Original Research

Family Caregiver Factors Associated With Emergency Department Utilization Among Community-Living Older Adults With Disabilities

Julia Burgdorf, John Mulcahy, Halima Amjad, Judith D. Kasper, Kenneth Covinsky, and Jennifer L. Wolff

Abstract

Background: Older adults with disability are frequent users of the emergency department (ED) and often rely on family caregiver support. We identify whether and which caregiver characteristics are associated with older adults’ ED use.

Methods: We use Cox proportional hazards regression to model the likelihood of all-cause ED use (defined as 1 or more visits within 12 months of survey) as a function of caregiver characteristics after adjusting for older adult sociodemographic and health characteristics. We draw from linked older adult and caregiver surveys and administrative claims, creating a sample of 2521 community-living older adults with mobility/self-care disability receiving care from a family or unpaid caregiver.

Results: About half (52.5%) of older adults receiving mobility or self-care help incurred 1 or more ED visits within 12 months of interview. Adjusting for year of data collection, sociodemographic characteristics, and health status, these older adults were at greater risk of all-cause ED use if their primary caregiver provided greater than 40 hours of care per week (hazard ratio [HR] 1.22, 95% CI 1.04-1.43; \(P = .02\)), helped with health care tasks (HR 1.26; 95% CI 1.08-1.46; \(P < .01\)), or experienced physical strain (HR 1.18; 95% CI 1.03-1.36; \(P = .02\)).

Conclusion: Caregiver strain, helping with health care tasks, and greater hours of help per week are associated with heightened risk of ED use among older adults receiving mobility or self-care help. Study findings suggest the potential benefit of caregiver assessment and support.

Keywords
health outcomes, emergency visits, disease management, caregiving, older adults, aging

Introduction

Older adults with disabilities are frequent users of the emergency department (ED) and unmet need for help with daily activities is a major driver of ED use. Understanding factors that lead to ED use among older adults is important given that acute and emergency service use poses risk for adverse events and is costly for public payers—in 2016, Medicare spent $3.9 billion on ED visits, excluding the cost of subsequent hospitalization.

The majority of community-living older adults with disability receive help from family and other unpaid caregivers. The availability and adequacy of assistance from a family caregiver affects older adults’ likelihood of experiencing acute and/or emergent health events. Clinicians attribute social factors such as strained or overprotective family caregivers as contributing to potentially preventative hospitalization. However, no studies to date have examined the extent to which caregiver characteristics are associated with ED use among older adults. Having a better understanding of whether and which family caregiver factors affect ED use is particularly timely given recent reform efforts which have elevated awareness of nonmedical factors’ contributions to health and discussions regarding the possibility of better accounting for social factors in payment policy and quality measurement. Such information could also inform development of targeted training programs to better support family caregivers.

Corresponding Author:
Julia Burgdorf, Department of Health Policy and Management, Johns Hopkins Bloomberg School of Public Health, 624 N. Broadway, Room 698, Baltimore, MD 21205-2103, USA.
Email: julia.burgdorf@jhu.edu
by helping clinicians, health systems, and payers better understand and prioritize caregiver factors that are both amenable to intervention and relevant to ED use.

This study draws from a unique population-based dataset that includes survey data collected from both community-living older adults with disability and their primary family or other unpaid caregiver, as well as linked Medicare claims data. We assess the relationship between family caregiver factors and likelihood of older adult ED use, controlling for older adult demographics, health status, and prior acute care use.

**Methods**

**Sample**

This study draws on a pooled analytic sample from the 1999 and 2004 waves of the National Long-Term Care Survey (NLTCS), the 2011 and 2015 National Health and Aging Trends Study (NHATS), linked surveys of family and unpaid caregivers, and Medicare claims and vital statistics files. The NLTCS and NHATS are nationally representative surveys of adults aged 65 years and older. Both surveys rely on Medicare enrollment files for their sampling frame and conduct in-person interviews to comprehensively assess a broad range of sociodemographic and health factors. With sampling weights, both studies produce nationally representative estimates of older adults. The NLTCS-linked Informal Caregivers Survey (ICS) and NHATS-linked National Study of Caregivers (NSOC) are nationally representative surveys of relatives and unpaid helpers to those participants who were receiving assistance with self-care, mobility, or household activities for health or function. Wolff, et al (2018) offer additional detail regarding dataset construction. This study was deemed exempt from review by the Johns Hopkins Bloomberg School of Public Health Institutional Review Board (IRB #00006775).

