# RESEARCH



# Characterizing complex care relationships in Canada using the Canadian Longitudinal Study on Aging (CLSA)

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# Abstract

**Introduction** Most caregiving research and policy has focused on dyadic, unidirectional relationships with one care egiver and one care receiver despite evidence for more complex caring relationships.

**Objective** To describe caregivers and care receivers' relationships, with a focus on non-dyadic relationships, using baseline data from the Canadian Longitudinal Study on Aging (CLSA).

**Methods** In this cross-sectional study, we analyzed unweighted baseline CLSA data to describe different self-reported care relationships. Care relationships of interest included: a) spousal reciprocal relationships, b) care chains, where one person receives and gives care with separate individuals, c) care caravans, where one person receives care from multiple caregivers, and d) compound caregivers, where one person provides care to multiple care receivers. We estimated frequencies for categorical variables, and either means and standard deviations or medians and interquartile ranges for continuous variables.

**Results** Our sample included 51,338 CLSA participants. Of these respondents, 39% identified as a caregiver (mean age 62, 54% women), 6.5% identified as a care receiver (mean age 65, 58% women), and 5.3% identified as both a caregiver and care receiver (mean age 63, 65% women). Our research showed that 40% of caregivers reported giving care to 2 or more receivers and 52% of care receivers reported receiving care from 2 or more caregivers. Individuals both receiving and giving care demonstrated the following relationships: compound care chains (73%), care chains (19%), and reciprocal spousal care (4.6%). Gender characterization showed women had a wider range of care partners and were more likely to identify as caregivers and care receivers. While spouse and first degree relatives were the most commonly reported caregivers, friends and others were a large proportion of reported caregivers.

**Conclusion** We found that a large proportion of caregiving relationships were best described as a network that frequently included multiple caregivers, multiple care receivers, and some in both roles, as well as non-kin and extended relative participants. This characterization of care relationships allows us to better understand the needs of older adults and their caregivers as the population ages and care shifts towards aging-in-place strategies.

Keywords Caregivers, Family caregiving, Home care, Older adults, Informal care, CLSA

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## Introduction

Family, chosen family, friends, neighbours, and other network or community members often play an important role in caring for older adults. Sometimes described as informal, unpaid, care partners, or family caregiving (from here simply referred to as caregiving), this care is fundamental to the implementation of aging-in-place strategies like home care and community based services [1-3]. Over time, caregiving has expanded from homemaking and support tasks to include more medical care, such as healthcare organization and advocacy, medication administration, wound care, and toileting [4, 5]. The demographic changes and interpersonal dynamics of families that have changed with time, such as divorce, rising age at first birth, and changing gender roles, also affect caregiving relationships [4]. This care is often invisible and undervalued as it goes unpaid, but is estimated to be worth between \$97.1 billion and \$12.7 billion when monetized, demonstrating the wide scope and work contribution these caregivers provide [6]. Knowledge of the care network, gender, and relationships within caregiving will help illustrate what support systems and programs have the greatest impact on caregivers' physical and mental burdens [7-9].

The current caregiving landscape, specifically the complex relationships that exist between caregivers and care receivers, is under-explored. Most research has focused on dyadic relationships,-i.e., unidirectional care relationships with one caregiver and one care receiver; however, many relationships do not align with this model, known broadly as non-dyadic relationships [10, 11]. Some studies have focused on care networks and the Convoy of Care model, which has broadened the understanding of care to include all caregivers and receivers [12, 13]. Koehly et al. characterized diverse family networks via 66 informant interviews to parse out more complex caregiving networks, finding that more caregivers were identified when multiple informants were used. [14] Marcum et al. used a similar network approach to identify primary caregivers, often resulting in multiple network members claiming that role which could create interpersonal conflict. [15] Care relationships can be characterized as overlapping and shifting; we see reciprocal care relationships where an individual is both a caregiver and a care receiver to a partner, care chains where an individual can receive care from one person and give care to another, or care caravans where an individual receives care from multiple caregivers [10, 13]. Approximately 70% of caregivers reported receiving external support (e.g. moral support, household chores, home/yard assistance) and this constitutes a type of care, referred to as assistive help [16, 17]. Caregiving is critical to a functional health care system and a comprehensive understanding of care types enables us to more fully support older adults and their caregivers.

Our objective was to provide a comprehensive description of the caregiving and receiving relationships reported in the Canadian Longitudinal Study on Aging (CLSA). This included characterizing the number of people within the care relationships and the amount of time and care tasks provided. We defined care relationships reported by CLSA respondents and compared variables such as relationships, amount of care, and types of care. Special consideration was given to the role of gender since prior research has consistently shown differences in the likelihood of giving and receiving care, as well as the types of care provided [9, 18].

#### Methods

## Study design and participants

This was a retrospective cross-sectional study using baseline CLSA data. The CLSA is a national study with 51, 338 community-living participants between the ages of 45 and 85 at baseline who will be followed over 20 years [19]. We used the CLSA baseline data from two cohorts, known as the Tracking and Comprehensive cohorts, collected between 2011–2015. The Tracking cohort included randomly selected participants from all 10 provinces and collected data via telephone interviews only. The Comprehensive cohort included randomly selected participants within 25-50 km of 11 data collection sites in 7 provinces and collected data via home interviews and physical examinations and biological specimen collection at data collection sites. All participants had to communicate in English or French, be able to participate independently, and provide written informed consent. The study excluded residents of the Canadian territories, some remote regions, persons living in Federal First Nations reserves and provincial First Nations settlements, fulltime Canadian Armed Forces members, and institutionalized persons including long-term care residents [19]. We used CLSA-derived caregiver and care receiver variables (additional details below) to identify all participants who reported providing or receiving any informal care in the year prior to their survey, leaving an analytic sample of 25,807 participants. All variables described are outlined on the CLSA website and derived variable documents [19-21].

## Measures

#### Caregiver and care receiver definitions

Caregivers were identified using the CLSA-created derived variable as anyone who reported assisting family, friends or others in an informal capacity with any of the following activities: personal care such as assistance with eating, dressing, bathing or toileting, medical care



Fig. 1 Types and proportions of care networks. a Dyadic caregiver. b Dyadic care receiver. c Reciprocal care. d care chain. e Compound caregiver. f Compound care chain. g Care caravan

such as help taking medicine or help with nursing care, managing care such as making appointments, help with activities such as housework, home maintenance, or outdoor work, transportation including trips to the doctor or for shopping, meal preparation or delivery, or other (excluding financial and monetary assistance) [20]. Care receivers were identified using the CLSA-created derived variable as anyone who reported receiving assistance with any of the activities (excluding financial and monetary assistance) described by the CLSA from family, friends, or others in an informal capacity [21]. All caregivers and care receivers were sorted into the categories of care relationships for further analysis.

## Care relationship definitions

Caregiving and care receiving relationship definitions were created based on the role of the CLSA respondent (see Fig. 1). The respondents who identified as caregivers only were classified into individuals who gave care to one other individual (dyadic caregiver) or individuals who cared for two or more individuals (compound caregiving). Respondents who identified as care receivers only were classified into individuals who received care from one other individual (dyadic care receiver) or individuals who received care from two or more individuals (care caravan) [10, 13].

The respondents who identified as both a care receiver and caregiver had more complex arrangements. In the case where respondents reported providing care to and receiving care from a spouse, we classified these as reciprocal care relationships. Respondents who cared for one person and received care from another person were classified as care chains. Finally, respondents who received care from one/multiple individuals and provided care to one/multiple other individuals, where at least one relationship had multiple, were classified as a compound care chain. These caregiving relationship types have been similarly defined elsewhere [10].

