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Caregiver beliefs about older adult falls from a nationally representative U.S. sample 2022

Bailey Collette^{a,b,*}, Dawson Dobash^{a,b}, Shericka Harris^a

^aCenters for Disease Control and Prevention, Atlanta, GA, United States

^bOak Ridge Institute for Science and Education Program, Oak Ridge, TN, United States

Abstract

Introduction: Falls represent a prevalent cause of injury, disability, and mortality in the United States among older adults (ages 65+). Falls are not an inherent part of aging and adopting evidence-based fall prevention strategies can reduce fall risk. Caregivers are well-positioned to increase awareness and uptake of fall prevention strategies among older adults but may not be aware of all effective strategies. The objective of this study was to assess caregivers' beliefs and awareness related to older adult falls and evidence-based prevention strategies.

Methods: Questions about falls were included in the SummerStyles survey, part of the 2022 suite of Porter Novelli ConsumerStyles surveys. Questions covered demographic and health characteristics of respondents, caregiver status, and knowledge of evidence-based fall prevention strategies. We compared demographic, health, and fall prevention knowledge by caregiver status and age.

Results: Caregivers were more likely to be women, 65+, and report low income and fair/poor health compared to non-caregivers. Most (88.8%) caregivers did not believe older adult falls are inevitable. Most caregivers (94.0%) reported knowing at least one evidence-based fall prevention strategy, but many also identified strategies with limited evidence, such as being more careful (75.1%), as effective. Few caregivers recognized interventions like Tai Chi (13.4%) and medication management (23.3%) as effective. However, caregivers often recognized the importance of making homes safer (84.8%) and strength or balance exercises (76.4%).

Conclusions: Our findings highlight the need for expanded education aimed at caregivers to raise awareness about fall risks and all evidence-based fall prevention strategies.

Practical applications: Public health efforts can benefit from effectively educating and empowering older adults and their caregivers to play a proactive role in fall prevention and aging

*Corresponding author. ucv1@cdc.gov (B. Collette).

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Bailey Collette: Writing – original draft, Validation, Formal analysis, Data curation, Conceptualization. **Dawson Dobash:** Writing – original draft, Validation, Formal analysis, Data curation, Conceptualization. **Shericka Harris:** Writing – review & editing, Validation.

Declaration of competing interest

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without injury. Results can facilitate targeted education and support of caregivers and creation of caregiver-driven programs to address fall risk and prevention.

Keywords

Fall Prevention; Injury Prevention; Older Adult Fall Prevention; Caregiver-driven Fall Prevention; Evidence-based Fall Prevention

1. Introduction

Older adult (ages 65+) falls represent a prevalent cause of injury, disability, and mortality in the United States. There were over 37 million reported falls among older adults in 2020, resulting in three million emergency department visits and one million hospitalizations (Moreland et al., 2020; Centers for Disease Control and Prevention. Web-based Injury Statistics Query and Reporting System (WISQARS)., 2024). In 2022, there were about 41,000 deaths from older adult falls (Centers for Disease Control and Prevention. Wide-ranging ONline Data for Epidemiological Research (WONDER), 2024). Older adults are the fastest growing age group in the United States, expected to make up approximately 22% of the population by 2050 (United States Census Bureau, 2023; United States Administration for Community Living, 2021; Mather, 2019). As the number grows, it is expected that injuries, disabilities, and deaths from falls will also increase (Burns, 2018). However, while common, falls are not a normal part of aging, and can be prevented with evidence-based strategies (Ambrose et al., 2013; Tricco et al., 2017). Multifactorial intervention approaches, in which multiple evidence-based strategies are used to create a tailored plan to target an individual's specific risk factors, have been shown to decrease fall risk by about 24% (Tricco et al., 2017; Hopewell et al., 2018; Bhasin et al., 2020).

As the aging population grows in the United States, so does the need for caregivers. Adults are spending more years in older age, often with one or more chronic conditions (United States Administration for Community Living, 2021; Boersma et al., 2020). Many older adults rely on the assistance of a caregiver to maintain quality of life, independence, and overall well-being, as well as to age in place at home (Centers for Disease Control and Prevention., 2019; Hoffman & Zucker, 2016). In 2021–2022, about one in five U.S. adults reported being a caregiver, defined as providing care or assistance to a friend or family member in the past 30 days (Kilmer, Omura, Bouldin, et al. Changes in Health Indicators Among Caregivers — United States, 2024). A majority of caregivers provide care for older adults, with 76% caring for adults ages 65 and older in 2020 (Alliance, 2020). Caregivers can be paid or unpaid, with unpaid informal caregiving from family or friends in the home constituting the bulk of the long-term care provided in the United States (Centers for Disease Control and Prevention., 2019; Alliance, 2020; United States Bureau of Labor Statistics, 2023).

Although many caregivers express concern about falls when caring for older adults, research shows they do not always believe falls can be prevented or are not aware of evidence-based fall prevention strategies (Wilkinson et al., 2018; Ang et al., 2020; Hoffman et al., 2019). A 2018 systematic literature review found caregivers often implement strategies to protect

older adults from falls that unintentionally discourage independence and limit mobility rather than strategies that align with best practice prevention guidelines (Wilkinson et al., 2018). For example, caregivers reported supervising the activities of older adults' lives or restricting access to perceived hazardous areas (Wilkinson et al., 2018). While these actions may prevent some falls, they do not address underlying fall risk factors (Ambrose et al., 2013; Wilkinson et al., 2018). Research indicates limiting mobility and physical activity may actually increase fall risk, as it can accelerate declines in muscle strength and flexibility (Musich et al., 2017; Gianoudis et al., 2015; Hairi et al., 2010). Caregivers are often a trusted source of information and support in the lives of older adults (Centers for Disease Control and Prevention., 2019). Equipping caregivers with knowledge and support related to adopting evidence-based fall prevention strategies can better position them to increase fall risk awareness and the use of prevention strategies among their older loved ones. However, there is little knowledge on the current prevalence of fall prevention knowledge among older adult caregivers, and their perspective on falls being preventable.

Given this gap, the aim of this study was to examine current knowledge of evidence-based fall prevention strategies and to compare the prevalence of this knowledge across caregiver versus non-caregiver adult respondents, as well as caregiver age. To better understand populations of caregivers who may benefit from fall prevention education and resources, we also sought to examine and describe current demographic and health characteristics of caregivers. The results of this study can inform caregiver education efforts and the creation of caregiver-driven programs to address fall risk among older adults.

