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# At-a-glance

# Living arrangements and health status of seniors in the 2018 Canadian Community Health Survey

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## Abstract

Currently, 1 in 3 Canadian seniors meet the criteria for successful aging, which include low probability of disease and disability, high cognitive and physical ability and active engagement in life. The sociodemographic characteristic of living alone can identify high-risk seniors, due to its association with lower social support and interactions, thus increasing susceptibility to negative health outcomes in older age. However, limited data exists on the living arrangements of Canadian seniors. In this analysis, we present sociodemographic characteristics and measures of health and social well-being of seniors by living arrangement. This information should be used to identify and support vulnerable seniors and increase the prevalence of healthy aging among Canadians.

***Keywords:*** *living arrangements, seniors, healthy aging*

### *Highlights*

- An understanding of living arrangements may help those who develop intervention programs better target seniors at higher risk for negative health outcomes in older age.
- We found that seniors who were female, older, lower-income, divorced or separated, living in a population centre, renters and less educated were most likely to live alone.
- Seniors who were living alone were also more likely to report poor perceived health and social well-being.
- These results may be useful in targeting policies and programs aimed to improve health outcomes among seniors.

## Introduction

Due to increasing life expectancy[1] and decreasing fertility rates,[2] the proportion of seniors in Canada is growing faster than ever. In 2011, this trend began to accelerate as the first baby boomers turned 65 years old. Seniors now total over 6 million (1 in 6) persons in Canada,[3] and outnumber children aged 0 to 14 years for the first time.[4] Moreover, current trends suggest that this age group will continue to grow, with the proportion of seniors set to rise to 1 in 5 by 2024 and 1 in 4 by 2055.[3] Implementing policies and programs to promote health in older age will be of increasing importance, as only about 1 in 3 seniors currently meet the criteria for successful aging,[5] defined by Rowe and Kahn[6] as low probability of disease and disability, high cognitive and physical capacity and active engagement in life.

Recent international studies have shown that living arrangements of seniors are an important determinant of healthy aging, as they predict social support and interactions. Seniors living with a spouse or partner were more likely to have lower incidence rates of dementia,[7] better mental health, and fewer limitations due to multimorbidity on their involvement in all aspects of life (including social life, housework and leisure-time activities)[8]; those living with family demonstrated lower rates of chronic and acute diseases[9]; and those living with others reported better mental health, social support and engagement in more physical activities, compared to those living alone.[10] However, there are only a few studies that have assessed the living arrangements of Canadian seniors,[11-14] and none aimed to identify the subpopulations of seniors who are more likely to live alone, putting them at higher risk for negative health outcomes in older age. As well, half of those studies focussed on Asian-Canadian seniors alone.[13,14] Recent and complete data on this topic are necessary to identify and address gaps in the promotion of healthy aging among seniors.

The purpose of this brief analysis was to examine the living arrangements of Canadian seniors in the most recent (2018) Canadian Community Health Survey (CCHS) by sociodemographics and health and social well-being, stratified by sex.

## Methods

The CCHS is an annual, cross-sectional survey that collects representative data on the health status and determinants of the noninstitutionalized Canadian population in all provinces.[15] Those living in the territories were excluded from the annual component due to small samples and non-representativeness.[15] We employed data from the 2018 CCHS cycle on individuals aged 65 and over living in private dwellings who responded to the living arrangement question. Information on living arrangements, sociodemographics (age group, race, health region–level household income ratio [quintiles], marital group, region of residence, classification of region

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[population centre vs. rural area], dwelling ownership, participant education and household size) and self-reported well-being (perceived health, perceived mental health, life satisfaction and sense of community belonging) were used for this analysis. The household income ratio measures a participant's household income relative to other residents in their health region, adjusting for household and community size.[15] A population centre is defined as an area with a population of at least 1000 and a density of at least 400 persons per km$^2$; all other areas are considered rural.[15] Descriptive statistics were stratified by sex and weighted using bootstrap methods to produce data representative of the Canadian senior population living in the provinces. Please note that in 2016, the CCHS asked respondents whether they were male or female; we recognize that perceptions and behaviours are influenced by a person's gender and should be taken into consideration when interpreting our results. Data are shown as row percent with bootstrapped 95% confidence intervals (95% CI) and compared using the Rao-Scott $\chi^2$ test. All analyses were run on SAS Enterprise Guide version 5.1 (SAS Institute Inc., Cary, NC, USA).