Our sample included older adults receiving help with activities of daily living such as self-care (eating, dressing, bathing, toileting) or indoor mobility (transferring, getting around inside) from relatives or unpaid nonrelatives. Eligibility criteria maximize cross-wave comparability in ascertaining of disability by focusing on forms of disability (ie, need for assistance with self-care or indoor mobility) with a similar battery of assessment questions in both the NLTCS and NHATS. We excluded older adults who were living in nursing homes or residential care facilities at the time of interview as the nature of family help in such settings is likely to differ from help provided in the community. As we were unable to assess ED service use for older adults enrolled in Medicare Advantage plans, our sample was limited to those enrolled in fee-for-service Medicare with Parts A and B coverage. As the NLTCS caregiver survey was administered to an identified “primary” caregiver, defined as the caregiver who helped the most, we identified a “primary” caregiver for each eligible older adult in the NHATS, defined as the caregiver who offered the greatest number of hours of help per week among those interviewed. In total, our study sample comprised 2521 older adult/family caregiver dyads.

**Measures**

Measures of older adult characteristics were drawn from participant responses to the NLTCS and NHATS surveys. The NLTCS and NHATS collect comprehensive information on participants’ sociodemographic characteristics, health and function, and support from family and other unpaid caregivers during in-person interviews. We examine older adult demographic factors (age, sex, race), socioeconomic status (educational attainment, Medicaid enrollment), and health status (prior year hospitalization, number of chronic conditions, cognitive impairment). With the exception of cognitive impairment, characteristics are self-reported by participants or their proxy respondents. Cognitive impairment is ascertained from a combination of self-reported physician diagnosis of Alzheimer’s or dementia, proxy respondent responses to AD8 dementia screening, and older adult performance on cognitive tests related to memory, executive function, and orientation as reported in the NHATS, as described in Wolff et al (2018) and Kasper et al (2013).

Measures of family caregiver characteristics were drawn from caregiver responses to the NLTCS-linked Informal Caregivers Survey (ICS) and NHATS-linked National Study of Caregivers (NSOC). We examine caregiver sociodemographic factors (age, sex, relationship to older adult), caregiving circumstances (self-rated health, hours of help per week, types of caregiving tasks, duration of care, employment, geographic proximity to older adult), and role-related appraisal (financial, emotional, and physical strain). Caregiver assistance with mobility tasks includes assisting with moving around inside the house or transferring in/out of bed, assistance with self-care tasks includes assisting with bathing, dressing, toileting, or eating, and assistance with health care tasks includes assisting with medication management and/or wound care. Caregiver employment refers to employment for pay for a job outside of their caregiving role.

ED use was assessed from dates of service, HCPCS, and revenue center codes listed in inpatient, outpatient, and carrier billing files. Any ED use refers to one or more ED visits that occurred within the 12 months following the older adults’ in-person interview, regardless of whether the visit resulted in hospital admission.

**Statistical Analysis**

First, we calculated descriptive statistics for older adult and caregiver characteristics, stratified by older adult ED utilization,
and used Rao-Scott chi-square tests to identify statistically significant differences between these groups. We next sought to determine the independent effect of family caregiver factors on likelihood of any ED use among community-living older adults with disability, while adjusting for relevant older adult characteristics and accounting for competing risks. To do this, we used multivariable cause-specific proportional hazard models that incorporate dates of each event of interest (eg, date of first ED visit) and censoring events (eg, death, end of study interval). This approach allows direct modeling of covariate effects, and produces valid estimates of association between covariates and outcome, regardless of correlation in outcome and censoring events. Our models produced estimates of the cause-specific hazard; the instantaneous rate of experiencing each event of interest (eg, death, end of study interval) for those who remain at risk. We employed a proportional hazard model after testing the assumption of proportional hazards using an approach developed by Lin et al (1993) which considers the distribution of cumulative sums of Martingale-based residuals. Results suggest that the assumption of proportional hazards holds for all explanatory variables. As the NLTCS and NHATS employ a complex multistage sampling strategy, we included both sampling weights and design variables in our analyses, as previously described. All analyses were performed using SAS 9.4.

