2018

A Tale of Eight Cities

GENERAL REPORT ON THE AGE-FRIENDLINESS OF EIGHT MAJOR CANADIAN CITIES

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Acknowledgements

First, we would like to thank CIHR for the funding received to carry out this project. We would also like to acknowledge the excellent data from the Canadian Longitudinal Study on Aging and the tens of thousands of people who gave of their time to participate in the CLSA. We also thank the CLSA staff and investigators for their support.

Finally, we acknowledge the World Health Organization and the many people who are working tirelessly towards Age-Friendly Cities in Canada and around the world.

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Introduction: About this Guide and the Current Canadian Population

Among the many issues facing contemporary Canadians and indeed, countries worldwide, two important questions emerge: how do we adapt to growing urban populations with respect to health and well-being, and how do we foster a healthy interaction between person and environment in an aging population? At the time that data collection ended for the baseline CLSA data, 81.7% of Canada's total population lived in urban areas, with an average annual rate of increase of 1.22% [1]. In addition, as of 2017, 23.3% of the overall Canadian population is aged 60 or over [2,3], with increasingly more women than men past the age of 60 [3]. The proportion of people over the age of 60 is expected to rise over coming years as well, as the population ages and life expectancy continues to rise. In Canada, the 2016 census marked the first time that people 65 years of age and older outnumbered children (14 years of age and younger). Population projections suggest that by 2063 roughly 24% to 28% of the Canadian population could be 65 years of age and older[4].

The issue facing Canadians as well as countries around the globe is how to increase the well-being of those living in urban areas, especially with respect to older individuals. In response to this, the World Health Organization collaborated with researchers and countries around the globe in order to determine how to promote the health and well-being of aging populations in increasingly urban areas. Some of the largest contributors to this project were Canadians. This research eventually culminated in the creation of the Global Age-Friendly Cities Guide in 2007[5].

Our project titled "A Tale of Eight Cities: Age-Friendliness and the CLSA" began in March 2017 with funding from a CIHR CLSA Catalyst Grant. This report is built heavily on the WHO Age-Friendly Cities Guide (AFCG). The AFC guide identifies several major areas on which cities should focus in order to become friendlier toward older populations (and indeed, everyone). These areas are: outdoor spaces and buildings, transportation, housing, social participation, respect and social inclusion, civic participation and employment, communication and information, and community support and health services. To achieve the project objectives, we used baseline data from the Canadian Longitudinal Study of Aging to select indicators within

this dataset that either literally measure or otherwise closely approximate aspects of each of the areas of focus identified in the WHO AFC guide.

This report is meant for descriptive purposes. Because the sample size for all of our variables is very high, we are concerned with what is practically significant. Instead, we use the CLSA data to, in essence, paint a composite picture of the state of affairs with respect to the age-friendliness of eight major Canadian cities at the time of measurement of the data. By doing so, we hope to identify areas of strengths, weaknesses, and where there are potential for improvements with respect to age-friendly parameters in order to help guide where efforts by Canadian organizations, municipalities, and governments could be pointed for best effect in increasing the age-friendliness of Canadian cities.

The report will be broken down into individual discussions of each area of focus – based on the areas of focus identified in the WHO AFC guide – and each of these discussions further broken down into an assessment of the chosen indicators for those areas (Part I). Then, we will discuss the overall well-being of older Canadian adults based on several indicators (Part II). Afterwards, general conclusions and recommendations will be drawn from the overall data in order to identify the general strengths and weaknesses of eight Canadian cities with respect to age-friendliness (Part III).

Introduction: About the CLSA

The Canadian Longitudinal Study on Aging (CLSA) is a Canada-wide study of over 50,000 male and female participants. The present report draws from the first cycle of CLSA data, which was collected between 2012 and 2015. Participants of the CLSA were between 45 and 85 years of age at the time of entry to the study. The CLSA recruited 51,338 people residing within the 10 Canadian provinces to participate in the baseline round of data collection and to be followed for at least 20 years or until death. Participants were recruited from four sources. First, participants were recruited from the sample of the Canadian Community Health Survey – Healthy Aging (CCHS-HA). The CCHS-HA was conducted between 2008 and 2009, which included a nationally representative sample of people aged 45 years or older. The three additional sources of participants were: Provincial Health Registries, telephone sampling – Random Digit Dialing, and Quebec Longitudinal Study on Nutrition and Aging. People living on First Nations reserves or in some remote or rural areas were excluded. Full-time members of the Canadian Armed Forces, individuals living in long-term care institutions, persons living with cognitive impairment, and those who were unable to respond in English or French were also excluded from participation[6].

The CLSA sample included two cohorts: a tracking and a comprehensive cohort. The tracking cohort (21,241 participants) was randomly selected across the 10 Canadian provinces and provided information through telephone interviews. The comprehensive cohort (30,097 participants across Canada) provided information through in-home interviews. The participants within the comprehensive cohort were also asked to visit one of the Data Collection Sites (DCSs) to provide further information collected through face-to-face interviews, specimen collection, and physical examinations. The comprehensive cohort was selected from the areas within 25 to 50 km of a DCS. There were 11 DCSs located across seven Canadian provinces[6].

The present report focuses on the CLSA data collected from eight Canadian cities: Halifax, Sherbrooke, Montreal, Ottawa, Hamilton, Winnipeg, Calgary, and Victoria. These cities were chosen to reflect a broad cross-section of cities across Canada. Efforts to undertake age-friendly initiatives vary in each city and this will be discussed further in future reports. The total sample from these eight cities includes 28,409 participants. The data on the residents from the

eight cities included in the present report represents a combination of 4,263 tracking cohort participants (15%) and 24,146 comprehensive cohort participants (85%). The majority of the sample has been drawn from the comprehensive cohort as there were DCSs located in each of the eight included cities. Our data is not meant to be completely generalizable to the overall Canadian population; rather, it is only meant to be descriptive of the eight cities that we examined and for which we will be providing individual reports based on the same variables presented in this general report. Thus, we also do not employ any statistical weighting in our descriptive analyses.

Sample sizes for each city are provided in Table 1. It should be noted that the sample sizes for the cities are not necessarily directly proportionate to their general populations in Canadian society, so there may be differences in the demographic composition of the sample examined in this report compared to the overall Canadian population of individuals aged 45-85. Approximately 51.3% of the included sample identified as female. Participants were assigned to four age categories: 45 to 54 years of age (25.3% of our sample), 55 to 64 (32.6%), 65 to 74 (24.3%), and 75 or older (17.8%). Further information on the demographic characteristics of the sample is provided in Tables 2, 3, and 4.

Table 1 – Sample size for each of the eight included cities

City	Frequency	Percent
Victoria	3,168	11.15%
Calgary	3,441	12.11%
Winnipeg	4,090	14.40%
Hamilton	3,104	10.93%
Ottawa	3,571	12.57%
Montreal	3,929	13.83%
Sherbrooke	3,359	11.82%
Halifax	3,747	13.19%
Total	28,409	100.00

Table 2 – Gender by age of participants

Gender	Age				Total
	45-54	55-64	65-74	75+	
Male	3,463 *(12.2%)*	4,449 *(15.7%)*	3,405 *(12%)*	2,515 *(8.9%)*	13,832 *(48.7%)*
Female	3,732 *(13.1%)*	4,813 *(16.9%)*	3,500 *(12.3%)*	2,532 *(8.9%)*	14,577 *(51.3%)*
Total	7,195 *(25.3%)*	9,262 *(32.6%)*	6,905 *(24.3%)*	5,047 *(17.8%)*	28,409 *(100%)*

Table 3 – Income by Age of Participants

Income	Age				Total
	45-54	55-64	65-74	75+	
Less than $20,000	261 *(0.9%)*	490 *(1.7%)*	437 *(1.5%)*	360 *(1.3%)*	1,548 *(5.4%)*
$20,000-49,999	763 *(2.7%)*	1,700 *(6%)*	2,038 *(7.2%)*	1,783 *(6.3%)*	6,284 *(22.1%)*
$50,000-99,999	2,046 *(7.2%)*	3,129 *(11%)*	2,571 *(9%)*	1,678 *(5.9%)*	9,424 *(33.2%)*
$100,000-149,999	1,879 *(6.6%)*	1,835 *(6.5%)*	876 *(3.1%)*	457 *(1.6%)*	5,047 *(17.8%)*
$150,000+	1,979 *(7%)*	1,609 *(5.7%)*	458 *(1.6%)*	201 *(0.7%)*	4,247 *(14.9%)*
No response	267 *(0.9%)*	499 *(1.8%)*	525 *(1.8%)*	568 *(2%)*	1,859 *(6.5%)*
Total	7,195 *(25.3%)*	9,262 *(32.6%)*	6,905 *(24.3%)*	5,047 *(17.8%)*	28,409 *(100%)*

Table 4 – Education by Age of Participants

Education	Age				Total
	45-54	55-64	65-74	75+	
Less than secondary school	181 *(0.6%)*	365 *(1.3%)*	538 *(1.9%)*	708 *(2.5%)*	1,792 *(6.3%)*
Secondary school graduate	576 *(2%)*	925 *(3.3%)*	723 *(2.5%)*	563 *(2%)*	2,787 *(9.8%)*
Some post-secondary	421 *(1.5%)*	738 *(2.6%)*	547 *(1.9%)*	458 *(1.6%)*	2,164 *(7.6%)*
Post-secondary degree/diploma	6,011 *(21.2%)*	7,219 *(25.4%)*	5,080 *(17.9%)*	3,288 *(11.6%)*	21,598 *(76%)*
No response	<20 *(<0.1%)*	<20 *(<0.1%)*	<20 *(<0.1%)*	30 *(0.1%)*	68 *(0.2%)*
Total	7,195 *(25.3%)*	9,262 *(32.6%)*	6,905 *(24.3%)*	5,047 *(17.8%)*	28,409 *(100%)*

Notes. Post-secondary degree/diploma includes trade certificate or diploma from a vocational school or apprenticeship training, non-university certificate or diploma from a community college, CEGEP, etc., University certificate below bachelor's level, Bachelor's degree, University degree or certificate above bachelor's degree, or other post-secondary education.

Data Collection

This study used secondary data collected in the CLSA. All CLSA participants were asked to provide information on demographics and several aspects of their lives relevant to health and aging. This information included: physical functioning, chronic conditions, injury and falls, psychological and cognitive functioning (e.g., memory), health service utilization, lifestyle (e.g., diet and activity), and social functioning.[7]

Informed consent was obtained from all participants of both cohorts. The authors of this report obtained the appropriate permissions to access the CLSA data. Approvals from the appropriate ethics review boards at the University of Ottawa, Health Canada, and the Public Health Agency of Canada have been obtained for the authors' use of the dataset. Participants from both the tracking and comprehensive cohorts residing in the eight cities listed above were included in our analyses.

Part I

Assessment of Indicators of Age-Friendliness

Dimension 1: Outdoor Spaces and Safety

Safe, clean and walkable outdoor spaces are an important resource for older adults. Being able to go on frequent walks of suitable distance (approximately a mile) throughout the week helps to keep older adults healthy in several important ways. Frequent walkers tend to have better cognitive capacity; taking frequent walks outside can help older adults with things like verbal memory, fluently categorizing information, and better attention [8]. In addition, going on frequent outdoor walks has been associated with a lower risk of functional decline over time, and with a slower progression of disability [9]. Having access to clean, safe, pleasant walking environments is also important for older adults who have to transition from being drivers to non-drivers, which is a common and difficult time that can have many negative outcomes [10]. Moreover, a recent review has demonstrated that engagement with nature and natural areas meets the criteria to be considered a basic human psychological need [11, 12]. International evidence along with WHO recommendations puts the accepted minimum standard of urban green space at 9m^2 per capita [12-16] with an ideal level of 50m^2 per capita [13].

The World Health Organization describes several aspects of outdoor walking and safety that can affect older adults, such as: the city is kept clean (including noise and scent pollution), access to safe and regulated green spaces, pedestrian-friendly walkways, clean outdoor seating at regular intervals, smooth and level pavements that are maintained, regulated and have pedestrian priority, as well as roadways that are safe from slipping and have regular structures meant to assist crossing over busy roads [9]. Pedestrian-friendly walkways for older adults are an important facet of age-friendly cities, as a report by the Public Health Agency of Canada shows that falls are a large contributor to injury, especially hip fractures, among older adults [8].

We examined several aspects of the physical environment from the CLSA data in order to analyse how well Canadian cities can match the needs of older adults in an age-friendly way. To begin with, we looked at how much park space and water space is available in each city. We used geographic information on the total amount of park space and water space, which we will call ‘green space’ and ‘blue space’ respectively, in each city in square kilometres, as well as population statistics for each city obtained from StatsCan’s 2016 census, in order to create a value of the amount of green and blue space per capita in square meters (i.e. square meters per

person). Because the data was non-normal, we use the median as the measure of central tendency, that is, as a measure of the 'middle ground' of the data. The median represents the point at which 50% of the data falls above and below the median value. As a measure of variability, or how much the measure of central tendency fluctuates, we use the first and third quartiles. The first quartile is the point at which 25% of the data falls below the respective value, and the third quartile is the point at which 75% of the data falls below the respective value. In addition, we report the full range of data.

With respect to green space, the data shows that the median square meters of green space per capita across all eight cities is 74.9m^2 per capita. The first quartile is 55.7m^2 and the third quartile is 105.2m^2, with a full range of 42m^2 to 268.9m^2 per capita. Thus, the major Canadian metropolitan areas examined in this report have excellent amounts of green space, with only two cities falling only slightly below the ideal target value of 50m^2 per capita. In fact, our sample median is 24.9m^2 above this and, the lowest quartile is 5.7m^2 above the international recommended ideal value.

With respect to blue space, the data shows that the median value is 111.9m^2 per capita. The first quartile is 34.6m^2 and the third quartile is 180.2m^2 per capita. The full range is 10.8m^2 to 1,260.3m^2 per capita. While there are not agreed upon standards for the measurement of blue space alone, as such space tends to get lumped into overall 'green' space in urban areas, we examined this separately, as data has shown that 'blue' space can have a different impact than green space [11,12]. We will use the same standard for blue space as we used for green space. With respect to this, most of the cities that were investigated have exceptional amounts of blue space per capita. Only three cities fall below the ideal 50m^2 per capita, while the other five cities are actually double the recommended ideal value. Of the three that fall below, one city had blue space per capita that was close to the recommended minimum (9m^2), while the other two (26.6 and 42.6m^2) were closer to the ideal value.

Next, we examined how older Canadians generally perceive their local environments, such as how clean people think their neighbourhood is, and how safe they believe it to be. The results are shown in Table 5.

