ECONOMIC STATUS AND TRANSITIONS TO SENIORS' HOUSING: AN ANALYSIS USING THE CANADIAN LONGITUDINAL STUDY ON AGING

ECONOMIC STATUS AND TRANSITIONS TO SENIORS' HOUSING: AN ANALYSIS USING THE CANADIAN LONGITUDINAL STUDY ON AGING

By: HUMAYUN KABIR, BScN, MPH

A Thesis Submitted to the School of Graduate Studies in Partial Fulfilment of the Requirements

for the Degree Master of Science in Health Research Methodology

MASTER OF SCIENCE (2024)	**McMaster University**
Health Research Methodology	**Hamilton, Ontario, Canada**
TITLE:	Economic Status and Transitions to Seniors' Housing: An Analysis Using the Canadian Longitudinal Study on Aging
AUTHOR:	Humayun Kabir, BScN, MPH
SUPERVISOR:	Dr. Andrew P. Costa, PhD
NUMBER OF PAGES:	xiv, 95

LAY ABSTRACT

As of January 2024, there are 6.2 million seniors in Canada, making up 18% of the population. This substantial demographic shift could influence the demand for healthcare services and the economic stability of the country. Many seniors face economic constraints when it comes to affording healthcare services, especially when deciding between getting formal home care or transitioning to seniors' housing. In this study, we investigated how the economic status of seniors influences their transition to seniors' housing in Canada. We used data from the Canadian Longitudinal Study on Aging (CLSA), which follows up on aging and health among Canadians over time. Our research investigated how economic status and socio-demographic, functional, and health-related characteristics impact the transition to seniors' housing among Canadian seniors. We found that seniors with higher economic status were less likely to transition to seniors' housing compared to those with lower economic status. However, we found a significant variation in the association between economic status and the transition to seniors' housing at the provincial level. CLSA participants were more likely to transition to seniors' housing as they were older, lived alone, had poor health, needed formal home care, had impaired activities of daily living, or had chronic diseases. CLSA participants with available social support and adequate eyesight were less likely to transition to seniors' housing. Although socio-demographic, functional, and health-related characteristics were consistently associated with the transitions to seniors' housing across Canada, economic status was inconsistent at the provincial levels. These findings suggest that seniors' housing is designed/geared to various economic strata across provinces. Further research and policy should address economic inequality in access to seniors' housing.

ABSTRACT

Background: As of January 2024, 6.2 million seniors make up 18% of the population of Canada, and it is expected to have an impact on healthcare demand and cost. Seniors may face economic challenges in affording healthcare, particularly while choosing formal home care or transitioning to seniors' housing. This study investigated the association between economic status and transitions to seniors' housing among seniors in Canada.

Methods: This retrospective longitudinal analysis used data from the Canadian Longitudinal Study on Aging, including 50919 seniors. The primary outcome was the transition from own homes to seniors' housing, with "total savings and investments" as the primary exposure of interest. The potential co-variates included age, sex, number of people living with the participant, general health status, eyesight rating, social support availability, received formal home care, ADL (activities of daily living) impairment, and chronic diseases. The statistical analyses included descriptive statistics such as frequencies, percentages, mean, and standard deviation and the inferential statistics included bivariate and multivariable Generalized Estimating Equation (GEE) models.

Results: We observed that the incidence of transitions to seniors' housing was 1.12% (n=522) at Time Point 1 (2015-2018), increasing to 1.49% (n=590) at Time Point 2 (2018-2022). Time Point 1 represented the baseline and first follow-up of the CLSA, while Time Point 2 represented the first follow-up of CLSA as its baseline and the second follow-up of CLSA as its follow-up. At Time Point 1, the average age for individuals who experienced a transition was 76.50 years (SD = 7.50), while the average age for those who did not transition was 62.30 years (SD = 10.10). At

Time Point 2, the average age for the transition group was 78.70 years (SD = 7.50), while the average age for the non-transition group was 65.10 years (SD = 9.70). Females had higher transitions at Time Point 1 (60.334%) and Time Point 2 (64.01%). Our main GEE model showed that the seniors with higher economic status had lower odds of transitioning to the seniors' housing compared to those with lower economic status. We found that the increase in age, living alone, poor health status, living in certain provinces, receiving formal home care, ADL impairment, and having chronic diseases were significantly associated with higher odds of transition. In contrast, social support availability and better eyesight ratings were associated with lower odds of transitioning. In our provincial model, we also found that the seniors living in Alberta and Quebec with higher economic status had significantly lower odds of transitioning. In British Columbia, higher economic status was associated with lower odds of transitioning, although these findings were not statistically significant. On the other hand, in Ontario, higher economic status was associated with higher odds of transitioning, but this was also not statistically significant.

Conclusion: The higher economic status was significantly associated with lower odds of transitioning to seniors' housing in the overall sample, but these findings were not consistent at the provincial level, highlighting the differential importance of financial resources in enabling Canadians to transition to seniors' housing. These findings underscore the need for policies addressing financial inequalities in seniors' housing across Canada.

Acknowledgements

I would like to extend my deepest gratitude to my supervisor, Dr. Andrew Costa, for his continuous support and mentorship throughout my journey in the Health Research Methodology program at McMaster University. I am also incredibly thankful to my committee members, Dr. Lauren Griffith and Dr. Aaron Jones, whose insightful feedback and collaborative spirit have been invaluable in the development of my thesis. A special thanks goes to my external committee member, Dr. Arthur Sweetman, for providing a unique perspective through his thorough review. I am also profoundly grateful to my undergraduate supervisor, Shubrandu S. Sanjoy, whose guidance laid the foundation for my academic journey. I also wish to express my appreciation to Komal Aryal and James Lee for their continuous support throughout my thesis. Lastly, I wish to thank my parents, sisters, family members, and friends for their unwavering love and encouragement. Their support has been a constant source of strength, enabling me to achieve this significant academic milestone.