## Sociodemographic variables

The self-reported sociodemographic factors included age, gender, education, household income, dwelling ownership, marital status, and retirement status. We assigned education into four categories: less than high school, high school graduation, some post-secondary education, and post-secondary degree/diploma; household income was measured in the following categories: less than \$20,000, \$20,000 to \$49,999, \$50,000 to \$99,999, \$100,000 to \$149,99, and \$150,000 or more (all in Canadian dollars); marital status was categorized as never married, married/ common-law, separated/divorced, and widowed; and retirement status was categorized as completely retired, partly retired, employed, and not retired or employed.

CLSA baseline data collection asked respondents to indicate sex as male or female and did not include a question about gender identity; however, an item on gender was included in the follow-up surveys. Prior research using the CLSA has shown high concordance between sex and gender and our own preliminary analyses were comparable [22]. Because caregiving is gendered in nature, we will focus on gender identity at baseline throughout our analyses to understand the intersectionality of being/identifying as a woman, receiving care and giving care.

## Health measurements *Multimorbidity*

For each chronic condition, participants were asked "Has a physician ever told you that you have \_\_\_\_?" in the last six months, recorded as yes or no. We selected chronic conditions reported and combined conditions for some resulting in the 17 categories of conditions (as shown in Supplementary Table 1). We derived a count of the number of conditions, based on the 17 conditions, categorized from "1" to "5 +".

## Functional limitations

The participants were considered to have a functional limitation if they indicated difficulty with any of the 7 activities of daily living (ADL) or 7 instrumental activities of daily living (IADL) items from the Older Americans Resources and Services (OARS) multidimensional functional assessment. The OARs multidimensional functional assessment questionnaire makes assessment of functional status in five areas (social, economic, mental, and physical health, activities of daily living) and use of services [23]. The functional impairment variable is categorized into "none", "mild or moderate", and "severe or total".

### Self-rated general health

A single item question, "In general, would you say your health is excellent, very good, good, fair, or poor?", was used to assess self-rated general health. The response categories were "excellent/very good", "good/fair", and "poor".

### **Care variables**

For CLSA participants who indicated being a caregiver and/or a care receiver, we further characterized their care relationships and care activities. The care activities included assistance in the last 12 months for the categories of assistance (personal care, medical care, managing care, house activities, transportation, and meal preparation). Care intensity included how many hours of assistance per week and weeks per year from all individuals providing/receiving care in the last 12 months. The relationship categories included spouse, child, parent, sibling, other relatives, friends and others. However, for "others", care receivers include friends in the category whereas for caregivers, the "friends" option is separately recorded.

## Analysis

Descriptive analyses were conducted to report the sociodemographic characteristics and care characteristics of the sample at baseline. We calculated descriptive statistics using unweighted survey data for all variables for the total sample and by care type (caregiving, care receiving, and both). The sample was further compared by gender among the care groups. Sociodemographic characteristics were summarized using means and standard deviations or frequencies and percentages for continuous and categorical variables, respectively. Care characteristics were summarized using median and quartiles or frequencies and percentages for continuous and categorical variables, respectively. There were 161 missing responses for caregiver and care receiving status variables, and they were excluded from analysis by listwise deletion. However, we retained participants with missing covariate data in the descriptive analysis by substituting missing values with an additional response category labeled 'missing'. Supplementary Fig. 1 illustrates the final sample size for each part of the analysis. We compared standardized differences in proportions for all care variables by gender (men/women), where greater than 10% difference was considered significant [24].

The statistical software used in the analyses was R version 4.4.0, using the gtsummary package.

# Results

# Sample

Among the sample of 51,338 respondents, 26,155 (51%) were female, the average age was 62, and the sample was predominantly white (96%) with a post-secondary education (74%). The vast majority (91%) of the sample reported having at least one chronic condition, with 16,152 (31%) of participants reporting 5 or more. Full sample descriptives shown in Supplementary Table 2.

## **Caregivers only**

A total of 19,905 (38.7%) of the baseline CLSA sample identified as a caregiver only. Of those, 7,964 (40.0%) reported a compound caregiver relationship, providing care to more than one person. In Table 1, we present the characteristics of caregivers who provide care to one person and those who provide care to more than one person (but are not receiving care from anyone). Caregivers to one person and caregivers to more than one person were generally similar across most variables except that caregivers to one person were more often older (age 45–54: 26 vs 31%; age 65–74: 23 vs 21%; age 75 +: 16 vs 13%) and retired (44 vs 40%). Among both caregiver types, women accounted for over half (53 and 55%).

**Table 1** Descriptive characteristics of CLSA respondents who identify as a caregiver only

|                               | Caregiver $N = 1$          | 19905                              |
|-------------------------------|----------------------------|------------------------------------|
|                               | Caregiver to<br>One Person | Caregiver to Two<br>or More People |
|                               | N=11941 <sup>a</sup>       | N=7964 <sup>a</sup>                |
| Age                           | 62.32 (9.97)               | 61.12 (9.77)                       |
| Age group                     |                            |                                    |
| 45–54                         | 3151 (26%)                 | 2435 (31%)                         |
| 55–64                         | 4193 (35%)                 | 2853 (36%)                         |
| 65–74                         | 2741 (23%)                 | 1668 (21%)                         |
| 75 +                          | 1856 (16%)                 | 1008 (13%)                         |
| Women                         | 6351 (53%)                 | 4416 (55%)                         |
| Geographic Region             |                            |                                    |
| Urban                         | 9722 (81%)                 | 6367 (80%)                         |
| Cultural background           |                            |                                    |
| White                         | 11,515 (96%)               | 7712 (97%)                         |
| Household Income              |                            |                                    |
| Less than \$20,000            | 547 (4.6%)                 | 337 (4.2%)                         |
| \$20,000 to \$50,000          | 2761 (23%)                 | 1607 (20%)                         |
| \$50,000 to \$100,000         | 4240 (36%)                 | 2785 (35%)                         |
| \$100,000 to \$150,000        | 2146 (18%)                 | 1529 (19%)                         |
| \$150,000 or more             | 1595 (13%)                 | 1283 (16%)                         |
| Education                     |                            |                                    |
| Less than high school         | 752 (6.3%)                 | 379 (4.8%)                         |
| High school graduation        | 1284 (11%)                 | 785 (9.9%)                         |
| Some post-secondary education | 876 (7.3%)                 | 609 (7.6%)                         |
| Post-secondary degree/diploma | 9003 (75%)                 | 6166 (77%)                         |
| Marital status                |                            |                                    |
| Single                        | 987 (8.3%)                 | 646 (8.1%)                         |
| Married/Common-law            | 8516 (71%)                 | 5681 (71%)                         |
| Widowed                       | 1007 (8.4%)                | 656 (8.2%)                         |
| Divorced/separated            | 1426 (12%)                 | 978 (12%)                          |
| Retirement status             |                            |                                    |
| Completely retired            | 5249 (44%)                 | 3212 (40%)                         |
| Partly retired                | 1332 (11%)                 | 970 (12%)                          |
| Employed                      | 4819 (40%)                 | 3401 (43%)                         |
| Not retired or employed       | 495 (4.1%)                 | 360 (4.5%)                         |
| Self-rated general health     |                            |                                    |
| Excellent/Very good           | 7520 (63%)                 | 5207 (65%)                         |
| Good/Fair                     | 4291 (36%)                 | 2679 (34%)                         |
| Poor                          | 125 (1.0%)                 | 75 (0.9%)                          |
| Number of chronic conditions  |                            |                                    |
| 0                             | 1209 (10%)                 | 820 (10%)                          |
| 1                             | 1878 (16%)                 | 1266 (16%)                         |
| 2                             | 2136 (18%)                 | 1414 (18%)                         |
| 3                             | 1844 (15%)                 | 1291 (16%)                         |
| 4                             | 1568 (13%)                 | 1036 (13%)                         |
| 5 +                           | 3306 (28%)                 | 2137 (27%)                         |
| Functional impairment status  |                            |                                    |
| None                          | 11,122 (93%)               | 7448 (94%)                         |
| Mild or moderate              | 786 (6.6%)                 | 499 (6.3%)                         |
| Severe or total               | 2 (< 0.1%)                 | 1 (< 0.1%)                         |

