Archives of Gerontology and Geriatrics 83 (2019) 195–203

Contents lists available at ScienceDirect

Archives of Gerontology and Geriatrics

journal homepage: www.elsevier.com/locate/archger

Gender differences regarding opinions on long-term care arrangements: A study of community-dwelling older adults

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ARTICLE INFO

Keywords:
Gender preference
Long-term care
Older

ABSTRACT

Background: Numerous studies have attempted to identify predictors of institutionalization in the general population. Gender studies have led to inconsistent results. Some authors argued that older women were more likely than older men to use long-term care services, while others failed to highlight a specific gender effect on the use of long-term care services. The aim of this study was to assess the effects of gender on the preferences of older citizens for long-term care using a panel of disability situations.

Methods: We used a set of ten vignettes displaying disability situations with or without an able-bodied spouse present and used a population-based survey to inquire about appropriate long-term care. Participants were 3102 community-dwelling persons aged 68–83 years included in the representative Lausanne cohort 65+ study in January 2017. Multinomial logistic regression analyses were used to explore the effect of gender on long-term care choices by older men and women, controlling for the respondent's age and living arrangement.

Results: The respondents' choices shifted toward institutionalization when the disorder severity increased in vignettes and when there was no spouse able to help. Men were more likely to choose a home setting with caregiving only by spouse even when the level of disability increased. Women chose help from professionals, sheltered homes, or institutionalization more quickly than men.

Conclusions: Exploring gender preferences for long-term care arrangements is critical for improving and planning long-term care services.

1. Introduction

Longevity and population aging are rapidly growing in both developed and developing countries. In Switzerland, the proportion of the population aged 65 years and over is expected to more than double between 2000 and 2060 and already reached 18.1% in 2016 (OFS, 2015). This "silver tsunami" is raising concerns about the organization and structures needed to supply long-term care (LTC) services in the next decades. Many LTC arrangements are available, ranging from care at home by relatives, with or without the intervention of home support services, to nursing home (NH) admission. Understanding what determines older citizens' opinions regarding LTC choices should guide us toward more appropriate public health policies.

The aging process varies among individuals. Gender effects have been observed in the areas of health and caregiving; male health issues tend to be more fatal and women are more often frail and disabled (Houser, 2007). Women are more committed to spouse caregiving than men and caregiving has been thought of as a "women's issue" (Hunt & Wagner, 2007). However, research on gender as a predictor of institutionalization in the general population produced inconsistent results (Daatland, 1990; Nosraty, Pulkki, Raitanen, Enroth, & Jylha, 2017). Although most older adults prefer to stay at home as long as possible (Gaugler, Duval, Anderson, & Kane, 2007), various studies have reported gender influences this choice (Luppa et al., 2010). Martikainen et al. (2009) observed that women were 40% more likely than men to reside in an institution and attributed this difference to their longer life expectancy and more frequent widowhood (McCann, Donnelly, & O'Reilly, 2012). Moreover, women were more often admitted to a NH, regardless of their age and living arrangement (Foley et al., 1992; Greiner et al., 2014; Lakdawalla & Schoeni, 2003). A meta-analysis by Gaugler et al. (2007) concluded that being a woman was significantly predictive of NH admission. Among baby-boomers, women

Abbreviations: ADL, activities of daily living; BADL, basic activities of daily living; H, usual home; IADL, instrumental activities of daily living; LTC, long-term care; NH, nursing home; pp, percentage point; RRR, relative risk ratio; SH, sheltered home

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https://doi.org/10.1016/j.archger.2019.03.018
Received 13 September 2018; Received in revised form 19 March 2019; Accepted 23 March 2019
Available online 17 April 2019