Table of Contents

List of Figures, Tables, and Appendices

Appendices: **Pages**

List of All Abbreviations

ADL	Activities of Daily Living
AOR	Adjusted Odds Ratio
CAD	Canadian Dollars
CAPI	Computer-Assisted Personal Interviewing
CCHS	Canadian Community Health Survey
CI	Confidence Interval
CIHI	Canadian Institute for Health Information
CLSA	Canadian Longitudinal Study on Aging
CPP	Canada Pension Plan
DCS	Data Collection Sites
F1	Follow-up 1
F2	Follow-up 2
GEE	Generalized Estimating Equation
HiREB	Hamilton Integrated Research Ethics Board
IADLs	Instrumental Activities of Daily Living
MAR	Missing At Random
MCAR	Missing Completely at Random
MICE	Multiple Imputation by Chained Equations
MOS	Medical Outcomes Study
NuAge	Quebec Longitudinal Study on Nutrition and Aging
OARS	Older Americans' Resources and Services
OAS	Old Age Security

OR	Odds Ratio
RDD	Random Digit Dialing
ROC	Receiver Operating Characteristic
SD	Standard Deviation
US	United States
WGEE	Weighted Generalized Estimating Equation

Declaration of Academic Achievement

I, Humayun Kabir, hereby declare that this thesis is the result of my own research work. As the sole author, I was actively involved in all stages of the research project, conducted under the supervision of Dr. Andrew Costa. The following individuals contributed to the editing and refinement of my thesis and served as members of my thesis committee: Dr. Andrew Costa, Dr. Lauren Griffith, and Dr. Aaron Jones. To the best of my knowledge, the content of this document does not infringe upon any copyrights.

1. Introduction

1.1 Seniors in Canada

According to Statistics Canada, the total population in Canada is 40 million as of 2023 [1]. According to the Canadian Institute for Health Information (CIHI), the seniors (individuals aged 65 and over) in Canada as of 2017 were approximately 6.2 million, constituting approximately 18% of the total population of the country [2]. Over the next 20 years, it is expected to be 68% of the overall population [2]. This demographic shift may significantly impact numerous aspects of Canadian society, including healthcare and economics. In healthcare, seniors require more care and services as their independence decreases, often due to chronic diseases and normal aging processes [3]. According to a recent study, Canadian seniors prefer to have equitable healthcare access, proactive healthy living, social support systems, alternative medicine, and more trained healthcare professionals to engage in their health and healthcare [4]. As a result, the growing number of seniors with decreasing independence could present significant challenges for the government if it is not adequately prepared to address these needs.

The demand for healthcare services among seniors is crucial, as seniors require more frequent and varied medical interventions than younger populations [5,6]. There is a significant increase in the demand for programs focused on chronic disease management, rehabilitative care, and wellness, all aimed at maintaining independence and enhancing seniors' quality of life [7]. However, the costs of utilizing these services can be a potential barrier for seniors with a low economic status. Many seniors, who are often on fixed incomes or savings after retirement, may be unable to afford the necessary care while it is an out-of-pocket cost [8]. The Canadian Income Survey 2020 highlights that many seniors depend on public pension plans such as the Canada Pension Plan (CPP) and Old

Age Security (OAS) [9]. Addressing this demand will require substantial government support and careful consideration of seniors' financial capabilities across Canada. Therefore, ensuring the financial sustainability of these programs is critical in preventing financial insecurity among seniors.

1.2 Seniors' Housing in Canada

Supportive housing or assisted living is a critical option in the Canadian seniors' housing continuum, providing independent living with some personal and health care services [10]. According to Manis et al., "retirement homes are referred to as assisted-living facilities in other North American jurisdictions, and they are private, congregate living environments that deliver supportive care to adults who are 65 years of age and older [11]." In an environmental scan, Manis et al. found that the terminology used to describe the assisted living sector varied across Canada, with common terms including "assisted living," "retirement homes," and "supportive living" [12]. More detailed definitions and the provincial variation in the definition can be found somewhere else [12,13]. In Canada, the term "seniors' house" refers to residential settings such as retirement homes, supportive living, and assisted living settings where seniors live with access to supportive care as needed. According to the Canadian Longitudinal Study in Aging (CLSA), this category of seniors' housing represents what is more commonly known as retirement homes or assisted living facilities. In the context of our study, we used the term "seniors' housing" to specifically mean retirement homes or assisted living facilities interchangeably, as this is the more consistent definition within Canada. These seniors' housing provides community lifestyle and assisted-living services like meals and nursing and primarily operates on a private, for-profit model where residents need to purchase room, board, and care services [14].

On the other hand, according to Banerjee et al., "long-term care typically refers to ongoing, indefinite, care for individuals who can no longer fully care for themselves [15]." The services are more intensive and include health care, social care, and personal care for seniors who lack self-care capacity, offering continuous or intermittent assistance on a long-term basis based on the assessed functional incapacity of residents [16]. Seniors' housing is regulated differently from long-term care facilities or nursing homes, where seniors' housing serves residents who do not need 24-hour nursing care [14].

Residents of seniors' housing are assumed to require less care than long-term care since these facilities support independent living arrangements [17]. However, they often need help with daily activities due to physical disabilities, ADL (activity of daily living) impairments, chronic health conditions or frailty [18,19]. According to Manis et al., a substantial number of seniors' housing residents in Ontario had significant health challenges, with 86.4% experiencing hypertension, 80.5% osteoarthritis, 73.5% cancer, 65.0% mood disorders, 45.3% chronic coronary disease, and 40.5% mental health issues, which underscores the vulnerability of the seniors on those settings [11]. This high level of clinical risk highlights the demand for integrated care services in these settings. In 2018, senior s' housing in Ontario provided extensive health services, including help with bathing (95.4%), personal hygiene (88.8%), mobility (86.0%), feeding (37.6%), dressing (88.5%), continence care (78.7%), skin and wound care (21.8%), and dementia care (16.6%) [11]. Nearly all offered meal services (99.2 to 100%), medication administration (99.2 to 100%), pharmacist services (87.7%), nursing (94.3%), and medical services (68.6%) [11]. Therefore, we can comment that providing these services demonstrates the comprehensive care available to residents in numerous seniors' housing.

