *Health Affairs*. 2011; 30(7): 1358–1365. [PubMed: 21734211]
- Fennell ML, Feng Z, Clark MA, Mor V. Elderly Hispanics more likely to reside in poor-quality nursing homes. *Health Affairs*. 2010; 29(1):65–73. [PubMed: 20048362]
- Fryar CD, Hirsch R, Ederhardt MS, Yoon SS, Wright JD. Hypertension, high serum cholesterol, and diabetes: racial and ethnic prevalence difference in U.S. adults, 1999–2006. *NCHS Data Brief*. 2010; 36:1–8. [PubMed: 20423605]
- Gable M. What is the administration for community living?. 2012 Leading Age. from http://www.leadingage.org/Administration_Holds_Briefing_on_New_ACL_Office.aspx.
- Gaugler JE, Jarrott SE, Zarit SH, Stephens MA, Townsend A, Greene R. Adult day service use and reductions in caregiving hours: effects on stress and psychological well-being for dementia caregivers. *International Journal of Geriatric Psychiatry*. 2003; 18(1):55–62. [PubMed: 12497556]
- Gazmararian JA, Baker DW, Williams MV, Parker RM, Scott TL, Green DC, et al. Health literacy among Medicare enrollees in a managed care organization. *Journal of the American Medical Association*. 1999; 281(6):545–551. [PubMed: 10022111]
- 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.
- Hong SI. Understanding patterns of service utilization among informal caregivers of community older adults. *Gerontologist*. 2010; 50(1):87–99. [PubMed: 19574540]
- Jimenez DE, Bartels SJ, Cardenas V, Dhaliwal SS, Alegria M. Cultural beliefs and mental health treatment preferences of ethnically diverse older adult consumers in primary care. *American Journal of Geriatric Psychiatry*. 2012; 20(6):533–542. [PubMed: 21992942]
- Johnson JC, Slusar MB, Chaatre S, Johnsen P. Perceptions of cultural competency among elderly African Americans. *Ethnicity and Disease*. 2006; 16(4):778–785. [PubMed: 17061727]
- Johnson KS, Elbert-Avila KI, Tulskey JA. The influence of spiritual beliefs and practices on the treatment preferences of African Americans: a review of the literature. *Journal of the American Geriatrics Society*. 2005; 53(4):711–719. [PubMed: 15817022]
- Kadushin G. Home health care utilization: A review of the research for social work. *Health & Social Work*. 2004; 29:219–248. [PubMed: 15453060]
- Kaiser Commission on Medicaid and the Uninsured. Medicaid Home and Community-Based Service Programs: Data Update. Washington, DC: The Henry J. Kaiser Family Foundation; 2011.
- Kane RL, Kane RA. What older people want from long-term care, and how they can get it. *Health Affairs*. 2001; 20(6):114–127. [PubMed: 11816651]
- Kaye HS, Harrington C, LaPlante MP. Long-term care: Who gets it, who provides it, who pays, and how much? *Health Affairs*. 2010; 29(1):11–21. [PubMed: 20048355]
- Kaye HS, LaPlante MP, Harrington C. Do noninstitutional long-term care services reduce Medicaid spending? *Health Affairs*. 2009; 28(1):262–272. [PubMed: 19124878]
- Laditka SB, Laditka JN, Fisher Drake B. Home- and community-based service use by older African American, Hispanic, and non-Hispanic white women and men. *Home Health Care Services Quarterly*. 2006; 25(3–4):129–153. [PubMed: 17062515]
- Lee SD, Gazmararian JA, Arozullah AM. Health literacy and social support among elderly Medicare enrollees in a managed care plan. *Journal of Applied Gerontology*. 2006; 25:324–337.
- Leeman J, Skelly AH, Burns D, Carlson J, Soward A. Tailoring a diabetes self-care intervention for use with older, rural African American women. *The Diabetes Educator*. 2008; 34(2):310–317. [PubMed: 18375780]
- Lorig K, Ritter PL, Villa F, Piette JD. Spanish diabetes self-management with and without automated telephone reinforcement: two randomized trials. *Diabetes Care*. 2008; 31(3):409–414.
- Markides KS, Eschbach K. Aging, migration, and mortality: Current status of research on the Hispanic paradox. *Journals of Gerontology: Series B*, 60B (Special Issue II). 2005:68–75.
- Mitchell G, Salmon JR, Polivka L, Soberon-Ferrer H. The relative benefits and cost of medicaid home- and community-based services in Florida. *Gerontologist*. 2006; 46(4):483–494. [PubMed: 16921002]