<sup>a</sup> Mean (SD); n (%)

#### Care receivers only

A total of 3,286 (6.4%) baseline CLSA participants reported receiving care from someone (and not providing care to anyone). Of those, 1,534 (46.7%) reported receiving care from one person while 1,752 (53.3%) reported receiving care from more than one person. In Table 2, we present the characteristics of care recipients from one person and more than one person. CLSA respondents who received care from one person were more often men (61 vs 54%), married or in a commonlaw relationship (65 vs 55%), and reported no functional impairment more often (67 vs 58%) seen in Fig. 2; while those who received care from two or more people were more often widowed (19 vs 14%) or divorced (17 vs 13%) and reported 5 or more chronic conditions (59 vs 53%). Although the average age was comparable between care receiver types, those who received care from two or more people were more often identified in the 45-54 year age group (23 vs 19%).

#### Caregivers who are care receivers

We found that 2,634 (5.1%) of the total baseline CLSA sample reported both being a caregiver and a care recipient (Table 3). Of those who reported being a caregiver and care receiver, 127 (4.8%) were in a reciprocal care relationship with a spouse. Among this group, the average age was 65.9 years (SD 9.8), 36% were women, 56% were completely retired, and 46% reported being in excellent or very good health.

Of those who reported being a caregiver and care receiver, 513 (19.5%) were in a care chain relationship meaning that they received care from one person while providing care to one other person. Among this group, the average age was 64.0 years, 64% were women, 65% were married or in a common-law relationship, 54% were completely retired, and 42% reported being in excellent or very good health.

Of baseline CLSA respondents who reported being a caregiver and care receiver, a total of 1,993 (75.7%) were in a compound care chain, meaning that they received care from at least one person and provided care to at least one person, with at least one of those care relationship involving multiple individuals. The compound care chain was the relationship with the most variability as it considered relationships with many combinations in terms of the number of caregivers and care receivers in relation to one individual. Among this group, the average age was 62.3 years, 66% were women, 61% were married or in a common-law relationship, 48% were completely retired, and 37% reported being in excellent or very good health.

When considering CLSA participants who were both caregivers and care receivers, those who were in



Fig. 2 Proportion of respondents reporting no functional impairment by care relationships

compound care chains were younger (despite similar average ages), women, residence in non-urban settings, lower income, non-partnered marital status, employment, and mild or moderate functional impairment.

### **Caregiving characteristics**

In Table 4, we present data on the amount and type of caregiving provided by all CLSA respondents who reported being a caregiver. This table is organized to show these variables for each respondent who reported being a caregiver only and those who reported being both a caregiver and care receiver as well as stratified by gender to show potential differences between men and women in these roles.

Among respondents who were caregivers (only) to one person, women provided a greater median number of hours per week (5 vs 4 h) of care than men. Men were more likely to live with their care receiver (31 vs 22%) and to provide care to a spouse (26 vs 16%) than women, while women were more likely to report caring for a parent (34 vs 29%). Regardless of caregiver gender, transportation was the most reported care activity provided but women reported more frequently providing all care activities with the exception of transportation and household activities.

Among respondents who were caregivers (only) to more than one person, women provided a greater median number of hours per week (4 vs 3 h) and weeks per year (24 vs 20 weeks) of care than men. No statistically significant differences between men and women were found in relationships to care recipients. Regardless of caregiver gender, transportation was the most reported care activity provided but women reported more frequently providing all care activities with exception of transportation and household activities. Both women and men reported that their primary care receivers were women (71 and 61%, respectively).

# Reciprocal

On the caregiver side of this relationship, respondents reported a median of 6 h per week and 3 weeks per year of caregiving, with men reporting a higher range of weeks per year of caregiving. Women were more likely to provide medical care and manage care for their spouses in these reciprocal relationships.

#### **Care Chains**

In terms of their role as caregivers, women in care chain relationships provided a greater median number of hours per week (4 vs 3 h) of care than men. Both men and women care chain caregivers were most often taking care of a parent (30%) followed by "other" (29%) which encompasses friends, neighbours, and other relationships. However, men reported their primary care recipient as their spouse more than women (14 vs 10%). Care participant relationships reported by caregivers and stratified by care relationship type are shown in Fig. 3. Women reported more frequently providing all care activities with exception of household activities and transportation.

#### Compound care chains

In their role as caregivers, women in compound care chain relationships provided a greater median number of hours per week (4 vs 3 h) and weeks per year (20 vs 12 weeks) of care than men. Men were more likely to live with their care receiver (28 vs 18%) and to provide care to a spouse (24 vs 12%), whereas women reported caring more for a parent (26 vs 19%) and child (9.1 vs 4.6%).

 Table 2
 Descriptive characteristics of CLSA respondents who identify as a care receiver only

|                               | Care receiver $N = 328$          | 36                                       |
|-------------------------------|----------------------------------|--|
|                               | Receives Care from<br>One Person | Receives Care from<br>Two or More People |
|                               | N=1 534 <sup>a</sup>             | N= 1752 <sup>a</sup>                     |
| Age                           | 65.88 (10.85)                    | 65.12 (11.43)                            |
| Age group                     |                                  |  |
| 45–54                         | 285 (19%)                        | 395 (23%)                                |
| 55–64                         | 455 (30%)                        | 504 (29%)                                |
| 65–74                         | 354 (23%)                        | 361 (21%)                                |
| 75 +                          | 440 (29%)                        | 492 (28%)                                |
| Women                         | 827 (54%)                        | 1 073 (61%)                              |
| Geographic Region             |                                  |  |
| Urban                         | 1244 (81%)                       | 1401 (80%)                               |
| Cultural background           |                                  |  |
| White                         | 1475 (96%)                       | 1695 (97%)                               |
| Household Income              |                                  |  |
| Less than \$20,000            | 150 (9.8%)                       | 199 (11%)                                |
| \$20,000 to \$50,000          | 477 (31%)                        | 549 (31%)                                |
| \$50,000 to \$100,000         | 463 (30%)                        | 485 (28%)                                |
| \$100,000 to \$150,000        | 187 (12%)                        | 237 (14%)                                |
| \$150,000 or more             | 148 (9.6%)                       | 149 (8.5%)                               |
| Education                     |                                  |  |
| Less than high school         | 158 (10%)                        | 198 (11%)                                |
| High school graduation        | 185 (12%)                        | 211 (12%)                                |
| Some post-secondary education | 142 (9.3%)                       | 152 (8.7%)                               |
| Post-secondary degree/diploma | 1046 (68%)                       | 1184 (68%)                               |
| Marital status                |                                  |  |
| Single                        | 129 (8.4%)                       | 168 (9.6%)                               |
| Married/Common-law            | 993 (65%)                        | 960 (55%)                                |
| Widowed                       | 210 (14%)                        | 325 (19%)                                |
| Divorced/separated            | 202 (13%)                        | 299 (17%)                                |
| Retirement status             |                                  |  |
| Completely retired            | 885 (58%)                        | 982 (56%)                                |
| Partly retired                | 115 (7.5%)                       | 145 (8.3%)                               |
| Employed                      | 431 (28%)                        | 439 (25%)                                |
| Not retired or employed       | 96 (6.3%)                        | 175 (10.0%)                              |
| Self-rated general health     |                                  |  |
| Excellent/Very good           | 599 (39%)                        | 564 (32%)                                |
| Good/Fair                     | 793 (52%)                        | 1011 (58%)                               |
| Poor                          | 139 (9.1%)                       | 173 (9.9%)                               |
| Number of chronic conditions  |                                  |  |
| 0                             | 47 (3.1%)                        | 49 (2.8%)                                |
| 1                             | 111 (7.2%)                       | 111 (6.3%)                               |
| 2                             | 162 (11%)                        | 137 (7.8%)                               |
| 3                             | 183 (12%)                        | 207 (12%)                                |
| 4                             | 212 (14%)                        | 220 (13%)                                |
| 5 +                           | 819 (53%)                        | 1028 (59%)                               |
| Functional impairment status  |                                  |  |
| None                          | 1025 (67%)                       | 1014 (58%)                               |
| Mild or moderate              | 454 (30%)                        | 640 (37%)                                |
| Severe or total               | 37 (2.4%)                        | 62 (3.5%)                                |