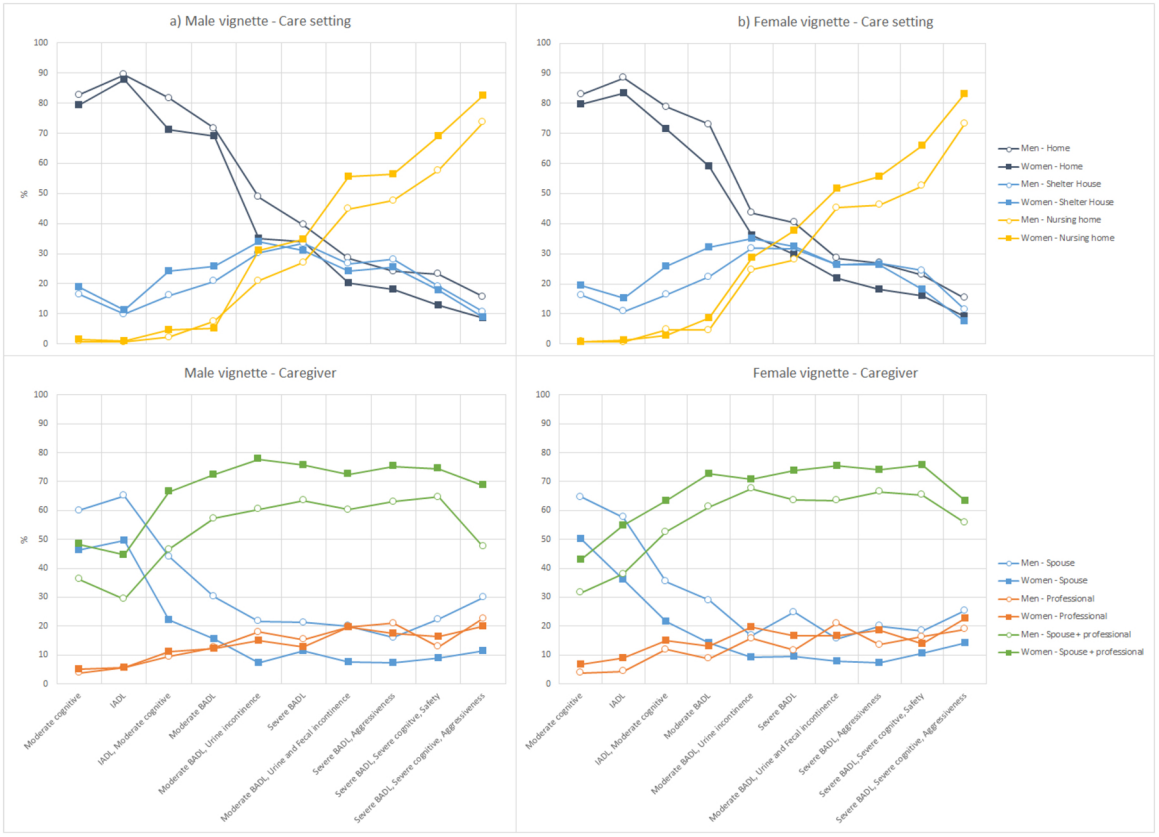

Fig. 1. Preferred care settings and providers* in the Spouse+ vignettes, according to the gender portrayed in the vignettes (male, female) and the gender of the respondents (men, women).

were more likely to expect to live in LTC facilities (Robison, Shugrue, Fortinsky, & Gruman, 2014). Besides, several authors showed that older women were more likely to receive LTC services (Borrayo, Salmon, Polivka, & Dunlop, 2002; Cohen & Bulanda, 2016; Lee, Kovner, Mezey, & Ko, 2001; Nosraty et al., 2017) and planned greater use of home care, transport, and meal delivery (Robison et al., 2014). Women also moved to LTC institutions at an earlier stage of disability than men (Matsumoto, Naruse, Sakai, & Nagata, 2016), had a significantly higher probability of staying in a hospital, and a significantly lower probability of receiving informal care (Pilny & Stroka, 2016). Conversely, men were more likely to express a preference for care from relatives in their home or in their relatives' home (McAuley & Blieszner, 1985), and transitioned from formal care to informal care (Freeman et al., 2017; Mudrazija, Thomeer, & Angel, 2015) earlier than women. For men, the spouse was the most important person in reducing the risk of NH placement; while for women, the absence of a spouse did not notably influence this risk (Luppa, Luck, Weyerer, Konig, & Riedel-Heller, 2009). Being a man seemed to decrease the probability of receiving all kinds of professional LTC (Wallace, Levy-Storms, Kington, & Andersen, 1998).

Despite these specific findings associated with older men or women, the gender effects on LTC reported in the literature are not consistent, suggesting these effects could be culture-specific. In a systematic review, Luppa et al. (2010) reported there was inconclusive evidence of a gender effect on institutionalization. Several authors reported a non-significant impact of gender on risk of entry to NHs (Finlayson, 2002; Gruneir, Forrester, Camacho, Gill, & Bronskill, 2013; Hong, Hong, Kim, & Yi, 2016; Wu et al., 2014). Moreover, Black, Rabins, and German (1999) did not show a gender effect on institutionalization in a population living in public housing. Greiner et al. (2014) developed a prediction model for elders long-term NH placement and reported no effect of gender.

Older adults are concerned about an adequate supply of LTC services not only as potential direct beneficiaries but also as potential caregivers of their spouse and their opinion on LTC is likely influenced by these two roles. While many hope to receive LTC at home when needed, their willingness to be involved in the informal caregiving of disabled relatives may be limited. This study aimed to assess gender effects on older adults' preferences for a variety of LTC options using a panel of disability situations. We hypothesized that the respondent's gender and the gender portrayed in the vignette may influence their choices.

2. Methods

2.1. Participants

This study used data from a questionnaire on health care that was sent in January 2017 to all 3535 community-dwelling subjects, aged 68–82 years, registered in the Lausanne cohort 65+ (Lc65+) study by December 31, 2016, after exclusion of 24 participations by proxy in the preceding year (Santos-Eggimann et al., 2008).

According to a methodology pretested in a previous study (Santos-Eggimann & Meylan, 2017), the questionnaire on health care included a set of 10 vignettes ordered by the increasing severity and presenting persons in various situations of disability that bring about the need for personal care or help. After each vignette, questions regarding the most appropriate LTC arrangement were asked while considering that a spouse was available (Spouse+ circumstance) or not available (Spouse− circumstance) to provide informal care. Taking into account both the disability and spouse influences, we collected the LTC preferences for a total number of 20 vignettes for all participants. The set of vignettes alternatively presented the disability situation of either Mr.