## Results

In total, 8261 female and 6532 male seniors in the 2018 CCHS were included in the analyses. Data on the living arrangements of females and males were weighted and stratified by selected characteristics in Table 1 and Table 2, respectively. Females were almost twice as likely to live alone (35.7% vs. 19.1%) and 1.5-fold less likely to live with a partner (48.9% vs. 71.3%) compared to males. Among both sexes, the prevalence of living alone was highest for participants who were older, lower-income, divorced or separated, living in a population centre, renters, and less educated. The opposite set of characteristics were associated with living with a partner (younger, higher-income, married or common-law, living in a rural area, owners and more educated). Asians were most likely to live with children, relatives or nonrelatives and least likely to live alone (for both sexes). For seniors of both sexes, living arrangement did not differ by region. However, some sex differences were noted. Among females, White participants were more likely to live with a partner than Asians and those of "other" ethnicity (e.g. Black, Latin American and Arab), though no racial differences were found

**TABLE 1**
**Living arrangements of 8261 female seniors in the 2018 CCHS, weighted and stratified by selected characteristics**

| Characteristics | Living alone (n = 4313) | Living with partner[a] (n = 3214) | Other[b] (n = 734) | *p*-value |
|---|---|---|---|---|
| Weighted N (%) | 1 170 194 (35.7) | 1 604 305 (48.9) | 507 312 (15.5) | |
| **Age group** | | | | **< .001** |
| 65–74 | 28.4 (26.3–30.4) | 57.1 (54.8–59.5) | 14.5 (12.3–16.7) | |
| 75–84 | 42.6 (39.5–45.7) | 43.0 (39.7–46.3) | 14.5 (11.5–17.4) | |
| 85 or over | 58.4 (53.1–63.6) | 18.3 (13.7–22.9) | 23.3 (18.3–28.4) | |
| **Race** | | | | **< .001** |
| White | 36.8 (35.0–38.6) | 50.9 (49.1–52.7) | 12.3 (10.8–13.9) | |
| Indigenous | 34.1 (25.6–42.6) | 51.3 (41.0–61.7) | 14.6 (7.6–21.6) | |
| Asian[c] | 16.0 (10.6–21.4) | 38.7 (30.1–47.2) | 45.3 (35.9–54.8) | |
| Other[d] | 38.6 (28.2–49.0) | 34.3 (24.3–44.3) | 27.1 (16.3–37.8) | |
| **Health region–level household income ratio (quintiles)[e]** | | | | **< .001** |
| 1 | 54.2 (50.9–57.5) | 32.1 (29.0–35.2) | 13.7 (11.0–16.4) | |
| 2 | 35.7 (32.5–38.9) | 48.0 (44.6–51.4) | 16.3 (13.1–19.4) | |
| 3 | 29.1 (25.8–32.5) | 55.9 (51.9–60.0) | 14.9 (10.9–18.9) | |
| 4 | 22.6 (19.3–26.0) | 58.9 (53.7–64.1) | 18.5 (13.1–23.9) | |
| 5 | 20.6 (16.8–24.5) | 64.9 (59.8–70.1) | 14.4 (10.6–18.3) | |
| **Marital group** | | | | **N/A[f]** |
| Married or common-law | 1.6 (1.2–1.9) | 92.6 (91.2–94.0) | 5.8 (4.4–7.2) | |
| Widowed | 73.7 (70.3–77.2) | 0 | 26.3 (22.8–29.7) | |
| Divorced or separated | 76.9 (71.1–82.8) | 0 | 23.1 (17.2–28.9) | |
| Single | 66.9 (58.2–75.6) | 0 | 33.1 (24.4–41.8) | |
| **Region of residence[g]** | | | | **0.2** |
| Atlantic | 34.4 (31.0–37.9) | 53.3 (49.6–57.0) | 12.3 (9.5–15.1) | |
| Central | 35.8 (33.5–38.0) | 48.0 (45.5–50.5) | 16.2 (14.0–18.5) | |
| Prairies | 37.6 (33.9–41.3) | 49.5 (45.7–53.2) | 12.9 (9.0–16.8) | |
| West | 33.8 (30.3–37.3) | 50.0 (45.5–54.5) | 16.2 (12.5–19.9) | |
| **Classification of region[h]** | | | | **< .001** |
| Population centre | 37.7 (35.7–39.7) | 46.2 (44.0–48.4) | 16.1 (14.1–18.1) | |
| Rural area | 26.7 (24.5–28.8) | 60.6 (57.8–63.3) | 12.7 (10.4–15.0) | |
| **Dwelling ownership** | | | | **< .001** |
| Owned | 26.9 (25.3–28.6) | 56.7 (54.7–58.7) | 16.4 (14.5–18.2) | |
| Rented | 62.4 (58.4–66.4) | 25.0 (21.7–28.3) | 12.6 (9.1–16.2) | |
| **Personal education** | | | | **< .001** |
| Less than HS | 41.0 (37.5–44.4) | 38.6 (35.1–42.1) | 20.4 (16.9–23.9) | |
| HS grad | 35.3 (32.0–38.5) | 52.7 (49.0–56.4) | 12.0 (9.4–14.6) | |
| Postsecondary grad | 33.3 (30.9–35.7) | 52.5 (49.7–55.2) | 14.2 (11.5–16.9) | |