1.3 Economic Status of Canadian Seniors

In 2022, the median after-tax income for Canadian families was $68,400 [20]. This average income provides a general sense of the income range, but the actual figures can range widely above and below this median due to the diverse economic conditions across the country. The primary income source for most Canadians is employment-based earnings, including wages and salaries from various sectors, which make up about 80% of the total market income received by Canadians [21]. Furthermore, many Canadians earn through self-employment and entrepreneurial activities [22]. Investments also help to raise household income, especially among the middle and upper classes [23]. Other substantial sources of income include government transfers, such as social security benefits, which are especially important for the unemployed, old, and disabled [24]. The diversity of income sources emphasizes the various financial approaches that individuals and households utilize to manage their finances.

For Canadians aged 65 years and up, the income trajectory shifts mainly toward retirement income, private pension assets, and previous investments [25]. The average income for this cohort is often lower than that of the working-age population, indicating a decrease in earning potential after retirement [20]. However, the total value of this income varies significantly, depending on factors such as the duration and type of employment, the amount saved in private pension plans, and individual investing success [23].

Inequalities in income in Canada reveal major variances in economic well-being among its population [26]. A recent study reported that low-income seniors in Canada have a significant issue with access to necessary care, partly due to not having a regular family physician and long wait

times to see a doctor [8]. Another recent study also reported that low-income individuals in Canada experience longer wait times for publicly funded healthcare compared to their high-income counterparts [27]. In the case of seniors' housing, persons with little financial resources may have fewer options and are more likely to stay in subsidized housing that does not fully satisfy their preferred level of living or care needs. According to a recent study, seniors in Québec prefer formal home care over informal home care, with lower-income individuals more likely to prefer informal home care [28]. A previous study reported that universal government-funded home care services can rebalance social and individual inequities in care use among Canadian seniors with needs rather than socioeconomic status [29]. When it comes to a choice between home care and seniors' housing, the public system does not uniformly cover the total cost of those options across all provinces, leading to significant variations in the affordability and accessibility of these services depending on where one lives. This disparity means that lower-income seniors may have fewer options, potentially forcing them to settle for more affordable choices that do not meet their preferred standards of care or living conditions.

1.4 Transition to Seniors' Housing

As part of a record linkage project linking three cycles of the Canadian Community Health Survey (CCHS) to the 2011 Census, it was found that among respondents aged 60 or older (n=81,411), 1.2% were in seniors' housing [30]. Another study using linked data from the 2005 Canadian Community Health Survey (CCHS) and the 2011 Census found that among Canadians aged 55 and older (n=29,934), approximately 1.6% are in seniors' housing [31]. The number of transitions to seniors' housing is currently low, but it may rise as the senior population continues to grow in Canada. For seniors, the transition to seniors' housing is a critical phase of their life, which is

influenced by various factors. Seniors considering transition to seniors' housing often seek more manageable living arrangements that offer better care compared to their previous living conditions [32]. Seniors want equitable access to professional healthcare services and an environment that fosters self-care actions in everyday living [4]. However, for many, maintaining their health at their own home might be too expensive, especially when considering the possibility of future healthcare challenges or in-home care services. A scoping review reported that seniors with frailty face significant out-of-pocket expenses for living in the community [33]. The economic status, therefore, is always a question of affording the associated cost of the seniors' housing. A study in the US reported that by 2029, 54% of middle-income seniors will not have sufficient financial resources to pay for seniors' housing. Along with the economic issue, factors like poor self-rated health, dementia, and not owning a home contribute to the likelihood of transitioning to seniors' housing [30]. A study reported that social frailty contributes to the relocation of seniors, potentially increasing their vulnerability to further deficits if they do not relocate [34]. Seniors may experience feelings of social isolation in their existing living arrangements, which motivates them to relocate to places where social interaction and involvement are freely available and encouraged [35]. Therefore, while transitioning to seniors' housing, they anticipate a better quality of life, such as enhanced access to healthcare services and possibilities for community engagement [36]. They also desire a safer living environment that is easier to operate in and more appropriate for their physical ability [35].

1.5 Association between Economic Status and Transition to Seniors' Housing

A recent study in Canada found that households with lower socioeconomic status were the most likely to receive formal home care, with the costs being fully covered by the government in 52% of cases, paid entirely out-of-pocket in 27% of cases, covered solely by insurance in 7%, partially

covered by insurance and/or government in 8%, and by other sources in 6% [37]. Lee et al. reported that Canadian seniors from lower socioeconomic groups were more likely to receive formal home care services, while those from higher socioeconomic groups were likely to receive formal care when adjusted for need-related variables [38]. Seniors receiving only home health care services, particularly nursing services, were more likely to have their costs fully covered by the government, whereas those receiving only support services were more likely to incur out-of-pocket expenses [37]. A study in the US found that the mean values of all income and wealth measures were higher in households that never transitioned compared to those who transitioned [39]. Therefore, seniors with more economic resources may often have more opportunities to receive support home care services, allowing them to remain in their own houses to a certain extent. This support may provide continuity of care in their own living conditions. Similarly, those with robust family support may rely on informal care from relatives, which can reduce the need for transitioning to seniors' housing as family members help with daily activities and health-related needs, thereby fostering a supportive environment at their own house [40]. A study found that family support significantly influences the future housing preferences of seniors in Canada, with most wanting to remain close to family [41]. For seniors who lack family support, transitioning to more economically accessible living arrangements, such as seniors' housing facilities, often may become the only possible solution.