<sup>a</sup> Mean (SD); n (%)

Women reported more frequently providing all care activities with exception of household and transportation activities compared to men.

## Care receiving characteristics

Table 5 presents data on the amount and type of care received by all CLSA respondents who reported being a care receiver. Among respondents who were care receivers (only) from only one person, women received a greater median number of weeks per year (6 weeks vs 4 weeks) of care than men. Men were more likely to live with their care provider (67 vs 56%) and to receive care from their spouse (65 vs 46%), whereas women were more likely to receive care from their child (24 vs 8.3%). Men reported more frequently receiving all care activities with exception of meal preparation and household activities. Men were more likely to report a woman caregiver, and women were more frequently reporting their caregiver to be a man.

Among respondents who were care receivers from more than one person, women received a greater median number of weeks of care per year (10 vs 6 weeks) than men. Men were more likely to live with their care provider (53 vs 44%) and to receive care from their spouse (47 vs 31%), while women were more likely to receive care from their child (30 vs 15%) or a friend (16 vs 11%). Women reported receiving transportation care and meal preparation while men reported more frequent medical care and managing care. Although the primary care provider was overall more frequently reported to be a woman, men were more likely to have a woman caregiver compared to women (69 vs 48%).

#### Reciprocal

On the care receiving side of this relationship, women reported receiving a higher number of weeks per year (4 vs 3 weeks) of care receiving. Women reported receiving more assistance with transportation, meal preparation and household activities of care compared to men.

## Care chains

As a care receiver in the care chain relationship, women received a greater median number of hours per week (4 h vs 3 h) and higher range of weeks per year (7 more weeks than men) of care. Both men and women care chain care receivers reported living in the same household and mainly receiving care from a spouse. However, women reported their primary care provider as their child (22 vs 17%) or friend (15 vs 13%) more than men. Women reported more frequently receiving assistance with household activities and meal preparation compared to men, whereas men reported medical care and managing care more than women. Compared to women, men

# Table 3 Descriptive characteristics of CLSA respondents who identify as both a caregiver and a care receiver

|                               | Both a caregiver and a care re | ceiver <i>N</i> = 2634 |                      |
|-------------------------------|--------------------------------|------------------------|----------------------|
|                               | Reciprocal care spouse         | Care chain             | Compound care chain  |
|                               | N=127 <sup>a</sup>             | N=513 <sup>a</sup>     | N= 1993 <sup>a</sup> |
| Age                           | 65.99 (9.81)                   | 64.01 (9.98)           | 62.29 (10.53)        |
| Age group                     |                                |                        |                      |
| 45–54                         | 22 (17%)                       | 107 (21%)              | 583 (29%)            |
| 55–64                         | 36 (28%)                       | 169 (33%)              | 645 (32%)            |
| 65–74                         | 36 (28%)                       | 140 (27%)              | 406 (20%)            |
| 75 +                          | 33 (26%)                       | 97 (19%)               | 359 (18%)            |
| Sex                           |                                |                        |                      |
| Women                         | 46 (36%)                       | 326 (64%)              | 1322 (66%)           |
| Geographic Region             |                                |                        |                      |
| Urban                         | 108 (85%)                      | 420 (82%)              | 1583 (79%)           |
| Cultural background           |                                |                        |                      |
| White                         | 122 (96%)                      | 502 (98%)              | 1934 (97%)           |
| Household Income              |                                |                        |                      |
| Less than \$20,000            | 3 (2.4%)                       | 43 (8.4%)              | 192 (9.6%)           |
| \$20,000 to \$50,000          | 22 (17%)                       | 155 (30%)              | 546 (27%)            |
| \$50,000 to \$100,000         | 55 (43%)                       | 157 (31%)              | 638 (32%)            |
| \$100,000 to \$150,000        | 27 (21%)                       | 70 (14%)               | 278 (14%)            |
| \$150,000 or more             | 16 (13%)                       | 44 (8.6%)              | 209 (10%)            |
| Education                     |                                |                        |                      |
| Less than high school         | 11 (8.7%)                      | 35 (6.8%)              | 135 (6.8%)           |
| High school graduation        | 10 (7.9%)                      | 72 (14%)               | 203 (10%)            |
| Some post-secondary education | 8 (6.3%)                       | 44 (8.6%)              | 198 (9.9%)           |
| Post-secondary degree/diploma | 97 (76%)                       | 360 (70%)              | 1452 (73%)           |
| Marital status                |                                |                        |                      |
| Single                        | 1 (0.8%)                       | 50 (9.7%)              | 201 (10%)            |
| Married/Common-law            | 124 (98%)                      | 333 (65%)              | 1216 (61%)           |
| Widowed                       | 0 (0%)                         | 54 (11%)               | 247 (12%)            |
| Divorced/separated            | 2 (1.6%)                       | 76 (15%)               | 329 (17%)            |
| Retirement status             |                                |                        |                      |
| Completely retired            | 71 (56%)                       | 279 (54%)              | 952 (48%)            |
| Partly retired                | 22 (17%)                       | 54 (11%)               | 203 (10%)            |
| Employed                      | 29 (23%)                       | 132 (26%)              | 642 (32%)            |
| Not retired or employed       | 4 (3.1%)                       | 46 (9.0%)              | 190 (9.5%)           |
| Self-rated general health     |                                |                        |                      |
| Excellent/Very good           | 59 (46%)                       | 214 (42%)              | 746 (37%)            |
| Good/Fair                     | 60 (47%)                       | 277 (54%)              | 1110 (56%)           |
| Poor                          | 6 (4.7%)                       | 21 (4.1%)              | 136 (6.8%)           |
| Number of chronic conditions  |                                |                        |                      |
| 0                             | 5 (3.9%)                       | 12 (2.3%)              | 44 (2.2%)            |
| 1                             | 6 (4.7%)                       | 37 (7.2%)              | 125 (6.3%)           |
| 2                             | 15 (12%)                       | 46 (9.0%)              | 207 (10%)            |
| 3                             | 11 (8.7%)                      | 55 (11%)               | 260 (13%)            |
| 4                             | 21 (17%)                       | 62 (12%)               | 261 (13%)            |
| 5 +                           | 69 (54%)                       | 301 (59%)              | 1096 (55%)           |
| Functional impairment status  |                                |                        |                      |
| None                          | 100 (79%)                      | 383 (75%)              | 1377 (69%)           |
| Mild or moderate              | 26 (20%)                       | 124 (24%)              | 582 (29%)            |
| Severe or total               | 1 (0.8%)                       | 2 (0.4%)               | 16 (0.8%)            |