Table 1
Distribution of preferred long-term care options according to gender and Adjusted effect[a] of the respondent's gender for Spouse+ male vignettes[b]

Vignette	H + spouse	H + professional	H + spouse + professional	H, carer not specified	H, no carer	SH + spouse	SH + professional	SH + spouse + professional	SH, carer not specified	SH, no carer	NH
Moderate cognitive											
Men (%)	46.12	1.13	27.35	6.47	1.62	7.77	2.27	5.18	0	1.29	0.81
Women (%)	36.62	2.53	36.28	3.44	0.57	6.43	2.3	8.61	0.57	1.15	1.49
RRR	**Base**	*ns*	1.449**	0.571*	0.175**	*ns*	*ns*	1.731*	*ns*	*ns*	*ns*
Marginal effect (pp)	*ns*	*ns*	8.46***	−3.01*	−2.24**	*ns*	*ns*	3.02*	0.45*	*ns*	*ns*
IADL											
Men (%)	55.79	3.64	24.01	5.96	–	4.64	1.49	3.31	0.5	–	0.66
Women (%)	43.79	3.94	37.52	2.46	–	3.94	1.6	5.41	0.37	–	0.98
RRR	**Base**	*ns*	1.93***	0.484*		*ns*	*ns*	*ns*	*ns*		*ns*
Marginal effect (pp)	−9.17***	*ns*	14.1***	−3.57**		*ns*	*ns*	*ns*	*ns*		*ns*
IADL, Moderate cognitive											
Men (%)	37.21	5.25	35.57	3.61	–	3.93	3.61	7.87	0.66	–	2.3
Women (%)	17.95	5.06	45.91	2.3	–	2.42	5.18	14.96	1.61	–	4.6
RRR	0.425***	0.576*	**Base**	0.431*		0.442*	*ns*	*ns*	*ns*		*ns*
Marginal effect (pp)	−14.6***	*ns*	11.18***	*ns*		*ns*	*ns*	5.41**	*ns*		*ns*
Moderate BADL											
Men (%)	22.04	6.51	37.9	5.18	–	4.01	4.34	11.52	1	–	7.51
Women (%)	12.41	6.39	49.14	1.23	–	1.97	4.91	18.3	0.49	–	5.16
RRR	0.444***	0.539*	**Base**	0.157***		0.398**	*ns*	*ns*	*ns*		0.384***
Marginal effect (pp)	−7.98***	*ns*	14.11***	−4.12***		*ns*	*ns*	6.84***	*ns*		−3.85**
Moderate BADL, Urine incontinence											
Men (%)	13.21	6.69	26.43	2.45	–	3.1	6.85	19.25	0.98	–	21.04
Women (%)	3.01	4.39	26.13	1.39	–	1.73	5.43	24.62	2.2	–	31.1
RRR	0.206***	0.474**	*ns*	0.4*		0.426*	0.509**	*ns*	*ns*		**Base**
Marginal effect (pp)	−8.54***	−2.67*	*ns*	*ns*		*ns*	*ns*	5.56*	*ns*		6.87**
Severe BADL											
Men (%)	11.41	3.86	21.14	3.19	–	3.19	6.71	22.48	1.01	–	27.01
Women (%)	5.55	3.08	24.29	0.99	–	1.6	5.06	23.43	1.11	–	34.09
RRR	0.49**	*ns*	*ns*	0.257**		0.428**	0.516**	*ns*	*ns*		**Base**
Marginal effect (pp)	−4.32**	*ns*	5.40*	−2.16*		*ns*	−2.98*	*ns*	*ns*		5.17*
Moderate BADL, Urine and Fecal incontinence											
Men (%)	8.21	3.61	14.61	2.13	–	2.3	6.73	17.08	0.49	–	44.83
Women (%)	2.09	3.14	13.59	1.39	–	1.16	5.23	17.19	0.7	–	55.52
RRR	0.303***	*ns*	*ns*	*ns*		0.368*	*ns*	*ns*	*ns*		**Base**
Marginal effect (pp)	−4.33***	*ns*	*ns*	*ns*		*ns*	*ns*	*ns*	*ns*		8.22**
Severe BADL, Aggressiveness											
Men (%)	6	4	11.17	3	–	1.67	6	19	1.5	–	47.67
Women (%)	2.21	2.7	12.75	0.49	–	0.86	4.66	19	0.98	–	56.37
RRR	0.374**	0.442*	*ns*	0.145***		*ns*	*ns*	*ns*	*ns*		**Base**
Marginal effect (pp)	−3.14**	−2.27*	*ns*	−2.42**		*ns*	*ns*	*ns*	*ns*		7.01*
Severe BADL, Severe cognitive, Safety											
Men (%)	6.87	2.45	11.95	1.96	–	1.96	2.62	13.58	0.98	–	57.61
Women (%)	1.87	1.87	8.19	1.05	–	0.7	2.81	12.98	1.4	–	69.12
RRR	0.37***	0.434*	0.661*	*ns*		0.32*	*ns*	*ns*	*ns*		**Base**
Marginal effect (pp)	−3.01**	*ns*	*ns*	*ns*		*ns*	*ns*	*ns*	*ns*		9.08**
Severe BADL, Severe cognitive, Aggressiveness											
Men (%)	5.5	1.83	6.17	2.17	–	1.33	3.33	4.67	1.33	–	73.67

(*continued on next page*)

Table 1 (*continued*)

Vignette	H + spouse	H + professional	H + spouse + professional	H, carer not specified	H, no carer	SH + spouse	SH + professional	SH + spouse + professional	SH, carer not specified	SH, no carer	NH
Women (%)	1.22	1.71	5.14	0.49	–	0.61	1.47	5.88	0.86	–	82.62
RRR	0.204***	*ns*	*ns*	0.177**		*ns*	0.32**	*ns*	*ns*		**Base**
Marginal effect (pp)	−4.18***	*ns*	*ns*	−1.82**		*ns*	−2.44*	*ns*	*ns*		7.84***

H: home; SH: sheltered housing; NH: nursing home; RRR: relative risk ratio; pp: percentage point; ns: not significant.