Seniors in Canada mostly live at home and express a strong preference to remain there as long as possible [42]. As a result, this desire may put growing pressure on informal caregivers and community services to provide the necessary support. Availability of services at the home level, as well as education and activity support services for the elderly, play a role in supporting aging in

place [43]. However, seniors with higher economic status may tend to have more options for accessing supportive home care services along with informal home care, which may allow them to receive formal care for more hours and, at times, that suit their needs. The financial flexibility of higher-income seniors may enable them to stay in their homes longer if preferred. When aging in place is not feasible, they may consider transitioning to congregate housing options. However, the variation in subsidies across different provinces can also influence their decisions [12]. For instance, in provinces where higher-income seniors face higher costs, they may opt to stay in their homes after comparing formal home care expenses versus living in a seniors' housing facility, finding the latter too costly. Conversely, in provinces offering substantial subsidies to lower-income seniors, transitioning into seniors' housing facilities may be more affordable than formal home care, making this option more attractive. In the US, a recent study suggested that the private pay seniors' housing communities in 140 metropolitan areas have increased substantially from 2015 to 2019, but the supply of care options has not kept up with population growth [44]. Schnure and Venkatesh reported that in earlier decades, wealthier seniors in the US were more likely to age in place rather than transition into seniors' housing [45]. However, they reported that recent trends show a shift where higher wealth is now associated with increased senior living, reflecting the development of retirement communities that emphasize lifestyle, offering a wide range of non-medical services, activities, and amenities. They also commented evolution has transformed the decision to transition into seniors' housing into a lifestyle choice rather than one based purely on medical or nursing needs. As a result, the association between economic status and the transition to seniors' housing is certainly fluid. It may shift the direction depending on the jurisdiction where the government provides subsidies, the availability of the service, and the qualities of the service provided by the providers in different jurisdictions.

1.6 Literature Review of Factors Associated with the Transition to Seniors' Housing

1.6.1 Search Method

A literature review was conducted, including both published and gray literature, across multiple databases, including PubMed, EMBASE, and Google Scholar, published by 2024. The search strategies were developed in consultation with an academic-affiliated librarian to ensure a comprehensive retrieval of literature related to transitions to seniors' housing. The focus of the literature search was narrowed to topics concerning seniors' housing, retirement homes, assisted living facilities, older adults, and transitions. Our search also extended to include government reports and institutional databases.

1.6.2 Socio-demographic Characteristics Associated with Transition to Seniors' Housing

A systematic review of 86 studies identified 88 potential factors associated with the transition to seniors' housing, and among them, gender/sex was a potential factor in 37% of studies, and factors such as economic status, education, employment, and access to transportation and car facilities in approximately half of the studies [46]. A study in Australia reported that demographic, social, economic, personal, community factors and cohort effects influence seniors' housing and living arrangement choices [47]. A study in the US reported that Black seniors were significantly less likely than White seniors to transition to assisted living, preferring to remain in the community [48]. Factors such as financial considerations, retirement, and family issues play key roles in influencing the decision-making process while transitioning to the seniors' housing [49]. Weeks et al. found that gender, age, household income, province, driving status, current home meets needs, and unmet heavy cleaning needs significantly influence Canadian seniors' decisions to relocate [50]. Among Canadians, the loss of a spouse, non-married status, and not owning a home were also found to be

associated with the transition to the seniors' housing [30]. A study conducted in Taiwan revealed that seniors' attitudes and perceived behavioural control significantly influence their intention to transition into seniors' housing [51]. The study also reported that both seniors' views on seniors' housing and their perceived limitations played a crucial role in shaping their intentions. In a scoping review, Tate et al. found that age and caregiver burden are the most consistent risk factors for seniors transitioning to facility-based care settings [52]. Tate et al. also reported that other factors related to health service utilization or nonmedical aspects were investigated in only a few studies, but the results were mixed or nonsignificant results [52]. The preferred locations, convenience to suburbs, pleasant surroundings, and physical equipment and facilities, while medical services and community services also impact seniors' choices of transitioning [53]. The availability of family support also significantly influenced the future housing preferences of Canadian seniors [54]. The study reported that home dissatisfaction measures were related to relocating from their own homes to seniors' housing [55]. Eriksson et al. reported that the perceived quality of housing, including social and emotional aspects, plays a complex role in the relationship between retirement and the transition to seniors' housing, significantly impacting the health and well-being of seniors [56]. Chyr et al. found that being older and living alone were found to be associated with the transition from the community to residential care settings [57]. A complex combination of socio-demographic factors influences the decision to transition to seniors' housing, including economic status, education, racial origin, health, family support, and personal attitudes. While some factors, such as age and caregiver stress, consistently influence these decisions, others, such as healthcare use and nonmedical characteristics, have more variable effects in transitioning to seniors' housing in the literature.

1.6.3 Physical Health-Related Characteristics Associated with Transition to Senior House

The decision to transition into seniors' housing is often driven by changes in physical health, as declining health can significantly impact a senior's ability to live independently. Various health-related factors typically play a crucial role in this decision-making process. A previous study reported that poor health status predicted transition to seniors' housing [39]. Gibler et al. also reported that health issues among US seniors influenced their decision-making process while transitioning from their own homes [49]. Among Canadian seniors, poor self-rated health was also found to be associated with the transition to seniors' housing [30]. Franco et al. reported the deficit of health and physical function as critical reasons for transitioning to the seniors' housing [58]. Reduced mobility is a primary physical health factor that may prompt seniors to transition to seniors' housing. Challenges such as difficulty walking, climbing stairs, or performing daily tasks independently can make living in a standard home impractical and unsafe. Tate et al. reported that cognitive and functional impairments are the most consistent risk factors for transitions to seniors' housing [52]. The presence of chronic health conditions such as heart disease, diabetes, arthritis, or respiratory disorders may necessitate a transition to seniors' housing. Chyr et al. reported that being hospitalized in the last year was associated with a higher likelihood of transition to seniors' housing [57]. Chyr et al. also found that multimorbidity and functional limitations were associated with higher transition hazards from the community to seniors' housing [57]. Calsolaro et al. found that transitioning to seniors' housing can lead to an increased sense of security [36]. As physical health declines, seniors often require increased assistance with activities of daily living (ADLs) such as bathing, dressing, and medication management. Seniors' housing can support these activities, helping residents maintain their health and dignity. This support is typically available through assisted living services within the facility, which can adjust the level of care based on individual

needs. Chronic conditions often necessitate regular medical attention, monitoring, and management. Seniors' housing facilities are well-equipped to address these needs, potentially reducing the frequency of hospital or emergency visits.