<sup>a</sup> Mean (SD); n (%)

|  | Caregiver to:         |                       |                           |                       | Care receiver (f     | rom one or more     | people) and Ca        | regiver to:           |                       |                       |
|--|-----------------------|-----------------------|---------------------------|-----------------------|----------------------|---------------------|-----------------------|-----------------------|-----------------------|-----------------------|
|  | Caregiver to O        | ne Person             | Caregiver to Tw<br>People | o or More             | Reciprocal care      | spouse              | Care chain            |                       | Compound car          | e chain               |
|  | Men                   | Women                 | Men                       | Women                 | Men                  | Women               | Men                   | Women                 | Men                   | Women                 |
|  | N= 5590 <sup>a</sup>  | N=6351 <sup>a</sup>   | $N = 3548^{a}$            | N= 4416 <sup>a</sup>  | N= 81 <sup>a</sup>   | N=46 <sup>a</sup>   | N= 187 <sup>a</sup>   | N= 326 <sup>a</sup>   | N=671 <sup>a</sup>    | N= 1322 <sup>a</sup>  |
| Number of<br>people provid-<br>ing care to | 1.00                  | 1.00                  | 2.00 (2.00 3.00)          | 2.00 (2.00 3.00)      | 1.00                 | 1.00                | 1.00                  | 1.00                  | 2.00 (1.00 3.00)      | 2.00 (1.00 3.00)      |
| Number of peop                             | le providing ca       | ire to                |                           |                       |                      |                     |                       |                       |                       |                       |
| _  | 5590 (100%)           | 6351 (100%)           | (%0) 0                    | (%0) 0                | 81 (100%)            | 46 (100%)           | 187 (100%)            | 326 (100%)            | 277 (41%)             | 591 (45%)             |
| 2  | (%0) 0                | 0 (0%) (0%)           | 2063 (58%)                | 2678 (61%)            | (%0) 0               | 0 (0%) 0            | 0 (0%)                | 0 (0%) (0%)           | 204 (30%)             | 400 (30%)             |
| 3+   | (%0) 0                | 0 (0%) 0              | 1485 (42%)                | 1738 (39%)            | (%0) 0               | 0 (0%) 0            | 0 (0%)                | 0 (0%) (0%)           | 190 (28%)             | 331 (25%)             |
| Hours per<br>week given                    | 4.00 (2.00<br>10.00)  | 5.00 (2.00<br>15.00)  | 3.00 (2.00<br>7.00)       | 4.00 (2.00<br>12.00)  | 6.00 (2.00 13.00)    | 6.00 (2.00 20.00)   | 3.00 (2.00<br>6.00)   | 4.00 (2.00<br>14.00)  | 3.00 (2.00<br>10.00)  | 4.00 (2.00 14.00)     |
| Weeks per year<br>given                    | 16.00 (4.00<br>52.00) | 18.00 (4.00<br>52.00) | 20.00 (4.00<br>52.00)     | 24.00 (4.00<br>52.00) | 3.00 (1.00<br>26.00) | 3.00 (2.00<br>6.00) | 12.00 (3.00<br>52.00) | 20.00 (3.00<br>52.00) | 12.00 (3.00<br>52.00) | 20.00 (4.00<br>52.00) |
| Activities of care                         | <i>c</i> .            |                       |                           |                       |                      |                     |                       |                       |                       |                       |
| Personal care<br>given                     | 1378 (25%)            | 2177 (34%)            | 780 (22%)                 | 1504 (34%)            | 19 (23%)             | 11 (24%)            | 28 (15%)              | 91 (28%)              | 136 (20%)             | 383 (29%)             |
| Medical care<br>given                      | 1187 (21%)            | 1907 (30%)            | 722 (20%)                 | 1378 (31%)            | 18 (22%)             | 15 (33%)            | 26 (14%)              | 79 (24%)              | 141 (21%)             | 356 (27%)             |
| Managing<br>care given                     | 1553 (28%)            | 2378 (37%)            | 1095 (31%)                | 1796 (41%)            | 6 (7.4%)             | 8 (17%)             | 39 (21%)              | 102 (31%)             | 150 (22%)             | 445 (34%)             |
| House activi-<br>ties care given           | 3130 (56%)            | 3061 (48%)            | 2240 (63%)                | 2419 (55%)            | 52 (64%)             | 28 (61%)            | 82 (44%)              | 134 (41%)             | 354 (53%)             | 589 (45%)             |
| Transporta-<br>tion care given             | 4110 (74%)            | 4531 (71%)            | 2803 (79%)                | 3479 (79%)            | 54 (67%)             | 29 (63%)            | 134 (72%)             | 213 (65%)             | 475 (71%)             | 902 (68%)             |
| Meal prepara-<br>tion care given           | 1974 (35%)            | 2981 (47%)            | 1173 (33%)                | 2437 (55%)            | 52 (64%)             | 28 (61%)            | 51 (27%)              | 147 (45%)             | 252 (38%)             | 714 (54%)             |
| Other assis-<br>tance given                | 41 (0.7%)             | 61 (1.0%)             | 30 (0.8%)                 | 46 (1.0%)             | 0 (0%)               | 1 (2.2%)            | 1 (0.5%)              | 4 (1.2%)              | 6 (0.9%)              | 13 (1.0%)             |
| Living arrangem                            | ents of primary       | v care receiver       |                           |                       |                      |                     |                       |                       |                       |                       |
| Living in their<br>household               | 1728 (31%)            | 1400 (22%)            | 524 (15%)                 | 637 (14%)             | (%66) 08             | 44 (96%)            | 35 (19%)              | 54 (17%)              | 189 (28%)             | 241 (18%)             |
| Living<br>outside their<br>household       | 2890 (52%)            | 3870 (61%)            | 2455 (69%)                | 3099 (70%)            | 1 (1.2%)             | 2 (4.3%)            | 127 (68%)             | 215 (66%)             | 406 (61%)             | 901 (68%)             |
| Living<br>in a health care<br>institution  | 613 (11%)             | 688 (11%)             | 371 (10%)                 | 415 (9.4%)            | (%0) (0              | 0 (0%)              | 18 (9.6%)             | 38 (12%)              | 45 (6.7%)             | 121 (9.2%)            |