Table 5 – Perceptions of Local Environment

Perceptions of Local Environment (Environment Is…)	Age				Gender		Total
	45-54	55-64	65-74	75+	Male	Female	
Kept Clean	6,480 *(95.7%)*	8,492 *(96.1%)*	6,336 *(96.3%)*	4,534 *(97.2%)*	12,584 *(96.4%)*	13,258 *(96.2%)*	25,842 *(96.3%)*
Vandalism and Graffiti Are Big Problems	500 *(7.4%)*	586 *(6.6%)*	397 *(6.0%)*	259 *(5.6%)*	804 *(6.2%)*	938 *(6.8%)*	1,742 *(6.5%)*
Not Safe to Walk in After Dark	613 *(9.1%)*	952 *(10.9%)*	780 *(12.1%)*	719 *(16.1%)*	1,058 *(8.2%)*	2,006 *(15.0%)*	3,064 *(11.6%)*

Notes. Percentages are cell proportions of people who agreed with the respective statement about their local environment and community relative to all respondents. Number of respondents was n=26,344 for 'kept clean' and 'safe to walk in after dark' and n = 26,816 for 'vandalism and graffiti are a big problem'.

The results show that the vast majority of respondents agreed that their local environment is kept clean (96.3% overall). The proportion of respondents who agreed that their local environment is slightly clean was stable across age groups and genders. We also found that only a small proportion of people agreed that vandalism and graffiti are a big problem in their local neighbourhood (6.5% overall), with rates of agreement with this statement staying relatively stable across age groups and genders (differences less than 2%). Furthermore, 11.6% of respondents felt that their neighbourhood is not safe to walk in after dark. However, perception that one's local neighborhood environment is not safe to walk in at night increased with age, with a rate of 16.1% for those aged 75 and above. Similarly, the rate of agreement with this statement for women was nearly double than that of men.

We also examined how frequently older Canadian adults take a walk outside as a measure of environmental engagement of respondents with their local environment. Respondents were categorized based on how many days per week they typically took a walk outside. The results of the walk frequency analysis are presented in Table 6. The results show that the average adult in these cities has a high weekly frequency of walking outside. That is, across ages and genders (with the exception of those 75 years old and above), slightly more than half of the relevant CLSA sample responded that they walk between 5 to 7 days each week. However, 30.9% of people responded to either 'never' or the '1 to 2 days' categories when those categories are collapsed together. Thus, while the majority of older Canadian adults are frequent walkers, and therefore are frequently engaging in and experiencing their local environment, there is also a

sizeable proportion who either do not engage in regular outdoor walks at all, or who take walks only once or twice per week.

Table 6 – Weekly Frequency of Taking a Walk Outside by Age and Gender

Frequency of Taking a Walk Outside	Age				Gender		Total
	45-54	55-64	65-74	75+	Male	Female	
Never	903 *(13.3%)*	1,276 *(14.4%)*	1,081 *(16.4%)*	971 *(20.7%)*	1,996 *(15.2%)*	2,235 *(16.1%)*	4,231 *(15.7%)*
1 to 2 days	1,138 *(16.7%)*	1,358 *(15.3%)*	924 *(14.0%)*	683 *(14.5%)*	1,997 *(15.2%)*	2,106 *(15.2%)*	4,103 *(15.2%)*
3 to 4 days	1,290 *(19.0%)*	1,591 *(17.9%)*	1,218 *(18.4%)*	808 *(17.2%)*	2,281 *(17.4%)*	2,626 *(18.9%)*	4,907 *(18.2%)*
5 to 7 days	3,469 *(51.0%)*	4,658 *(52.4%)*	3,385 *(51.2%)*	2,236 *(47.6%)*	6,850 *(52.2%)*	6,898 *(49.8%)*	13,748 *(50.9%)*

Notes. Percentages are column proportions. Total number of participants with data for this data was n = 26,989.

We also examined how many falls had occurred among participants as a result of standing or walking in the past year before the survey. The results of this analysis can be seen in Table 7.

Table 7 – Proportion of Sample Reporting Falls While Standing or Walking

Number of Falls	Age				Gender		Total
	45-54	55-64	65-74	75+	Male	Female	
Fall, Not Outside	191 *(57.9%)*	280 *(55.7%)*	197 *(56.6%)*	161 *(53.9%)*	343 *(57.6%)*	486 *(55.0%)*	829 *(56.1%)*
Fall Outside	139 *(42.1%)*	223 *(44.3%)*	152 *(43.4%)*	138 *(46.2%)*	253 *(42.5%)*	398 *(45.0%)*	651 *(44.0%)*

Notes. Percentages are column proportions. Respondents are only those who had fallen in the past 12 months in such a way that the fall caused injury enough to disrupt their normal daily living routine for multiple consecutive days. Number of respondents was n = 1,480.

This table shows data for the number of participants who had experienced a fall in the past 12 months at the time of measurement, which had resulted in injury that caused a disruption in their normal daily activities. The data shows that, in total, 1,480 participants (5.2% of the overall CLSA for all eight cities) reported falling in the past 12 months at the time of

measurement. Of these, 651 participants, or 44.0% of falls, had fallen as a result of standing or walking outside, excluding those who fell as a result of doing physical exercise outside, or who fell in their own yards as a result of doing yard maintenance. In total, 2.3% of the full sample of participants reported falls outside based on these parameters. The proportions of those who fell relative to age categories show that people aged 75 and above were slightly more likely to have experienced a fall outside while standing or walking. For those aged 65 and above, 5.4% of all participants in this age category from the full sample reported falling outside as a result of standing or walking. Moreover, women were slightly more likely to experience such a fall compared to men.

Summary

The Good News

- The amount of green and blue space in the eight Canadian cities examined was quite exceptional, and, for most cities, except one, exceeds the ideal levels described by the World Health Organization and used as standards in international scientific literature.
- Over 95% of participants in our eight-city sample agreed that their local neighbourhood environment is kept very clean.
- More than 85% agreed that their local environment is safe to walk in after dark.
- The most common (over 50%) frequency of walking outside per week is 5 to 7 days per week.
- Only 5.4% of seniors in the sample reported falling as a result of standing or walking outside, excluding falling while exercising or doing yard work.

The Bad News

- People aged 65 years or older (12.1% for 65-74 years old and 16.1% for 75 and older, compared to 9.1% for 45-54 years old) and women (15% compared to 8.2% for men) have markedly higher rates of not feeling safe walking in their local environment after dark. 11.6% of respondents overall agreed or strongly agreed with the statement that their local environment is not safe to walk in after dark.
- 30.9% of participants take a walk outside only 2 days or less per week.
- 44% of all reported falls resulting in injury that disrupted daily living activities occurred while standing or walking outside the home.

Dimension 2: Transportation

Transportation is an important aspect of life. Having personal transportation can be a significant boost to a person's quality of life and leads to higher social participation for older adults [18]. However, many older adults may have to experience the difficult transition from driver to non-driver [10], highlighting the importance of alternate forms of transportation not only being available, but viable, for a wide range of individuals. Even those who are still driving may fear losing their driver's license [19]. But, those older adults who are able to use other modes of transportation, specifically public transportation or walking, tend to have higher social participation compared to passengers and adapted transport/taxi users [20]. Furthermore, the WHO AFCG also explains that having access to affordable transportation will, in turn, also give access to community and health services, and that the issue of accessible, affordable transportation touches on many other areas of active aging as well. While there are many alternates to driving, such as walking, cycling, taking a taxi, and sharing rides in a motor vehicle, a major aspect of this dimension is the availability and viability of public transportation. Public transportation should be (according to the WHO AFCG): affordable, accessible, reliable and frequent, have an adequate range of travel destinations, use age-friendly vehicles that are accessible to those with mobility limitations and which clearly denote the vehicle number and destination, be safe and comfortable, have priority seating, have easily accessible information, and have accessible and sheltered transport stations and stops.

Using the CLSA data, we were able to examine a number of features regarding transportation use among the CLSA participants. In the first subsection of this dimension, 'Modes of Transportation', we examined the proportion of people who still had a valid driver's license (Table 8) as well as driving frequency for those that had a valid license (Table 9). Moreover, we examined the most common form of transportation used by participants in the last year at the time of measurement, both for drivers (Table 10) and for non-drivers (Table 11). Similarly, we also examined the proportions of participants who had used various forms of transportation in the past month at the time of measurement, again for both drivers (Table 12) and non-drivers (Table 13). Furthermore, we examined the number of people who reported that lack of transportation, of any kind, was a barrier to participate in more social, recreational activities for drivers and non-drivers (Table 14). Because of the heavy emphasis in the WHO

AFC guide on public transportation, we looked more specifically at this mode of transportation in relation to the types of barriers older adults may face when trying to utilize this form of transportation in another subsection, 'Public Transportation', in which we examined the proportion of people who reported various types of barriers to public transportation use (Table 15 and 16) and accessible transportation use (Table 17 and 18).

Modes of Transportation

Table 8 – Driving Status

Driving Status	Age				Gender		Total
	45-54	55-64	65-74	75+	Male	Female	
Currently Has a License	6,530 *(96%)*	8,455 *(95.2%)*	6,259 *(94.6%)*	4,068 *(86.5%)*	12,618 *(96.1%)*	12,694 *(91.5%)*	25,312 *(93.8%)*
Does Not Currently Have a License	271 *(4%)*	427 *(4.8%)*	355 *(5.4%)*	635 *(13.5%)*	510 *(3.9%)*	1,178 *(8.5%)*	1,688 *(6.3%)*

Notes. Percentages are column proportions. Total number of respondents was *n* = 27,000.

Table 9 – Driving Frequency

Driving Frequency	Age				Gender		Total
	45-54	55-64	65-74	75+	Male	Female	
Daily	4,626 *(73.5%)*	5,194 *(65.2%)*	3,328 *(60.1%)*	2,042 *(56.2%)*	8,364 *(71.2%)*	6,826 *(58.4%)*	15,190 *(64.8%)*
4 to 6 Times a Week	903 *(14.3%)*	1,516 *(19%)*	1,217 *(22%)*	869 *(24%)*	1,935 *(16.5%)*	2,570 *(22%)*	4,505 *(19.2%)*
2 to 3 Times a Week	494 *(7.8%)*	797 *(10%)*	611 *(11%)*	445 *(12.3%)*	974 *(8.3%)*	1,373 *(11.8%)*	2,347 *(10%)*
Once a Week	103 *(1.6%)*	160 *(2%)*	107 *(2%)*	75 *(2.1%)*	156 *(1.3%)*	289 *(2.5%)*	445 *(1.9%)*
Less than Once a Week, More than Once a Month	51 *(0.8%)*	65 *(0.8%)*	79 *(1.4%)*	40 *(1.1%)*	82 *(0.7%)*	153 *(1.3%)*	235 *(1%)*
Less than Once a Month	60 *(1%)*	87 *(1.1%)*	73 *(1.3%)*	45 *(1.2%)*	98 *(0.8%)*	167 *(1.4%)*	265 *(1.1%)*
Not at all	61 *(1%)*	143 *(1.8%)*	126 *(2.3%)*	115 *(3.2%)*	143 *(1.2%)*	302 *(2.6%)*	445 *(1.9%)*

Notes. Respondents are only those who previously identified that they currently have a valid driver's license, either with or without restrictions. Percentages are column proportions. Total number of respondents was *n* = 23,432.

Table 8 shows the driving status of the relevant CLSA sample as indicated by whether participants had a valid driver's license at the time of measurement (restricted or unrestricted) or did not have a valid driver's license. The results of this analysis showed that the large overall majority of participants (93.8%) held a valid driver's license at the time of measurement, while only 6.3% did not. The number of people holding a valid driver's license fell by almost 10% for those aged 75+ (86.5%) compared to all other age groups (95.2%-96% range). Commensurately, the number of people without a valid license goes up after around the age of 74, as the number of people without a valid license was 5.4% for those aged 65-74, but 13.5% for those aged 75 and above. Moreover, men (96.1%) were more likely than women (91.5%) to hold a valid license.

Table 9 shows the results of the analysis on driving frequency for those who held a valid driver's license at the time of measurement. The results show that the majority (64.8%) of the overall sample reported driving on a daily basis. 29.2% of the sample reported driving between 2 to 6 times a week, 4% drive once a week or less, and nearly 2% do not drive at all despite having a valid license to do so. Men were more likely to drive on a daily basis than women, with a difference in daily driving rate of 12.8%. Women, on the other hand, were more like to drive between 2 to 6 times a week compared to men. In addition, those aged 45-54 were more likely to drive on a daily basis (73.5%) compared to all other age groups, while those aged 75+ were more likely to drive 4 to 6 times a week compared to other age groups, and more likely to drive 2 to 3 times a week compared to those aged 45-54.

Table 10 shows the results of an analysis of the most commonly used form of transportation for participants with a valid driver's license over the past year at the time of measurement. The results show that, not surprisingly, the large majority report 'drive a motor vehicle' as their most common form of transportation (87.2%). The proportion of those reporting this as the most common form of transportation steadily increases with age, from 85.9% for those aged 45-54 to 89.5% for those aged 75 above; moreover, about 4% more men than women report driving a motor vehicle as their most common form of transportation. The next most common form of transportation was being a 'passenger in a motor vehicle' at 4%

overall. Being a passenger in a motor vehicle as the most common form of transportation also steadily increases with age from 2.2% for those aged 45-54 to 5.5% for those aged 65 and above.

Table 10 – Most Common Transportation Type over the Past Year for Drivers

Transportation Use	Age				Gender		Total
	45-54	55-64	65-74	75+	Male	Female	
Drive a Motor Vehicle	5,350 *(85.9%)*	6,772 *(86.8%)*	4,754 *(87.9%)*	3,146 *(89.5%)*	10,333 *(89%)*	9,689 *(85.3%)*	20,022 *(87.2%)*
Passenger in a Motor Vehicle	135 *(2.2%)*	291 *(3.7%)*	299 *(5.5%)*	194 *(5.5%)*	153 *(1.3%)*	766 *(6.8%)*	919 *(4%)*
Walking	222 *(3.6%)*	307 *(3.9%)*	177 *(3.3%)*	99 *(2.8%)*	418 *(3.6%)*	387 *(3.4%)*	805 *(3.5%)*
Public Transit	333 *(5.4%)*	283 *(3.6%)*	113 *(2.1%)*	61 *(1.7%)*	401 *(3.5%)*	389 *(3.4%)*	790 *(3.4%)*
Cycling	180 *(2.9%)*	129 *(1.7%)*	50 *(0.9%)*	<20 *(0.2%)*	274 *(2.4%)*	92 *(0.8%)*	366 *(1.6%)*
Accessible Transit	<20 *(<0.1%)*	<20 *(0.1%)*	<20 *(0.1%)*	<20 *(0.1%)*	<20 *(<0.1%)*	<20 *(0.1%)*	<20 *(0.1%)*
Taxi	<20 *(<.01%)*	<20 *(<0.1%)*	<20 *(0.1%)*	<20 *(<0.1%)*	<20 *(<0.1%)*	<20 *(<0.1%)*	<20 *(<0.1%)*

Notes. Percentages are column proportions. Respondents are those that indicated that they currently have a valid driver's license, either with or without restrictions. Total number of respondents was $n = 22{,}959$.