**Abbreviations:** CCHS, Canadian Community Health Survey; CI, confidence interval; HS, high school.
**Note:** Data are row % (95% CI), unless otherwise stated.
[a] Includes living with or without children.
[b] Includes living with children, relatives and nonrelatives.
[c] Includes South Asian, West Asian, Southeast Asian, Chinese, Korean, Japanese and Filipino.
[d] Includes Black, Latin American, Arab, other racial background and multiple ethnicities.
[e] Distribution of participants in each health region based on the adjusted ratio of total household income over the low-income cut-off corresponding to household and community size.
[f] No tests can be computed for the table since at least one cell has 0 frequency.
[g] Atlantic includes Prince Edward Island, New Brunswick, Nova Scotia and Newfoundland and Labrador; Central includes Quebec and Ontario; Prairies includes Alberta, Manitoba and Saskatchewan; and West includes British Columbia.
[h] A population centre is defined as an area with a population of at least 1000 and a density of at least 400 persons per km$^2$; all other areas are considered rural.

**TABLE 2**
**Living arrangements of 6532 male seniors in the 2018 CCHS, weighted and stratified by selected characteristics**

| | Living alone (n = 2105) | Living with partner[a] (n = 4065) | Other[b] (n = 362) | *p*-value |
|---|---|---|---|---|
| Weighted N (%) | 540 770 (19.1) | 2 022 160 (71.3) | 273 833 (9.7) | |
| **Age group** | | | | **< .001** |
| 65–74 | 17.5 (15.9–19.0) | 73.4 (71.2–75.6) | 9.1 (7.3–10.9) | |
| 75–84 | 20.0 (17.6–22.4) | 71.1 (68.1–74.1) | 8.9 (6.6–11.1) | |
| 85 or over | 28.3 (23.3–33.4) | 54.5 (48.0–61.0) | 17.1 (10.9–23.4) | |
| **Race** | | | | **< .001** |
| White | 20.6 (19.1–22.0) | 72.0 (70.3–73.8) | 7.4 (6.1–8.7) | |
| Indigenous | 20.0 (11.4–28.6) | 63.8 (52.8–74.8) | 16.2 (7.0–25.4) | |
| Asian[c] | 8.5 (3.8–13.2) | 67.8 (58.7–76.9) | 23.7 (15.2–32.2) | |
| Other[d] | 13.7 (7.4–20.1) | 69.6 (60.0–79.2) | 16.7 (8.6–24.8) | |
| **Health region–level household income ratio (quintiles)[e]** | | | | **< .001** |
| 1 | 30.7 (27.4–34.0) | 57.8 (54.0–61.7) | 11.5 (8.6–14.3) | |
| 2 | 18.0 (15.5–20.4) | 71.0 (67.5–74.6) | 11.0 (7.8–14.2) | |
| 3 | 15.8 (13.6–18.0) | 74.4 (70.8–77.9) | 9.9 (6.5–13.2) | |
| 4 | 12.5 (10.0–15.0) | 80.9 (77.6–84.3) | 6.6 (4.1–9.1) | |
| 5 | 14.6 (11.6–17.5) | 78.2 (74.2–82.1) | 7.3 (4.4–10.2) | |
| **Marital group** | | | | **N/A[f]** |
| Married or common-law | 1.3 (0.9–1.6) | 92.1 (90.7–93.5) | 6.6 (5.2–8.0) | |
| Widowed | 78.4 (73.7–83.2) | 0 | 21.6 (16.8–26.3) | |
| Divorced or separated | 83.0 (77.3–88.6) | 0 | 17.0 (11.4–22.7) | |
| Single | 78.0 (69.7–86.2) | 0 | 22.0 (13.8–30.3) | |
| **Region of residence[g]** | | | | **.07** |
| Atlantic | 18.5 (15.5–21.6) | 75.1 (71.8–78.5) | 6.3 (4.2–8.4) | |
| Central | 19.6 (17.9–21.3) | 71.2 (68.9–73.5) | 9.2 (7.3–11.1) | |
| Prairies | 16.1 (13.6–18.5) | 73.2 (69.5–76.9) | 10.7 (7.3–14.0) | |
| West | 20.0 (16.7–23.2) | 67.8 (63.3–72.3) | 12.2 (8.3–16.2) | |
| **Classification of region[h]** | | | | **.02** |
| Population centre | 19.6 (18.0–21.2) | 70.2 (68.1–72.2) | 10.2 (8.5–11.9) | |
| Rural area | 17.2 (15.3–19.0) | 75.1 (72.6–77.6) | 7.7 (5.7–9.8) | |
| **Dwelling ownership** | | | | **< .001** |
| Owned | 13.6 (12.4–14.7) | 76.3 (74.6–78.1) | 10.1 (8.5–11.7) | |
| Rented | 45.5 (40.8–50.1) | 47.9 (42.9–52.9) | 6.7 (4.0–9.3) | |
| **Personal education** | | | | **< .001** |
| Less than HS | 23.2 (20.5–25.9) | 64.9 (61.2–68.5) | 12.0 (8.8–15.1) | |
| HS grad | 22.8 (19.2–26.3) | 69.2 (65.2–73.1) | 8.1 (5.3–10.8) | |
| Postsecondary grad | 17.0 (15.3–18.6) | 74.1 (71.8–76.3) | 9.0 (7.1–10.8) | |