[a] Effect of respondent's gender from multinomial logistic regressions of preferred long-term care option, adjusted for respondent's age category and living arrangement (reference category: men).

[b] The person with disability is a man living with a spouse able to provide help.

* $p < 0.05$.

** $p < 0.01$.

*** $p < 0.001$.

X (male vignette) or Mrs. X (female vignette). Two versions of the same questionnaire, one beginning with a male vignette and the other with a female vignette, were distributed randomly within the study population.

2.2. Variables

The outcome variable was the most appropriate LTC option for each of the 20 vignettes defined by disability and spouse, and considered both the place and providers of care. The three options of care setting included usual home (H), sheltered housing (SH), and NH. For the Spouse+ circumstance, following the choices of community based housing (H or SH), respondents were asked to specify the most appropriate type of help providers (spouse, professionals, or both). For the first vignette, displaying moderate cognitive difficulties generating anxiety with preserved independence in activities of daily living (ADL), respondents could also select the option of the H or SH setting without any help. The respondent's gender (man or woman) was the explanatory variable. The vignette's gender (male or female), the respondent's age (categorized as 68–73, 74–78, or 79–83 years) and living status (living alone, with spouse, with others, with spouse and others) were covariates. The respondents' data were extracted from the Lc65+ database.

2.3. Statistical analysis

Descriptive statistics were used to present the distribution of men's and women's preferences for the care settings and, in the Spouse+ circumstance, for care providers within the community. Results are presented graphically by vignette's gender. We applied multinomial logistic regression to predict gender-specific LTC choices for each vignette controlling for age group, living arrangement, and the vignette's gender. Potential first-degree interactions were tested. As there were interactions between the respondent's gender and the gender portrayed in the vignette, multinomial logistic regression of the LTC preferred option were conducted separately for male and female vignettes. For each vignette, the most frequently preferred LTC option was selected as the base outcome. We computed the relative risk ratio (RRR) as the relative probability of women, compared with men, choosing a specific LTC option rather than the base outcome after controlling for the respondent's age and living arrangement. We completed this analysis by examining the marginal effects of the respondent's gender on the outcome variable. We checked the variance inflation factor and the tolerance as indicators of multicollinearity. The significance alpha level was set at 0.05. We used the Stata Software release 15.1 (StataCorp, College Station, TX).

3. Results

3.1. Profile of participants

The questionnaire was completed by 3195 individuals, 93 of whom did not complete the vignettes section (final response rate: 87.9%). Of the 3102 respondents, 58.9% were women. The age distribution was similar in men and women (χ^2 test $p = 0.44$): 48.8% were 68–73, 29.5% 74–78 and 21.7% 79–83 years old. Women more frequently lived alone (54.4% vs. 23.4% in men) or with others (4.1% vs. 1.2%) and less frequently lived with a spouse (40.1% vs. 70.2%) or with a spouse and others (1.4% vs. 5.2%) (χ^2 test $p < .001$).

Respondents expressed their choice for an average of 18.6 [STD 3.9] of the 20 vignettes. Missing responses ranged from 6.3% to 8.3% for the Spouse+ vignettes and from 4.3% to 8.1% for the Spouse− vignettes.

3.2. Spouse+ circumstance

Overall, when the vignette described a person with disability living

Table 2
Distribution of preferred long-term care options according to gender and Adjusted effect[a] of the respondent's gender for Spouse+ female vignettes[b]