2. Methods

2.1. Survey

We licensed data from the 2022 Porter Novelli ConsumerStyles survey conducted via Ipsos' KnowledgePanel, an online panel that is representative of the non-institutionalized U.S. adult population (Yeager et al., 2011). Panel members are randomly recruited by mail using probability-based sampling by address to reach respondents with or without a landline phone or internet access. If needed, households are provided with a laptop or tablet and access to the Internet. Respondents receive cash-equivalent reward points for their participation that can be redeemed online for gift cards and prizes.

We used the summer wave of the ConsumerStyles survey, SummerStyles, which was fielded from May 31, 2022, to July 6, 2022. The survey was sent to 5,990 households that previously completed SpringStyles. Email reminders were sent to non-responders on day 3, 7, and 11 of the field period. Those who completed the survey received 5,000 cash-equivalent reward points (worth approximately \$5). Survey completion time was approximately 23.1 min (median) across respondents. Respondents who did not answer at least half of the questions or completed the survey in five minutes or less were removed from the data as incomplete (n = 21).

The final sample of SummerStyles included 4,156 adults (ages 18+) who completed the survey for a response rate of 69.3%. The data were weighted to match the U.S. Current Population Survey proportions using eight factors: gender by age, household income, race/

ethnicity, household size, education, census region, metro status, and parental status of children 11–17 years old (United States Census Bureau, 2019).

2.2. Study variables

Demographic and health characteristics were recorded for respondents. Demographics included age, gender, race/ethnicity, education, income, and community type (urban, rural, or suburban). Health characteristics included self-reported health status, disability, number of current medications, number of health professional visits over the last year, and the presence (in the last year or currently) of several chronic health conditions related to increased fall risk. These conditions included arthritis, chronic pain, depression, diabetes, heart condition, high blood pressure, and stroke (Paliwal et al., 2017; Cai et al., 2020; Bergen et al., 2019).

Caregiver status was determined by the question, “During the past 30 days did you provide regular care or assistance to a friend or family member who has a health problem or disability?” Those who answered yes were asked to specify the person’s relationship to them (represented in this study as relative care yes/no) and if the person being cared for was under age 65 or 65 years or older (if they provided care for more than one person, they were instructed to answer according to the oldest). As this study focuses on caregivers of older adults, hereafter the term “caregivers” will be used in reference to caregivers of those 65 years and older.

Assessing beliefs about fall prevention involved two questions. The first sought caregivers’ perspective on the statement, “Older people fall and there is nothing that can be done about it.” Responses were dichotomized into agree/strongly agree and disagree/strongly disagree to reach sufficient sample size for each group. The second question asked respondents to select all activities they believed could aid older people in preventing falls. Activities were categorized as evidence-based, or those with sufficient evidence showing a significant reduction in fall risk, and limited or no evidence based (hereafter referred to as limited evidence). Evidence-based strategies included performing strength or balance exercises, practicing Tai Chi, stopping or reducing certain medications, making homes safer, working with a physical therapist, correcting vision problems, and addressing foot and footwear problems. Limited evidence strategies included performing aerobic exercise, discussing risk with a healthcare provider, being more careful, and using a mobility device. Respondents were not advised on which activities were evidence-based versus limited evidence. Responses of “other activities not listed above,” (n = 370) “don’t know/not sure,” (n = 146) or “nothing can be done to prevent falls” (n = 60) were excluded. The data dictionary (Appendix) includes a complete list of variables and their definitions.

2.3. Statistical Methods

We categorized respondents by caregiver status: non-caregivers (n = 3,628) and caregivers (n = 516). Caregivers were further categorized by the age of the individual for whom they provided care (age 65+ vs. <65) and then those who provided care for older adults were further categorized by their age (younger (<65), older (65+) (Fig. 1). There were

320 caregivers providing care to older adults, with 140 of these caregivers being ages 65+ themselves.

Unweighted frequencies and weighted percentages with respective 95% confidence interval (CI) were calculated for all categorical variables while means and standard deviations (SD) were calculated for all numeric variables for each group. After weighting the data, chi-square tests were used to compare the non-caregiver population to caregivers for each demographic, health, and fall prevention-related variable. Chi-square tests were also used to compare older (65+) and younger (<65) caregivers on demographic, health, and fall prevention-related variables. T-tests were used to compare non-caregivers to caregivers, as well as to compare older and younger caregivers, on number of prescriptions and healthcare professional visit variables. Line plots were created to display the number of evidence-based fall prevention activities known by each group of interest. The analysis was conducted using SAS 9.4 (SAS Institute Inc, 2016).

3. Results

3.1. Demographic and health variables

Caregivers were more likely to be women compared to non-caregivers (60.6% vs. 49.9%). Caregivers were also more likely to be age 65 and older (37.2% vs. 21.6%) and more likely to report having low income (<\$50,000) compared to non-caregivers (37.0% vs. 28.7%) (Table 1). Most (86.3%) caregivers were providing care for a relative. Caregivers were more likely to report fair/poor health status than non-caregivers (24.1% vs. 15.6%). Additionally, on average, caregivers took more prescription medications (3.3 vs. 2.2) and had more primary and specialty doctor visits than non-caregivers (2.2 vs. 1.8 and 1.7 vs. 1.3, respectively). Caregivers were also more likely than non-caregivers to report having a disability (26.3% vs. 19.3%) and at least one chronic condition (68.0% vs. 50.8%).

Younger caregivers (<65) were less likely to be white, non-Hispanic (52.1%) when compared to older caregivers (69.9%) (Table 1). Older (65+) caregivers, on average, took more medications (4.6 vs. 2.6) and had more specialty doctor visits (2.3 vs. 1.3) in the last 12 months compared to younger caregivers. Younger caregivers had 1.1 mental health provider visits on average while older caregivers averaged 0.1 visits. The percentage of older caregivers who reported having at least one chronic condition was 76.6%, compared to 62.8% of younger caregivers.