**Abbreviations:** CCHS, Canadian Community Health Survey; CI, confidence interval; HS, high school.
**Note:** Data are row % (95% CI), unless otherwise stated.
[a] Includes living with or without children.
[b] Includes living with children, relatives and nonrelatives.
[c] Includes South Asian, West Asian, Southeast Asian, Chinese, Korean, Japanese and Filipino.
[d] Includes Black, Latin American, Arab, other racial background and multiple ethnicities.
[e] Distribution of participants in each health region based on the adjusted ratio of total household income over the low-income cut-off corresponding to household and community size.
[f] No tests can be computed for the table since at least one cell has 0 frequency.
[g] Atlantic includes Prince Edward Island, New Brunswick, Nova Scotia and Newfoundland and Labrador; Central includes Quebec and Ontario; Prairies includes Alberta, Manitoba and Saskatchewan; and West includes British Columbia.
[h] A population centre is defined as an area with a population of at least 1000 and a density of at least 400 persons per $km^2$; all other areas are considered rural.

among males living with a partner. Female renters were much more likely to live alone than with a partner (62.4% vs. 25.0%), though no such tendency was displayed among male renters (45.5% vs. 47.9%). Finally, the prevalence of living with a partner increased with higher education for both sexes, though the largest increase was between females with less than a high school education and females who graduated from high school (females: 38.6% vs. 52.7; males: 64.9% vs. 74.1%).

Measures of perceived health and social well-being were also stratified by sex and living arrangement (Table 3). Across all four measures, seniors living with a partner were less likely to report poor health and social well-being. Compared to those living with a partner, females living alone or living with children, relatives or nonrelatives reported poorer general health and mental health; further, females living alone reported lower life satisfaction, while those living with children, relatives or nonrelatives had a weaker sense of community belonging. Among males, those living alone reported poorer mental health, life satisfaction and sense of community belonging compared to those living with a partner. Perceived general health did not differ between males in the three living arrangements. Further, males living with children, relatives or nonrelatives were no more likely than those living with partners to report poor health and social well-being across the four measures.