- Mor V, Zinn JS, Angelelli J, Teno JM, Miller SC. Driven to tiers: Socioeconomic and racial disparities in the quality of nursing home care. *Milbank Quarterly*. 2004; 82(2):227–256. [PubMed: 15225329]
- Mauldon M, Melkus GG, Cagganella M. Tomando Control: a culturally appropriate diabetes education program for Spanish-speaking individuals with T2DM mellitus-evaluation of a pilot project. *Diabetes Education*. 2006; 32(5):751–760.
- National Council on Aging. Data brief. National Council on Aging; 2012. The senior disconnect: Millions are losing billions in benefits.
- O'Shaughnessy. Background paper No. 83. National Health Policy Forum; 2011. The Aging Services Network: Serving a vulnerable and growing elderly population in tough economic times.
- O'Shaughnessy. Older Americans Act of 1965: Programs and Funding. National Health Policy Forum; 2012.
- Ory MG, Hoffman RR, Yee JL, Tennstedt S, Schulz R. Prevalence and impact of caregiving: a detailed comparison between dementia and nondementia caregivers. *Gerontologist*. 1999; 39(2): 177–185. [PubMed: 10224714]
- Pearson WS, Ahluwalia IB, Ford ES, Mokdad AH. Language preference as a predictor of access to and use of healthcare services among Hispanics in the United States. *Ethnicity and Disease*. 2008; 18(1):93–97. [PubMed: 18447107]
- 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]
- Pinquant LR, Sorenson 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.
- 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.
- Schillinger D, Grumbach K, Piette J, Wang F, Osmond D, Daher C, Palacios J, Sullivan GD, Bindman AB. Association of health literacy with diabetes outcomes. *Journal of the American Medical Association*. 2002; 288(4):475–482. [PubMed: 12132978]
- Schulz R, Beach SR. Caregiving as a risk factor for mortality: the Caregiver Health Effects Study. *Journal of the American Medical Association*. 1999; 282(23):2215–2219. [PubMed: 10605972]
- Sergeant JF, Ekerdt DJ, Chapin RK. Older adults' expectations to move: Do they predict actual community-based or nursing facility moves within 2 years? *Journal of Aging and Health*. 2010; 22(7):1029–1053. [PubMed: 20495154]
- Smith DB, Feng Z, Fennell ML, Zinn JS, Mor V. Separate and unequal: Racial segregation and disparities in quality across US nursing homes. *Health Affairs*. 2007; 26(5):1448–1458. [PubMed: 17848457]
- Sussman T, Regehr C. The influence of community-based services on the burden of spouses caring for their partners with dementia. *Health & Social Work*. 2009; 34(1):29–39. [PubMed: 19281100]
- US Census Bureau. [Retrieved March 8th 2012] Census 2000 Data. 2012a. from <http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml>.
- US Census Bureau. [Retrieved March 8th 2012] CPS Data on Educational Attainment. 2012b. from <http://www.census.gov/hhes/socdemo/education/data/cps/2011/tables.html>.
- Vincent, GK.; Velkoff, VA. Current Population Reports: P25–1138. Washington DC: US Census Bureau; 2010. THE NEXT FOUR DECADES, The older population in the United States: 2010 to 2050.
- Wallace SP, Levy-Storms L, Ferguson LR. Access to paid in-home assistance among disabled elderly people: do Latinos differ from non-Latino whites? *American Journal of Public Health*. 1995; 85(7):970–975. [PubMed: 7604922]
- Wolf DA. Population change: Friend or foe of the chronic care system? *Health Affairs*. 2001; 20(6): 28–42. [PubMed: 11816669]

FIGURE 1. Sources of instrumental support for caregivers and care recipients receiving caregiver support services in 2009 funded by the Older Americans Act. AAA = Area Agency on Aging.