3.2. Fall Belief variables

More (88.8%) caregivers did not agree with the statement “Older people fall and there is nothing that can be done about it,” compared to non-caregivers (83.8%) (Table 2). For evidence-based fall prevention strategy results, both caregivers and non-caregivers identified making homes safer as the most common strategy for preventing falls. However, caregivers reported making homes safer as an effective tactic more so than non-caregivers (84.8% vs. 80.2%). The least recognized evidence-based fall prevention strategy for caregivers and non-caregivers was Tai Chi with only 13.4% and 16.3% reporting it respectively. Older caregivers in particular recognized strength and balance exercises (84.2% vs. 71.8%) and

correcting vision problems (54.7% vs. 39.3%) as effective when compared to younger caregivers. For those strategies with limited evidence, caregivers were more likely to identify using a mobility device (83.1% vs. 77.1%) and being more careful (75.1% vs. 65.4%) as effective when compared to non-caregivers.

Fig. 2 shows the percentage of caregivers and non-caregivers that reported knowledge of evidence-based fall prevention strategies. Non-caregivers reported not knowing any evidence-based strategies more often than caregivers (10.6% vs. 6.0%). On average, caregivers and non-caregivers reported knowledge of about three evidence-based prevention strategies (3.5 vs. 3.4 respectively).

Fig. 3 shows the percentage of younger and older caregivers that reported knowledge of evidence-based fall prevention strategies. Older caregivers were less likely to report that they did not know of any evidence-based strategies, as compared to their younger caregiver counterparts (2.2% vs. 8.2%). On average, older caregivers reported awareness of more evidence-based fall prevention strategies (mean = 3.8) compared to younger caregivers (mean = 3.2).

4. Discussion

In this study, we described and compared fall prevention beliefs of non-caregiver and older adult caregiver groups. Both groups disagreed that older adult falls are inevitable and that nothing can be done to prevent them. Caregivers were more likely to disagree that older adult falls are inevitable and to recognize at least one evidence-based fall prevention strategy compared to non-caregivers. However, on average, caregivers reported awareness of around the same number of evidence-based fall prevention strategies when compared to non-caregivers. The strategies of Tai Chi and stopping/reducing certain medications were not widely recognized (less than 25%) by any group of interest. While most caregivers identified some effective strategies, like making homes safer and strength and balance activities, they also perceived some strategies with limited evidence as effective including being more careful and using a mobility device.

Our results align with previous findings that suggest while caregivers have a general understanding of the preventable nature of falls, they are not always aware of the major evidence-based strategies that have been shown to significantly reduce fall risk (Wilkinson et al., 2018). For example, attempts to protect loved ones from falls can often involve non-evidence based practices, such as being more careful, that can result in caregivers restricting access to areas or activities perceived as hazardous, or trying to be constantly present (Wilkinson et al., 2018). Our findings also agreed with earlier results to the same items from older adults and healthcare providers from another iteration of the ConsumerStyles survey, where respondents were more likely to report being more careful as an effective strategy to prevent older adult falls compared to evidence-based strategies, such as Tai Chi (Henry et al., 2022). Misconceptions and lack of knowledge among the general population, as well as among healthcare providers, likely contributes to lack of awareness related to older adult fall risk and prevention strategies (Howland et al., 2018; Jones et al., 2011; Hill et al., 2011; Haines et al., 2014; Stevens et al., 2009; Mackintosh et al., 2007; Horne et al., 2008; Gopaul

& Connelly, 2012). Targeted education and training for caregivers, the general public, and healthcare providers can increase knowledge of effective fall prevention (Johnston et al., 2023; Johnston et al., 2019; Eckstrom et al., 2017; Fleck & Forrester, 2001).

We also described relationships between caregiver status and certain demographic and health characteristics. Previous research has shown caregivers are more often women and provide care for a relative (National Research Council (United States) Committee on the Role of Human Factors in Home Health Care., 2010; United States Bureau of Labor Statistics, 2023). Caregivers also often report suffering from lost income and diminished health as a direct result of caregiving duties, in addition to experiencing social isolation and the early onset of conditions such as hypertension and diabetes (Zarit et al., 2015; Grossman & Webb, 2016; Committee on Family Caregiving for Older Adults, Board on Health Care Services, Health and Medicine Division, National Academies of Sciences, Engineering, and Medicine, 2016; Berry et al., 2020; Smith, 2004). We saw similar results in this study, in that compared to non-caregivers, caregivers were more likely to be women, caring for a relative, and 65 years of age or older. Caregivers were also more likely to report having a low income and fair/poor health status.

It is important that these characteristics are not attributed to caregiving necessarily, as differences such as those in health status and income may have existed prior to a person taking on a caregiving role (National Research Council (United States) Committee on the Role of Human Factors in Home Health Care., 2010). For example, low socioeconomic status (SES) is a risk factor for poor health status (National Research Council (United States) Committee on the Role of Human Factors in Home Health Care., 2010; Smith, 2004). Further, individuals reporting low SES are more likely to take on a caregiving role than individuals reporting higher SES (National Research Council (United States) Committee on the Role of Human Factors in Home Health Care., 2010). Higher burden of socioeconomic factors such as lower SES and health status among caregivers highlights the importance of researching and identifying ways to support caregivers. As 43.7% of the caregivers caring for older adults in this sample were older adults themselves, they too may benefit from education to address their personal fall risk, especially if they have other fall risk factors, such as poor health status.

Fortunately, caregivers are well positioned to increase the awareness of the potentially severe consequences of falls, their preventability, and the adoption of and adherence to prevention strategies among their older loved ones when equipped with evidence-based education and sufficient support to manage their own health needs. Through shared decision making, caregivers can assist in the self-management of fall prevention in ways that best align with an older adults' preferences and lifestyle and help maintain mobility, independence, and autonomy. However, conclusive research is still needed on the best ways to make fall prevention a priority among healthcare providers, older adults, and their caregivers and to effectively increase uptake of evidence-based fall prevention strategies. Future work should prioritize the ongoing education of caregivers and broadening the reach of educational efforts to aid in reducing the burden of falls. In addition to education, future work should support the implementation of evidence-based fall prevention programming. Finally, future work could continue to monitor trends in fall beliefs, as well as demographic

and health characteristics of caregivers, to inform caregiver-driven prevention strategies that are culturally appropriate, widely accessible, and support and maintain the health of the caregiver and care-receiver dyad.