Vignette	H + spouse	H + professional	H + spouse + professional	H, carer not specified	H, no carer	SH + spouse	SH + professional	SH + spouse + professional	SH, carer not specified	SH, no carer	NH
Moderate cognitive											
Men (%)	50.08	1.69	24.11	6.91	0.17	8.26	1.69	4.38	0.51	1.35	0.84
Women (%)	38.45	3.75	31.8	3.87	1.81	6.77	2.42	7.13	1.21	2.06	0.73
RRR	**Base**	*ns*	1.52**	*ns*	8.31*	*ns*	*ns*	*ns*	*ns*	*ns*	*ns*
Marginal effect (pp)	−7.13*	*ns*	6.98**	−3.05*	1.34**	*ns*	*ns*	*ns*	*ns*	*ns*	*ns*
IADL											
Men (%)	50.53	2.47	31.8	3.71	–	4.42	1.59	4.42	0.35	–	0.71
Women (%)	29.42	5.47	44.58	3.88	–	4.45	2.85	6.84	1.14	–	1.37
RRR	**Base**	2.54**	2.21***	*ns*		*ns*	*ns*	2.074**	*ns*		*ns*
Marginal effect (pp)	−17.09***	*ns*	13.04***	*ns*		*ns*	*ns*	*ns*	*ns*		*ns*
IADL, Moderate cognitive											
Men (%)	28.03	5.64	40.85	4.27	–	3.93	5.13	6.67	0.68	–	4.79
Women (%)	16.81	7.56	45.14	1.92	–	3.48	6.72	14.77	0.72	–	2.88
RRR	0.571***	*ns*	**Base**	0.29***		*ns*	*ns*	1.89**	*ns*		0.45**
Marginal effect (pp)	−9***	*ns*	6.29*	−3.27**		*ns*	*ns*	7.81***	*ns*		−2.51*
Moderate BADL											
Men (%)	24.47	5.81	40.14	2.64	–	3.17	2.29	16.37	0.53	–	4.58
Women (%)	9.46	5.82	41.05	2.74	–	2.85	5.47	22.35	1.6	–	8.67
RRR	0.41***	*ns*	**Base**	*ns*		*ns*	*ns*	*ns*	*ns*		*ns*
Marginal effect (pp)	−11.87***	*ns*	*ns*	*ns*		*ns*	2.63*	*ns*	*ns*		*ns*
Moderate BADL, Urine incontinence											
Men (%)	9.52	6.46	25	2.55	–	2.38	4.76	23.13	1.53	–	24.66
Women (%)	4.29	7.14	24.17	0.6	–	2.14	6.43	24.64	1.79	–	28.81
RRR	0.5**	*ns*	*ns*	0.16***		*ns*	*ns*	*ns*	*ns*		**Base**
Marginal effect (pp)	−4.04**	*ns*	*ns*	−2.51**		*ns*	*ns*	*ns*	*ns*		*ns*
Severe BADL											
Men (%)	13.99	3.15	20.98	2.27	–	3.15	4.9	22.9	0.7	–	27.97
Women (%)	4.14	4.48	19.2	1.84	–	1.49	5.4	24.48	1.15	–	37.82
RRR	0.32***	*ns*	*ns*	*ns*		0.41*	*ns*	*ns*	*ns*		**Base**
Marginal effect (pp)	−7.34***	*ns*	*ns*	*ns*		*ns*	*ns*	*ns*	*ns*		5.68*
Moderate BADL, Urine and Fecal incontinence											
Men (%)	6.14	4.61	14.85	2.9	–	1.71	5.97	17.06	1.54	–	45.22
Women (%)	2.52	2.88	15.63	0.84	–	1.08	4.93	19.59	0.84	–	51.68
RRR	0.42**	0.53*	*ns*	0.22**		*ns*	*ns*	*ns*	*ns*		**Base**
Marginal effect (pp)	−3.12**	*ns*	*ns*	−2.47**		*ns*	*ns*	*ns*	*ns*		*ns*
Severe BADL, Aggressiveness											
Men (%)	8.06	2.28	14.71	1.93	–	2.1	4.55	18.91	1.23	–	46.23
Women (%)	2.3	2.99	11.49	1.26	–	0.8	4.83	19.66	0.92	–	55.75
RRR	0.37***	*ns*	*ns*	*ns*		*ns*	*ns*	*ns*	*ns*		**Base**
Marginal effect (pp)	−3.65**	*ns*	*ns*	*ns*		*ns*	*ns*	*ns*	*ns*		6.53*
Severe BADL, Severe cognitive, Safety											
Men (%)	5.31	2.74	12.84	2.05	–	2.74	4.45	15.92	1.37	–	52.57
Women (%)	2.16	2.04	10.9	0.84	–	1.2	2.4	13.29	1.32	–	65.87
RRR	0.33***	*ns*	*ns*	0.23**		0.35*	0.37**	*ns*	*ns*		**Base**
Marginal effect (pp)	−3.05**	*ns*	*ns*	−1.79*		*ns*	*ns*	*ns*	*ns*		12.04***
Severe BADL, Severe cognitive, Aggressiveness											
Men (%)	5.05	1.92	6.79	1.57	–	1.05	2.61	6.62	1.22	–	73.17

(*continued on next page*)

Table 2 (*continued*)

Vignette	H + spouse	H + professional	H + spouse + professional	H, carer not specified	H, no carer	SH + spouse	SH + professional	SH + spouse + professional	SH, carer not specified	SH, no carer	NH
Women (%)	1.49	2.07	3.79	1.72	–	0.57	1.26	5.52	0.34	–	83.22
RRR	0.44*	*ns*	*ns*	*ns*		*ns*	0.36*	*ns*	*ns*		**Base**
Marginal effect (pp)	−1.86*	*ns*	*ns*	*ns*		*ns*	*ns*	*ns*	*ns*		7.76**

H: home; SH: sheltered housing; NH: nursing home; RRR: relative risk ratio; pp: percentage point; ns: not significant.

[a] Effect of respondent's gender from multinomial logistic regressions of preferred long-term care option, adjusted for respondent's age category and living arrangement (reference category: men).

[b] The person with disability is a woman living with a spouse able to provide help.

* $p < 0.05$.

** $p < 0.01$.

*** $p < 0.001$.

with an able-bodied spouse, respondents selected H with care provided by the spouse as the most appropriate care option (base outcome) for the two first vignettes, H with spouse and professionals for vignettes 3 and 4, and NH for all other vignettes. Although the based was similar, LTC preference change between men and women like in Fig. 1.