1.6.4 Mental Health-Related Characteristics Associated with Transition to Senior House

Literature supports that the decision for seniors to transition into seniors' housing is significantly influenced by mental health-related characteristics. Mental health issues such as depression are prevalent among seniors, often exacerbated by social isolation and loneliness. In a previous study, loneliness was reported to be the key predictor of transitions to the seniors' housing [39]. Eriksson et al. reported that perceived housing, including social, emotional, and cognitive ties, is a complex relationship between retirement and transition to seniors' housing, affecting health and well-being in seniors [56]. Cognitive impairments, including dementia and Alzheimer's disease, were the significant factors in the decision to transition to seniors' housing. These conditions can compromise the ability of seniors to perform daily tasks safely and independently, making living alone hazardous. The presence of dementia among Canadian seniors was found to be associated with the transition to the seniors' housing [30]. Chyr et al. found that having dementia and living alone are associated with higher hazards of transition from the community to residential care settings [57]. The presence of several mental health factors among seniors often influences the consideration of seniors' housing options. Seniors' housing facilities with specialized memory care units can be designed to address these needs, offering secure environments and tailored activities to enhance cognitive function and manage symptoms. Seniors' housing can provide a communal living environment where residents may engage with peers, participate in social activities, and access mental health services. For seniors with more severe mental health conditions requiring

regular psychiatric care, some seniors' housing facilities provide access to mental health professionals and psychiatric services as part of their care offerings. Calsolaro et al. found that transitioning to seniors' housing can lead to psychological stabilization [36]. Holland et al. reported that the transition to seniors' housing significantly improved psychological outcomes and reduced functional limitations in seniors with independence concerns [59]. Mitchel and Kemp reported that seniors' housing with advanced services can improve residents' quality of life by creating a cohesive social environment and encouraging social participation and family involvement [60].

1.7 Justification of the Study

We found no prior research investigated the association between economic status and the transition to the seniors' house using nationally representative data in the context of Canada. We believe that investigating the association between economic status and the transition to the seniors' house is crucial, as economic status may play a significant role in the decision-making processes for Canadian seniors while transitioning to supportive care settings and in the development and implementation of policies related to this sector. Therefore, we utilized the CLSA, a nationally representative longitudinal dataset, to investigate the association between economic status and transition to seniors' housing among Canadians across different provinces. Our findings could significantly impact the establishment of policies and initiatives for assisting Canadian seniors. They could also help various stakeholders develop targeted policies, programs, interventions, and strategies to assist seniors in managing their housing needs, especially in the context of economic disparities.

2. Objective, Research Questions, and Hypotheses

The objective of our study was to investigate the association between economic status and the transition to seniors' housing among Canadians, utilizing data from the CLSA. Specifically, our study aimed to answer the following research questions:

1. What is the association between the economic status and the transitions to seniors' housing in Canada, controlling for potential co-variates such as sociodemographic factors, needs factors, and health-related factors?

   Hypothesis: We hypothesized that seniors with a higher economic status would have fewer transitions to seniors' housing compared to those with lower economic status.

2. What is the association between the economic status and the transitions to seniors' housing in different jurisdictions in Canada, controlling for potential co-variates such as sociodemographic factors, needs factors, and health-related factors?

   Hypothesis: We hypothesized that the association between economic status and transitions to seniors' housing will vary across Canadian jurisdictions due to differences in regulations and the conceptualization of the seniors' housing sector.

3. Methods

3.1 Study Design and Settings

This study was a retrospective longitudinal analysis, leveraging data from the CLSA [61,62]. The CLSA represents a comprehensive nationwide longitudinal study that aimed at following the health and aging trajectories of approximately 50,000 Canadian men and women aged between 45 and

85 across a span of two decades or more [61,62]. We accessed the data when CLSA completed the baseline and two follow-up assessments. CLSA began the baseline data collection in 2010, which was completed by 2015. Following this, the study initiated the first follow-up wave in 2015, approximately three years after the baseline, and this phase concluded in 2018. Subsequent follow-up waves have been conducted every three years, with the second wave taking place from 2018 to 2021. The CLSA continues to collect data in ongoing follow-up phases to observe participants until 2033. This longitudinal approach allows researchers to observe the aging process over time and gain insights into the factors influencing healthy aging in Canadian middle-aged and older adults. Our study included participants who had participated in the baseline interview and at least one follow-up. Our study utilized the opportunity to assess the outcome across multiple time points. This study is reported in alignment with the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines (**Appendix 1**) [63].