We take 2 approaches to model associations between family caregiver characteristics and ED use, both of which use multivariable proportional hazard models. Approach 1 examines each caregiver factor individually while adjusting for survey wave only. As we also sought to understand whether caregiver factors were significantly associated with ED use after adjusting for relevant older adult characteristics, approach 2 examines each individual caregiver factor individually while adjusting for survey wave, older adult sociodemographic variables (age, sex, and race), and older adult characteristics that were found to differ significantly between those who did versus did not experience ED use, as determined via Rao-Scott chi-square test with a $P$ value less than .05 (Table 1). These include number of chronic conditions, self-reported health status, and prior year hospitalization. Although functional impairment differs significantly between those who did versus did not experience ED use, we exclude this from our adjusted models as it is strongly correlated to several caregiver factors of interest; in particular, caregiver assistance in a given activity category is a direct response to the older adult’s impairment within that category.

**Results**

More than half (52.5%) of community-living older adults with self-care or mobility disability incurred ED use within 12 months of interview and 1 in 5 (17.8%) died during the observation period (Table 1). Older adults were mostly white (79.2%) and female (66.4%); 41.9% were aged 85 years or older and 41.5% experienced hospitalization in the prior year. Nearly 1/3 (30.3%) of older adults were enrolled in Medicaid, and 46.2% reported fewer than 12 years of education. Those who incurred any ED use were less educated, reported worse health, and were more likely to have experienced one or more hospitalizations in the prior year (Table 1).

About 2 in 3 (68.3%) caregivers were female and nearly half (46.4%) were 65 years or older. A substantial proportion of caregivers reported emotional (56.5%), financial (33.6%), or physical (45.5%) strain due to caregiving (Table 2). Older adults who incurred any ED use were less likely to rely on caregivers who had been helping for more than 4 years and more likely to rely on a caregiver providing 40 hours of care per week, assisting with household, self-care, mobility, and health care tasks, and reporting financial and physical strain (Table 2).

No sociodemographic caregiver characteristics were associated with risk of ED use. In approach 1 (adjusting only for survey wave) older adults were found to be at greater risk of ED use if their primary caregiver provided greater than 40 hours of care per week (hazard ratio [HR] 1.39; 95% CI 1.20-1.62; $P<.001$), helped with self-care (HR 1.24, 95% CI 1.05-1.47; $P=.01$) or health care tasks (HR 1.34; 95% CI 1.16-1.55; $P<.001$), or experienced physical strain (HR 1.24; 95% CI 1.08-1.42; $P<.01$). In approach 2 (adjusting for survey wave and older adult sociodemographic characteristics and health status factors), older adults were at greater risk of all-cause ED use if their primary caregiver provided greater than 40 hours of care per week (HR 1.22, 95% CI 1.04-1.43; $P=.02$), helped with health care tasks (HR 1.26; 95% CI 1.08-1.46; $P<.01$), or experienced physical strain (HR 1.18; 95% CI 1.03-1.36; $P=.02$) (Table 3).

**Discussion**

This is the first study to systematically examine whether and which family caregiver factors are associated with ED use among community-living older adults with disabilities. Our most important findings relate to the strong, consistent relationship between caregivers’ assistance with health care tasks and older adults’ risk of all-cause ED use. Also notable was that caregiver factors that were most highly associated with older adults’ ED use were related to the intensity and demands of caregiving: greater hours of care, helping with more complex and demanding tasks, and reporting physical strain due to providing care. In contrast, sociodemographic characteristics and other caregiving characteristics less amenable to intervention were not significantly associated with ED use. These findings suggest
an opportunity for clinicians and health systems to better support family caregivers of older adults with disability and, in doing so, potentially reduce ED utilization among a vulnerable subpopulation of older adults. That cognitive impairment was not associated with ED use is a departure from the prevailing evidence which links dementia to greater intensity of services. However, our study is unique in having strong measures of function and caregiver supports, while prior work has relied on administrative claims for information about cognitive and functional impairment. Given that forms of functional disability are closely linked to cognitive function, the nature of previous data sources may have conflated these concepts.