3.3. Male vignettes (Table 1)

Women chose H with care from the spouse only, regardless of the severity of disability, less often than men. For the first four vignettes, they selected H with care provided by both the spouse and professionals significantly more than men, with marginal effects ranging from 8.46 to 14.1 percentage points (pp). More specifically, for the first two vignettes, men selected the H with spouse option more often than H with care provided by both the spouse and professionals (vignette 1: 46.15% vs 27.4%; vignette 2: 55.8% vs 24.0%). The difference between these two options was non-existent or less pronounced among women (36.6% vs 36.3%; 43.8% vs 37.5%). For the next two vignettes (3 and 4), women chose the H with the spouse and professionals option largely over the H with spouse only (45.9% vs 18.0%; 49.1% vs 12.4%). When urine incontinence was added (vignettes 5) or when the disability increased (vignettes 6 to 10), the probability to choose NH was significantly higher among women than men. For the last six vignettes, the most frequent option chosen by both men and women was NH. However, for the rest of the vignettes, men were also significantly more likely than women to choose H with spouse only (all $p < 0.01$).

3.4. Female vignettes (Table 2)

For the first two vignettes, women and men most often chose the H with spouse option (base outcome). Nevertheless, women selected this option as the most appropriate less frequently than men across all vignettes. Furthermore, more often than men, women selected the H with spouse and professional option for low-grade disability vignettes displaying no basic ADL (BADL) impairment. Women chose the NH option for the female vignettes less often than men when there was instrumental ADL (IADL) and moderate cognitive disabilities (-2.51pp, $p < 0.05$), while the respondents' gender had no effect on the choice for the same male vignette. There were, however, no significant differences between men and women in the choice of the NH option in situations of moderate BADL disability, with or without urine incontinence, for female vignettes. For the last six vignettes, the NH was the base outcome irrespective of the respondent's gender, but women chose this more often than men.

3.5. Spouse− circumstance

Overall, when considering a person living alone or with a spouse who cannot help, older men and women most frequently chose H with professional care for the three first vignettes, SH with professionals for the fourth vignette, and NH for all other vignettes (Table 3). As care from a spouse cannot be expected (Fig. 2), men and women made similar first choices at all levels of disability

3.6. Male vignettes (Table 3)

For the first four vignettes, after adjustment, women chose H care less than men and they more often selected SH or NH care. When there was moderate cognitive disability, women more frequently chose the NH option (vignette 1: RRR = 2.14, $p < 0.01$; vignette 3: RRR = 2.41, $p < 0.001$). For the last six vignettes, women also selected NH more than men (all pp > 9.21, all $p < 0.001$) and they chose H or SH care less often.

Table 3
Distribution of preferred long-term care options by gender and Adjusted effect[a] of the respondent's gender for Spouse − vignettes[b] according to the gender portrayed in the vignette.

Vignette	Male vignettes[c]			Female vignettes[d]		
	H + professional	SH + professional	NH	H + professional	SH + professional	NH
Moderate cognitive						
Men (%)	57.32	38.43	4.25	53.56	39.32	7.12
Women (%)	45.65	46	8.35	55.75	39.43	4.83
RRR	**Base**	1.317*	2.14**	**Base**	*ns*	0.487**
Marginal effect (pp)	−8.3**	*ns*	3.64**	*ns*	*ns*	−3.8**
IADL						
Men (%)	64.45	29.4	6.15	61.36	32.38	6.26
Women (%)	58	36.75	5.25	52.74	40.78	6.48
RRR	**Base**	1.404**	*ns*	**Base**	1.348*	*ns*
Marginal effect (pp)	−5.76**	8**	*ns*	−6.26*	6.87*	*ns*
IADL, Moderate cognitive						
Men (%)	52.72	34.98	12.3	44.96	38.46	16.58
Women (%)	34.14	44.21	21.64	42.67	42.79	14.54
RRR	**Base**	1.925***	2.419***	**Base**	*ns*	*ns*
Marginal effect (pp)	−17.45***	9.64***	7.81***	*ns*	*ns*	*ns*
Moderate BADL						
Men (%)	42.98	35.54	21.49	43.26	36.35	20.39
Women (%)	30.14	46.74	23.12	28.85	43.67	27.49
RRR	0.541***	**Base**	*ns*	0.605***	**Base**	*ns*
Marginal effect (pp)	−11.96***	11.23***	*ns*	−11.84***	6.66*	5.18*
Moderate BADL, Urine incontinence						
Men (%)	32.27	27.82	39.9	27.72	27.04	45.24
Women (%)	17.91	25.14	56.95	21.01	28.36	50.63
RRR	0.448***	0.688**	**Base**	*ns*	*ns*	**Base**
Marginal effect (pp)	−12.10***	*ns*	14.17***	−5.15*	*ns*	*ns*
Severe BADL						
Men (%)	24.92	26.09	49	24.08	23.55	52.37
Women (%)	14.23	21.41	64.36	14.32	22.61	63.07
RRR	0.475***	0.692**	**Base**	0.577***	*ns*	**Base**
Marginal effect (pp)	−9.72***	*ns*	12.93***	−7.47**	*ns*	8.08**
Moderate BADL, Urine and Fecal incontinence						
Men (%)	22.5	17.59	59.9	18.1	19.83	62.07
Women (%)	10.93	14.77	74.3	15.19	15.3	69.51
RRR	0.433***	*ns*	**Base**	*ns*	*ns*	**Base**
Marginal effect (pp)	−10.32***	*ns*	11.9***	*ns*	*ns*	5.39*
Severe BADL, Aggressiveness						
Men (%)	17.77	17.77	64.45	17.94	15.63	66.43
Women (%)	10.85	13.81	75.34	11.72	14.45	73.83
RRR	0.553***	0.709*	**Base**	0.665*	*ns*	**Base**
Marginal effect (pp)	−6.31**	*ns*	9.57***	−4.69*	*ns*	5.51*
Severe BADL, Severe cognitive, Safety						
Men (%)	18.6	12.08	69.32	13.87	15.41	70.72
Women (%)	7.54	9.74	82.71	10.43	12.05	77.52
RRR	0.38***	0.699*	**Base**	*ns*	*ns*	**Base**
Marginal effect (pp)	−9.65***	*ns*	11.82***	*ns*	*ns*	5.73*
Severe BADL, Severe cognitive, Aggressiveness						
Men (%)	13.84	8.73	77.43	13.37	8.68	77.95
Women (%)	7.56	5.61	86.83	9.13	6.46	84.41
RRR	0.503***	0.554**	**Base**	*ns*	*ns*	**Base**
Marginal effect (pp)	−5.86**	−3.35*	9.21***	*ns*	*ns*	4.69*