Table 1

Sociodemographic characteristics of family caregivers receiving caregiver services in 2009 (n = 1,742).

	Hispanic (n = 96)	White (n = 1,407)	African American (n = 240)	Total (n = 1,742)
Age (years) *				
59	45 (51.2%)	461 (31.4%)	120 (49.2%)	626 (35.0%)
60–64	15 (14.2%)	224 (15.3%)	28 (14.1%)	267 (15.1%)
65–74	20 (17.6%)	344 (24.5%)	55 (24.3%)	419 (24.1%)
75–84	12 (14.2%)	309 (23.2%)	24 (9.6%)	345 (20.9%)
85+	4 (2.6%)	62 (5.7%)	9 (2.8%)	75 (5.1%)
Gender *				
Male	29 (27.6%)	414 (28.1%)	41 (19.8%)	484 (27.0%)
Female	63 (72.4%)	959 (71.9%)	193 (80.2%)	1,215 (73.0%)
Living Arrangements ***				
Alone	29 (32.7%)	505 (38.9%)	75 (38.2%)	609 (38.4%)
Spouse	19 (15.4%)	502 (33.2%)	52 (18.7%)	573 (30.2%)
Others	48 (52.0%)	397 (27.9%)	111 (43.1%)	556 (31.4%)
Relationship to Care Recipient ***				
Spouse or parent	31 (24.4%)	616 (45.1%)	51 (20.3%)	698 (40.4%)
Child and/or son or daughter in-law	59 (69.4%)	659 (45.8%)	148 (62.4%)	866 (49.5%)
Sibling	2 (2.0%)	35 (2.1%)	14 (5.1%)	51 (2.5%)
Extended family	3 (4.0%)	62 (3.9%)	18 (7.9%)	83 (4.4%)
Non-relative	1 (.3%)	34 (3.1%)	9 (4.4%)	44 (3.1%)
Residence Location **				
Urban	61 (67.0%)	458 (38.2%)	126 (52.8%)	645 (41.9%)
Suburbs	16 (15.7%)	358 (27.0%)	62 (1.2%)	436 (26.9%)
Rural	18 (17.3%)	572 (34.8%)	48 (16.1%)	638 (31.2%)
Household income over \$20,000	51 (65.%)	935 (76.9%)	123 (56.3%)	1,109 (73.5%)
Self-rated Health				
Excellent	10 (7.5%)	160 (10.0%)	16 (6.3%)	186 (9.3)
Very good	22 (19.4%)	348 (26.2%)	48 (22.1%)	418 (25.2)
Good	31 (38.7%)	479 (36.4%)	88 (37.3%)	598 (36.7)
Fair	23 (19.9%)	317 (20.4%)	66 (25.8%)	406 (21.0)
Poor	10 (14.5%)	102 (7.1%)	22 (8.5%)	134 (7.7)

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

Table 2

Demographic characteristics of care recipients from the 2009 Older Americans Act caregiver service support users (n = 1,742).