Several tools exist that can help caregivers work with older adults in their care to reduce fall risks and prevent falls. The Falls Free Checkup (<https://www.ncoa.org/age-well-planner/assessment/falls-free-checkup>) is an online screening tool that older adults, either on their own or with a caregiver, can use to identify personal fall risk with 12 yes/no questions. The results provide the older adult with a personalized report, resource recommendations, and for those at risk for a fall in the next year, a letter that can be saved and shared with a healthcare provider, or other care team member. The U.S. Centers for Disease Control and Prevention (CDC) has also developed the Still Going Strong (SGS) (<https://www.cdc.gov/stillgoingstrong>) campaign to raise awareness about common injuries as we age. Older adults and their caregivers can use SGS resources to understand their own unique fall risk factors and explore evidence-based strategies that can help prevent falls and maintain independence together. The SGS campaign also includes education about the importance of social connection and resources to help older adults and their caregivers stay connected with others. Guidance for healthcare providers on promoting social connectedness is also included. Finally, the Stopping Elderly Accidents, Deaths & Injuries (STEADI) (<https://www.cdc.gov/STEADI>) initiative was developed by the CDC to assist healthcare providers in making older adult fall prevention a routine part of clinical care. The initiative is based on the American and British Geriatrics Societies' clinical practice guideline and incorporates healthcare provider feedback (Guideline for the prevention of falls in older persons. American Geriatrics Society, British Geriatrics Society, and American Academy of Orthopaedic Surgeons Panel on Falls Prevention., 2001; Stevens and Phelan, 2012). STEADI includes fall prevention resources for patients and their caregivers, such as simple exercises to improve lower body strength. Adoption of these resources should be encouraged in clinical and community settings to help make fall prevention a priority and regular practice among healthcare providers, older adults, and their caregivers.

Our study had limitations. Due to insufficient sample size, some variable groups were combined, which may have impacted group difference results. For example, fall prevention knowledge may differ by key demographic groups, such as race and income, and due to insufficient sample size, we were limited in the extent to which we could examine those differences. Additionally, the survey used is reliant on self-reported information, meaning results are susceptible to recall and social desirability biases. Still, the results of this study provide useful information on caregivers' beliefs about fall prevention that can guide dissemination of education and outreach.

5. Conclusions

Non-caregiver and caregiver groups agree that falls can be prevented. Home modifications and strength and balance trainings were the two most known evidence-based strategies for both caregivers and non-caregivers. Caregivers also see making homes safer as a strategy to prevent falls significantly more than non-caregivers. However, lower levels of response for evidence-based strategies overall (Tai Chi, working with a physical therapist, and medication

management) and higher levels of response for limited evidence strategies (being more careful and using a mobility device) suggest there is an opportunity to promote education regarding effective fall prevention strategies. It is important that awareness of effective fall prevention strategies be increased, especially among caregivers, who can play a key role in advocating for and implementing early and effective fall prevention efforts with their older adult loved ones.

5.1. Practical applications

Public health efforts can benefit from effectively educating and supporting older adults and their caregivers in playing a proactive role in fall prevention and aging without injury. Results can facilitate targeted education of caregivers and inform future research on the interactions of demographic and health characteristics on fall beliefs, with the goals of improving reach of education and supports for caregivers.

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Biographies

Mrs. Bailey Collette, MPH, works on the safety promotion team in the Division of Injury Prevention (DIP) at the Center for Disease Control's (CDC) National Center for Injury Prevention and Control (NCIPC) as a research fellow. Her work focuses on older adult fall prevention and drowning prevention.

Mr. Dawson Dobash, MS, works on the safety promotion team in the Division of Injury Prevention (DIP) at the Center for Disease Control's (CDC) National Center for Injury Prevention and Control (NCIPC) as a research fellow. His work focuses on older adult fall prevention and drowning prevention.

Shericka Harris, MSPH, is a Health Scientist in the Division of Injury Prevention (DIP) at CDC's National Center for Injury Prevention and Control (NCIPC). She works to prevent drowning deaths, with a research focus on drowning prevention in children with autism.

Appendix. .: Data dictionary

Variable	Definition	Levels
Gender	Gender of the individual. (Dichotomous variable)	Male Female

Variable	Definition	Levels
Age	Age of the individual. (Categorical variable with four levels)	<65 65–74 75–84 85+
Education	Highest level of education received. (Dichotomous variable created by combining “less than high school” and “high school,” and “some college” and “bachelor or higher” variables)	Less than high school/high school Some college/bachelor or higher
Household income	Household income of the individual. (Recategorized into a three-level variable creating “low income,” “middle income,” and “high income” based on research from Pew Research Center (Bennett, 2020)	Low income (less than \$50,000) Middle income (\$50,000–\$150,000) High income (greater than \$150,000)
Race/Ethnicity	The race or ethnicity of the individual. (The variables of “Combined two + races, non-Hispanic” and “Other, non-Hispanic” were combined to form “Other”)	White, non-Hispanic Black, non-Hispanic Hispanic Other
Community type	Type of community individual currently resides.	Urban Rural Suburban
Relative care	Used to determine if a caregiver is a relative to the person they are caring for or not. A relative included mother, father, mother in-law, father in-law, child, husband, wife, live-in partner, brother or brother in-law, sister or sister in-law, grandmother, grandfather, grandchild, or other relative	Yes/No/Don’t Know
Health status	Health of the individual. (Variables of “excellent” and “very good” were combined, as were “fair” and “poor”)	Excellent/very good Good Fair/poor
Number of current prescription medications	Determined using the question, “How many prescription medications are you currently taking?”	Numeric value
Health professional visits	Determined using the question, “How many times in the past 12 months have you visited each of the following kinds of health professionals for your own health care? ” Three types of visits: Primary care doctor (family practitioner, internist, OB/GYNs) Specialist doctors (cardiologist, oncologist, dermatologist) Mental health providers (psychiatrist, psychologist, counselor)	Numeric value
Chronic condition	Determined using the question, “During the past year, have you had (or do you currently have) any of these health conditions?” <i>Select all that apply.</i> Arthritis Chronic pain Depression Diabetes High blood pressure Heart condition (Atrial fibrillation, congestive heart failure, or other heart condition (angina or heart attack)) Stroke	Yes/No
Disability	Are you deaf or do you have serious difficulty hearing? Are you blind or do you have serious difficulty seeing, even when wearing glasses? Because of a physical, mental, or emotional condition, do you have serious difficulty concentrating, remembering, or making decisions? Do you have serious difficulty walking or climbing stairs? Do you have difficulty dressing or bathing? Because of a physical, mental, or emotional condition, do you have difficulty doing errands alone such as visiting a doctor’s office or shopping?	Yes/No