Moreover, more women (6.8%) than men (1.3%) report this as their most common form of transportation. The next most common forms of transportation are walking (3.5% overall) and public transportation (3.4% overall). Walking declines somewhat with age, and its prevalence for men and women is similar. Use of public transportation declined with age: from 5.4% for those aged 45-54 to 1.7% for those aged 75 and above, though the rates were relatively equal between men and women. Cycling as the most common form of transportation was reported by 1.6% of the overall sample of those with a valid driver's license, with usage declining substantially with age, and more men than women reporting this as their most common form of transportation. Accessible transportation was the least reported form of transportation (0.1%).

Table 11 shows the results of the analysis on the most commonly used form of transportation for the past year for those without a valid driver's license. For this sub-sample, the most commonly reported form of transportation was public transit, with 40.4% of the overall subsample reporting this as their most common form. Rates of usage declined with age: from 49.2% for those aged 45-54 to 29.8% for those aged 75 and above. Rates of usage were relatively

equal across genders. The second most commonly reported form of transportation for non-drivers was being a passenger in a motor vehicle, with 32.4% of the overall subsample reporting this as their most common form. Rates of usage of this form of transportation rise substantially across age groups, from 16.8% of those aged 45-54 to 48.2% for those aged 75 and above, with a steady increase across age groups in between. Moreover, more women (34.4%) than men (28.1%) reported this as their most common form of transportation in the past year at the time of measurement.

Table 11 – Most Common Transportation Type over the Past Year for Non-Drivers

Transportation Use	Age				Gender		Total
	45-54	55-64	65-74	75+	Male	Female	
Public Transit	155 *(49.2%)*	252 *(46.9%)*	181 *(41.9%)*	194 *(29.8%)*	237 *(39.4%)*	545 *(40.9%)*	782 *(40.4%)*
Passenger in a Motor Vehicle	53 *(16.8%)*	122 *(22.7%)*	139 *(32.2%)*	314 *(48.2%)*	169 *(28.1%)*	459 *(34.4%)*	628 *(32.4%)*
Walking	71 *(22.5%)*	95 *(17.7%)*	60 *(13.9%)*	53 *(8.1%)*	107 *(17.8%)*	172 *(12.9%)*	279 *(14.4%)*
Accessible Transit	<20 *(2.2%)*	32 *(6%)*	29 *(6.7%)*	50 *(7.7%)*	28 *(4.7%)*	90 *(6.8%)*	118 *(6.1%)*
Taxi	<20 *(1.3%)*	<20 *(2.1%)*	<20 *(2.1%)*	27 *(4.1%)*	<20 *(3%)*	33 *(2.5%)*	51 *(2.6%)*
Cycling	<20 *(5.7%)*	<20 *(3%)*	<20 *(1.4%)*	<20 *(0.3%)*	30 *(5%)*	<20 *(0.9%)*	42 *(2.2%)*

Notes. Percentages are column proportions. Respondents are those that indicated they did not currently have a valid driver's license. Total number of respondents was $n = 1{,}936$.

The third most common form of transportation used by non-drivers was walking (14.4% overall), with rates of walking declining over the age groups from 22.5% of those aged 45-54 to 8.1% for those aged 75 and above, with approximately a 5% decrease in the rate of usage in each increasing age group. Moreover, 5% more men than women reported this as their most common form of transportation in this subsample. Accessible transit use was higher among those without a valid driver's license (6.1% overall), with rates of usage increasing over age groups from 2.2% of those aged 45-54 to 7.7% of those aged 75 and above. Slightly more women (6.8%) than men (4.7%) reported using accessible transportation as their most common form of transportation as well. Cycling was reported by the fewest people (2.2% overall) with rates of use declining with age from 5.7% for those aged 45-54 to 0.3% for those aged 75 and above, with a steady decline

of approximately 2% for each increasing age group. Moreover, more men (5%) than women (0.9%) reported cycling as their most common form of transportation over the past year.

Table 12 shows the results of the analysis for the types of transportation utilized over the past month by those with a valid driver's license. Participants could respond to multiple types of transportation when applicable to them, so the categories are not mutually exclusive. Furthermore, because driving status and frequency had already been assessed, driving a motor vehicle was not a category in this line of questioning.

Table 12 – Transportation Types Utilized in Past Month for Drivers

Transportation Use	Age				Gender		Total
	45-54	55-64	65-74	75+	Male	Female	
Passenger in a Motor Vehicle	4,942 *(75.7%)*	6,226 *(73.6%)*	4,459 *(71.2%)*	2,741 *(67.4%)*	8,452 *(67%)*	9,916 *(78.1%)*	18,368 *(72.6%)*
Walking	4,583 *(70.2%)*	5,905 *(69.8%)*	4,175 *(66.7%)*	2,420 *(59.5%)*	8,557 *(67.8%)*	8,526 *(67.2%)*	17,083 *(67.5%)*
Public Transit	2,034 *(31.2%)*	2,304 *(27.3%)*	1,540 *(24.6%)*	823 *(20.2%)*	3,403 *(27%)*	3,298 *(26%)*	6,701 *(26.5%)*
Cycling	1,686 *(25.8%)*	1,658 *(19.6%)*	827 *(13.2%)*	239 *(5.9%)*	2,771 *(22%)*	1,639 *(12.9%)*	4,410 *(17.42%)*
Taxi	1,185 *(18.2%)*	1,213 *(14.4%)*	672 *(10.8%)*	444 *(10.9%)*	1,842 *(14.6%)*	1,672 *(13.2%)*	3,514 *(13.9%)*
Accessible Transit	23 *(0.4%)*	58 *(0.7%)*	57 *(0.9%)*	77 *(1.9%)*	83 *(0.7%)*	132 *(1%)*	215 *(0.9%)*

Notes. Percentages are cell proportions of respondents that responded "yes" to utilizing the corresponding type of transportation in the past month compared to the total number of respondents. Respondents are those that indicated they currently have a valid driver's license. Total number of respondents was $n = 25{,}312$.

The results show that, overall, 72.6% reported being a passenger in a motor vehicle, 67.5% reported walking, 26.5% reported public transportation, 17.42% reported cycling, while only 0.9% reported using accessible transportation. Rates of usage for all forms of transportation declined across age groups by approximately 11% (from those aged 45-54 to those aged 75+) on average, with the exception of accessible transit, which showed an increase in the rate of usage across age groups. With respect to gender, 9% more men than women reported cycling in the past month, while 11.1% more women than men reported being a passenger in a motor vehicle in the past month. The rates of walking, public transit and accessible transit were relatively equal across genders for those with a valid driver's license.

Table 13 shows the results of the analysis of the types of transportation used in the past month by participants without a valid driver's license. The results show that, overall, 78.6% of respondents reported being a passenger in a motor vehicle, 64.4% reported that they walked, 63.7% reported the use of public transportation, 14.5% reported using accessible transit, and 6.5% reported cycling. The order of most to least used transportation types is similar to the data for those with a driver's license, though the proportions are different, especially for public transportation, accessible transit and cycling. For public transportation, the rate of use in the past month at the time of measurement was 37.2% higher for non-drivers than for drivers; for cycling, rate of usage in the past month was 10.9% higher for drivers; for accessible transit, rate of usage in the past month was 13.6% higher for non-drivers.

Table 13 – Transportation Types Utilized in Past Month for Non-Drivers

Transportation Use	Age				Gender		Total
	45-54	55-64	65-74	75+	Male	Female	
Passenger in a Motor Vehicle	222 *(81.9%)*	312 *(73.1%)*	273 *(76.9%)*	520 *(81.9%)*	378 *(74.1%)*	949 *(80.6%)*	1,327 *(78.6%)*
Walking	206 *(76%)*	292 *(68.4%)*	227 *(63.9%)*	362 *(57%)*	338 *(66.3%)*	749 *(63.6%)*	1,087 *(64.4%)*
Public Transit	224 *(17.3%)*	120 *(28.1%)*	127 *(35.8%)*	319 *(50.2%)*	354 *(69.4%)*	721 *(61.2%)*	1,075 *(63.7%)*
Accessible Transit	<20 *(7%)*	59 *(13.8%)*	57 *(16.1%)*	110 *(17.3%)*	82 *(16.1%)*	163 *(13.8%)*	245 *(14.5%)*
Cycling	50 *(18.5%)*	33 *(7.7%)*	20 *(5.6%)*	<20 *(0.9%)*	69 *(13.5%)*	40 *(3.4%)*	109 *(6.5%)*

Notes. Percentages are cell proportions of respondents that responded "yes" to utilizing the corresponding type of transportation in the past month compared to the total number of respondents. Respondents are those that indicated they currently do not have a valid driver's license. Total number of respondents was $n = 1,688$.

The proportion of those who reported being a passenger in a motor vehicle shows a non-linear trend, as the proportion declines from 81.9% for those aged 45-54 to 73.1% for those aged 55-64, but then increases back to 81.9% for those aged 75 and above. Moreover, the difference in proportions between men and women who used this form of transportation was 6.5%. Rates of walking declined nearly 20% between those aged 45-54 and those aged 75 and above, though the proportion of men and women who reported using this as a form of transportation in the past month was relatively similar (difference in proportions of 2.7%). Conversely, rates of use for public transportation nearly tripled across age groups, with a difference in proportions of 36.9% between those aged 45-54 and those aged 75 and above. Moreover, there was a difference of

8.2% in the rate of use between men (69.4%) and women (61.2%) for this form of transportation. Rates of use for accessible transit went up by 10% from those aged 45-54 to those aged 75 and above, with a similar proportion of men and women reporting using this form of transportation in the past month. Finally, rates of cycling decreased with age with a difference of 17.4% between those aged 45-54 (18.5%) to those aged 75 and above (0.9%), and a difference of 10% between men (13.5%) and women (3.4%).

Table 14 – Transportation as a Barrier to Participation in More Social Activities

Transportation as Barrier	Age				Gender		Total
	45-54	55-64	65-74	75+	Male	Female	
Drivers	48 *(1.4%)*	79 *(1.9%)*	49 *(2.1%)*	57 *(4.2%)*	58 *(1.1%)*	175 *(2.9%)*	233 *(2%)*
Non-Drivers	27 *(16.2%)*	43 *(17.8%)*	32 *(20.4%)*	56 *(21.8%)*	38 *(14.8%)*	120 *(21.2%)*	158 *(19.2%)*

Notes. Respondents are people who previously identified that they desired to participate in more social and physical activities over the past year. Percentages are cell proportions and represent the number/percentage of people who responded "yes" that transportation was a barrier to participating in more social activities over the past year at the time of measurement for the corresponding age/gender category. Total number of respondents for 'Drivers' was $n = 11,480$, and for 'Non-Drivers' was $n=823$.

Table 14 shows the results from participants who reported that transportation was a barrier to participating in more social/recreational activities over the past year at the time of measurement. These results are based on participants who previously responded that in the past 12 months (at the time of measurement), they desired to participate in more social and physical recreational activities, of which there were slightly over 13,000 people (45.8% of our sample). The results are broken down between those with and without a valid driver's license. The results show a marked difference between drivers and non-drivers, as only 2% of drivers reported that transportation was a barrier to greater social/recreational activity participation, while 19.2% of non-drivers reported such. For both subsamples, the proportion of those reporting transportation as a barrier increases with age and is higher for women than for men, with more pronounced differences between such for non-drivers than for drivers.

Public Transportation

Affordable, accessible public transportation represents an area where municipalities can exert an important influence on the well-being of older adults through the provision of a means to travel to a wide range of services and activities that are all a part of being an age-friendly city.

After examining rates of usage of public transportation for various subpopulations of the relevant CLSA sample, we then examined the number of bus stops in each city as well as the bus stop density per square kilometre in each city. As a measure of central tendency, we report the median due to the non-normality of the data making the mean and standard deviation no longer appropriate. As a measure of variability around the central tendency, we report the first and third quartiles, as well as the full range of the data. With respect to bus stop count, the data concerns non-unique bus stops. That is, if two routes both stop at the same physical bus stop, the stop is counted twice. This gives a measure of the variety of options that a person has for using public transportation in a given city above what the number of unique physical stops would otherwise indicate. The results show that the median for bus stop count across the eight cities is 4,760. The number of non-unique bus stops ranged from 1,487 to 48,841. The first quartile was 2,405, while the third quartile was 5,859. With respect to bus stop density, which was measured as the number of bus stops per square kilometre, the median was 1.25. The first quartile was .96, and the third quartile was 2.29. This number/km ranged from 0.33 to 9.42. Thus, for both bus stop count and bus stop density, the first and third quartiles were somewhat close to the median, but the full range of data shows that there are significant outliers outside of the first and third quartiles. The lowest values and the first quartiles show that, in some cities, significant work needs to be done in order to address a relative paucity in bus stops and bus stop density. With respect to the bus stop density, a median of just over 1 bus stop per square kilometre somewhat concerning, indicating that, in some cities, people may have to walk fairly significant distances to arrive at the nearest bus stop. Moreover, the low values for bus stop counts in some cities indicate a relative lack of available options for using public transportation to travel to many different parts of the same city.

Next, we examined the various barriers to the use of public transportation for those individuals who did not report using public transportation at all in the past month at the time of measurement. The results of this analysis are presented in Table 15. For the sake of parsimony, we examine this issue for all participants, regardless of driving status.

Table 15 – Factors Preventing Use of Public Transportation

Factors That Prevented Use of Public Transportation	Age				Gender		Total
	45-54	55-64	65-74	75+	Male	Female	
Not Needed	2,326 *(51.2%)*	3,433 *(54.7%)*	2,850 *(58.8%)*	2,118 *(59.4%)*	5,262 *(56.1%)*	5,465 *(55.5%)*	10,727 *(55.8%)*
Inconvenient Schedules/Route	1,075 *(23.7%)*	1,451 *(23.1%)*	1,017 *(21%)*	632 *(17.8%)*	2,227 *(23.8%)*	1,948 *(19.86%)*	4,175 *(21.7%)*
Prefer Not to Use	919 *(20.2%)*	1,237 *(19.7%)*	894 *(18.5%)*	696 *(19.5%)*	1.810 *(19.3%)*	1,936 *(19.6%)*	3,746 *(19.5%)*
Service Unavailable	782 *(17.2%)*	1,056 *(16.8%)*	750 *(15.5%)*	423 *(11.9%)*	1,412 *(15.1%)*	1,599 *(16.2%)*	3,011 *(15.7%)*
Health/Mobility Limitations	43 *(1%)*	111 *(1.8%)*	110 *(2.3%)*	196 *(5.5%)*	126 *(1.3%)*	334 *(3.4%)*	460 *(2.4%)*
Too Costly	34 *(0.8%)*	44 *(0.7%)*	29 *(0.6%)*	20 *(0.6%)*	62 *(0.7%)*	65 *(0.7%)*	127 *(0.7%)*

Notes. Percentages are cell proportions. Participants could respond to multiple barriers to public transportation use. Total number of respondents n = 19,234.