H: home; SH: sheltered housing; NH: nursing home; RRR: relative risk ratio; pp: percentage point; ns: not significant.

[a] Effect of respondent's gender from multinomial logistic regressions of preferred long-term care option, adjusted for respondent's age category and living arrangement (reference category: men).

[b] The person with disability is living alone or with a spouse unable to provide help.

[c] The person with disability is a man.

[d] The person with disability is a woman.

* $p < 0.05$.

** $p < 0.01$.

*** $p < 0.001$.

3.7. Female vignettes (Table 3)

Adjusted results were only marginally different for female and male vignettes. For the first vignette, women were less likely than men to select the NH option; however, this was an infrequent choice for both male and female vignettes. For the last six vignettes, women chose the NH option significantly more often than men (all pp > 4.69, all $p < 0.05$).

4. Discussion

The main purpose of this study was to examine the influence of gender on citizens' opinions regarding the most appropriate LTC option for a large range of disability profiles. Differences between the responses of men vs. women were mainly based on the degree of impairment and, to a lesser extent, influenced by the gender portrayed in the vignette. Moreover, the presence of an able-bodied caregiver at

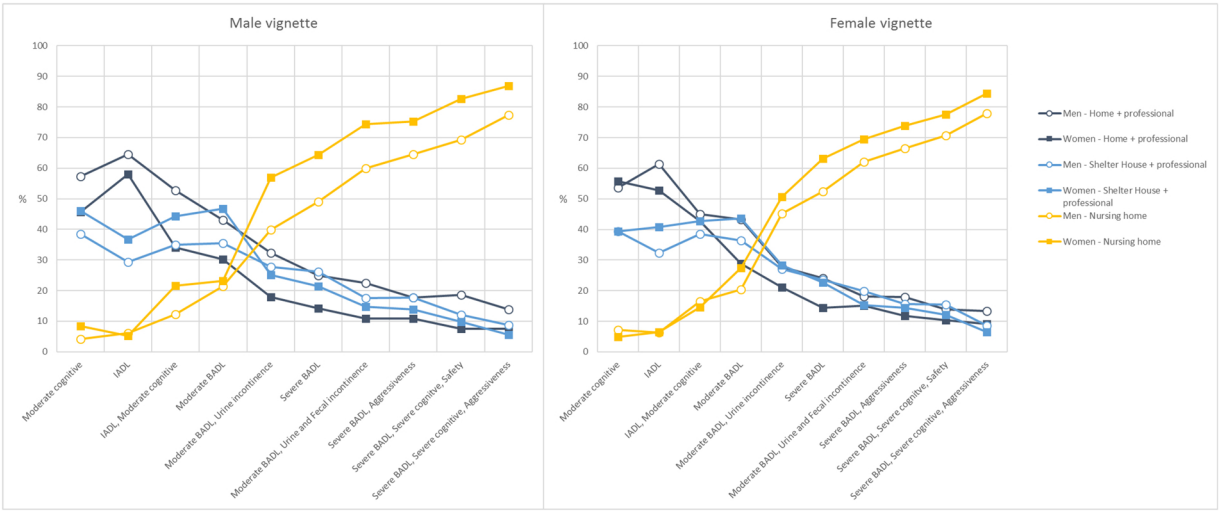

Fig. 2. Preferred care setting in Spouse− vignettes, according to the gender portrayed in the vignettes (male, female) and the gender of the respondents (men, women).

home had a significant impact on the type of preferred LTC arrangement that was independent of the respondent's gender. For vignettes presenting a potential caregiver at home, the preferred option for LTC when disability was limited to mild cognitive impairment and/or difficulties in IADL only was H with help from the spouse. When these difficulties were combined or moderately compromised the BADL, help from a professional was added. Finally, when disorders became more severe, e.g. with urinary incontinence, aggressive behavior, a NH was the preferred choice. When no spouse was able to provide help at home, a similar trend was observed for LTC choices with NH being the most appropriate option as soon as there was moderate BADL impairment. In line with our results, several studies showed that the inability to perform ADL (Luppa et al., 2009) and urinary incontinence were strong predictors of NH admission (Matsumoto & Inoue, 2007; Nuotio, Jylha, Luukkaala, & Tammela, 2003). The loss of ADL alone plays a prominent role in the choice of LTC (Newman, Struyk, Wright, & Rice, 1990) as confirmed by the Swiss Federal Statistical Office.