### Table 1. Characteristics of Community-Dwelling Older Adults Receiving Help From a Family or Unpaid Caregiver With Self-Care or Mobility Disability, by Older Adult’s Subsequent ED Use (n = 2521).

| Older Adult Characteristics | Full sample (n = 2521); n (%) | Those with All-Cause ED Use (n = 1342); n (%) | Those Without All-Cause ED Use (n = 1179); n (%) | P (χ² Test for Between-Group Difference) |
|----------------------------|-------------------------------|---------------------------------------------|---------------------------------------------|----------------------------------------|
| **Demographic characteristics** |                               |                                             |                                             |                                        |
| Age (years)                |                               |                                             |                                             |                                        |
| 65-74                      | 527 (20.9)                    | 258 (32.1)                                 | 269 (36.7)                                 | .07                                    |
| 75-84                      | 938 (37.2)                    | 502 (38.2)                                 | 436 (36.5)                                 |                                        |
| 85+                        | 1056 (41.9)                   | 582 (29.7)                                 | 474 (26.8)                                 |                                        |
| Female                     | 1673 (66.4)                   | 889 (63.0)                                 | 784 (63.4)                                 | .89                                    |
| Race                       |                               |                                             |                                             |                                        |
| White                      | 1997 (79.2)                   | 1057 (82.5)                                | 940 (82.9)                                 | .55                                    |
| Non-white                  | 524 (20.8)                    | 285 (17.5)                                 | 239 (17.1)                                 |                                        |
| **Socioeconomic characteristics** |                               |                                             |                                             |                                        |
| Married                    | 1090 (54.2)                   | 558 (51.9)                                 | 532 (56.7)                                 | .07                                    |
| Lives alone                | 482 (14.9)                    | 254 (15.3)                                 | 228 (14.5)                                 | .79                                    |
| Medicaid enrolled          | 764 (30.3)                    | 427 (27.8)                                 | 337 (25.0)                                 | .08                                    |
| Less than 12 years of education | 1165 (46.2)             | 650 (38.7)                                 | 515 (36.3)                                 | .02                                    |
| **Health status characteristics** |                               |                                             |                                             |                                        |
| Chronic condition countbc  | 1.53 (0.03)                   | 1.63 (0.04)                                | 1.42 (0.05)                                | <.001                                  |
| Self-reported health status |                               |                                             |                                             |                                        |
| Excellent                  | 333 (14.1)                    | 167 (12.3)                                 | 166 (16.0)                                 |                                        |
| Good                       | 720 (27.4)                    | 346 (24.6)                                 | 374 (30.6)                                 |                                        |
| Fair                       | 860 (32.5)                    | 474 (34.0)                                 | 386 (30.9)                                 |                                        |
| Poor                       | 608 (25.9)                    | 355 (29.0)                                 | 253 (22.5)                                 |                                        |
| Cognitively impaired       | 897 (31.0)                    | 491 (31.8)                                 | 406 (30.2)                                 | .26                                    |
| Functional impairment      |                               |                                             |                                             | <.001                                  |
| 0-2 ADLs                   | 1552 (63.2)                   | 778 (59.0)                                 | 774 (67.9)                                 |                                        |
| 3-4 ADLs                   | 500 (20.4)                    | 301 (23.9)                                 | 199 (16.5)                                 |                                        |
| 5-6 ADLs                   | 469 (16.4)                    | 263 (17.2)                                 | 206 (15.5)                                 |                                        |
| Hospitalization in past year | 1047 (41.5)                  | 657 (53.4)                                 | 390 (35.2)                                 | <.001                                  |

Abbreviations: ED, emergency department; ADLs, activities of daily living.

Percentages are weighted to account for NLTCS and NHATS complex survey design. Numbers may not sum exactly due to rounding. Percentages refer to column categories.