The results show that the most common reason for not using public transportation in the past month at the time of measurement was that it was not seen as being necessary (55.8% overall). The proportion of people reporting this as a barrier increased with age from 51.2% for those aged 45-54 to 59.4% for those aged 75 and above, though the proportions were relatively even across genders (difference less than 2%). The second most commonly reported problem (21.7%) was inconvenient schedules and/or routes. The proportion of people reporting this as a problem showed a difference of 5% between the lowest and highest age groups, with 23.7% of those aged 45-54 reporting this as a barrier, while 17.8% of those aged 75 and above reported such. Moreover, more men (23.8%) than women (19.8%) reported this as a barrier. The third most common barrier was that participants preferred not to use public transportation, though, unfortunately, more specification of the reasons for such was not available in the CLSA baseline dataset. The proportions of participants reporting this as a barrier to the use of public transportation were relatively equal across age groups and genders.

Lack of public transportation service in one's neighbourhood was the fourth most commonly reported barrier (15.7% overall). The proportion of participants reporting this as a problem decreased with age, with 17.2% of those aged 45-54 reporting this as a barrier, while 11.9% of those aged 75 and above reported such. The proportions of men and women reporting this barrier were relatively equal (15.1% and 16.2% respectively). A much smaller proportion of

participants (2.4% overall) reported health and/or mobility limitations as a barrier to public transportation use in the past month at the time of measurement, with the proportions increasing with age such that 1% of those aged 45-54 reported this barrier while 5.5% of those aged 75 and above reported such. The least common barrier was cost, with less than 1% of the overall subsample (i.e., those that reported not having used public transportation in the past month among the CLSA sample participants) reporting this as a barrier to public transportation use. The proportion of people reporting this barrier was stable across age groups and genders.

Next, we more closely examined barriers for those who reported not using public transportation in the past month. The results of this examination are reported in Table 16.

Table 16 – Total Number of Barriers to Public Transportation Use

Number of Barriers	Age				Gender		Total
	45-54	55-64	65-74	75+	Male	Female	
0	238 *(5.24%)*	257 *(4.1%)*	193 *(4%)*	158 *(4.4%)*	390 *(4.2%)*	456 *(4.6%)*	846 *(4.4%)*
1	3,526 *(77.6%)*	4,851 *(77.3%)*	3,759 *(77.6%)*	2,811 *(78.8%)*	7,300 *(77.8%)*	7,647 *(77.6%)*	14,947 *(77.7%)*
2	696 *(15.3%)*	1,032 *(16.4%)*	796 *(16.4%)*	523 *(14.7%)*	1,479 *(15.8%)*	1,568 *(15.9%)*	3,047 *(15.8%)*
3+	85 *(1.9%)*	136 *(2.2%)*	98 *(2%)*	75 *(2.1%)*	209 *(2.2%)*	185 *(1.9%)*	394 *(2.1%)*

Notes. Total number of barriers is 6. Percentages for specific number of barriers are column proportions. Total number of respondents was *n* = 19,234.

The results show that, for the subpopulation of participants who did not use public transportation in the past month, 95.6% reported at least one or more barriers to its use, while 4.4% of participants who did not use public transportation did not report any of the prespecified barriers from Table 15. Of those that reported any barrier present, the large majority (77.7% overall) reported only one barrier being the factor that prevented using public transportation in the past month, while 15.8% reported two barriers, and 2.1% reported three or more barriers being present from the prespecified barriers previously listed in Table 15. The proportions reporting each number of barriers is relatively stable across age groups and genders.

We also examined participants' reported barriers to the use of accessible transit. This data is derived only from those participants who previously indicated that they did not use accessible transit in the past month at the time of measurement. The results are presented in Table 17.

Table 17 – Barriers to Use of Accessible Transportation

Factors That Prevented Use of Accessible Transportation	Age				Gender		Total
	45-54	55-64	65-74	75+	Male	Female	
Not Needed	6,164 *(91.2%)*	7,989 *(91.1%)*	5,907 *(90.8%)*	4,042 *(89.4%)*	11,812 *(91.1%)*	12,290 *(90.5%)*	24,102 *(90.8%)*
Service Unavailable	110 *(1.6%)*	165 *(1.9%)*	133 *(2%)*	95 *(2%)*	216 *(1.6%)*	287 *(2.1%)*	503 *(1.9%)*
Prefer Not to Use	44 *(0.7%)*	77 *(0.9%)*	88 *(1.3%)*	88 *(1.9%)*	133 *(1%)*	164 *(1.2%)*	297 *(1.1%)*
Inconvenient Schedules/Route	32 *(0.5%)*	50 *(0.6%)*	52 *(0.8%)*	66 *(1.4%)*	100 *(0.8%)*	100 *(0.7%)*	200 *(0.7%)*
Health/Mobility Limitations	<20 *(0.1%)*	<20 *(0.2%)*	<20 *(0.1%)*	<20 *(0.3%)*	<20 *(0.1%)*	26 *(0.2%)*	42 *(0.2%)*
Too Costly	<20 *(0.1%)*	<20 *(0.1%)*	<20 *(0.1%)*	<20 *(<0.1%)*	<20 *(0.1%)*	<20 *(0.1%)*	23 *(0.1%)*

Notes. Percentages are cell proportions of those that responded "yes" to the corresponding barrier. Participants could respond to multiple barriers to accessible transportation use. Total number of respondents were n=26,553 for 'Not Needed', and n=27,014 for all other barrier categories.

The results show that, overwhelmingly, the most common reason for not using accessible transit was simply that it was not needed (90.8% overall). The next most common reason was the service was unavailable (1.9%), and prefer not to use (1.1%), while fewer than 1% reported that any of the other barriers were relevant to their not using accessible transit. The proportions of participants reporting each of the identified barriers were relatively equal across age groups and across genders, with the exception of inconvenient schedules/routes. For this, the proportion of participants reporting this as a barrier rose from 0.5% for those aged 45-54 to 1.4% for those aged 75 and above, nearly a threefold increase in proportion.

We also examined this data with respect to the number of different barriers reported by participants. The results of this analysis are presented in Table 18.

Table 18 – Total Number of Barriers to Accessible Transportation Use

Number of Barriers	Age				Gender		Total
	45-54	55-64	65-74	75+	Male	Female	
0	477 *(7.1%)*	605 *(6.9%)*	441 *(6.8%)*	288 *(6.4%)*	885 *(6.8%)*	926 *(6.8%)*	1,811 *(6.8%)*
1	6,213 *(91.9%)*	8,027 *(91.5%)*	5,945 *(91.4%)*	4,159 *(92%)*	11,903 *(91.8%)*	12,441 *(91.6%)*	24,344 *(91.7%)*
2+	70 *(1%)*	139 *(1.6%)*	117 *(1.8%)*	72 *(1.6%)*	183 *(1.4%)*	215 *(1.6%)*	398 *(1.5%)*

Notes. Total number of barriers is 6. Percentages for specific number of barriers are column proportions. Total number of respondents was n = 26,553.

These results show that most participants (91.7%) reported having at least one barrier. This proportion is close to that of people who reported that they simply did not need accessible transit. The number of people who reported more than one barrier was quite a bit lower (1.5%). Thus, while most people do not use accessible transit because they do not need it, and this most likely represents at least the large majority of people reporting at least one barrier to the use of accessible transit, there are still others who experience service related barriers and have more than one barrier present to them in the use of accessible transit. This is concerning, as the people who use accessible transit do so out of particular necessity, and represent a vulnerable population that are, potentially, having some difficulty meeting their transportation needs.

Summary

The Good News

- Most older people in this sample were still carriers of a valid driver's license, either with or without restrictions. Furthermore 86.5% of those aged 75 and above reported having a valid driver's license.
- Those who do have a valid driver's license are continuing to drive themselves, as 64.8% of drivers reported driving on a daily basis, and 87.2% of those with a valid driver's license reported that driving a motor vehicle is their most common form of transportation.
- For those without a valid driver's license, 40.4% reported that public transportation is their most common form of transportation, and 32.4% reported being a passenger in a motor vehicle as their most common form of transportation. This suggests that public transportation can be an important resource for those without a driver's license.

The Bad News

- In some cities, the number of bus stops and the density of bus stops per square kilometre are quite low. The median bus stop density is only slightly above 1 stop. This could indicate that, in some cities, people have to walk a sizeable distance before arriving at their nearest bus stop, which can be a significant impediment to public transportation usage according to the WHO AFC guide.
- 21.7% of those who did not use public transportation in the past month reported that inconvenient schedules/routes were the barriers to public transit use, while 15.7% reported that services were unavailable.
- Nearly 20% of those who have not used public transportation in the past month reported more than one barrier as the reason for not using public transit.

Dimension 3: Housing

Adequate housing is not only a basic human need, it is a basic human right [21]. Affordable, accessible housing is an important aspect of health worldwide. A systematic review of housing intervention studies demonstrated that housing improvement interventions, especially those improving heating and warmth, lead to improvements in general health, respiratory health and mental health [22]. Adequate housing is especially important for vulnerable groups like those who have health issues, inadequate income, and/or are older in age [22]. For these groups, their vulnerabilities interact with poor housing conditions to create hazardous, long-term situations that are detrimental to physical and mental health [22]. Moreover, lack of affordable, appropriate housing is a common barrier to aging in place [23], and aging in place is an important, common theme in healthy aging, especially for 'stoic' seniors (those who more strongly value self-reliance, practicality, hard work, being close to family/friends, and put less importance on social activities, volunteering, and have less resources to maintain contact over long distances) [24]. The WHO AFCG notes several key features of age-friendly housing, including affordability (including essential services), design (e.g., structurally sound, even surfaces, accessible doorways and hallways), maintenance, access to services in the home, familiar surroundings that establish a sense of community belongingness, housing options that accommodate changing needs for aging in place, and sufficient space and privacy.

Using the CLSA data, we examined several aspects of participants' current housing, including satisfaction, types of problems and number of problems associated with one's current home. We break down the results with respect to those who own their home versus those who rent.

To begin with, we examined the proportion of individuals who either strongly agreed or agreed with the statement that they are satisfied with their current housing, as shown in Table 19. The results show that, for both owners and renters, the large majority of respondents agreed that they were satisfied with their current housing, though there was a 4.5% increased rate of agreement for owners compared to renters. With respect to age groups, the 45-54 year-old age group showed the largest difference in rates of agreement between owners and renters, with a

difference of 11.6% for owners compared to renters. For those aged 55-64, there was a difference of 4.4% in the rate of agreement between owners and renters.

Table 19 – Satisfaction with Local Housing

People Satisfied with Current Housing	Age				Gender		Total
	45-54	55-64	65-74	75+	Male	Female	
Owners	5,662 *(95.9%)*	7,382 *(96.6%)*	5,400 *(97.6%)*	3,512 *(98.1%)*	10,969 *(97.2%)*	10,987 *(96.6%)*	21,956 *(96.9%)*
Renters	713 *(84.3%)*	1,061 *(92.2%)*	969 *(95.4%)*	997 *(96.2%)*	1,608 *(93.2%)*	2,132 *(91.8%)*	3,740 *(92.4%)*

Notes. Percentages are cell proportions. Total number of respondents was *n* = 27,005.

With respect to genders, males who owned their current housing had a 4% higher rate of agreement with the statement about housing satisfaction compared to males who rented their current housing; similarly, for females, there was a 4.8% difference in rate of agreement between owners and renters. There were also differences between owners and renters in rates of agreement across age groups. For those who rent their current housing, there was an 11.1% increase in rate of agreement from those aged 45-54 to those aged 65-74, while there was only a 2.2% increase across these age groups for those who own their current housing. This suggests that satisfaction with current housing is more stable across age groups for those who own compared to those who rent their current home.

We also examined type of current problems with housing for older Canadian adults who both own (Table 20) and rent (Table 23) their current home. Participants identified which, if any problems with housing affected them. Participants could respond to all, some or none of the problems. Table 20 shows the proportions of older Canadian adults in the CLSA sample who reported that they currently experienced problems with leaking, noise, condensation, electrical wiring or plumbing, heating, maintenance or repairs, and/or infestations for owner, while Table 21 concerns the number of housing problems.

We found that most common problems with current housing reported by those who owned their current home were maintenance/repairs and noise (both showed an overall rate of

5.6%), and the least commonly reported problem was heating (1.7%). Reported problems decreased as age increased, while rates of reporting across genders were quite similar.

Table 20 – Problems with Current Housing for Owners

Problems	Age				Gender		Total
	45-54	55-64	65-74	75+	Male	Female	
Maintenance or Repairs	398 *(6.7%)*	443 *(5.8%)*	285 *(5.1%)*	154 *(4.3%)*	606 *(5.4%)*	674 *(5.9%)*	1,280 *(5.6%)*
Noise	375 *(6.3%)*	452 *(5.9%)*	286 *(5.2%)*	154 *(4.3%)*	590 *(5.2%)*	677 *(5.9%)*	1,267 *(5.6%)*
Leaking	309 *(5.2%)*	340 *(4.4%)*	198 *(3.6%)*	140 *(3.9%)*	464 *(4.1%)*	523 *(4.6%)*	987 *(4.3%)*
Electrical Wiring or Plumbing	259 *(4.4%)*	242 *(3.2%)*	160 *(2.9%)*	99 *(2.8%)*	363 *(3.2%)*	397 *(3.5%)*	760 *(3.3%)*
Infestations	228 *(3.9%)*	252 *(3.3%)*	168 *(3%)*	108 *(3%)*	414 *(3.7%)*	342 *(3%)*	756 *(3.3%)*
Condensation	277 *(4.7%)*	222 *(2.9%)*	114 *(2.1%)*	75 *(2.1%)*	291 *(2.6%)*	397 *(3.5%)*	688 *(3.03%)*
Heating	126 *(2.1%)*	145 *(1.9%)*	76 *(1.4%)*	42 *(1.2%)*	188 *(1.7%)*	201 *(1.8%)*	389 *(1.7%)*

Notes. Percentages are cell proportions. Participants could respond to multiple problems with current housing. Total number of respondents was $n = 22,731$.

We also examined the number of different types of housing problems reported by those who owned their current home. The results are shown in Table 21.