	Hispanic (n = 96)	White (n = 1,407)	African American (n = 240)	Total (n = 1,742)
Age (years)				
60–64	6 (7.0%)	51 (2.8%)	5 (2.9%)	62 (3.1%)
65–74	15 (8.5%)	239 (17.2%)	50 (19.0%)	304 (16.9%)
75–84	34 (36.6%)	575 (41.4%)	71 (31.6%)	680 (39.9%)
85+	40 (48.0%)	527 (38.6%)	108 (46.5%)	675 (40.2%)
Gender				
Male	34 (40.9%)	531 (39.6%)	65 (25.3%)	630 (37.8%)
Female	61 (59.1%)	876 (60.4%)	175 (74.7%)	1,112 (62.2%)
ADL				
0	12 (7.9%)	86 (7.6%)	18 (6.4%)	116 (7.5%)
1–2	19 (17.3%)	340 (24.7%)	49 (19.8%)	408 (23.6%)
3+	65 (74.7%)	981 (67.7%)	173 (73.8%)	1,219 (69.0%)
Mean number of ADL impairments	3.6 (3.2–4.0)	3.5 (3.3–3.7)	3.9 (3.6–4.2)	
IADL				
0	0	22 (1.5%)	1 (<.1%)	23 (1.2%)
1–2 [*]	3 (1.0%)	114 (9.0%)	14 (6.2%)	131 (0.8%)
3+ ^{**}	93 (99.0%)	1,271 (89.5%)	225 (93.7%)	1,589 (90.7%)
Mean number of IADL impairments	5.9 (5.4–6.4)	5.3 (5.1–5.5)	5.7 (5.3–6.0)	
Health conditions				
Neurological ^a	21 (20.8%)	250 (17.3%)	42 (19.1%)	313 (17.7%)
Geriatric ^b	93 (97.1%)	1,344 (95.9%)	228 (96.2%)	1,665 (96.0%)
Mental conditions ^c	68 (73.0%)	921 (69.0%)	168 (75.7%)	1,157 (70.2%)
Hypertension, high cholesterol, diabetes, kidney disease ^{**}	82 (84.3%)	1,127 (78.3%)	218 (91.2%)	1,427 (80.4%)
Heart disease, stroke, cancer	57 (66.4%)	1,021 (71.9%)	165 (70.4%)	1,243 (71.4%)

^aNeurological conditions include seizures, epilepsy, multiple sclerosis, and Parkinson's disease.

^bGeriatric syndromes include urinary incontinence, joint pain, osteoporosis, hearing problems, vision problems, arthritis and rheumatism.

^cMental/behavioral health conditions include Alzheimer's Disease, dementia, and emotional nervous psychiatric disorders.

p < .001;

**
p < .01;

*
p < .05

Table 3

Regression analyses of predictors of 2009 Older Americans Act caregiver service participants' intensity of use, service need, and effectiveness of services (n = 1,742).

A. Factors associated with a greater volume of combined OAA services use by caregiver in the previous year (i.e. caregiver services, homemakers services, transportation).						
	β	SE	IRR	SE	95% C.I.	P
<i>Ref</i>	0.84	0.27				0
African American	-0.1	0.14	0.9	0.12	0.69	1.19
Hispanic	-0.23	0.18	0.79	0.14	0.56	1.13
Caregiver lives with care recipient	-0.17	0.09	0.85	0.07	0.71	1.01
(Caregiver) lives with spouse	-0.11	0.14	0.9	0.13	0.68	1.19
(Caregiver) lives with others, +/- spouse	0.04	0.08	1.04	0.09	0.88	1.23
(Caregiver's) family helps arrange services for recipient	0.17	0.1	1.18	0.11	0.98	1.43
						0.08
B. Factors associated with the likelihood of caregiver experiencing unmet hours of respite care (i.e. receipt of fewer hours of care than estimated need.)						
	β	SE	OR	SE	95% C.I.	P
<i>Ref</i>	-4.24	1.26				0
African American	0.19	0.31	1.21	0.38	0.65	2.27
Hispanic	0.05	0.28	1.05	0.29	0.61	1.83
Caregiver lives with care recipient	-1.4	0.26	0.25	0.06	0.15	0.42
(Caregiver) lives with spouse	0.5	0.34	1.65	0.55	0.84	3.22
(Caregiver) lives with others, +/- spouse	0.54	0.27	1.71	0.46	1	2.91
(Caregiver's) family helps arrange services for recipient	0.01	0.26	1.01	0.26	0.6	1.71
						0.96
C. Factors associated with the likelihood that caregiver attributed caregiver services to helping care recipient live at home independently						
	β	SE	OR	SE	95% C.I.	P
<i>Ref</i>	-1.28	1.03				0.22
African American	-0.94	0.31	0.39	0.12	0.21	0.73
Hispanic	0.11	0.34	1.12	0.37	0.57	2.18
Caregiver lives with care recipient	-0.61	0.28	0.54	0.15	0.31	0.94
(Caregiver) lives with spouse	0.27	0.26	1.31	0.34	0.78	2.21
(Caregiver) lives with others, +/- spouse	0.21	0.22	1.23	0.27	0.8	1.91
						0.35