Count of conditions including diabetes, hypertension, lung disease, coronary disease, and stroke.

Mean (standard error).

Older adults living in the community with disability are frequent users of ED services and most rely on support from family and unpaid caregivers. Given growing evidence of the relevance of family caregiver availability and capacity to older adult health outcomes, previous work has called for clinicians and health systems to better incorporate family caregivers into the care team—including via systematic identification of caregivers, harnessing patient portals for improved information sharing, and implementing standardized caregiver assessments. Our findings suggest the potential benefits of eliciting information from caregivers regarding their capacity and experiences to (1) better understand which caregivers face strain or burden.
Table 2. Characteristics of Primary Caregivers for Community-Dwelling Older Adults With Disability, by Older Adult’s Subsequent Emergency Department (ED) Utilization (n = 2521).

| Primary Caregiver Characteristics | Full Sample (n = 2521); n (%) | Those With All-Cause ED Utilization (n = 1342); n (%) | Those Without All-Cause ED Utilization (n = 1179); n (%) | P (χ² Test for Between-Group Difference) |
|----------------------------------|------------------------------|-----------------------------------------------------|------------------------------------------------------|----------------------------------------|
| **Demographic characteristics**  |                              |                                                     |                                                      |                                        |
| Age (years)                      |                              |                                                     |                                                      |                                        |
| 14-44                            | 227 (9.0)                    | 118 (10.1)                                          | 109 (9.4)                                            | .33                                    |
| 45-64                            | 1124 (44.6)                  | 617 (42.1)                                          | 507 (41.0)                                           |                                        |
| 65+                              | 1170 (46.4)                  | 607 (47.7)                                          | 563 (49.6)                                           |                                        |
| Female                           | 1721 (68.3)                  | 900 (63.0)                                          | 821 (65.9)                                           | .17                                    |
| **Caregiving circumstances**     |                              |                                                     |                                                      |                                        |
| Relationship to care recipient   |                              |                                                     |                                                      |                                        |
| Spouse                           | 884 (35.1)                   | 447 (41.3)                                          | 437 (46.7)                                           | .05                                    |
| Nonspouse                        | 1637 (64.9)                  | 895 (58.7)                                          | 742 (53.3)                                           |                                        |
| Resides apart from care recipient| 704 (27.9)                   | 380 (25.3)                                          | 324 (24.5)                                           | .64                                    |
| Caregiving for 4+ years          | 1309 (51.9)                  | 660 (50.8)                                          | 649 (54.9)                                           | <.01                                   |
| Employed for pay                 | 789 (31.3)                   | 436 (30.3)                                          | 353 (29.6)                                           | .17                                    |
| Hours of care provided per week  |                              |                                                     |                                                      |                                        |
| 0-20                             | 1069 (42.4)                  | 538 (44.1)                                          | 531 (50.2)                                           | <.01                                   |
| 20-40                            | 659 (26.1)                   | 345 (22.4)                                          | 314 (24.3)                                           |                                        |
| >40                              | 793 (31.5)                   | 459 (33.5)                                          | 334 (25.5)                                           |                                        |
| Help provided                    |                              |                                                     |                                                      |                                        |
| Household tasks                  | 2171 (86.1)                  | 1177 (90.0)                                         | 994 (87.5)                                           | .01                                    |
| Self-care                        | 1701 (67.5)                  | 939 (72.0)                                          | 762 (66.9)                                           | <.01                                   |
| Mobility                         | 1791 (71.0)                  | 990 (76.1)                                          | 801 (71.6)                                           | <.01                                   |
| Health care tasksb               | 1530 (60.7)                  | 863 (69.0)                                          | 667 (61.4)                                           | <.001                                  |
| Self-reported health             |                              |                                                     |                                                      |                                        |
| Excellent/very good              | 795 (37.4)                   | 415 (36.8)                                          | 380 (38.2)                                           | .45                                    |
| Good                             | 1040 (43.2)                  | 548 (35.9)                                          | 492 (36.6)                                           |                                        |
| Fair/Poor                        | 686 (27.2)                   | 379 (27.4)                                          | 307 (25.2)                                           |                                        |
| Support services                 |                              |                                                     |                                                      |                                        |
| Support group use                | 128 (5.1)                    | 60 (3.8)                                             | 68 (4.9)                                             | .14                                    |
| Respite care use                 | 379 (15.0)                   | 209 (14.9)                                          | 170 (13.5)                                           | .42                                    |
| **Caregiving appraisal**         |                              |                                                     |                                                      |                                        |
| Financial strain                 |                              |                                                     |                                                      | .01                                    |
| None                             | 1674 (66.4)                  | 862 (66.2)                                          | 812 (71.0)                                           |                                        |
| Some/A lot                       | 847 (33.6)                   | 480 (33.8)                                          | 367 (29.0)                                           |                                        |
| Emotional strain                 |                              |                                                     |                                                      | .07                                    |
| None                             | 1098 (43.6)                  | 562 (42.8)                                          | 536 (46.4)                                           |                                        |
| Some/A lot                       | 1423 (56.4)                  | 780 (44.4)                                          | 643 (53.6)                                           |                                        |
| Physical strain                  |                              |                                                     |                                                      | <.001                                  |
| None                             | 1374 (54.5)                  | 689 (55.6)                                          | 685 (62.3)                                           |                                        |
| Some/A lot                       | 1147 (45.5)                  | 653 (44.4)                                          | 494 (37.7)                                           |                                        |