Table 21 – Total Number of Problems with Current Housing for Owners

Number of Problems	Age				Gender		Total
	45-54	55-64	65-74	75+	Male	Female	
0	4,602 *(77.8%)*	6,190 *(80.7%)*	4,639 *(83.6%)*	3,004 *(83.6%)*	9,211 *(81.4%)*	9,224 *(80.1%)*	18,435 *(81.1%)*
1	923 *(15.6%)*	1,091 *(14.2%)*	671 *(12.1%)*	468 *(13%)*	1,578 *(14%)*	1,575 *(13.8%)*	3,153 *(13.4%)*
2	241 *(4.1%)*	251 *(3.3%)*	151 *(2.7%)*	82 *(2.3%)*	347 *(3.1%)*	378 *(3.3%)*	725 *(3.2%)*
3+	152 *(2.6%)*	135 *(1.8%)*	90 *(1.6%)*	41 *(1.1%)*	179 *(1.6%)*	239 *(2.1%)*	418 *(1.8%)*

Notes. Total number of problems is 7. Percentages are column proportions. Total number of respondents was $n = 22,731$.

The large majority of respondents (81.1%) did not report experiencing any of the possible housing problems in Table 21, and 18.4% of respondents reported experiencing at least one or

more problem with their current housing. We found that 13.4% reported one problem, and a smaller minority (5%) of respondents reported two or more problems with their current home.

We also examined the same variables for those who rented their current home as well. Table 22 shows the proportions of people who experienced various pre-specified housing problems, while Table 23 shows this for number of housing issues.

Table 22 – Problems with Current Housing for Renters

Problems	Age				Gender		Total
	45-54	55-64	65-74	75+	Male	Female	
Noise	166 *(19.6%)*	221 *(19.1%)*	124 *(12.1%)*	71 *(6.8%)*	231 *(13.3%)*	351 *(15%)*	582 *(14.3%)*
Maintenance or Repairs	101 *(11.9%)*	90 *(7.8%)*	40 *(3.9%)*	36 *(3.5%)*	94 *(5.4%)*	173 *(7.4%)*	267 *(6.6%)*
Infestations	62 *(7.3%)*	85 *(7.3%)*	42 *(4.1%)*	37 *(3.6%)*	91 *(5.3%)*	135 *(5.8%)*	226 *(5.5%)*
Electrical Wiring or Plumbing	80 *(9.4%)*	74 *(6.4%)*	40 *(3.9%)*	21 *(2%)*	83 *(4.8%)*	132 *(5.7%)*	215 *(5.3%)*
Heating	65 *(7.7%)*	67 *(5.8%)*	35 *(3.4%)*	39 *(3.8%)*	83 *(4.8%)*	123 *(5.3%)*	206 *(5.1%)*
Condensation	69 *(8.1%)*	81 *(7%)*	37 *(3.6%)*	<20 *(1.3%)*	61 *(3.5%)*	139 *(6%)*	200 *(4.9%)*
Leaking	56 *(6.6%)*	69 *(6%)*	27 *(2.6%)*	28 *(2.7%)*	63 *(3.64%)*	117 *(5%)*	180 *(4.4%)*

Notes. Percentages are cell proportions. Participants could respond to multiple problems with current housing. Total number of respondents was $n = 4{,}070$.

With respect to rates of current housing problems for renters, noise was the most commonly reported housing problem (14.3% overall), followed by maintenance/repairs (6.6%) and infestations (5.5%), and leaking was the least frequently reported housing problem (4.4%). After noise, however, the rates of reporting for the other housing problems are quite close together; problems for wiring or plumbing, heating and condensation were reported by 5.3%, 5.1% and 4.9%, respectively. However, for heating, renters were 33% more likely to report this problem than owners.

Much like the results for owners, the proportion of people experiencing any of the pre-specified housing problems decreased as age increased; although, unlike owners, this rate of decrease was steeper for renters than it was for owners. Moreover, among those who were aged 45-54, renters experienced a higher proportion of housing problems, but among those who were

aged 75+, the proportion of renters who experienced housing problems was similar to that of owners. For example, for those aged 45-54, the proportion of renters reporting noise as a problem in their current home was 8.7% higher than the proportions of owners reporting such. However, among those aged 75+, the proportion of people reporting this problem was only 2.4% higher in renters than it was in owners. Similarly, for maintenance/repairs, the proportion of renters reporting this problem was 5.2% higher than it was for owners for those aged 45-54; however, or those aged 75+, there was only a 0.8% difference between the rate of owners and renters reporting this problem. Finally, among renters, women were slightly more likely (no more than 2.7% difference at its highest) more likely to report housing problems.

Table 23 – Total Number of Problems with Current Housing for Renters

Number of Problems	Age				Gender		Total
	45-54	55-64	65-74	75+	Male	Female	
0	525 *(61.8%)*	766 *(66%)*	785 *(76.6%)*	862 *(83%)*	1,283 *(74.1%)*	1,654 *(70.7%)*	2,937 *(72.2%)*
1	186 *(21.9%)*	239 *(20.6%)*	170 *(16.6%)*	128 *(12.3%)*	290 *(16.7%)*	433 *(18.5%)*	723 *(17.8%)*
2	77 *(9.1%)*	83 *(7.2%)*	43 *(4.2%)*	33 *(3.2%)*	104 *(6%)*	132 *(5.7%)*	236 *(5.8%)*
3+	61 *(7.2%)*	72 *(6.2%)*	26 *(2.5%)*	<20 *(1.5%)*	55 *(3.2%)*	119 *(5.1%)*	174 *(4.3%)*

Notes. Total number of problems is 7. Percentages are column proportions. Total number of respondents was n = 4,070.

Table 23 shows the number of different housing problems reported by renters. The results show that the majority (72.2%) of respondents did not report experiencing any of the pre-specified housing issues. 17.8% of respondents, did report experiencing one housing problem, 5.8% reported experiencing two problems, and 4.3% reported experiencing three or more problems. Compared to owners, the proportion of renters experiencing one housing problem was 4.4% higher, and the proportion of renters experiencing at least two problems was 5.1% higher than it was for owners. On the other hand, the proportion of renters reporting any housing problems decreased with age, though the decrease for renters across age groups was more substantial than it was for owners. Lastly, and unlike owners, the proportion of male renters reporting none of the pre-specified housing problems was slightly higher (3.4%) than it was for women. Overall, 27.9% of respondents reported experiencing at least one or more of the pre-specified housing problems, which was 9.5% higher than the same proportion for owners.

Summary

The Good News

- Regardless of whether they rent their current home or own it, most people (72.2% for renters, 81.1% for owners) reported they were not experiencing any of the pre-specified housing problems in the CLSA data.
- Congruently, the large majority (92.4% for renters, 96.9% for owners) of respondents agreed or strongly agreed with the statement that they were satisfied with their current housing.
- The proportion of people reporting heating as an issue was 5% or less (overall) for owners (1.7%) or renters (5.1%) and was the least frequently reported issue for owners.
- With the exception of maintenance/repairs and noise (5.6% for either), the proportion of people reporting any of the pre-specified housing problems was less than 5% for owners.
- The proportion of people reporting the various pre-specified housing problems decreased as age increased.

The Bad News

- 27.9% of renters and 18.4% of owners reported that they were experiencing at least one or more of the pre-specified problems with their current housing.
- Rates of housing issues were noticeably higher for renters than for owners.
- Renters were 33% more likely to report heating as an issue with their current housing than owners.
- Noise was a relatively common problem with current housing for renters (14.3%) and the rate of reporting this problem was 8.7% higher for renters than for owners.
- Those aged 45-54 were more likely to report any of the housing problems than those aged 65 and above.

Dimension 4: Community Support

Formal and informal support in the community, and access to affordable health services is essential to help seniors age in their homes [24]. This is especially true for people with functional limitations or disabilities, and the need for caring support increases with age. Several personal factors can impact the use of formal and informal care use, including age, gender, personal values and beliefs [25]. Several socio-demographic factors can influence care use as well, such as income, neighbourhood affluence, population density, family availability and education level. In Canada, older adults generally believe in government responsibility for assisting older individuals with their needs; furthermore, most Canadians do not want to rely on family for informal care beyond emotional support [26]. There is also some evidence to suggest that older Canadian adults who receive formal care support tend to have slightly lower levels of loneliness and higher levels of life satisfaction compared to those who receive informal care or blended home care [26]. Structured interviews with older Canadian adults showed that the use of formal care tends to bolster feelings of independence and autonomy and reduces the sense of feeling like a burden on family members [26].

We used the CLSA data to examine several factors relating to community support and health services use: contact with a family physician in the past year, contact with a dentist in the past year, the proportion of older adults who received various forms of formal care in the past year, and the proportion of older adults who received informal care in the past year.

Table 24 – Proportion of People Who Had Contact with Physician and Dentist

Health Professional	Age				Gender		Total
	45-54	55-64	65-74	75+	Male	Female	
Family Physician	5,670 *(83.5%)*	7,879 *(88.8%)*	6,157 *(93.1%)*	4,432 *(94.3%)*	11,520 *(87.8%)*	12,618 *(91.1%)*	24,138 *(89.5%)*
Dentist	5,751 *(84.6%)*	7,475 *(84.1%)*	5,240 *(79.3%)*	3,463 *(73.7%)*	10,438 *(79.2%)*	11,491 *(82.8%)*	21,929 *(81.2%)*

Notes. Percentages are cell proportions and represent the proportion of people in each respective category who have seen the corresponding health professional. Number of respondents are *n*=26,973 (Fam. Phy.) and *n*=26,998 (Dentist).

We first examined the number of participants in the CLSA who had contact with a family physician or a dentist. As can be seen in Table 24, the vast majority (89.5%) of respondents had

seen a family physician in the year just prior to the time of measurement. Furthermore, the proportion of people who had seen a physician increased as age went up, such that those who were aged 75 years and above had a 10% higher rate of seeing a family physician compared to those who were aged 45-54 years. These are relatively high proportions considering that as of 2015 when collection for the baseline data of the CLSA ended, there were approximately 225 physicians per 100,000 people in Canada[31]. Concerning visiting the dentist, 81.2% of the overall sample saw a dentist in the past year at the time of measurement. This proportion declined with age; those aged 45-54 years had a rate of 84.6% while those aged 75 years and above had a rate of 73.7%.

We also examined the percentage of adults in this sample who received formal care. This data is shown in Table 25.

Table 25 – Use of Formal Assistance

Type of Formal Assistance	Age				Gender		Total
	45-54	55-64	65-74	75+	Male	Female	
Activities	121 *(1.7%)*	204 *(2.2%)*	243 *(3.5%)*	444 *(8.8%)*	340 *(2.5%)*	672 *(4.6%)*	1,012 *(3.6%)*
Medical Care	66 *(.9%)*	110 *(1.2%)*	96 *(1.4%)*	156 *(3.1%)*	214 *(1.6%)*	214 *(1.5%)*	428 *(1.5%)*
Transportation	38 *(0.5%)*	72 *(0.8%)*	52 *(0.8%)*	81 *(1.6%)*	82 *(0.6%)*	161 *(1.1%)*	243 *(0.9%)*
Personal Care	22 *(0.3%)*	56 *(0.6%)*	57 *(0.8%)*	99 *(2.0%)*	82 *(0.6%)*	152 *(1.0%)*	234 *(0.8%)*
Meal Preparation	25 *(0.4%)*	42 *(0.5%)*	33 *(0.5%)*	86 *(1.7%)*	64 *(0.5%)*	122 *(0.8%)*	186 *(0.7%)*
Managing Care	<20	<20	<20	<20	<20	<20	33 *(0.1%)*
Other	<20	<20	<20	<20	<20	<20	39 *(0.1%)*

Notes. Percentages are in relation to the number of people who have not used the respective type of formal assistance in their age/gender category. Number of respondents is n=28,409.

We found that the most common type of formal care used was help with activities such as housework, home maintenance, or outdoor work; 3.56% of respondents used this service. The rates of use increased with age, such that those aged 75 years and above were approximately five times more likely to use this service than their 45- to 54-year-old counterparts. Moreover, women were, in general, twice as likely to utilize this type of formal care as men. The second

most common type of formal assistance utilized was medical care (e.g., help taking medications, nursing care). The other types of formal care were used by fewer than one percent of the sample; the lowest rates were for managing care (e.g., making appointments). Rates for all type of formal care increased with age and were generally slightly higher for women.

We also examined the number of different types of formal assistance services used. Results of this analysis are presented in Table 26.

Table 26 – Number of Types of Formal Assistance Services Used by Age and Gender

Number of Types of Formal Care Used	Age				Gender		Total
	45-54	55-64	65-74	75+	Male	Female	
0	7,016 *(97.5%)*	8,953 *(96.7%)*	6,557 *(95.0%)*	4,440 *(88.0%)*	13,271 *(96.0%)*	13,695 *(94.0%)*	26,966 *(95.0%)*
1	125 *(1.7%)*	207 *(2.2%)*	262 *(3.8%)*	442 *(8.8%)*	414 *(3.0%)*	622 *(4.3%)*	1,036 *(3.7%)*
2+	54 *(0.8%)*	102 *(1.1%)*	86 *(1.3%)*	165 *(3.3%)*	147 *(1.1%)*	260 *(1.8%)*	407 *(1.4%)*

Notes. Percentages are column proportions. Number of respondents is *n*=28,409.

The large majority of respondents did not report using any of the specified types of formal assistance in last twelve months prior to the time of measurement (94.9%), while a minority (5.1%) reported using at least one type of service. Of those who utilized formal care services, 71.9% of these participants only reported using one type of formal care, 14.5% reported using two types of formal assistance, 7.7% reported using three types of formal assistance, and 6.1% reported using four or more types of formal care.

We also examined rates of receipt of informal care, which includes receiving any assistance from family, friends, or neighbours due to a physical, mental, or cognitive health problem or limitation, shown in Table 27. The analysis regarding the number of types of informal care used is presented in Table 28.

The proportion of people using various types of informal assistance was noticeably higher than the number of people receiving formal assistance. Again, the highest rate was for help with activities; 8.2% of the overall sample reported use of this service in the past year. The second most common type of informal assistance was transportation, with 7.4% of the sample

reporting using this type of care. Use of informal care went up as age increased, though the differences between age groups were not as sharp as those for formal assistance.