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|  | Caregiver to:                 |                       |                          |            | Care receiver | · (from one or mo | re people) and C | aregiver to: |             |            |
|--|-------------------------------|-----------------------|--------------------------|------------|---------------|-------------------|------------------|--------------|-------------|------------|
|  | Caregiver to O                | ne Person             | Caregiver to T<br>People | wo or More | Reciprocal ca | are spouse        | Care chain       |              | Compound ca | re chain   |
|  | Men                           | Women                 | Men                      | Women      | Men           | Women             | Men              | Women        | Men         | Women      |
| Now<br>deceased  | 353 (6.3%)                    | 391 (6.2%)            | 185 (5.2%)               | 255 (5.8%) | (%0) 0        | 0 (0%)            | 7 (3.7%)         | 19 (5.8%)    | 28 (4.2%)   | 55 (4.2%)  |
| Relationship to  | primary care rec              | :ipient               |                          |            |               |                   |                  |              |             |            |
| Spouse   | 1468 (26%)                    | 1015 (16%)            | 342 (9.6%)               | 363 (8.2%) | 81 (100%)     | 46 (100%)         | 27 (14%)         | 34 (10%)     | 162 (24%)   | 161 (12%)  |
| Parent   | 1603 (29%)                    | 2151 (34%)            | 1056 (30%)               | 1448 (33%) | 0 (0%) (0%)   | 0 (0%) 0          | 54 (29%)         | 100 (31%)    | 128 (19%)   | 338 (26%)  |
| Child  | 230 (4.1%)                    | 433 (6.8%)            | 162 (4.6%)               | 321 (7.3%) | 0 (0%)        | 0 (0%)            | 13 (7.0%)        | 25 (7.7%)    | 31 (4.6%)   | 120 (9.1%) |
| Sibling  | 246 (4.4%)                    | 420 (6.6%)            | 156 (4.4%)               | 283 (6.4%) | 0 (0%) (0%)   | 0 (0%) (0%)       | 12 (6.4%)        | 32 (9.8%)    | 25 (3.7%)   | 83 (6.3%)  |
| Other relative   | 777 (14%)                     | 671 (11%)             | 590 (17%)                | 529 (12%)  | 0 (0%) (0%)   | 0 (0%) 0          | 23 (12%)         | 35 (11%)     | 82 (12%)    | 130 (9.8%) |
| Other  | 1126 (20%)                    | 1535 (24%)            | 1127 (32%)               | 1347 (31%) | 0 (0%) (0%)   | 0 (0%)            | 54 (29%)         | 96 (29%)     | 228 (34%)   | 462 (35%)  |
| Gender of prim   | ary care receiver             |                       |                          |            |               |                   |                  |              |             |            |
| Men  | 1523 (27%)                    | 2060 (32%)            | 1367 (39%)               | 1262 (29%) | 1 (1.2%)      | 45 (98%)          | 59 (32%)         | 89 (27%)     | 238 (36%)   | 417 (32%)  |
| Women  | 4059 (73%)                    | 4286 (68%)            | 2117 (61%)               | 3103 (71%) | 80 (99%)      | 1 (2.2%)          | 128 (68%)        | 237 (73%)    | 427 (64%)   | 895 (68%)  |
| <sup>a</sup> n (%); Median (Q<br>Bolded cells are sig. | 1 Q3)<br>nificant by Standard | 'ized Mean Difference | s greater than 10%       |            |               |                   |                  |              |             |            |

| (continued) |
|-------------|
| 4           |
| Tablo       |



Fig. 3 Relationship to care receiver, as reported by caregivers, stratified by care relationship type

reported having a woman caregiver more frequently (70 vs 40%).

#### Compound care chains

In their role as care receivers, median number of hours per week and weeks per year (4 h and 4 weeks, respectively) were similar for both men and women. Men were more likely to live with their caregiver (54 vs 42%) and to receive care from their spouse (47 vs 33%), whereas women reported their child (23 vs 17%) or friend (19 vs 15%) providing care more than men did. Women reported more frequently receiving assistance with meal preparation compared to men, whereas men reported medical care and managing care more frequently than women. Men more often reported having a woman caregiver compared to women respondents (68 vs 45%).

## Discussion

We found that 38.8% of CLSA participants identified as caregivers, 6.4% identified as care receivers, and 5.1% identified as both a caregiver and care receiver. As expected, CLSA participants who identified as caregivers were slightly younger, in better self-reported health, and had fewer physical limitations than those who identified as care receivers. Also as expected, differences in caregiving and care receiving were observed between men and women, with women more frequently identifying as caregivers and care receivers in all relationship types except reciprocal spousal dyads. Moreover, nearly half of all CLSA participants who identified as either a caregiver and/or care receiver reported that their caregiving relationship was more complex than a unidirectional dyadic relationship.

Not surprisingly, gender differences were seen throughout our findings. Women more frequently identified as caregivers and care receivers than men. Women caregivers reported providing care to a wider range of primary care recipients and women care receivers reported receiving care from a wider range of primary caregivers than men. On the other hand, men were most likely to report receiving care from and providing care to a spouse, and they more frequently provided household maintenance. Our findings are consistent with prior research, including studies using CLSA data, those focusing on care networks, and those that have shown women to more frequently take on caregiving roles to provide personal care support as well as studies that have shown women to be more likely to rely on adult children while men rely on spouses [9, 11, 25]. Studies have also shown that women caregivers experience more caregiver stress and burden due to multiple factors such as gender roles, care burden, and caregiving motivations [26]. At the same time, our findings, like theirs, show that the gendering of caregiving is quite nuanced. In our sample, nearly 40% of men reported providing care to more than one person and men spent only slightly less time than women on caregiving. Women and men experience caregiving and care receiving in different ways, which has trickle down implications for their supportive care needs. While there is substantial literature on the gendered nature of caregiving, future research should consider a more detailed exploration of differences between men