Variable	Definition	Levels
“Older people fall and there is nothing that can be done about it”	Agreement/disagreement with statement.	Disagree/Agree
Activities that help older adults prevent falls	Knowledge of the following activities/strategies: Aerobic exercise Strength or balance exercise Tai Chi Stopping/reducing certain medicines Discussing risk with a health care provider Making homes safer Being more careful Working with a physical therapist Correcting vision problems Addressing foot/footwear problems Using mobility device Evidence-based strategies include strength or balance exercise, tai chi, stopping/reducing certain medications, making homes safer, working with a physical therapist, correcting vision problems, & addressing foot/footwear problems.	Yes/No

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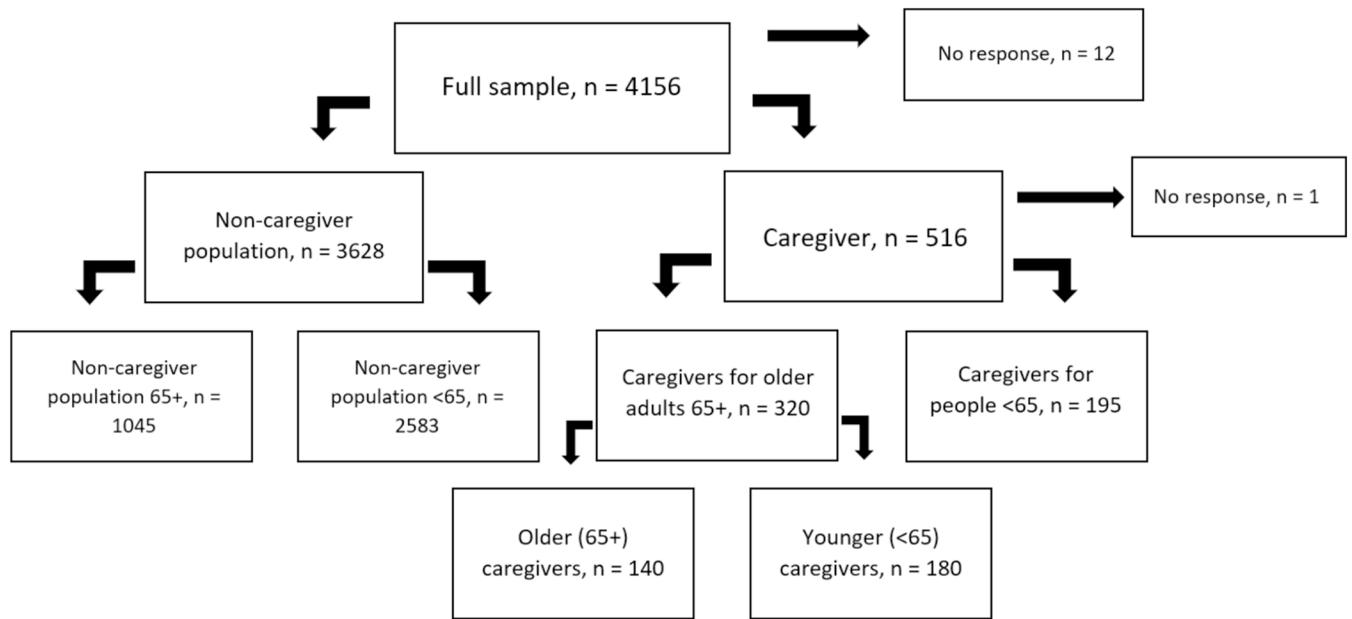


Fig. 1.
2022 Summer Styles Population by Caregiver Status, Age of Population Cared for, and Age of Respondent.

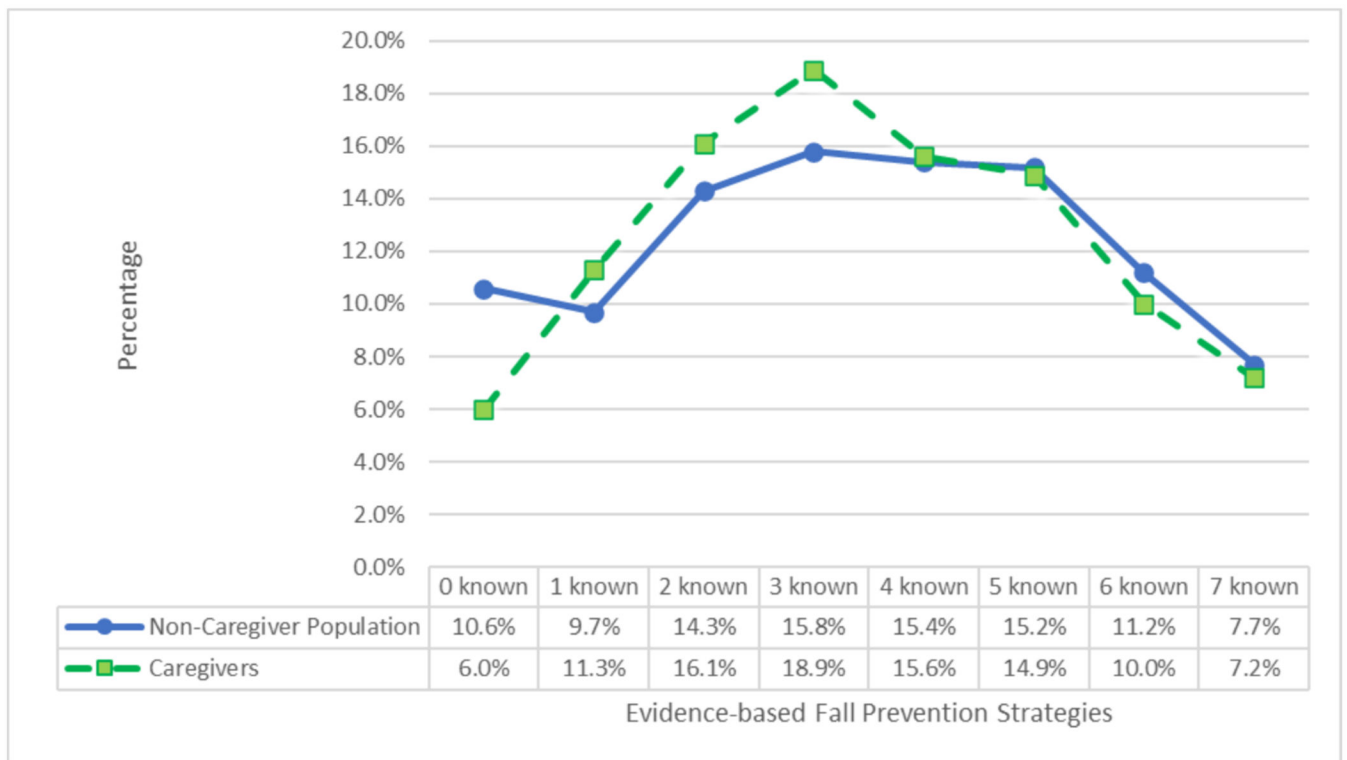


Fig. 2.
Number of Evidence-based Fall Prevention Strategies Recognized by Caregiver Status,
SummerStyles, 2022.