## Discussion

Using the 2018 Canadian Community Health Survey data, we found that nearly half of seniors were living with a partner (49.2% in total). Other studies have identified that living with others may be especially beneficial for healthy aging, and living alone may be detrimental.[7–10] Still, the prevalence of living alone may be rising among this age group. In an analysis of the 2011 census, other researchers found that 31.5% of females and 16.0% of males aged 65 or over lived alone[11]; those numbers increased to 33.0% and 17.4% in the 2016 census,[12] further rising to 35.7% and 19.1% in our 2018 analysis of the CCHS.

Seniors who were female, older, lower-income, divorced or separated, living in a population centre, renters, and less educated were most likely to live alone. Similar results have been demonstrated elsewhere. Female seniors have consistently

**TABLE 3**
**Measures of perceived health and social well-being among participants of the 2018 CCHS, weighted and stratified by sex and living arrangement**

| | Perceived general health | | Perceived mental health | | Life satisfaction | | Sense of community belonging | |
|---|---|---|---|---|---|---|---|---|
| | Less than very good | Very good or excellent | Less than very good | Very good or excellent | Less than satisfied | Satisfied or very satisfied | Somewhat or very weak | Somewhat or very strong |
| **Females** | $p < .001$ | | $p = .001$ | | $p < .001$ | | $p < .001$ | |
| **Living arrangement** | | | | | | | | |
| Living alone | 53.4 | 46.6 | 31.2 | 68.8 | 11.9 | 88.1 | 24.8 | 75.2 |
| | (51.1–55.7) | (44.3–48.9) | (28.9–33.6) | (66.4–71.1) | (10.3–13.6) | (86.4–89.7) | (22.7–26.9) | (73.1–77.3) |
| Living with partner[a] | 46.9 | 53.1 | 25.9 | 74.1 | 7.1 | 92.9 | 21.7 | 78.3 |
| | (44.3–49.6) | (50.4–55.7) | (23.6–28.1) | (71.9–76.4) | (5.7–8.4) | (91.6–94.3) | (19.4–24.1) | (75.9–80.6) |
| Other[b] | 61.7 | 38.3 | 35.2 | 64.8 | 11.7 | 88.3 | 35.7 | 64.3 |
| | (55.2–68.3) | (31.7–44.8) | (28.8–41.7) | (58.3–71.2) | (8.1–15.2) | (84.8–91.9) | (29.1–42.2) | (57.8–70.8) |
| **Males** | $p = .01$ | | $p = .007$ | | $p < .001$ | | $p = .003$ | |
| **Living arrangement** | | | | | | | | |
| Living alone | 56.5 | 43.5 | 31.7 | 68.3 | 13.0 | 87.0 | 29.7 | 70.3 |
| | (53.2–59.8) | (40.2–46.8) | (28.9–34.6) | (65.4–71.1) | (11.1–15.0) | (85.0–88.9) | (26.7–32.7) | (67.3–73.3) |
| Living with partner[a] | 51.6 | 48.4 | 25.0 | 75.0 | 6.2 | 93.8 | 22.0 | 78.0 |
| | (49.2–54.0) | (46.0–50.8) | (22.8–27.2) | (72.8–77.2) | (4.9–7.4) | (92.6–95.1) | (19.9–24.1) | (75.9–80.1) |
| Other[b] | 61.1 | 38.9 | 30.2 | 69.8 | 8.7 | 91.3 | 27.6 | 72.4 |
| | (53.1–69.1) | (30.9–46.9) | (22.3–38.1) | (61.9–77.7) | (4.9–12.5) | (87.5–95.1) | (19.1–36.1) | (63.9–80.9) |