Table 27 – Use of Informal Assistance by Age and Gender

Type of Informal Assistance	Age				Gender		Total
	45-54	55-64	65-74	75+	Male	Female	
Activities	559 *(7.8%)*	716 *(7.7%)*	541 *(7.8%)*	498 *(9.9%)*	836 *(6.0%)*	1,478 *(10.1%)*	2,314 *(8.2%)*
Transportation	441 *(6.1%)*	675 *(7.3%)*	481 *(7.0%)*	508 *(10.1%)*	801 *(5.8%)*	1,304 *(9.0%)*	2,105 *(7.4%)*
Meal Preparation	410 *(5.7%)*	490 *(5.3%)*	334 *(4.8%)*	266 *(5.3%)*	506 *(3.7%)*	994 *(6.8%)*	1,500 *(5.3%)*
Personal Care	212 *(3.0%)*	229 *(2.5%)*	157 *(2.3%)*	132 *(2.6%)*	308 *(2.2%)*	422 *(2.9%)*	730 *(2.6%)*
Medical Care	116 *(1.6%)*	176 *(1.9%)*	103 *(1.5%)*	104 *(2.1%)*	260 *(1.9%)*	239 *(1.6%)*	499 *(1.8%)*
Managing Care	63 *(0.9%)*	89 *(1.0%)*	58 *(0.8%)*	86 *(1.7%)*	168 *(1.2%)*	128 *(0.9%)*	296 *(1.0%)*
Other	<20	<20	<20	<20	<20	<20	32 *(0.1%)*

Notes. Percentages are in relation to the number of people who have not used the respective type of informal assistance in their age/gender category. Number of respondents is n=28,409.

Table 28 – Number of Types of Informal Assistance Used by Age and Gender

Number of Types of Informal Assistance	Age				Gender		Total
	45-54	55-64	65-74	75+	Male	Female	
0	6,470 *(89.9%)*	8,240 *(89.0%)*	6,134 *(88.8%)*	4,246 *(84.1%)*	12,552 *(90.8%)*	12,538 *(86.0%)*	25,090 *(88.3%)*
1	213 *(3.0%)*	388 *(4.2%)*	326 *(4.7%)*	399 *(7.9%)*	545 *(3.9%)*	781 *(5.4%)*	1,326 *(4.7%)*
2	184 *(2.6%)*	230 *(2.5%)*	168 *(2.4%)*	178 *(3.5%)*	261 *(1.9%)*	499 *(3.4%)*	760 *(2.7%)*
3	169 *(2.4%)*	186 *(2.0%)*	142 *(2.1%)*	118 *(2.3%)*	228 *(1.7%)*	387 *(2.7%)*	615 *(2.2%)*
4+	159 *(2.2%)*	218 *(2.4%)*	135 *(2.0%)*	106 *(2.1%)*	246 *(1.8%)*	372 *(2.6%)*	618 *(2.2%)*

Notes. Percentages are column proportions. Number of respondents is n=28,409.

Results regarding the number of different types of informal assistance used (as shown in Table 28) show that, of those who utilized the specified types of informal assistance, 40% reported using only one type of informal assistance, 23% reported using two types of informal

assistance, 18.5% reported using three different types of informal assistance, and 18.7% reported using four or more types of informal assistance. It seems that older Canadian adults who need assistance in their daily living routines are more likely to rely on informal assistance services than they are on formal assistance services.

Summary

The Good News

- The large majority of participants had seen a family physician and a dentist in the past year at the time of measurement.
- Most participants reported that they did not need to use formal or informal assistance to meet the demands of their regular daily living routines.
- Of the people who did need to use formal or informal assistance in the past year at the time of measurement, the most common response was that they only required one type of assistance in their daily lives.

The Bad News

- For those people who required assistance in their daily living routine, rates of use of each type of care were noticeably higher for informal assistance than they were for formal assistance.
- For those getting assistance with their daily lives via informal assistance services, there was a higher rate of using multiple services overall compared to the use of formal assistance services.
- Both of these findings suggest that further investigation into burden on informal caregivers is needed.

Dimension 5: Social Participation

Regular participation in social activities is a very important aspect of quality of life for older adults. Frequent social activity participation reduces the risk of dementia [27] and helps to maintain strong cognitive ability later in life [28]. Specifically, for Canadian seniors, social participation is associated with better self-rated health [29, 30], and with lower loneliness and life dissatisfaction [29]. Moreover, these relationships between social participation and increased well-being actually get stronger as the number of different types of social activities that a person engage in increases [29]. In the Canadian Community Health Survey – Healthy Aging data from 2008/2009, 21% of senior men and 27% of senior women reported a desire to participate in more social activities [29]. But, despite this desire to participate in more social activities, many Canadian seniors experienced some form of barrier to their desired level of social activity [29]. The WHO AFCG made several recommendations with respect to social participation for older adults, such as accessible opportunities, affordable activities, a variety of different types of opportunities and locations, increasing awareness of activities and events for older adults, and activities that allow socializing with other age groups.

We used the CLSA data to examine several factors relating to social participation in older Canadian adults. We examined the frequency with which respondents participated in several different types of activities, the proportion who desired to participate in more activities over the past year at the time of measurement, and the proportion of respondents who experienced any of several different types of barriers to being able to participate in more social activities.

To begin with, we examined social activity participation rates, as shown in Table 29. These social activities all require that other people are involved, and are as follows: outside the household with family or friends (e.g., small get-togethers, meals outside the household, weddings, reunions), church or religious activities (e.g., services, committees, choirs), sports or physical activities (must involve other people), educational and cultural activities (e.g., attending courses, concerts, plays, visiting museums), service club or fraternal organization activities (e.g., Lion's Club, Rotary, Kiwanis Club, Royal Canadian Legion, Foresters), neighbourhood, community or professional association activities, or other activities involving other people (e.g., hobbies, gardening, poker, bridge, cards, other games). Percentages reported in Table 29 are for

those respondents who indicated that they participated in the respective activity type on a daily, weekly or monthly basis, as opposed to either annually or never.

Table 29 – Participation in Social Activities by Age and Gender

Type of Social Activity	Age				Gender		Total
	45-54	55-64	65-74	75+	Male	Female	
Family/Friends Outside Household	6,675 *(92.9%)*	8,529 *(92.2%)*	6,328 *(91.8%)*	4,469 *(88.9%)*	12,494 *(90.5%)*	13,507 *(92.9%)*	26,001 *(91.7%)*
Sport/Physical Activity with Others	5,498 *(76.5%)*	6,741 *(72.9%)*	4,851 *(70.4%)*	3,094 *(61.6%)*	9,703 *(70.3%)*	10,481 *(72.1%)*	20,184 *(71.2%)*
Education/Cultural Activities	3,977 *(55.3%)*	5,176 *(55.9%)*	3,869 *(56.1%)*	2,549 *(50.8%)*	7,240 *(52.4%)*	8,331 *(57.3%)*	15,571 *(54.9%)*
Religious	1,685 *(23.5%)*	2,419 *(26.2%)*	2,460 *(35.7%)*	2,472 *(49.2%)*	3,942 *(28.6%)*	5,094 *(35%)*	9,036 *(31.9%)*
Association Activities	1,960 *(27.3%)*	2,425 *(26.2%)*	2,135 *(31%)*	1,652 *(33%)*	3,862 *(28%)*	4,310 *(29.7%)*	8,172 *(28.9%)*
Clubs or Fraternal Org. Activities	793 *(11%)*	1,312 *(14.2%)*	1,358 *(19.7%)*	1,220 *(24.3%)*	2,378 *(17.2%)*	2,305 *(15.9%)*	4,683 *(16.5%)*
Other	4,599 *(64%)*	5,883 *(63.6%)*	4,478 *(65.1%)*	3,138 *(62.6%)*	8,804 *(63.8%)*	9,294 *(64%)*	18,098 *(63.9%)*

Notes. Percentages are cell proportions for the corresponding activity type for the respective age/gender category. Participants could indicate participation in multiple types of social/recreational activities. Proportions are for those individuals classified as 'participants', meaning they indicated participating in respective activities monthly, weekly or daily, as opposed to either annually or never. Number of respondents is n=28,359.

The most common activity type that respondents reported engaging in was 'family and friends outside the household' (91.7%), meaning many of the CLSA respondents reported engaging in socializing with friends, family or neighbours outside the household for things like formal or informal dinners and get-togethers (among other activities). The activity category with the second highest participation rate was sports/physical activities (71.2%), followed by 'other' activities (63.9%) and then educational or cultural activities (54.9%). Religious activities, associations or club activities; 'clubs or fraternal organization activities' had the lowest rate of participation.

We also examined the number of different types of social activities that participants reported engaging in frequently across age groups and genders; this is shown in Table 30.

Table 30 – Number of Types of Social Activities Engaged in by Age and Gender

Number of Types of Social Activities	Age				Gender		Total
	45-54	55-64	65-74	75+	Male	Female	
0	145 *(2.0%)*	223 *(2.4%)*	127 *(1.9%)*	120 *(2.4%)*	341 *(2.5%)*	274 *(1.9%)*	615 *(2.2%)*
1	446 *(6.2%)*	663 *(7.2%)*	447 *(6.5%)*	396 *(8.0%)*	1,043 *(7.6%)*	909 *(6.3%)*	1,952 *(6.9%)*
2	1,125 *(15.7%)*	1,426 *(15.5%)*	926 *(13.5%)*	696 *(14.0%)*	2,168 *(15.8%)*	2,005 *(13.9%)*	4,173 *(14.8%)*
3	1,755 *(24.5%)*	2,114 *(22.9%)*	1,497 *(21.9%)*	980 *(19.7%)*	3,180 *(23.1%)*	3,166 *(21.9%)*	6,346 *(22.5%)*
4	1,976 *(27.6%)*	2,420 *(26.3%)*	1,712 *(25.0%)*	1,129 *(22.7%)*	3,398 *(24.7%)*	3,839 *(26.6%)*	7,237 *(25.7%)*
5	1,170 *(16.3%)*	1,563 *(17.0%)*	1,344 *(19.6%)*	945 *(19.0%)*	2,319 *(16.9%)*	2,703 *(18.7%)*	5,022 *(17.8%)*
6	442 *(6.2%)*	638 *(6.9%)*	609 *(8.9%)*	522 *(10.5%)*	1,003 *(7.3%)*	1,208 *(8.4%)*	2,211 *(7.8%)*
7	106 *(1.5%)*	169 *(1.8%)*	188 *(2.7%)*	191 *(3.8%)*	302 *(2.2%)*	352 *(2.4%)*	654 *(2.3%)*

Notes. Percentages are column proportions. Number of respondents is *n*=28,210.

The results of this analysis show that 97.8% of all respondents reported frequently engaging in at least one type of social activity. Together, this shows that 66% of respondents indicated they participate in three to five different types of social activities on a daily, weekly or monthly basis.

The proportion of people who reported the desire to participate in more social activities is shown in Table 31.

Table 31 – Desire to Participate in More Social Activities by Age and Gender

	Age				Gender		Total
	45-54	55-64	65-74	75+	Male	Female	
Desire to Participate in More Social Activities	3,960 *(55.1%)*	4,638 *(50.2%)*	2,668 *(38.7%)*	1,743 *(34.7%)*	6,047 *(43.8%)*	6,962 *(47.9%)*	13,009 *(45.9%)*

Notes. Number of respondents is *n*=28,339.

The results of this analysis show that 45.9% of all respondents wished to participate in more social activities. This proportion tended to decrease as age increased and was higher for women than for men.

Table 32 – Barriers to Social Participation by Age and Gender

Type of Barrier	Age				Gender		Total
	45-54	55-64	65-74	75+	Male	Female	
Too Busy	2,453 *(61.9%)*	2,248 *(48.5%)*	897 *(33.6%)*	395 *(22.7%)*	3,020 *(49.9%)*	2,973 *(42.7%)*	5,993 *(46.1%)*
Personal or Family Responsibilities	972 *(24.6%)*	755 *(16.3%)*	455 *(17.1%)*	311 *(17.8%)*	1,092 *(18.1%)*	1,401 *(20.1%)*	2,493 *(19.2%)*
Health Condition or Limitation	410 *(10.4%)*	764 *(16.5%)*	535 *(20.1%)*	523 *(30.0%)*	925 *(15.3%)*	1,307 *(18.8%)*	2,232 *(17.2%)*
Going Alone	445 *(11.2%)*	615 *(13.3%)*	384 *(14.4%)*	275 *(15.8%)*	691 *(11.4%)*	1,028 *(14.8%)*	1,719 *(13.2%)*
Activity Timing	603 *(15.2%)*	596 *(12.9%)*	262 *(9.8%)*	119 *(7.5%)*	733 *(12.1%)*	847 *(12.2%)*	1,580 *(12.2%)*
Cost	381 *(9.6%)*	393 *(8.5%)*	197 *(7.4%)*	72 *(4.1%)*	393 *(6.5%)*	650 *(9.3%)*	1,043 *(8.0%)*
Lack of Activities	126 *(3.2%)*	185 *(4.0%)*	108 *(4.1%)*	103 *(5.9%)*	195 *(3.2%)*	327 *(4.7%)*	522 *(4.0%)*
Far Distance	101 *(2.6%)*	148 *(3.2%)*	100 *(3.8%)*	65 *(3.7%)*	161 *(2.7%)*	253 *(3.6%)*	414 *(3.2%)*
Social Barriers	51 *(1.3%)*	82 *(1.8%)*	62 *(2.3%)*	23 *(1.3%)*	131 *(2.2%)*	87 *(1.3%)*	218 *(1.7%)*
Location Accessibility	30 *(0.8%)*	42 *(0.9%)*	30 *(1.1%)*	32 *(1.8%)*	46 *(0.8%)*	88 *(1.3%)*	134 *(1.0%)*
Safety Concerns	21 *(0.5%)*	40 *(0.9%)*	31 *(1.2%)*	24 *(1.4%)*	35 *(0.6%)*	81 *(1.2%)*	116 *(0.9%)*
Language Reasons	<20	<20	<20	<20	<20	<20	36 *(0.3%)*
Other	53 *(1.3%)*	88 *(1.9%)*	48 *(1.8%)*	37 *(2.1%)*	118 *(2.0%)*	108 *(1.6%)*	226 *(1.7%)*

Notes. Numbers are based only on the participants who previously identified that they desired to participate in more social activities over the past year at the time of measurement. Percentages are cell proportions. Participants could indicate multiple barriers. Number of respondents is n=13,009.

With such a substantial number of respondents indicating that they wished to participate in more social activities over the past year than they were able to, we then examined barriers to social activity participation, shown in Table 32. We found that the most common barrier to greater social activity participation was being 'too busy' (46.1% overall). However, there is a large difference in rates across age groups, such that 61.9% of adults aged 45-54 years reported this barrier, while only 22.7% of adults aged 75 years and above reported experiencing this barrier. The second most common barrier was personal or family responsibilities (19.2% overall). Again, adults aged 45-54 years were noticeably more likely to report experiencing this

barrier than seniors. Health conditions or limitations represented the third highest category of barrier to increased social participation (17.2% overall). The rates for this increased as age increased; those aged 75 years and above were three times more likely to report his barrier than those aged 45-54 years. Men and women generally had the same rates of reporting barriers to higher social participation.