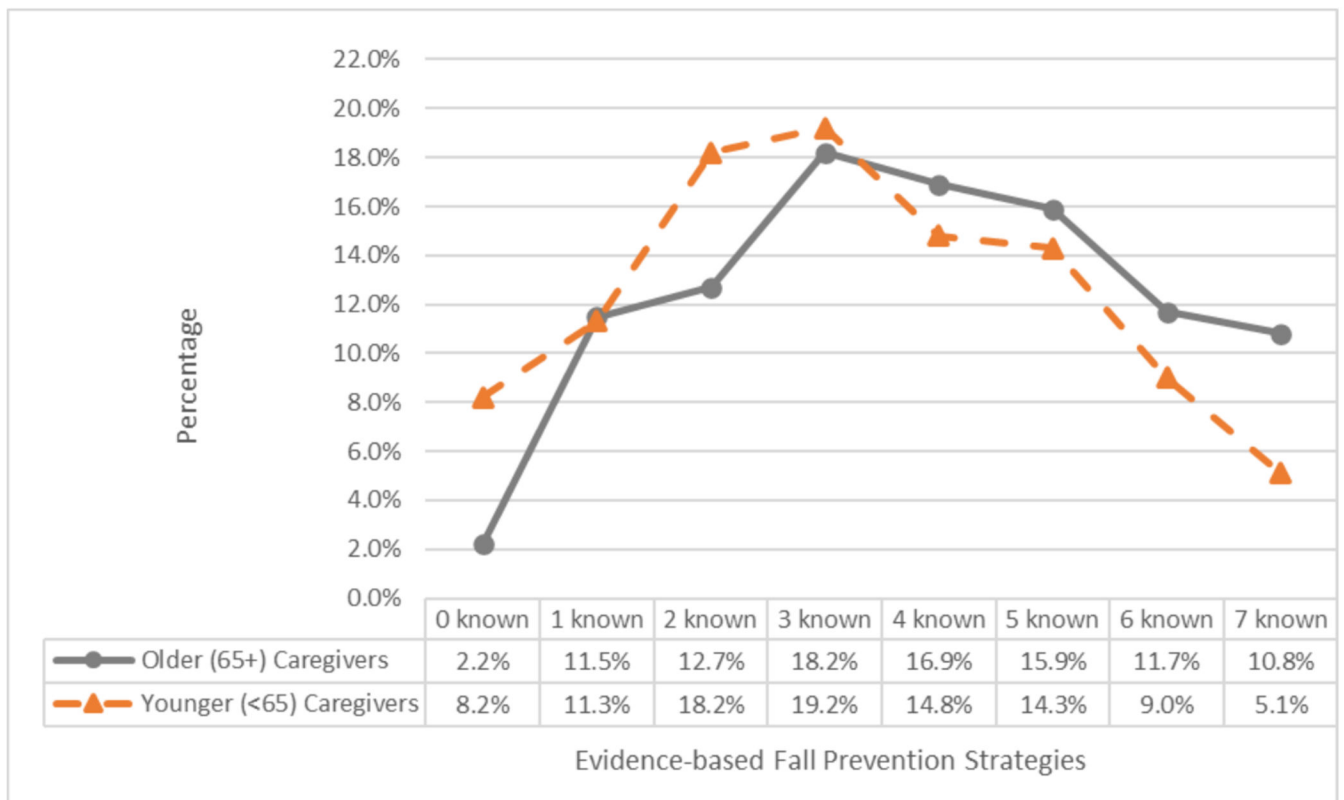


Fig. 3.
Number of Evidence-based Fall Prevention Strategies Recognized among Caregivers
Providing Care to Older Adults by Caregiver Age, SummerStyles, 2022.

Table 1
Demographic and Health Characteristics by Caregiver Status and Caregiver Age, SummerStyles 20,221.

	Non-caregivers			Caregivers to Older Adults (65 +)			Older Caregivers (65 +) of Older Adults (65 +)			Younger Caregivers (<65) of Older Adults (65 +)			
	Weighted % (N = 3628)	95% CI ²	Significance test	Weighted % (N = 320)	95% CI	Significance test (Comparison group: non- caregiver population)	Weighted % (N = 140)	95% CI	Significance test	Weighted % (N = 180)	95% CI	Significance test (Comparison group: Older caregivers (65 +)	
Gender													
Male	50.1 (N = 1858)	48.3–52.3	Ref	39.4 (N = 128)	33.1–45.7	<0.01 * ³	38.8 (N = 58)	30.2–47.4	Ref	39.7 (N = 70)	31.0–48.5	0.87 ³	
Female	49.9 (N = 1770)	47.7–51.7		60.6 (N = 192)	54.3–66.9		61.2 (N = 82)	52.6–69.8		60.3 (N = 110)	51.5–69.0		
Age													
<65	78.4 (N = 2583)	77.1–79.8	Ref	62.8 (N = 180)	56.9–68.6	<0.01 * ³	0	0	Ref	100.0 (N = 180)	–	–	
65–74	14.3 (N = 684)	13.1–15.3		23.2 (N = 82)	18.3–28.2		68.0 (N = 82)	54.1–70.8		0	0		
75–84	6.2 (N = 309)	5.5–6.9		11.5 (N = 49)	8.2–14.7		30.8 (N = 49)	23.0–38.6		0	0		
85+	1.1 (N = 52)	0.8–1.4		2.5 (N = 9)	0.8–4.2		6.7 (N = 9)	2.2–11.3		0	0		
Education													
Less than high school/high school	38.0 (N = 1098)	35.9–39.9	Ref	37.9 (N = 94)	31.4–44.5	0.97 ³	35.2 (N = 39)	26.3–44.1	Ref	39.5 (N = 55)	30.5–48.6	0.46 ³	
Some college/ bachelor or higher	62.0 (N = 2530)	60.1–64.1		62.1 (N = 226)	55.5–68.6		64.8 (N = 101)	55.8–73.7		60.5 (N = 125)	51.4–69.5		
Annual household income													
Low (<\$50,000)	28.7 (N = 858)	26.8–30.5	Ref	37.0 (N = 104)	30.7–43.3	<0.01 * ³	39.3 (N = 47)	30.4–48.1	Ref	35.7 (N = 57)	27.1–44.3	0.59 ³	
Middle (\$50,000–\$150,000)	48.0 (N = 1844)	46.0–49.9		43.7 (N = 145)	37.3–50.0		44.3 (N = 67)	35.6–53.1		43.2 (N = 78)	34.4–52.1		
High (>\$150,000)	23.3 (N = 926)	21.8–25.0		19.3 (N = 71)	14.4–24.2		16.4 (N = 26)	10.2–22.6		21.1 (N = 45)	14.1–28.0		
Race/ethnicity													