3.2 Participants and Recruitment

The participant recruitment for CLSA aims to reflect Canadian seniors, allowing nationally representative estimates regarding the social determinants of health, health status, and health system utilization [62]. Three sampling frames were used to recruit participants randomly in CLSA [62]. The initial recruitment process for the CLSA Tracking cohort followed the sampling strategy from the Canadian Community Health Survey on Healthy Aging (CCHS-HA), from which initial contact information was obtained. While consent was obtained from CCHS participants, their contact information was passed on to the CLSA team. To achieve the desired sample size of 20,000 participants for the Tracking cohort, the CLSA expanded its recruitment efforts beyond the CCHS-HA, employing additional strategies such as accessing Provincial Healthcare Registration

Databases and utilizing random digit dialling. These registries provide comprehensive coverage of all individuals officially residing within a specific province. If participants met the eligibility criteria, they were randomly selected and employed Random Digit Dialing (RDD) for telephone sampling, focusing exclusively on landline numbers. Although this approach may present more significant challenges when engaging a younger demographic, both Statistics Canada and the CLSA concluded it was a viable strategy for reaching individuals aged 45 and older in 2010 to 2015. The tracking cohort primarily intends to provide provincial-level insights regarding health determinants and healthcare system utilization. Data collection for this cohort was facilitated by computer-assisted telephone interviews (CATI), which eliminated the need for participants to travel, enabling the inclusion of individuals from a wide geographical spread across all ten provinces. Those in the Tracking cohort underwent a less extensive interview and assessment process than their Comprehensive cohort counterparts, without the requirement to provide physical or biological specimens.

The remaining 30,000 participants participated in more in-depth investigations, including comprehensive physical assessment and collection of biological specimens, including blood and urine. The provincial healthcare registries of eight provinces were also utilized for the Comprehensive cohort. In this cohort, the participants were from 11 data collection sites around the 25-50 km radius of the sites in small, medium, and large towns, with some including significant rural catchment regions that were in seven provinces (Ontario, Quebec, Alberta, British Columbia, Manitoba, Newfoundland and Labrador, and Nova Scotia). Data for this cohort were collected using the in-home questionnaire via CAPI and required to visit the data collection site for the in-person physical assessment, tests, and biological specimens such as blood and urine.

To achieve national representation in both the Tracking and Comprehensive cohorts, the study designed 136 sampling strata for the Tracking cohort. These were defined by factors including sex (male or female), age group (45–54, 55–64, 65–74, and 75-85 years), province, and proximity to Data Collection Sites (DCS), distinguishing between areas within and outside the DCS catchment. For the Comprehensive cohort, 56 sampling strata were established, categorized by sex, age group, and province. Sampling weights were then applied to determine the representativeness of each participant within their respective province and across Canada. The study successfully enrolled 51,338 participants, with a participation rate of around 45% and a response rate of 10% [62].

For the Comprehensive cohort, recruitment strategies also tapped into provincial healthcare registration databases and utilized RDD, with an additional group of participants aged 75 to 85 being recruited from the Quebec Longitudinal Study on Nutrition and Aging (NuAge). These participants were all located within a 25 to 50 km radius of one of the 11 data collection sites distributed across seven provinces: British Columbia (Victoria, Vancouver, Surrey), Alberta (Calgary), Manitoba (Winnipeg), Ontario (Hamilton, Ottawa), Quebec (Montreal, Sherbrooke), Nova Scotia (Halifax), and Newfoundland and Labrador (St. John's). Due to demographic and geographical considerations, participants from Prince Edward Island, New Brunswick, and Saskatchewan were excluded from the Comprehensive cohort. All 30,097 Comprehensive cohort participants completed in-home surveys, interviews, and physical exams at the data collection sites, offering a deeper dive into their health status compared to the Tracking cohort.

Interviewers made initial contact by phone within two weeks, which included details about the study and a consent form. The recruitment strategy involved a 60-minute telephone interview for

both cohorts. This approach ensures high-quality data collection by allowing interviewers to directly enter responses into the system, enhancing the accuracy and security of the data.

3.3 Inclusion and Exclusion Criteria

The CLSA included participants who were adults between the ages of 45 and 85, capable of completing interviews in English or French. It explicitly targets community-dwelling adults and those in transitional housing, such as senior residences with minimal care requirements, and includes members from its tracking and comprehensive cohorts.

The exclusion criteria of the CLSA were seniors residing in long-term care facilities at baseline. The study did not include residents of the three territories, full-time members of the Canadian Armed Forces, and seniors living on federal First Nations reserves, aiming to maintain a sample that is representative of the broader Canadian adult population. Moreover, CLSA also excluded participants who passed away before follow-up assessments.

The CLSA exclusion criterion also included the presence of cognitive impairment at baseline, as it could compromise the seniors' capacity to provide informed consent and potentially affect the reliability and validity of interview responses. These eligibility and exclusion criteria are adapted from the Canadian Community Health Survey (CCHS), ensuring a comprehensive and representative approach to studying aging among Canadian seniors.

Since we investigated transitions to seniors' housing from their own homes, we excluded participants residing in institutions (old age facilities) at baseline (2011-2015) and follow-up 1

(2015-2018), as well as those who did not complete the first follow-up. Consequently, transitions to long-term care facilities other than seniors' housing were excluded from this study. Our study also excludes participants whose living status was not able to be evaluated in the first follow-up. Finally, our study included 50,919 participants based on our exclusion criteria.

3.4 Variables Selection Approaches

3.4.1 Theoretical Approaches

We followed a hypothesis-driven approach to include the potential co-variates in our models supported by theoretical approaches. We applied the Push-Pull theory to select variables that are most relevant to the transitions to seniors' houses among seniors from their own homes [58]. Lee initially proposed the Push-Pull theory in 1966 [64]. The Push-Pull theory provides a critical foundation for understanding the factors that motivate seniors to transition, especially when considering supportive living environments. Relocation reasons are often divided into push factors, which drive people from their current home, and pull factors, which attract them to a new one [65]. Research by Gibler, Moschis, and Lee (1998) found that seniors often transition to have more social contacts, access to personal care, and avoid the difficulty of managing house chores [66,67]. According to this theory, pull factors attract individuals to a new place, while push factors motivate them to leave their current situation. These factors cover a wide range of considerations in terms of community environment, physical environment, and personal circumstances pertaining to both the current and new locations. For example, social support and living arrangements are key factors in the community environment. Seniors living alone might feel isolated, pushing them to seek environments with more social interaction and support. Conversely, those with strong social networks within seniors' housing facilities might be attracted (pulled) to transition there. The