**Abbreviations:** CCHS, Canadian Community Health Survey; CI, confidence interval.
**Note:** Data are row % (95% CI), unless otherwise stated.
[a] Includes living with or without children.
[b] Includes living with children, relatives and nonrelatives.

been found to have a greater likelihood of living alone, both in Canada[11,12] and in other countries,[16,17] in part because of their greater life expectancy compared to opposite-sex partners.[11] Seniors with low income[17,18] or low education[16] have been reported in other studies to be more likely to live alone, which may be a consequence of their inability to afford the high cost of assisted living facilities.[19] Moreover, seniors living in urban areas were more likely to live alone, which may be due to the disparity in supports and services available to seniors in rural areas[20]; in fact, the most-used services for seniors are senior centres, homemaker services and transportation services,[21] all of which are more likely to be available in urban areas. Finally, we replicated the result that living alone was associated with poorer perceived health and social well-being among seniors, though the temporality of this association and the others mentioned cannot be determined from this cross-sectional analysis. Still, identifying this vulnerable senior subpopulation will help us more effectively develop policies and programs to promote healthy aging. Of course, other factors, such as desire to live alone, loneliness (vs. solitude) and social capital, should all be taken into consideration to focus more specifically on those at highest risk.

### *Strengths and limitations*

This analysis is based on cross-sectional questionnaire data, making causal inferences problematic. Moreover, data on seniors residing in the territories or in institutions were not included, meaning that these data cannot be used to infer living arrangements of seniors in those areas or circumstances. Nevertheless, the sample size used is large and has been weighted in an attempt to be representative of the Canadian, provincial, noninstitutionalized population. Further, this analysis uses the most recent data available on seniors in Canada.

## Conclusion

Our analysis found that seniors who were female, older, lower-income, divorced or separated, living in a population centre, renters, less educated and who demonstrated poor perceived health and social well-being were most likely to live alone and potentially most vulnerable to negative health outcomes in aging. This information could help programs and policies identify and target older adults at higher risk of negative health outcomes due to their living arrangements, with the aim of increasing the prevalence of healthy aging among Canadian seniors. As an example, health policy makers could promote the development of community programs that increase the social participation and inclusion of older females who live alone, for the purpose of increasing their sense of community belonging.


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## Conflicts of interest

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## Authors' contributions and statement

All authors conceived and designed the methods. SAS conducted the analyses and

wrote the initial draft. All authors interpreted the results and critically reviewed the paper. All authors read and approved the final version of the manuscript.

The content and views expressed in this article are those of the authors and do not necessarily reflect those of the Government of Canada.

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