	Non-caregivers			Caregivers to Older Adults (65 +)			Older Caregivers (65 +) of Older Adults (65 +)			Younger Caregivers (<65) of Older Adults (65 +)		
	Weighted % (N = 3628)	95% CI ²	Significance test	Weighted % (N = 320)	95% CI	Significance test (Comparison group: non- caregiver population)	Weighted % (N = 140)	95% CI	Significance test	Weighted % (N = 180)	95% CI	Significance test (Comparison group: Older caregivers (65 +))
<i>White non-Hispanic</i>	63.4 (N = 2628)	61.4–65.4	Ref	58.7 (N = 218)	52.2–65.3	0.29 ³	69.9 (N = 109)	61.0–78.7	Ref	52.1 (N = 109)	43.2–61.1	0.02 ^{*3}
<i>Black non-Hispanic</i>	11.6 (N = 324)	10.2–13.0		15.4 (N = 39)	10.5–20.3		12.9 (N = 13)	6.2–19.5		17.0 (N = 26)	10.2–23.8	
<i>Hispanic</i>	8.6 (N = 283)	7.4–9.9		8.2 (N = 40)	4.3–12.1		13.3 (N = 13)	0.3–7.6		10.7 (N = 18)	4.9–16.5	
<i>Other</i>	16.4 (N = 393)	14.6–18.0		17.6 (N = 23)	12.0–23.3		3.9 (N = 5)	6.3–20.3		20.2 (N = 27)	12.2–28.1	
Community type												
<i>Urban</i>	35.8 (N = 1208)	33.8–37.7	Ref	29.0 (N = 96)	23.3–34.7	0.03 ^{*3}	25.2 (N = 35)	17.6–32.8	Ref	31.3 (N = 61)	23.3–39.2	0.48 ³
<i>Rural</i>	17.5 (N = 660)	16.0–18.9		20.1 (N = 64)	15.0–25.2		22.5 (N = 32)	15.1–29.9		18.6 (N = 32)	11.8–25.5	
<i>Sub urban</i>	46.7 (N = 1758)	44.9–48.8		50.9 (N = 160)	44.5–57.3		52.3 (N = 73)	43.4–61.1		50.1 (N = 87)	41.2–59.0	
Relative care												
<i>Yes</i>	–	–	Ref	86.3 (N = 280)	81.5–91.1	–	85.8 (N = 121)	79.6–91.9	Ref	86.6 (N = 159)	80.0–93.4	0.83 ³
<i>No</i>	–	–		13.7 (N = 40)	8.9–18.5		14.2 (N = 19)	8.1–20.4		13.4 (N = 21)	6.5–20.1	
Health status												
<i>Excellent/very good</i>	46.9 (N = 1755)	44.9–48.8	Ref	38.5 (N = 132)	32.3–44.6	<0.01 ^{*3}	34.8 (N = 51)	26.5–43.1	Ref	40.7 (N = 81)	32.1–49.2	0.60 ³
<i>Good</i>	37.5 (N = 1345)	33.8–37.7		37.4 (N = 123)	31.2–43.7		39.2 (N = 57)	30.6–47.8		36.4 (N = 66)	27.7–45.0	
<i>Fair/poor</i>	15.6 (N = 523)	15.9–18.9		24.1 (N = 65)	18.4–29.8		26.0 (N = 32)	17.8–34.2		23.0 (N = 33)	15.3–30.7	
Number of current prescription medications	Mean = 2.2 (sd = 2.8)		Ref	Mean = 3.3 (sd = 2.9)		<0.01 ^{*4}	Mean = 4.6 (sd = 3.0)		Ref	Mean 2.6 (sd = 2.7)		0.01 ^{*4}

Healthcare professional visits in the past 12 months

	Non-caregivers			Caregivers to Older Adults (65 +)			Older Caregivers (65 +) of Older Adults (65 +)			Younger Caregivers (<65) of Older Adults (65 +)		
	Weighted % (N = 3628)	95% CI ²	Significance test	Weighted % (N = 320)	95% CI	Significance test (Comparison group: non-caregiver population)	Weighted % (N = 140)	95% CI	Significance test	Weighted % (N = 180)	95% CI	Significance test (Comparison group: Older caregivers (65 +))
<i>Primary doctor</i>	Mean = 1.8 (sd = 2.4)		Ref	Mean = 2.2 (sd = 2.7)		0.01 ^{*4}	Mean = 2.5 (sd = 1.9)		Ref	Mean = 2.0 (sd = 3.2)		0.19 ⁴
<i>Specialty doctor</i>	Mean = 1.3 (sd = 2.7)		Ref	Mean = 1.7 (sd = 2.7)		0.02 ^{*4}	Mean = 2.3 (sd = 2.4)		Ref	Mean = 1.3 (sd = 2.8)		<0.01 ^{*4}
<i>Mental health provider</i>	Mean = 1.2 (sd = 5.4)		Ref	Mean = 0.7 (sd = 2.6)		0.27 ⁴	Mean = 0.1 (sd = 0.6)		Ref	Mean = 1.1 (sd = 3.3)		0.01 ^{*4}
Chronic condition⁵												
<i>Yes</i>	50.8 (N = 1963)	48.9–52.8	Ref	68.0 (N = 212)	61.9–74.0	<0.01 ^{*3}	76.6 (N = 104)	69.5–83.7	Ref	62.8 (N = 108)	54.3–71.4	0.01 ^{*3}
<i>No</i>	49.2 (N = 1665)	47.2–51.1		32.0 (N = 108)	26.0–38.0		23.3 (N = 36)	16.3–30.5		37.2 (N = 72)	28.6–45.7	
Disability⁶												
<i>Yes</i>	19.3 (N = 670)	17.7–20.8	Ref	26.3 (N = 77)	20.5–32.0	0.01 ^{*3}	30.0 (N = 41)	21.9–38.1	Ref	24.0 (N = 36)	16.1–31.9	0.26 ³
<i>No</i>	80.7 (N = 2958)	79.2–82.3		73.7 (N = 243)	68.0–79.5		70.0 (N = 99)	61.9–78.1		76.0 (N = 144)	68.1–83.9	

^{1*} Indicates significant result (p < 0.05).