We also examined the number of barriers to increased social participation, as shown in Table 33. The results show that those who were 45 to 54 years old were noticeably more likely to report not having any of the specified barriers to increased social activity compared to those between the ages of 65 to 74 and those who were 75 years of age or older; similarly, people over the age of 65 were more likely to report having at least one barrier present, with more than a 10% difference in rates between people between the ages of 65 and 74 and people who were 75 years or age or older. Moreover, women had higher rates of one or two barriers being present than men.

Table 33 – Number of Barriers to Social Activities by Age and Gender

Number of Barriers to Social Activities	Age				Gender		Total
	45-54	55-64	65-74	75+	Male	Female	
0	1,726 *(43.6%)*	2,032 *(43.8%)*	1,035 *(38.8%)*	528 *(30.3%)*	2,732 *(45.2%)*	2,589 *(37.2%)*	5,321 *(40.9%)*
1	1,670 *(42.2%)*	1,952 *(42.1%)*	1,296 *(48.6%)*	934 *(53.6%)*	2,639 *(43.6%)*	3,213 *(46.2%)*	5,852 *(45.0%)*
2	380 *(9.6%)*	446 *(9.6%)*	224 *(8.4%)*	206 *(11.8%)*	477 *(7.9%)*	779 *(11.2%)*	1,256 *(9.7%)*
3	89 *(2.3%)*	124 *(2.7%)*	73 *(2.7%)*	40 *(2.3%)*	116 *(1.9%)*	210 *(3.0%)*	326 *(2.5%)*
4+	95 *(2.4%)*	84 *(1.8%)*	40 *(1.5%)*	35 *(2.0%)*	83 *(1.4%)*	171 *(2.5%)*	254 *(2.0%)*

Notes. Percentages are column proportions. Number of respondents is n=13,009.

Summary

The Good News

- Participation rates for social activities among these participants was quite high, with 97.8% of respondents indicating that they engaged in at least one type of social activity (daily, weekly or monthly).
- The most common types of social activities were with friends, family, and neighbours, and center around either face-to-face social time during gatherings or surrounding a shared activity (e.g., shared hobbies), or around sports or physical activity.
- Many individuals frequently participated in more than one type of social activity, with 80.7% of respondents indicating they frequently participated in two to five different types of social activity.

The Bad News

- 45.9% of all respondents indicated they wished to participate in more social activities.
- There are large age differences, and some small gender differences, with respect to what types of barriers impede on social activity participation. For adults between the ages of 45 and 54, the most common barrier was being too busy; for participants who were 65 years of age or older, the most common barrier was having a health condition or limitation.
- 14.2% of all respondents indicated that they experienced more than one type of barrier to social activity participation.

Dimension 6: Social Inclusion, Respect, and Civic Participation

Feeling included and respected in one's local community is important. It is the foundational experience in creating social cohesion. Social cohesion refers to how connected people feel within a group, how connected different social groups are together, and having a sense of oneness in belonging to a community. It can be a determining factor in peoples' quality of life. For example, social cohesion can decrease risk of general mortality [32]. Social cohesion has also been linked with decreased risk for stroke factors [33], and decreased risk of coronary heart disease [34]. When social cohesion is low, it can be linked with increased rates of depression as well [35].

Civic participation is also an important aspect of quality of life for older adults. Volunteering at all ages is linked to higher levels of well-being, lower rates of depression [36], and lower mortality rates [37]. The benefits of volunteering and engaging in one's local community for self-rated health and life satisfaction [3] are also greater for older adults than for younger adults [8]. However, the frequency with which older adults volunteer in their local community can be influenced by factors within the community itself, such as how connected a person feels to the community, how satisfied they are with it, and whether the local neighbourhood has adequate social services [39].

We used the CLSA dataset to explore several indicators of social inclusion, respect and civic participation in older Canadian adults. First, we examined responses to several questions regarding friendliness of people in the local area, trust in neighbours, if there were people to help in one's local community if needed, how lonely people felt within their local area, if they felt that people took advantage of them in their local community, and if they felt part of their local community. Responses of "strongly agree" and "agree" were merged to get a frequency of people who 'agreed' with each of the corresponding statements, and the proportions listed are the percentages of people who agreed with the corresponding statement relative to the total number of respondents (Table 34).

Table 34 – Socio-Environmental Perceptions by Age and Gender

Perception of Social Environment	Age				Gender		Total
	45-54	55-64	65-74	75+	Male	Female	
Most People in Area Are Friendly	6,601 *(97.9%)*	8,628 *(98.2%)*	6,408 *(98.1%)*	4,549 *(98.2%)*	12,787 *(98.3%)*	13,399 *(97.9%)*	26,186 *(98.1%)*
Feel a Part of This Area	6,217 *(92.2%)*	8,197 *(93.3%)*	6,179 *(94.5%)*	4,390 *(94.7%)*	12,193 *(93.8%)*	12,790 *(93.3%)*	24, 983 *(93.6%)*
Often Feel Lonely in This Area	502 *(7.4%)*	637 *(7.2%)*	451 *(6.9%)*	379 *(8.2%)*	803 *(6.2%)*	1,166 *(8.5%)*	1,969 *(7.3%)*
Most People in This Area Can Be Trusted	6,351 *(95.2%)*	8,287 *(95.8%)*	6,175 *(96.2%)*	4,389 *(96.5%)*	12,336 *(96%)*	12,866 *(95.7%)*	25,202 *(95.8%)*
People in This Area Take Advantage of You	256 *(3.8%)*	269 *(3.1%)*	210 *(3.2%)*	161 *(3.5%)*	454 *(3.5%)*	442 *(3.3%)*	896 *(3.4%)*
If in Trouble, Lots of People in This Area Would Help	6,208 *(94.2%)*	8,160 *(95.3%)*	6,108 *(95.8%)*	4,268 *(95.6%)*	12,004 *(95%)*	12,740 *(95.4%)*	24,744 *(95.2%)*

Notes. Percentages are cell proportions of those who either "strongly agreed" or "agreed" with the corresponding statement. Total number of respondents was $n = 26{,}693$ for 'Most People in Area Are Friendly', n=26,704 for 'Feel a Part of This Area', n=26,814 for 'Often Feel Lonely in This Area', n=26,296 for 'Most People in This Area Can Be Trusted', n=26,511 for 'People in This Area Take Advantage of You', n=26,001 for 'If in Trouble, Lots of People in This Area Would Help'.

The results show that the large majority (over 90%) of all respondents agreed with the statements that "most people in the area are friendly", "I really feel a part of this area", "most people in this area can be trusted", and "if you were in trouble, there are lots of people in this area who would help you". Congruently, only a small proportion (less than 10%) agreed with negative statements of "I often feel lonely in this area" and "people in this area will take advantage of you"; in other words, more than 90% of respondents disagreed with these negative statements. Examining age categories shows little difference in rates of agreement across age groups (difference less than 2%) for nearly all variables. Similarly, for the negative variables (feel lonely, people take advantage), there is little difference in rates of agreement across age categories. With respect to gender, we see a similar trend, with rates of agreement/disagreement for the positive/negative variables, respectively, quite equal across genders, with the exception of 'Often feel lonely in this area', for which women showed a 2.3% increase in the proportion of those agreeing with this statement compared to men.

We also assessed how participants tend to perceive their social standing in their local community. To do this, we examined responses to the SEQ Ladder, which asked participants to imagine a ladder with ten rungs that represents their social standing, with higher rungs indicating greater social standing in their local community. The results are shown in Table 35. We report the mean as the measure of central tendency and standard deviation as the measure of variability for most groups (age and gender) with the exception of those aged 75 and above, as the coefficient of variation for this group was above 33.3%, and so the median and first/third quartiles are reported instead. The CV for the other groups was between 29% and 31%, which falls within an acceptable range.

Table 35 – Perceived Social Standing in the Local Community by Age and Gender

Perception of Social Standing	**Age**				**Gender**		**Total**
	45-54	55-64	65-74	75+	Male	Female	
Mean *(SD)*	6.2 *(1.8)*	6.1 *(1.9)*	6.1 *(1.9)*	Median=6 *Q1=5* *Q3=8*	6.2 *(1.9)*	6 *(1.9)*	6.1 *(1.9)*

Notes. 'Perceptions of Social Standing' is taken from participants ratings on the SEQ Ladder, which is a 1(very low) to 10(very high) scale that asks participants to imagine that a ladder with ten rungs represents their social standing in their local community, and to rate how high they believe they stand in this respect. "SD"=standard deviation. The Coefficient of Variation (CV) for the group "75+" was above 33.3%, and so the median and first and third quartiles are reported instead. The CV for the reported means are between 29% and 31.7%. Number of respondents was n = 26,217.

The results show that, overall, the mean SEQ rating was 6.1 with a standard deviation of 1.9. This indicates that most respondents considered their social standing to be above the mid-point. These values are congruent with findings from longitudinal datasets in other countries [40]. The mean SEQ rating did not change across age groups or genders, nor did the variability in the mean. For those aged 75 and above, the median indicates that most respondents in this category put themselves above the midpoint in their social standing in their local community.

We then examined participation in volunteering, which is shown in Table 36.

Table 36 – Volunteer Participation Rates by Age and Gender

Frequency of Volunteering	Age				Gender		Total
	45-54	55-64	65-74	75+	Male	Female	
At least once a day	112 *(1.6%)*	167 *(1.8%)*	176 *(2.6%)*	124 *(2.5%)*	252 *(1.8%)*	328 *(2.3%)*	579 *(2.0%)*
At least once a week	891 *(12.4%)*	1,394 *(15.1%)*	1,495 *(21.7%)*	1,094 *(21.8%)*	2,061 *(14.9%)*	2,813 *(19.3%)*	4,874 *(17.2%)*
At least once a month	1,513 *(21.0%)*	1,924 *(20.8%)*	1,491 *(21.7%)*	1,024 *(20.4%)*	2,794 *(20.2%)*	3,158 *(21.7%)*	5,952 *(21.0%)*
At least once a year	2,253 *(31.3%)*	2,347 *(25.4%)*	1,266 *(18.4%)*	685 *(13.6%)*	3,452 *(25.0%)*	3,099 *(21.3%)*	6,551 *(23.1%)*
Never	2,421 *(33.7%)*	3,422 *(37.0%)*	2,459 *(35.7%)*	2,097 *(41.7%)*	5,252 *(38.0%)*	5,147 *(35.4%)*	10,399 *(36.7%)*

Notes. Percentages are column proportions. Number of respondents is *n*=28,355.

The results of this examination show that 73 percent of respondents volunteered at least once a year, while 37 percent never volunteered. People aged 75+ years were more likely to say that they never volunteer compared to other age groups. However, people aged 65+ years were much more likely to volunteer at least once a week than those between the ages of 45 and 54. This is consistent with the literature on volunteerism; across Canada, in 2013, people over the age of 75 were least likely to volunteer, but people aged 55+ volunteered for more hours than other age groups [41]. With respect to gender, women were more likely to volunteer at least once a week than men, while men were more likely to volunteer once a year or never. Across all ages and genders, relatively few people volunteered on a daily basis.

Summary

The Good News

- Most respondents had a favourable perception of their local social environment, with high average ratings of friendliness of local area, trust in neighbours, people in the area to help if needed, and feeling part of the community, and low average ratings of loneliness and feeling taken advantage of.
- The majority of respondents felt that their social standing was above the midpoint of the scale and ratings correspond to those of similar age groups in other countries.
- 38.2% of all respondents indicated that they participate in volunteer or engage in charitable activities on a weekly to monthly basis.

The Bad News

- 36.7% of all respondents reported never participating in volunteer or charitable activities in their local community.
- Variability in perceptions of social standing was somewhat high; thus, while the mean level of perceived social standing indicated by respondents was above the midpoint, there were some people who rated themselves as below the mid-point (SEQ ladder ratings less than 5).

Part II

The Well-Being of Older Canadian Adults

In this part of the report, we will examine several different indicators of the quality of life of older Canadian adults in this dataset. Of course, it is valuable to understand the state of affairs with respect to the indicators of age-friendliness; however, without a parallel understanding of the well-being of older adults it can be hard to determine to what all these indicators amount with respect to the quality of life of the people for whom age-friendly cities are supposed to benefit.

Therefore, we examined several facets of well-being with CLSA data. Well-being is a term used to describe the positive health of an individual, the absence of physical and mental disease and a high quality of life. To begin with, we examined the self-reported physical health, mental health and healthy aging of participants in our sample, as shown in Table 37.

Table 37 – Self-Reported Health, Mental Health and Healthy Aging by Age and Gender

Self-Reported Health		Age				Gender		Total
		45-54	55-64	65-74	75+	Male	Female	
Physical Health	*Poor to Fair*	650 *(9.0%)*	926 *(10.0%)*	633 *(9.2%)*	591 *(11.7%)*	12,428 *(89.9%)*	13,158 *(90.3%)*	2,800 *(9.9%)*
	Good to Excellent	6,543 *(91.0%)*	8,329 *(90.0%)*	6,266 *(90.8%)*	4,448 *(88.3%)*	1,391 *(10.1%)*	1,409 *(9.7%)*	25,586 *(90.1%)*
Mental Health	*Poor to Fair*	481 *(6.7%)*	588 *(6.4%)*	271 *(3.9%)*	222 *(4.4%)*	720 *(5.2%)*	842 *(5.8%)*	1,562 *(5.5%)*
	Good to Excellent	6,709 *(93.3%)*	8,668 *(93.7%)*	6,624 *(96.1%)*	4,817 *(95.6%)*	13,097 *(94.8%)*	13,721 *(94.2%)*	26,818 *(94.5%)*
Healthy Aging	*Poor to Fair*	692 *(9.6%)*	936 *(10.1%)*	528 *(7.7%)*	367 *(7.3%)*	1,231 *(8.9%)*	1,292 *(8.9%)*	2,523 *(8.9%)*
	Good to Excellent	6,489 *(90.4%)*	8,309 *(89.9%)*	6,364 *(92.3%)*	4,664 *(92.7%)*	12,570 *(91.2%)*	13,256 *(91.1%)*	25,826 *(91.1%)*

Notes. Percentages are column proportions with respect to each self-reported health variable individually (*not* column proportions *across* variables). Number of respondents n=28,386.

For all self-reported health variables, the large majority (>90%) indicated good to excellent health. There were only minor differences in rates of good to excellent self-reported health across age groups, with a slight increase for mental health and healthy aging, and a slight decrease for physical health. Moreover, the rates of good to excellent self-reported health were nearly equivalent between genders. Nevertheless, nearly ten percent of respondents rated their physical health and healthy aging as poor to fair, which still amounts to a sizeable proportion of the population.

We also examined how well respondents rated their satisfaction with life. This scale[42] sums responses on five questions that ask with how close participants feel their life is to the ideal, how positive the conditions of their life are, how well they have achieved the important things in their lives, and how much they would change things if they could start their lives over again (Table 38).