*Percentages are weighted to account for NLTCS and NHATS complex survey design. Numbers may not sum exactly due to rounding. Percentages refer to column category.

bMobility tasks include moving around inside the house or transferring in/out of bed. Self-care tasks include bathing, dressing, toileting, or eating, and health care tasks include assisting with medication management and/or wound care.

that may negatively impact their ability to confidently and effectively provide care and (2) to connect these caregivers with supportive interventions. Primary care clinicians are well-positioned to lead these conversations, given their holistic understanding of patients’ care needs and their emerging role as the strategic center of the care team.43-45

Our study findings also point to areas of vulnerability in the current environment of caregiver support. Caregivers
Table 3. Primary Caregiver Characteristics and Hazard of Subsequent ED Utilization Among Care Recipients (n = 2521). a

|                                | Model 1: Adjusting for Survey Wave Only | Model 2: Adjusting for Survey Wave, Sociodemographic Characteristics, Health Status b |
|--------------------------------|----------------------------------------|----------------------------------------------------------------------------------------|
|                                | All-Cause ED Utilization                | All-Cause ED Utilization                                                                 |
|                                | HR          | 95% CI     | HR          | 95% CI     |
| Caregiver age (years)          |                          |                          |                          |                          |
| 14-44                          | Reference   | Reference   | Reference   | Reference   |
| 45-64                          | 0.91        | .69, 1.21   | 0.86        | .65, 1.13   |
| 65+                            | 0.89        | .69, 1.16   | 0.90        | .70, 1.17   |
| Female gender                  | .93         | .79, 1.11   | .85         | .72, 1.00   |
| Relationship to care recipient |                          |                          |                          |                          |
| Spouse                         | Reference   | Reference   | Reference   | Reference   |
| Nonspouse                      | 1.16        | .97, 1.38   | 1.09        | .87, 1.37   |
| Resides apart from care        | 1.04        | .88, 1.23   | 1.00        | .85, 1.17   |
| recipient                      |                          |                          |                          |                          |
| Caregiving for 4+ years        | 0.91        | .79, 1.04   | 0.97        | .84, 1.12   |
| Self-reported health           |                          |                          |                          |                          |
| Excellent/Very good            | Reference   | Reference   | Reference   | Reference   |
| Good                           | 0.99        | .84, 1.18   | 0.98        | .83, 1.15   |
| Fair/Poor                      | 1.05        | .86, 1.29   | .85         | .85, 1.26   |
| Employed for pay               | 1.04        | .87, 1.24   | 1.06        | .89, 1.28   |
| Hours of care provided per week|                          |                          |                          |                          |
| 0-20                           | Reference   | Reference   | Reference   | Reference   |
| 20-40                          | 1.06        | .88, 1.27   | 1.01        | .84, 1.21   |
| >40                            | 1.39        | 1.20, 1.62  | 1.22        | 1.04, 1.43  |
| Help provided c                 |                          |                          |                          |                          |
| Household tasks                | 1.20        | .98, 1.48   | 1.23        | .92, 1.38   |
| Self-care                      | 1.24        | 1.05, 1.47  | 1.16        | .97, 1.40   |
| Mobility                       | 1.20        | 1.00, 1.44  | 1.11        | .91, 1.35   |
| Health care tasks              | 1.34        | 1.16, 1.55  | 1.26        | 1.08, 1.46  |
| Supportive services            |                          |                          |                          |                          |
| Support group use              | 0.84        | .59, 1.19   | 0.86        | .61, 1.22   |
| Respite care use               | 1.17        | .93, 1.47   | 1.08        | .86, 1.36   |
| Financial strain               |                          |                          |                          |                          |
| None                           | Reference   | Reference   | Reference   | Reference   |
| Some/A lot                     | 1.15        | 1.00, 1.34  | 1.05        | .89, 1.23   |
| Emotional strain               |                          |                          |                          |                          |
| None                           | Reference   | Reference   | Reference   | Reference   |
| Some/A lot                     | 1.15        | .99, 1.34   | 1.08        | .93, 1.27   |
| Physical strain                |                          |                          |                          |                          |
| None                           | Reference   | Reference   | Reference   | Reference   |
| Some/A lot                     | 1.24        | 1.08, 1.42  | 1.18        | 1.03, 1.36  |