² Confidence Interval (CI).

³ Significance test conducted: Chi square.

⁴ Significance test conducted: T-test.

⁵ Presence of a chronic condition determined with yes answer to presence of one or more chronic conditions (arthritis, chronic pain, depression, diabetes, heart condition (atrial fibrillation, congestive heart failure, or other heart condition (angina or heart attack)), high blood pressure, or stroke) related to increased fall risk, currently or in the last year.

⁶ Presence of a disability determined with yes answer to any one of the following questions: Are you deaf or do you have serious difficulty hearing? Are you blind or do you have serious difficulty seeing, even when wearing glasses? Because of a physical, mental, or emotional condition, do you have serious difficulty concentrating, remembering, or making decisions? Do you have serious difficulty walking or climbing stairs? Do you have difficulty dressing or bathing? Because of a physical, mental, or emotional condition, do you have difficulty doing errands alone such as visiting a doctor's office or shopping?

Fall Belief Characteristics by Caregiver Status and Caregiver Age, SummerStyles, 20221.

Table 2

Non-caregivers				Caregivers to Older Adults (65 +)				Older Caregivers (65 +) of Older Adults (65 +)				Younger Caregivers (<65) of Older Adults (65 +)			
	Weighted % (N = 3628)	95% CI ²	Chi square	Weighted % (N = 320)	95% CI	Chi square (Comparison group: non-caregiver population)	Weighted % (N = 140)	95% CI	Chi square	Weighted % (N = 180)	95% CI	Chi square (Comparison group: Older caregivers (65 +))			
Agreement on Statement “Older people fall and there is nothing that can be done about it”															
Disagree/Strongly Disagree	83.8 (N = 3067)	82.3–85.3	Ref	88.8 (N = 283)	84.9–92.7	0.01 *	92.4 (N = 131)	87.3–97.5	Ref	86.6 (N = 152)	81.2–92.1	0.13			
Agree/Strongly Agree	16.2 (N = 548)	14.7–17.7		11.2 (N = 37)	7.3–15.1		7.6 (N = 9)	2.5–12.7		13.4 (N = 28)	7.9–18.8				
Activities that help older adults prevent falls															
Evidence-based fall prevention strategies															
Strength or balance exercise	73.4 (N = 2790)	71.6–75.3	Ref	76.4 (N = 254)	70.6–82.2	0.19	84.2 (N = 119)	77.6–90.7	Ref	71.8 (N = 135)	63.5–80.1	0.01 *			
Tai Chi	16.3 (N = 670)	14.9–17.6	Ref	13.4 (N = 48)	9.4–17.3	0.42	15.6 (N = 24)	9.4–21.9	Ref	12.0 (N = 24)	6.9–17.2	0.38			
Stopping/reducing certain medications	22.1 (N = 876)	20.5–23.7	Ref	23.3 (N = 80)	18.2–28.5	0.58	24.5 (N = 35)	16.8–32.1	Ref	22.7 (N = 45)	15.9–29.5	0.72			
Making homes safer	80.2 (N = 2999)	78.5–81.9	Ref	84.8 (N = 277)	79.7–89.9	0.01 *	89.9 (N = 127)	84.5–95.4	Ref	81.7 (N = 150)	74.4–89.1	0.06			
Working with a physical therapist	47.1 (N = 1806)	45.1–49.0	Ref	46.1 (N = 162)	39.7–52.4	0.71	51.7 (N = 76)	42.8–60.5	Ref	42.8 (N = 86)	34.2–51.4	0.14			
Correcting vision problems	47.7 (N = 1831)	45.7–49.6	Ref	45.0 (N = 152)	38.7–51.3	0.58	54.7 (N = 76)	45.9–63.5	Ref	39.3 (N = 76)	30.8–47.7	0.01 *			
Addressing foot/footwear problems	58.9 (N = 2223)	56.9–60.9	Ref	58.5 (N = 195)	52.0–64.9	0.92	64.2 (N = 89)	55.7–72.6	Ref	55.1 (N = 107)	46.2–64.0	0.13			
Limited evidence-based fall prevention strategies															
Aerobic Exercise	48.4 (N = 1882)	46.5–50.4	Ref	42.9 (N = 151)	36.7–49.2	0.10	46.4 (N = 67)	37.6–55.3	Ref	40.9 (N = 84)	32.5–49.4	0.36			
Discussing risk with a health care provider	34.8 (N = 1311)	33.0–36.7	Ref	34.9 (N = 117)	28.9–40.9	0.81	38.2 (N = 52)	29.6–46.9	Ref	32.9 (N = 65)	24.9–41.0	0.36			

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	Non-caregivers			Caregivers to Older Adults (65 +)				Older Caregivers (65 +) of Older Adults (65 +)			Younger Caregivers (<65) of Older Adults (65 +)		
	Weighted % (N = 3628)	95% CI ²	Chi square	Weighted % (N = 320)	95% CI	Chi square (Comparison group: non-caregiver population)	Weighted % (N = 140)	95% CI	Chi square	Weighted % (N = 180)	95% CI	Chi square (Comparison group: Older caregivers (65 +))	
<i>Being more careful</i>	65.4 (N = 2479)	63.5–67.3	Ref	75.1 (N = 242)	69.5–80.7	<0.01 *	81.3 (N = 114)	74.3–88.2	Ref	71.4 (N = 128)	63.5–79.3	0.06	
<i>Using mobility device</i>	77.1 (N = 2880)	75.3–78.8	Ref	83.1 (N = 273)	77.8–88.3	0.01 *	87.9 (N = 122)	82.3–93.6	Ref	80.2 (N = 151)	72.5–87.8	0.09	

¹ * Indicates significant result (p < 0.05).

² Confidence Interval (CI).