|   | Receives Care Fi     | rom:                 |                            |                       | Care receiver (fr    | om one or more p      | eople) and Receiv    | ves Care From:       |                     |                      |
|---|----------------------|----------------------|----------------------------|-----------------------|----------------------|-----------------------|----------------------|----------------------|---------------------|----------------------|
|   | Care Receiver fr     | om One Person        | Care Receiver fr<br>People | om Two or More        | Reciprocal care      | spouse                | Care chain           |                      | Compound care       | chain                |
|   | Men                  | Women                | Men                        | Women                 | Men                  | Women                 | Men                  | Women                | Men                 | Women                |
|   | N= 707 <sup>a</sup>  | N = 827 <sup>a</sup> | N=679 <sup>a</sup>         | N= 1073 <sup>a</sup>  | N=81 <sup>a</sup>    | $N = 46^a$            | N= 187 <sup>a</sup>  | N= 326 <sup>a</sup>  | N= 671 <sup>a</sup> | N= 1322 <sup>a</sup> |
| Number of<br>people receiv-             | 1.00                 | 1.00                 | 3.00 (2.00 4.00)           | 3.00 (2.00 5.00)      | 1.00                 | 1.00                  | 1.00                 | 1.00                 | 3.00 (2.00 4.00)    | 3.00 (2.00 5.00)     |
| Number of peop                          | vle receiving care   | from                 |                            |                       |                      |                       |                      |                      |                     |                      |
| -                                       | 707 (100%)           | 827 (100%)           | (%0) 0                     | (%0) 0                | 81 (100%)            | 46 (100%)             | 187 (100%)           | 326 (100%)           | 144 (21%)           | 222 (17%)            |
| 2                                       | (%0) 0               | 0 (0%)               | 257 (38%)                  | 402 (37%)             | (%) 0                | (%0) 0                | 0 (0%)               | 0 (0%)               | 179 (27%)           | 338 (26%)            |
| 3 +<br>S                                | 0 (0%)               | 0 (0%)               | 422 (62%)                  | 671 (63%)             | 0 (0%)               | (%0) 0                | 0 (0%)               | 0 (0%)               | 348 (52%)           | 762 (58%)            |
| Hours per<br>week received              | 4.00 (2.00 14.00)    | 4.00 (2.00 14.00)    | 5.00 (2.00<br>14.00)       | 5.00 (2.00<br>14.00)  | 5.00 (2.00 14.00)    | 11.00 (4.00<br>20.50) | 3.00 (1.00<br>10.00) | 4.00 (2.00<br>14.00) | 4.00 (2.00 11.00)   | 4.00 (2.00 12.00)    |
| Hours per<br>week received<br>(by most) | 4.00 (1.00 12.00)    | 3.00 (2.00 10.00)    | 4.00 (2.00 12.00)          | 4.00 (2.00 10.00)     | 4.00 (1.00 10.00)    | 7.00 (2.00 14.00)     | 3.00 (1.00 7.00)     | 4.00 (2.00<br>10.00) | 3.00 (2.00 10.00)   | 4.00 (2.00 10.00)    |
| Weeks per<br>year received              | 4.00 (1.00<br>16.00) | 6.00 (1.00<br>52.00) | 6.00 (2.00<br>29.00)       | 10.00 (3.00<br>52.00) | 3.00 (1.00<br>10.00) | 4.00 (1.00<br>12.00)  | 3.00 (1.00<br>10.50) | 3.00 (1.00<br>18.00) | 4.00 (2.00 18.00)   | 4.00 (2.00 22.00)    |
| Weeks per<br>year received<br>(by most) | 4.00 (1.00<br>16.00) | 6.00 (1.00<br>52.00) | 6.00 (2.00<br>35.00)       | 10.00 (3.00<br>52.00) | 3.00 (1.00<br>10.00) | 4.00 (1.00<br>12.00)  | 3.00 (1.00<br>11.00) | 3.00 (1.00<br>18.00) | 4.00 (2.00 20.00)   | 4.00 (2.00 24.00)    |
| Activities of care                      |                      |                      |                            |                       |                      |                       |                      |                      |                     |                      |
| Personal care<br>received               | 164 (23%)            | 153 (19%)            | 157 (23%)                  | 233 (22%)             | 31 (38%)             | 11 (24%)              | 31 (17%)             | 66 (20%)             | 145 (22%)           | 279 (21%)            |
| Medical care<br>received                | 173 (24%)            | 87 (11%)             | 137 (20%)                  | 147 (14%)             | 16 (20%)             | 8 (17%)               | 30 (16%)             | 33 (10%)             | 124 (18%)           | 195 (15%)            |
| Managing<br>care received               | 88 (12%)             | 50 (6.0%)            | 105 (15%)                  | 97 (9.0%)             | 8 (9.9%)             | 2 (4.3%)              | 11 (5.9%)            | 8 (2.5%)             | 96 (14%)            | 89 (6.7%)            |
| House<br>activities care<br>received    | 368 (52%)            | 550 (67%)            | 509 (75%)                  | 786 (73%)             | 45 (56%)             | 38 (83%)              | 103 (55%)            | 213 (65%)            | 480 (72%)           | 955 (72%)            |
| Transporta-<br>tion received            | 438 (62%)            | 474 (57%)            | 445 (66%)                  | 773 (72%)             | 48 (59%)             | 32 (70%)              | 99 (53%)             | 165 (51%)            | 384 (57%)           | 818 (62%)            |
| Meal<br>preparation care<br>received    | 281 (40%)            | 375 (45%)            | 291 (43%)                  | 563 (52%)             | 37 (46%)             | 33 (72%)              | 56 (30%)             | 149 (46%)            | 274 (41%)           | 694 (52%)            |
| Other assis-<br>tance received          | 7 (1.0%)             | 6 (0.7%)             | 5 (0.7%)                   | 6 (0.6%)              | 1 (1.2%)             | 0 (0%)                | 2 (1.1%)             | 5 (1.5%)             | 6 (0.9%)            | 9 (0.7%)             |

reived by CLSA respondents who were identified as care receivers by respondent gender ğ Table 5 Amount and type of care

|                                    | Care Receiver    | from One Person | Care Receiver<br>People | from Two or More | Reciprocal ca | ire spouse | Care chain |           | Compound ca | are chain |
|------------------------------------|------------------|-----------------|-------------------------|------------------|---------------|------------|------------|-----------|-------------|-----------|
|                                    | Men              | Women           | Men                     | Women            | Men           | Women      | Men        | Women     | Men         | Women     |
| ost care activit                   | ty received      |                 |                         |                  |               |            |            |           |             |           |
| Personal care                      | 64 (9.1%)        | 43 (5.2%)       | 50 (7.4%)               | 71 (6.6%)        | 11 (14%)      | 4 (8.7%)   | 12 (6.4%)  | 22 (6.7%) | 42 (6.3%)   | 58 (4.4%) |
| Medical care                       | 60 (8.5%)        | 15 (1.8%)       | 20 (2.9%)               | 12 (1.1%)        | 1 (1.2%)      | 0 (0%)     | 6 (3.2%)   | 9 (2.8%)  | 12 (1.8%)   | 31 (2.3%) |
| Managing<br>re                     | 6 (0.8%)         | 5 (0.6%)        | 3 (0.4%)                | 1 (< 0.1%)       | 3 (3.7%)      | 0 (0%)     | 2 (1.1%)   | 0 (0%)    | 7 (1.0%)    | 5 (0.4%)  |
| Housework                          | 119(17%)         | 214 (26%)       | 198 (29%)               | 293 (27%)        | 8 (9.9%)      | 6 (13%)    | 35 (19%)   | 82 (25%)  | 200 (30%)   | 366 (28%) |
| Transporta-<br>vn                  | 129 (18%)        | 156 (19%)       | 177 (26%)               | 273 (25%)        | 15 (19%)      | 10 (22%)   | 38 (20%)   | 46 (14%)  | 141 (21%)   | 261 (20%) |
| Meal prepara-<br>in or delivery    | 107 (15%)        | 152 (18%)       | 105 (15%)               | 214 (20%)        | 21 (26%)      | 18 (39%)   | 24 (13%)   | 60 (18%)  | 114 (17%)   | 289 (22%) |
| Other                              | 15 (2.1%)        | 8 (1.0%)        | 15 (2.2%)               | 32 (3.0%)        | 1 (1.2%)      | 0 (0%)     | 3 (1.6%)   | 10 (3.1%) | 15 (2.2%)   | 40 (3.0%) |
| ving arrangem                      | ient of the prim | ary caregiver   |                         |                  |               |            |            |           |             |           |
| Living in their<br>usehold         | 477 (67%)        | 461 (56%)       | 361 (53%)               | 470 (44%)        | 80 (99%)      | 45 (98%)   | 101 (54%)  | 177 (54%) | 365 (54%)   | 557 (42%) |
| Living<br>itside their<br>vusehold | 215 (30%)        | 357 (43%)       | 311 (46%)               | 586 (55%)        | 1 (1.2%)      | 1 (2.2%)   | 86 (46%)   | 149 (46%) | 301 (45%)   | 746 (56%) |
| lationship to t                    | the primary car  | egiver          |                         |                  |               |            |            |           |             |           |
| Spouse                             | 461 (65%)        | 378 (46%)       | 322 (47%)               | 332 (31%)        | 81 (100%)     | 46 (100%)  | 90 (48%)   | 133 (41%) | 315 (47%)   | 440 (33%) |
| Parent                             | 13 (1.8%)        | 7 (0.8%)        | 21 (3.1%)               | 31 (2.9%)        | 0 (0%)        | 0 (0%)     | 5 (2.7%)   | 9 (2.8%)  | 13 (1.9%)   | 54 (4.1%) |
| Child                              | 59 (8.3%)        | 201 (24%)       | 100 (15%)               | 323 (30%)        | 0 (0%)        | 0 (0%)     | 31 (17%)   | 72 (22%)  | 113 (17%)   | 310 (23%) |
| Sibling                            | 27 (3.8%)        | 53 (6.4%)       | 46 (6.8%)               | 70 (6.5%)        | 0 (0%)        | 0 (0%)     | 14 (7.5%)  | 27 (8.3%) | 30 (4.5%)   | 93 (7.0%) |
| Other relative                     | 27 (3.8%)        | 38 (4.6%)       | 32 (4.7%)               | 42 (3.9%)        | 0 (0%)        | 0 (0%)     | 7 (3.7%)   | 18 (5.5%) | 20 (3.0%)   | 58 (4.4%) |
| Friend                             | 57 (8.1%)        | 80 (9.7%)       | 74 (11%)                | 169 (16%)        | 0 (0%)        | 0 (0%)     | 18 (9.6%)  | 41 (13%)  | 98 (15%)    | 247 (19%) |
| Other                              | 37 (5.2%)        | 49 (5.9%)       | 60 (8.8%)               | 54 (5.0%)        | 0 (0%)        | 0 (0%)     | 22 (12%)   | 24 (7.4%) | 60 (8.9%)   | 73 (5.5%) |
| ender of prima                     | ıry caregiver    |                 |                         |                  |               |            |            |           |             |           |
| Men                                | 119 (17%)        | 521 (63%)       | 198 (29%)               | 533 (50%)        | 1 (1.2%)      | 45 (98%)   | 57 (30%)   | 197 (60%) | 205 (31%)   | 705 (53%) |
| Women                              | 574 (81%)        | 298 (36%)       | 468 (69%)               | 510 (48%)        | 80 (99%)      | 1 (2.2%)   | 130 (70%)  | 129 (40%) | 455 (68%)   | 592 (45%) |