Abbreviations: ED, emergency department; HR, hazard ratio.

aAll models include sampling weights and design variables to adjust for nonprobability sampling in the NLTCS and NHATS surveys.

bSociodemographic characteristics include age, sex, race, and educational attainment. Health status factors include number of chronic conditions, self-reported health status, and prior year hospitalization.

cMobility tasks include moving around inside the house or transferring in/out of bed, self-care tasks include bathing, dressing, toileting, or eating, and health care tasks include assisting with medication management and/or wound care.

are often expected to manage older adults’ needs in the community, whether that means coordinating between multiple providers, assisting with bathing, administering medications, or a multitude of other tasks. Although caregiver involvement often extends to health system interactions, and may ultimately affect health outcomes and service use, caregivers rarely perceive themselves to be included as members of the care team or receive training.
and preparation for the responsibilities and tasks they are expected to assume. Previous work suggests that offering formal training to family caregivers of older adults reduces caregiver strain, increases caregivers’ self-efficacy, and improves outcomes for older adults. The Resources for Enhancing Alzheimer’s Caregiver Health (REACH) and Helping Invested Families Improve Veterans’ Experiences Study (HI-FIVES) are examples of community-based interventions to educate and support family caregivers that have been shown to improve caregiver and older adult outcomes. Development and implementation of additional caregiver training programs in the ambulatory care setting, especially those tailored to caregivers assisting with health care tasks or experiencing physical strain, could benefit both caregivers, who are often patients themselves, as well as older adults.

Limitations

As we rely on observational data, we cannot draw causal inferences regarding the impact of caregiver characteristics on older adult care recipients’ ED use. We are limited to the measures gathered by both the NLTCS and NHATS and their linked caregiver surveys, and therefore cannot test potentially relevant caregiver characteristics such as measures of self-efficacy or reported receipt of training. Additionally, we do not have information on patient’s geographic location or their specific service environment, factors which may affect use patterns at the community level.

Conclusion

In summary, this study finds that family caregiver characteristics have relevance to ED use among community-living older adults with disability. Multiple caregiver factors related to caregiver burden or strain are associated with greater risk of ED use in this population and could be amenable to intervention. These findings highlight an opportunity to improve care delivery for a subpopulation that are frequent ED users, and suggest that interventions which consider the needs of family caregivers and support the family unit may contribute to reductions in ED use among older adults.

Declaration of Conflicting Interests

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ORCID iD

Julia Burgdorf https://orcid.org/0000-0002-3356-1897

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