C. Factors associated with the likelihood that caregiver attributed caregiver services to helping care recipient live at home independently

	β	SE	OR	SE	95% C.I.	P
(Caregiver's) family helps arrange services for recipient	0.23	0.17	1.25	0.22	0.88	1.77
						0.2

Note. All sociodemographic, health, and service use variables included in previous models: Income, Instrumental Activities of Daily Living (I-A36ADLs) count, Medicaid, use of National Family Caregiver Support services, caregiver-reported health, use of respite services.

Note. Adjusted for sociodemographic, health, and service use variables included in the previous models.

Note. All sociodemographic, health, and service use variables included in the previous models: Income, location of residence, I-ADL count, number of AAA services used.

Comparison of Older Americans Act caregiver service participant profile to representative samples of older adults by race along risk factors for long-term care use in 2009.

Table 4

	Hispanic			White		African American	
	OAA caregiving services	H-EPESE	HRS	OAA caregiving services	HRS	OAA caregiving services	HRS
Age (years)			Mean: 79.1				
60-64	6.32		16.89	3.66	15.49	2.14	17.39
65-74	15.79		49.78	17.17	43.17	21.37	50.05
75-84	35.79		23.9	41.31	28.81	30.34	22.5
85+	42.11		9.43	37.86	12.54	46.15	10.05
		$p = 0.000$		$p = 0.000$		$p = 0.000$	
Gender							
Female	59.06	61.53	60.11	60.39	57.63	74.72	63.21
Male	40.94	38.47	39.89	39.61	42.37	25.28	36.79
		$p = 0.613$		$p = 0.001$		$p = 0.003$	
Education							
Less than high school	18.75		61.81	8.17	16.52	14.58	40.82
High school or GED	30.21		21.74	33.97	39.55	27.08	31.03
Any college and above	51.04		16.44	57.85	43.92	58.33	28.15
		$p = 0.000$		$p = 0.000$		$p = 0.000$	
Income							
Proportion with household income <\$15,000	83.43	16.23		7.68		24.58	
		$p = 0.000$					
Medicaid Coverage	58.4	35	27.14	19.7	5.15	47.7	21.73
Living arrangements							
Alone	30.21	20.95	20.13	35.97	28.43	31.51	32.34
With spouse	19.79	33.18	35.94	35.75	54.03	21.85	26.85
Other	50	45.84	43.94	28.28	17.53	46.64	40.82
		$p = 0.015$		$p = 0.000$		$p = 0.516$	
Difficulties with ADLs							

	Hispanic		White		African American		
	OAA caregiving services	H-EPESE	HRS	OAA caregiving services	HRS	OAA caregiving services	HRS
0	12.5	86.16	73.32	6.11	81.46	7.5	74.35
1 – 2	19.79	5.23	15.72	24.16	12.39	20.42	14.84
3+	67.71	8.62	10.96	69.72	6.15	72.08	10.82
		$p = 0.000$		$p = 0.000$		$p = 0.000$	
Mean		0.53	0.65		0.4		0.64
Difficulties with IADLs							
0	0	46.77	77.63	1.56	83.01	0.42	76.2
1 – 2	3.13	24.27	12.85	8.1	11.08	5.83	13.7
3+	96.88	28.97	9.52	90.33	5.92	93.75	10.11
		$p = 0.000$		$p = 0.000$		$p = 0.000$	
		2.06	0.55		0.39		0.6
Number of observations	96	3,050	1,113	1,407	10,227	240	1,840

OAA = Older Americans Act

HRS = Health Retirement Survey

H-EPESE = Hispanic Established Populations for Epidemiologic Study of the Elderly

ADL = Activity of Daily Living; IADL = Instrumental Activities of Daily Living