number of people currently living with the seniors also influences this decision, where living alone or with fewer people could push them to consider supportive housing for better companionship and community. The personal circumstances include factors like general health status, eyesight rating, chronic diseases, and the need for formal home care. Poor health or declining eyesight can push seniors to leave their homes in search of facilities offering better physical support and care. On the other hand, seniors' housing that provides specialized services for those with impairments or chronic conditions can act as a pull factor, attracting seniors to transition to environments that address their physical needs. Certain provinces offer subsidies specifically for lower-income seniors, which may act as a pull factor for this group to transition to seniors' housing, while the level of subsidies available to higher-income seniors is often not as substantial. Personal circumstances encompass variables such as age, sex, financial savings, investment, and household income. Lower financial savings might push seniors to seek more affordable housing options, while higher savings could pull them towards better-equipped and possibly more expensive facilities. Increasing age, especially when accompanied by chronic diseases, might push seniors to leave their current homes for environments that offer more comprehensive medical care. This theory was widely used in previous studies to explore what drives seniors' to make the transition to supportive housing [58,68,69].

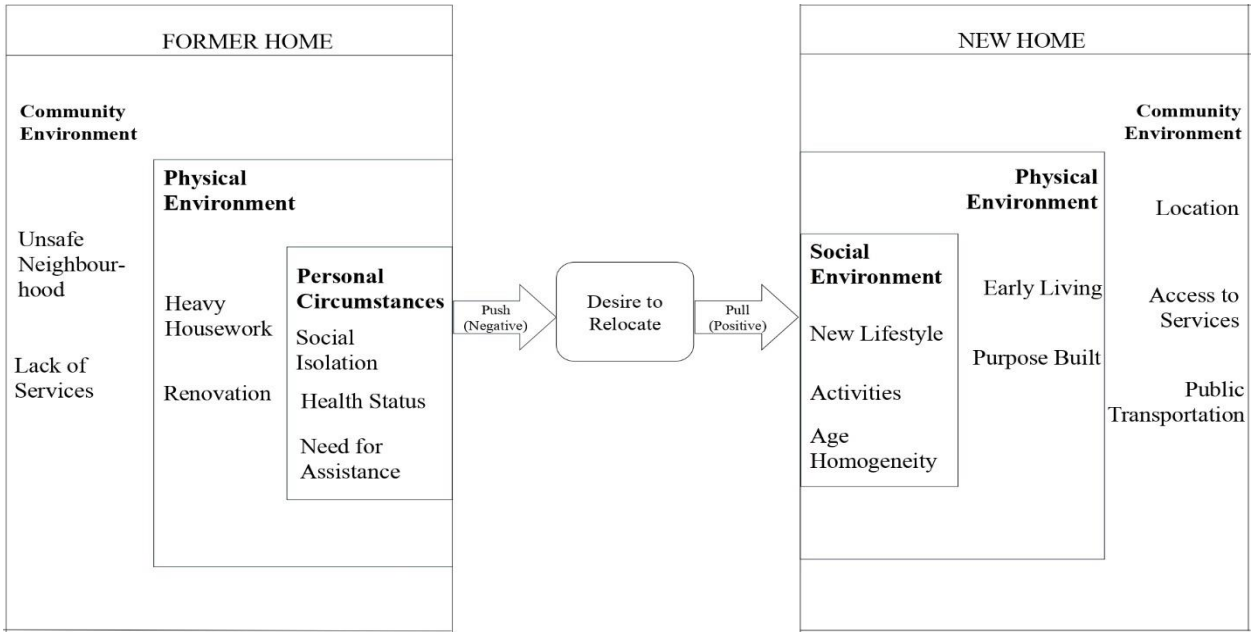

Figure 1: Theme-based grouping of all push and pull factors adopted by Tyvimaa and Kemp (2011) among Finnish seniors [68].

3.4.2 Literature Review and Multicollinearity Approaches

Along with the support of the Push-Pull theory, we reviewed existing literature to select the potential co-variates for our study. We selected several co-variates from the CLSA dataset using these two initial approaches. We also checked the multicollinearity among the initially selected variables. We included one variable from the list of moderate to highly correlated variables (for example, the correlation coefficient value was more than 0.4) (**Appendix 2**).

Finally, the variables included in our model were age, sex, number of people living with the participant, provinces, general health status, eyesight rating, social support availability, received formal home care, ADL (activities of daily living) impairment, and chronic diseases. The important benefit of these rigorous variable selection processes is that they helped us to avoid model

overfitting [70]. The model overfitting arises when a statistical model is excessively complex and tailored to match the particulars of the existing sample closely but not represent the population. This phenomenon significantly impairs the generalizability of the model in predicting outcomes in different real-world situations. As a result, by selecting variables based on well-established theory, supporting literature, and checking for multicollinearity, we ensured that each variable was justified and directly relevant to understanding the transition dynamics among seniors. We believe these approaches might enable us to build a model reflecting true association within the sample and population.

3.4.3 Definition of the Seniors' Housing in Canada

In the context of Canada, the term "seniors' housing" commonly refers to independent residential settings where seniors live with access to supportive care as needed [12,13] . According to the CLSA questionnaire, the seniors' housing category included settings that are commonly known as retirement homes or assisted living facilities in their housing assessment items. Therefore, in the context of our study, we used the term "seniors' housing" to specifically mean retirement homes or assisted living facilities interchangeably, as this is the more consistent definition within Canada.