Table 5 (continued)

and women in care tasks and perceptions of caregiving work. It will be important to consider these differences in the context of changing gender norms and demographic patterns and future policy and program needs.

We found that spouses and first-degree relatives represented the majority of caregivers but that others, including friends and other relatives, still represent a large proportion of caregivers overall. Among the CLSA sample, nearly 40% of all caregivers reported providing care to a non-first degree relative or other (including friends) while nearly one-quarter of care recipients reported their primary caregiver among the same. Research on and consideration of non-kin caregivers for policy and practice will be increasingly important as family structures continue to change and "chosen family" networks become more prevalent. Older adults without either a spouse or children are most likely to use paid care, experience "care gaps", and to reside in a nursing home relative to those with either [27]. Informal non-kin only care networks have been identified as less reliable, a dimension of care quality, than other care network types; a finding that likely reflects how the expectations of different relationship types influences care and support activities [28]. Expanding care relationship frameworks to incorporate caregiving and care receiving roles may be especially salient to accommodate non-kin networks where members are of similar ages.

We also found that a considerable minority of caregiving reported in the CLSA was non-dyadic and that the majority of care receiving was best characterized as through a network. Approximately 40% of caregivers reported providing care to more than one person (34% among caregivers who also received care). Meanwhile, 53% of care receivers reported receiving care from more than one person while compound care chains accounted for most of the care relationships described by care receivers who also provided care. This speaks to a need to broaden the conceptualization of caregiving away from a one caregiver and one care receiver paradigm. As noted by others, this has important implications for research practice and how evidence is subsequently used to inform policy and support service delivery [29]. Frameworks such as the Convoys of Social Support and Social Care Model both allow for multiple caregivers with varying levels of proximity to the care receiver yet relatively little research has implemented either despite evidence to support their relevance [16, 30, 31]. While concepts such as double-duty caregiving and "sandwich" generation caregiving have both received attention, neither describe the multiple nonprofessional, non-parenting caregiving roles found in this study nor do they capture the simultaneous experience of providing and receiving care [32, 33]. Further research is needed to better characterize how people understand and carry out their multiple roles and responsibilities within caring networks and subsequent needs for supportive services. Of particular interest is research to describe the circumstances within which older men and women continue to provide care while receiving care, including implications for their own health outcomes as well as those they support.

#### Limitations

Our study has limitations to consider. First, we have only a single informant's perspective on the care relationships as the CLSA only obtains information from the single interviewed individual. Further, although there are several items in the CLSA surveys on caregiving and receiving, many only ask about the primary relationship (including relationship and gender) and together, these issues limit our ability to fully characterize caring relationships and capture the broader landscape of caregiving networks. Others have shown that a multi-informant approach offers a fuller opportunity to describe networks and their function [14]. The CLSA sample is generally healthy, living in the community and able to provide their own baseline data and therefore likely underrepresents care receiving, especially among the older segment of the sample. Finally, the CLSA sample is predominantly white, English or French speaking, and relatively affluent, which limits characterization of variations in caring relationships across race, ethnicity, or other social descriptors or the extent to which their intersections with gender can be explored. In this study, we used CLSA Baseline data, collected between 2011 and 2015, as it was the most complete. While we do not anticipate large scale changes in caregiving patterns since then, we have additional research planned that will describe changes in caregiving relationships with more recently conducted waves of CLSA data. Despite these limitations, the CLSA offers a large sample with multiple options for exploring caregiving and receiving, as well as potential to study changes in care relationships over time. Additional future research is needed, though, to deepen our understanding of care networks and optimal strategies to support them through policy and practice.

## Conclusion

Using baseline data from the CLSA, we found diverse care relationships that were often best characterized as networks and that often included non-kin and extended relatives. We further found that gender played a significant role in both who provided and who received care but also that nuance is required in describing the different patterns of care taken on by women and men. Our findings speak to the importance of broadening the general conceptualization from one caregiver to one care receiver all within the same family. Frameworks that capture the networked nature of caring relationships, the potential for one individual to hold multiple roles, and shifting family structures are needed to advance the ways in which we think and talk about caregiving.

#### Abbreviations

ADL Activities of Daily Living

- IADL Instrumental Activities of Daily Living
- CLSA Canadian Longitudinal Study on Aging

#### **Supplementary Information**

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Supplementary Material 1.

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The opinions expressed in this manuscript are the author's own and do not reflect the views of the Canadian Longitudinal Study on Aging.

#### Authors' contributions

JU assisted with planning the study, wrote the first draft of the manuscript, and incorporated feedback. TA conducted the data analysis and provided critical feedback on the manuscript. CJ assisted in planning the study, provided coordination, and provided critical feedback on the manuscript. AG conceived of the study, led the analysis and data interpretation, and oversaw all dissemination activities including development and writing. SA assisted with data interpretation and provided critical feedback on the manuscript. JB sasisted with data interpretation and provided critical feedback on the manuscript. JB provided advice on integration of sex and gender into the analyses and data interpretation, and assisted in manuscript development. SAC provided input throughout the analysis, assisted in data interpretation, and assisted in data interpretation and manuscript development.

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#### Data availability

Datasets that support the findings of this study are available from the Canadian Longitudinal Study on Aging for researchers who meet the criteria for access.

#### Declarations

#### Ethics approval and consent to participate

This study received approval from the Health Research Ethics Board at the University of Alberta (Pro00140730) in compliance with the Helsinki Declaration. Informed consent was obtained from all participants.

#### Consent for publication

Not applicable.

#### **Competing interests**

The authors declare no competing interests.

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