Our results also highlighted some gender-related preferences expressed by randomly selected community-dwelling older adults. When considering vignettes with potential help from a spouse, women were more likely to request the intervention of a professional for care at home or in a SH in cases of moderate disabilities. This effect was slightly more pronounced for male vignettes, and might reflect more reluctance to take care of a dependent spouse alone in women than in men despite that, from a sociocultural point of view, it is more commonly accepted among older adults for women to take care of their relatives (Gruneir et al., 2013; Kite, Deaux, & Haines, 2008). This stereotype could partly explain the gender difference in the management of IADL; previous work showed that women would be more likely to seek and accept assistance for themselves and had greater utilization of all health services (Barer, 1994; McMullen & Gross, 1983). In the specific case of cognitive impairment or difficulties in IADLs, women would choose the assistance of professionals in addition to the spouse, or could favor a SH, while men would prefer help provided at home by the spouse only. This observation could also indicate that women feel their husband would not provide enough help, as postulated by Butler, Gertman, Oberlander, and Schindler (1979). Moreover, it corroborates the current statistics in Switzerland that women staying at home are twice as likely as men to have access to home care and help services (OFS, 2011), independent of the type of living arrangement. The LTC choices of older women are also based on the presence of a spouse at home as well as the age and number of persons in the household (Freedman, 1996; Freedman, Berkman, Rapp, & Ostfeld, 1994; Luppa et al., 2009; Nihtilä & Martikainen, 2008). Longer life expectancy and earlier widowhood were associated with a higher use of home care services or institutionalization in older women (Martikainen et al., 2009; Robison et al., 2014).

The shift toward NH took place for the vignettes presenting urinary incontinence associated with difficulties in ADL, regardless of the gender portrayed in the vignette. However, the respondents' gender mattered. Men still selected H care by the spouse and professionals as the most appropriate option in male vignettes when urinary incontinence was a component; in contrast, women first selected NH care in this circumstance. Moreover, the absence of an able-bodied spouse increased women's preference for the NH, especially in male vignettes. Classically, urinary incontinence is considered a significant predictor of institutionalization, especially for men who have experienced this disorder (Luppa et al., 2009). Matsumoto and Inoue (2007) postulated that urinary disorders in men reflect a higher degree of disability and constitute a better indicator of institutionalization risk. When a vignette presented a person with urinary and fecal incontinence, NH placement was the main LTC choice for men and women and this was independent of the gender in the vignette and of the presence of a spouse caregiver. Nuotio et al. (2003) found the same result. Finally, aggressive behavior with severe difficulties in ADL increased the likelihood to turn to NH care for men and women and the vignette's gender or the presence of a spouse at home had no significant impact on LTC choices for the highest levels of disability. These results were consistent with those from the literature, which reported that difficulties in ADL and cognitive impairment had a strong effect on institutionalization (Barer, 1994; Gaugler et al., 2007; Luppa et al., 2010, 2009).

This study has several limitations. The degree of involvement by the spouse or other relative caregivers was not specified in the vignettes. Respondents evaluated situations through fictional characters only and their decision in personal situations might differ from their opinions as citizens. Culture and ethnicity may impact gender differences as well as the changing situation of women in society, challenging the stereotypic view of the family. Understanding the specific factors underlying the opinions on LTC options is critical to propose more adequate support to aging populations. This may also reduce the use of expensive acute care services because of inappropriate LTC services that failed to match the expectations of older citizens. Gender influence must be taken into account in future research or policies because men and women have specific preferences. The current approach in Switzerland (especially in the canton of Vaud) is to prioritize home care to allow older adults to live as long as possible in their own homes. Such policy aims at limiting NH admissions to periods of severe functional impairment (Höpflinger & Hugentobler, 2006), and this is in line with the preference of disabled

older adults (Lee, Woo, & Mackenzie, 2002). Surprisingly, despite the current trend of promoting home care, older citizens' showed preferences for NH admission at a quite early stage of disability in our vignette survey. This may reflect a reluctance of the older population to act as caregivers when BADL, incontinence, and cognitive impairment are present. Providing more support to spouses acting as caregivers might reduce the burden and limit NH admissions. The level of professional support to spouses should be re-evaluated when incontinence or aggressive behavior appear and when the severity of BADL or cognitive impairment increases.

Funding

This study was supported by the Swiss National Foundation for Scientific Research (grant 407440-167459/1 National research program 74 smarter health care). The Lc65+ cohort was funded by Lausanne University Hospital; Canton de Vaud Department of Public Health; Loterie romande [research grant 2006-2008 and 2018-2019]; Lausanne University faculty of biology and medicine [multidisciplinary research grant 2006]; Swiss National Foundation for Scientific Research [grant 3247B0-120795/1]; Fondation médecine sociale et préventive, Lausanne. The funders had no role in the study design, data collection and analysis, decision to publish, or preparation of the manuscript.

Informed consent and patient details

The Ethics committee for human research of the canton of Vaud approved the protocol of the Lc65+ study and informed consent was obtained from participants. The vignette survey was approved with the 2017 annual amendment of the Lc65+ protocol (decision November 16, 2016).

Conflict of interests

The authors have declared no conflicts of interest.

Acknowledgements

We thank all participants in the Lc65+ study.

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