Table 38 – Satisfaction with Life by Age and Gender

Satisfaction with Life	**Age**				**Gender**		**Total**
	45-54	55-64	65-74	75+	Male	Female	
Mean *(standard deviation)*	27.5 *(6.8)*	27.6 *(6.8)*	28.2 *(6.1)*	28.2 *(5.8)*	28.1 *(6.2)*	27.6 *(6.6)*	27.8 *(6.4)*

Notes. Range of possible scores is from 5 to 35, with higher scores indicating greater satisfaction with life. Total number of respondents was n = 28,032.

Across ages and genders, satisfaction with life was high (27.83 out of a maximum value of 35). The average score for satisfaction with life was relatively equal across all age categories and across genders.

But, well-being is not just the presence of positive factors, but also the absence of negative ones. Thus, we examined depression scores for participants in the CLSA. Depression scores are taken from the 10-item version of the Center for Epidemiological Studies Depression Scale (CESD-10), which sums the responses across several items examining aspects of clinical depression (e.g., loneliness, feeling depressed, trouble concentrating, feeling restless, feeling like everything takes a lot of effort). Scores of 10 or above indicate that a person is at risk of clinical depression[43]. The results of this analysis are presented in Table 39. The median represents the point at which 50% of respondents scored either above or below the indicated value; the first quartile represents the point at which 25% of respondents scored lower; and the third quartile represent the point at which 75% of respondents scored lower.

The results of this analysis show that the median CES-D score for the overall sample was 4 though the median was slightly higher (5) for women compared to any other category of age or gender. In addition, results show that 75% of respondents scored below 7 (55-64, 65-74 age groups, male gender) or below 8 (45-54, 75+ age groups, female gender). We found that 16.1% of all respondents had a CESD-10 score of 10 or above, indicating that they are at risk for

clinical depression (major or chronic). The proportions were relatively similar across age groups, with the group aged 45-54 showing rates above the other age groups, and the age group 65-74 showing the lowest rates of all age groups. Women had a higher rate of being at risk for clinical depression that was approximately 6.4% higher compared to men.

Table 39 – Depression Scores and Proportions by Age and Gender

Depression	Age				Gender		Total
	45-54	55-64	65-74	75+	Male	Female	
CESD-10 Scores Median *(Q1/Q3)*	4 *(2/8)*	4 *(2/7)*	4 *(2/7)*	4 *(2/8)*	4 *(2/7)*	5 *(2/8)*	4 *(2/7)*
Proportion at Risk for Clinical Depression	1,227 *(17.2%)*	1,500 *(16.4%)*	970 *(14.3%)*	790 *(16.2%)*	1,735 *(12.8%)*	2,752 *(19.2%)*	4,487 *(16.1%)*

Notes. Scores are taken from the CESD-10. Scores above 10 indicate being at risk for clinical depression. 'Q1' represents the first quartile, 'Q3' represents the third quartile. Total number of respondents was n = 27,909.

We also examined the proportion of CLSA participants who had functional impairments on the Instrumental and Basic Activities of Daily Living from the Older Americans Resources and Services (OARS) Multidimensional Assessment Scale. The classifications are no functional impairment, mild impairment, moderate impairment, severe impairment and total impairment, and are based on participants' ability to perform instrumental and basic daily activities for themselves such as preparing meals, getting dressed, eating, taking care of appearance, walk, get out of bed, take a bath, getting to the bathroom in time, using the telephone, travel, go shopping, and do housework, among others. The results of this analysis are presented in Table 40.

Overall, the great majority of respondents had no functional impairment (89.6%). However, this result may not be surprising given that participation in the CLSA was limited to adults living independently at the time of recruitment (e.g., individuals living in long-term care institutions were excluded). The proportion of those with mild to moderate impairment increased with age: with a steady increase across age groups and a noticeable jump in rates between the age groups 65-74 and 75+. Moreover, the number of women with mild impairment was more than double that of men. However, overall, the number of people with moderate impairment was only one percent, and the number of people with severe to total impairment was less than 0.3% overall.

Table 40 – Functional Impairment Classification by Age and Gender

Level of Impairment	Age				Gender		Total
	45-54	55-64	65-74	75+	Male	Female	
No Impairment	6,828 *(95.2%)*	8,497 *(92.1%)*	6,106 *(89.1%)*	3,879 *(77.7%)*	12,906 *(93.8%)*	12,404 *(85.7%)*	25,310 *(89.6%)*
Mild Impairment	297 *(4.1%)*	636 *(6.9%)*	671 *(9.8%)*	974 *(19.5%)*	711 *(5.2%)*	1,867 *(12.9%)*	2,578 *(9.1%)*
Moderate Impairment	34 *(0.5%)*	76 *(0.8%)*	59 *(0.9%)*	119 *(2.4%)*	126 *(0.9%)*	162 *(1.1%)*	288 *(1.0%)*
Severe Impairment	<20	<20	<20	<20	<20	<20	48 *(0.2%)*
Total Impairment	<10	<10	<10	<10	<10	<20	<20 *(0.1%)*

Notes. Percentages are column proportions. Number of respondents is *n*=28,240.

Well-being is not something that is solely determined by the individual, but also by social factors as well. Thus, we examined the degree to which participants perceived the availability of social support. Social support is examined through scores on the Social Support Survey subscales of the Medical Outcomes Study, which has four subscales that measure social support availability for different areas of life: affection (e.g., someone to show love and affection), emotional/informational (e.g., someone who listens, someone to provide advice or information), tangible (e.g., having someone to help with daily chores or prepare meals if you were unable to), and positive interaction (e.g., someone to have an enjoyable time with) . Responses to multiple items with a response range of 0 (none of the time) to 4 (all of the time) are summed for each subscale, as shown in Table 41.

The results show that, across all ages and genders and for all types of social support, the mean level of perceived social support is well above the mid-point. The average response for each item comprising each of the subscales was 'most of the time'. Mean levels of perceived social support are generally very similar across age groups and genders, though there is a small difference in means for the emotional/informational support between the 45-54 age group and the 75+ age group, with the latter showing a lower mean than the former.

Table 41 – Perceptions of Social Support by Age and Gender

Type of Social Support Mean *(SD)*	Age				Gender		Total
	45-54	55-64	65-74	75+	Male	Female	
Affection (Range: 0-12)	10.5 *(2.3)*	10.2 *(2.5)*	10.3 *(2.5)*	10.0 *(2.6)*	10.3 *(2.5)*	10.3 *(2.4)*	10.3 *(2.5)*
Emotional/ Informational (Range: 0-32)	26.3 *(5.8)*	25.7 *(6.3)*	25.5 *(6.2)*	24.3 *(6.8)*	25.2 *(6.6)*	25.9 *(6.0)*	25.6 *(6.3)*
Tangible (Range: 0-16)	13.1 *(3.0)*	12.9 *(3.2)*	13.0 *(3.1)*	12.4 *(3.4)*	12.9 *(3.2)*	12.8 *(3.1)*	12.9 *(3.2)*
Positive Interaction (Range: 0-16)	13.0 *(3.3)*	12.9 *(3.5)*	13.0 *(3.5)*	12.4 *(3.8)*	13.2 *(3.4)*	12.5 *(3.6)*	12.9 *(3.5)*

Notes. Higher scores were indicative of greater support. Number of respondents is 28,276 (affection), 27,988 (emotional/informational), 28,231 (tangible), and 28,076 (positive interaction).

Summary

The Good News

- Most participants (over 90%) rated themselves as having good to excellent physical health, mental health, and healthy aging.
- Mean levels of satisfaction with life are strong across all age categories and genders.
- The large majority of participants fall below the cut-off score of 10 for the CESD-10.
- Nearly 90% of participants were classified as having no functional impairment on instrumental and basic activities of daily living. Less than 0.3% of CLSA participants had severe or total impairment, and only one percent had moderate impairment.
- Perceptions of social support on all subscales were high.

The Bad News

- 16.08% of all respondents had CESD-10 scores above 10, indicating clinical depression.
- Women had a noticeably higher rate of depression than men.
- 19.52% of the oldest participants were classified as having mild impairment, with another 2.4% classified as having moderate impairment in Activities of Daily Living.

Part III

Conclusions

In this report, we examined a wide variety of indicators of the age-friendliness of eight major cities in Canada (Victoria, Calgary, Winnipeg, Hamilton, Ottawa, Montreal, Sherbrooke and Halifax) using the World Health Organization's Age-Friendly Cities Guide for choosing relevant indicators and the Canadian Longitudinal Study of Aging as the data source. We also examined a variety of different indicators of well-being in order to examine how well people across different age groups and genders were generally functioning with respect to quality of life.

With respect to the age-friendly indicators, the overall picture for our eight Canadian cities is that the majority of older adults in this sample lived in places that, on average, were conducive to their needs and promote a higher quality of life. In terms of the good news, for outdoor spaces and safety, most people (over 95%) felt that their local environments were kept clean and are safe to walk in after dark (over 85%). All Canadian cities examined in this report have levels of green space and blue space that is above, or even *well* above the WHO recommended ideal level of $50m^2$ per capita, with the exception of one city for blue space, which only had $10m^2$ per capita of blue space. Participants generally indicated they enjoyed frequent walks outside on a weekly basis and were therefore likely to engage in their local environment on a regular basis, which can be an important factor in increasing health and well-being. Moreover, the proportion of people who had specifically fallen as a result of standing or walking while outside the home was relatively small (2.3% of the overall sample examined in this report). For transportation, the large majority of participants still held a valid driver's license, and most of those with a license were able to drive on a daily basis. Moreover, only 2% of drivers reported that transportation was a barrier to participating in more social/recreational activities. For non-drivers, public transportation was the most commonly used method of transportation, its use in the month preceding the interview was much higher for non-drivers than drivers, though cycling was higher for drivers. With respect to housing, the large majority of participants were satisfied with their current housing (more than 90% for owners and renters alike). Moreover, the majority of respondents in the CLSA data indicated that they were not currently experiencing any of the pre-specified housing problems, regardless of whether they were renters or owners. Problems with heating, which can be especially detrimental to well-being as previously discussed, were present in less than 5% of the sample. Furthermore, the presence of housing problems decreased as age increased. For community support and health issues, the large majority of participants had seen both a physician and dentist in the last year at the time of measurement. Most participants

did not seem to require formal or informal care assistance, and of the people who did, the most common response was that they only were using one type of assistance. For social participation, more than 97% of participants reported frequently engaging in at least one type of social activity, and more than 48% of respondents reporting participation in three to four different types of social activities. Only 2.2% reported that they did not participate in any of the specified social activities. For social inclusion, respect and civic engagement, the average rating across ages and genders of several facets of ones' social environment were quite positive, showing that most participants agreed that their local community was a friendly, trustworthy place of which they feel a part. Most participants reported their social standing as relatively high in their local community, and a sizeable proportion engaged in volunteer or charity activities at least once a week to once a month. Moreover, across all indices of well-being, most participants enjoyed a high quality of life and experienced a strong degree of well-being on a daily basis.

Findings from the eight included cities reflect participant experiences that align with age-friendly priorities. However, there are certainly areas for improvement as well. For outdoor spaces and safety, 12.1% of those aged 65-74 and 16.1% of those aged 75 and above agreed with the statement that they are afraid to walk in their local neighbourhood after dark. Moreover, women showed nearly twice the rate of men. 30.9% of participants only took a walk outside their home on two or fewer days per week. In addition, 44% of all falls resulting in injury that disrupted the person's daily routine occurred outside the home while standing or walking. For transportation, the median bus density was only 1.25 stops per square kilometer, indicating that in more than one city, a person may need to walk a sizeable distance in order to get to the nearest bus stop. 21.7% of those who did not use public transportation in the month prior to the interview reported that at least one of their reasons was because of inconvenient schedules/routes, while another 15.7% reported that it was because services were not available in their area. Moreover, nearly 20% of those who did not use public transportation in the past month reported more than one barrier to the use. In addition, 19.2% of non-drivers, or nearly one in five, reported that transportation was a significant barrier to better social activity participation, which they had desired to increase in the past year at the time of measurement. For housing, 27.9% of renters, or nearly one third, and 18.4% of owners, or nearly one in five, reported experiencing at least one problem with their current home. Rates of housing issues were noticeably higher for renters than for owners, and those aged 45-54, were more likely to report

any housing problem; women were also more likely to report a housing problem. Renters were 33% more likely to report heating as an issue with their current home compared to owners. Noise (14.3%) was the most commonly reported issue with current housing for renters, and this rate was 8.7% higher for renters than for owners. For community support and health services, most participants who required some form of service support relied more heavily on informal services than formal ones; yet, recent evidence using a large Canadian sample [26] is suggestive that relying on informal care may not have the same well-being benefits that the use of formal care services does. For social participation, 45.9% of the overall sample reported a desire to participate in more social activities. The most common barrier for those aged 45 to 64 was being too busy and personal or family responsibilities, and the most common barrier for those aged 65 to 75+ was having health conditions or limitations. Moreover, more than 10% of respondents reported having multiple barriers that inhibited them from participating in more social activities. Finally, with respect to civic engagement, 36.7% of respondents indicated that they did not participate in volunteer or charitable activities at all, indicating that a significant proportion of older Canadian adults in these cities do not engage with their local community.

The initiative to improve the age-friendliness of Canadian cities across the country is, without question, an important endeavour. Every citizen in the country will age and will come to look at their surroundings and evaluate how well they meet their needs, or perhaps how much they contribute to deficits in their well-being and quality of life. It is a difficult task to evaluate the information available in this report. For all of the areas that still need to be improved, the question of how to do so is no small one, and the answer to that question will undoubtedly be complex and difficult to undertake. But more than this, for all the areas that are already showing promise, as Canadians we must pose a harsh question to ourselves: at what point do we say “that is good enough”? Though many cities are showing promise, there still much to be done to ensure no one is left behind. It is important to remember reading through the values provided in this report that behind each and every one of them is a real person, and that even the smallest percentage can represent the potential for a large deficit in quality of life. So, in conclusion, we recommend that Age-Friendly groups work together with planners and decision makers to identify needed changes so that all of these cities can enjoy a high quality of life.

Future Directions

This report provides a preliminary overview of the aggregate findings and will be followed by reports analyzing regional and demographic variances. We hope for a number of outcomes from this work. First, it will provide researchers and knowledge users with information on the Age-Friendliness of their municipalities. Future reports on this project will address the following objectives: 1) Examine key aspects of Age-Friendliness for individual cities and compare them across our eight cities, 2) examine a model whereby these key indicators of age-friendliness are statistically related to mental, physical and social health outcomes representing an overall latent "healthy aging" construct, and 3) to identify demographic inequalities in Age-Friendly determinants in health and health outcomes within and across our eight cities. We also plan to start a pan-Canadian collaboration on Age-Friendly research. Finally, we will have data to use as a baseline to assess Age-Friendly interventions in our cities in longitudinal studies.

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