3.5 Measurements

3.5.1 Measurement of the Outcome

The outcome of our study was the transition of seniors from their own homes into seniors' housing facilities. This transition was assessed through seniors' self-reported living arrangements, collected via a specific item in the CLSA questionnaire: "What type of dwelling do you currently live in?" This item was applied at baseline and subsequent follow-up interviews, allowing us to assess

transitions over time. The responses to the item were categorized into six types: a) house (single detached, semi-detached, duplex, or townhouse), b) apartment or condominium, c) seniors' housing (retirement homes or assisted living facilities), d) institution (e.g., long-term care facilities), and e) hotel, rooming, or lodging house. The current study evaluated changes in seniors' living arrangements from baseline to subsequent follow-ups. For our study, we categorized living arrangements in a) houses, b) apartments or condominiums, and e) hotels, rooming, or lodging houses as living in their "own home," and who were living in d) institutions were excluded from the study. We focused on observing the seniors' transition from their own homes to the seniors' housing in the subsequent follow-up, specifically between the baseline and first follow-ups and then between the first and second follow-ups. For instance, transitions were counted when older adults lived in their own homes at the first follow-up but transitioned to seniors' housing by the next follow-up. Conversely, older adults who were living in their own homes between follow-up periods (from baseline to the first follow-up and/or from the first to the second follow-up) were counted as having no transitions.

3.5.2 Measurement of the Exposure

The primary exposure of interest of our study was economic status, which we assessed primarily through participants' "total savings and investments". The CLSA participants were relatively young and might have active employment and income. This could lead to a significant disparity between working and non-working participants within the study. On the other hand, younger participants might have accumulated less savings compared to their older counterparts. The households with the highest income saw the most significant increase in disposable income, primarily due to having substantial gains in investment earnings [23]. Consequently, to ensure

consistency in measuring economic status, we incorporated “total annual household income” as a secondary measure for the sensitivity analysis to account for these potential differences. The total savings and investments were assessed through self-reports, specifically using the questions related to Wealth (WEA) in the CLSA. In a WEA item of CLSA, the participants were asked, "What is the approximate total value of these savings and investments?". The response was provided in a) less than $50,000, b) $50,000 to less than $100,000, d) $100,000 to less than $1 million, and e) $1 million or more. Similarly, the total household income was assessed through self-report items under the section of Income (INC) in the CLSA. The participants were asked, "What is your best estimate of the total household income received by all household members, from all sources, before taxes and deductions, over the last 12 months?" The responses to this income item were a range of income levels: a) less than $20,000, b) $20,000 to less than $50,000, c) $50,000 to less than $100,000, d) $100,000 to less than $150,000, and e) $150,000 and above. All economic assessments were assessed in Canadian Dollars (CAD).

3.5.3 Measurement of Co-variates

While “total savings and investments” was our primary exposure variable, we also considered participant characteristics such as age, sex, number of people living with them, province, general health status, eyesight rating, social support availability, receipt of formal home care, ADL impairments, and the number of chronic diseases present as potential covariates in our study. Although cognitive impairment was an important variable supported by the literature, due to the extreme missingness, we could not include it in our main model but included it in our sensitivity analysis.

General health status was assessed using a single item: "In general, would you say your health is excellent?" The responses were recorded on an ordinal scale ranging from excellent to poor. Similarly, eyesight rating was evaluated with a single item: "Is your eyesight, using glasses or corrective lenses if you use them?" The responses were also collected on an ordinal scale ranging from excellent to poor.

Perceived social support availability was measured in the baseline questionnaire using the validated 19-item Medical Outcomes Study (MOS) Social Support Survey [71]. This scale assesses four subscales: tangible support (e.g., "someone to help you if you were confined to bed"), positive social interaction (e.g., "someone to get together with for relaxation"), affectionate support (e.g., "someone who hugs you"), and emotional/informational support (e.g., "someone you can count on to listen to you when you need to talk"). Responses were coded from 1 (none of the time) to 5 (all of the time), and mean scores for each subscale ranged from 1 to 5. The overall support index includes all 19 items, with higher scores indicating higher levels of social support availability.

According to the CLSA questionnaire, participants were asked about their use of home care services in the past 12 months [40]. The types of formal care assistance included personal care, medical care, care management, help with activities, transportation, meal preparation or delivery, physical therapy, training and adaptation, and other professional care. While participants received any of these types of care, they were classified as having received formal care.

The Activities of Daily Living (ADLs) are assessed using adapted questions from the Older Americans' Resources and Services (OARS) Multidimensional Functional Assessment

Questionnaire [72]. Participants are asked about seven basic ADLs and seven instrumental activities of daily living (IADLs). The OARS uses a 5-point scale ranging from "excellent/good" to "total impairment." In the CLSA, this scale has been modified, renaming the first category, "excellent/good," to "no functional impairment." For our study, we can create a binary classification where "no functional impairment" is labelled as “no,” and all other levels are labelled as “yes.” The OARS uses a 5-point scale ranging from "no” functional impairment to “total” impairment. Due to limited responses, we consolidated the categories into three: "no," "mild," and "moderate or greater” impairment in our analysis.

We created a variable for assessing the number of chronic diseases present, which included 37 diseases that were common between the comprehensive and tracking cohorts [73]. These chronic diseases are osteoarthritis in the knee, osteoarthritis in the hip, osteoarthritis in both hands, rheumatoid arthritis, other types of arthritis, osteoporosis, chronic bronchitis, heart disease, peripheral vascular disease, memory problems, Alzheimer’s disease, multiple sclerosis, epilepsy, migraine, stomach ulcers, bowel disorders, bowel incontinence, urinary incontinence, cataracts, macular degeneration, cancer, anxiety, mood disorders, allergies, back problems, kidney disease, other long-term physical or mental conditions, diabetes, high blood pressure, under-active thyroid gland, angina, stroke, heart attack (MI), asthma, mini-stroke, Parkinsonism, and glaucoma.

We included the cognitive impairment in our sensitivity analysis, which was measured in four cognition tests conducted in the Cognition (COG) module in CLSA: REYI measuring immediate memory recall, REYII measuring delayed memory recall, Animal Fluency (AF) measuring generative verbal fluency, and Mental Alternation Test (MAT) measuring speeded alternation of

ascending letters and numbers [74]. The overall score ranged from 0 to 4, with scores of two or more indicating overall impairment, while a score of one or lower indicates no impairment. Based on this, the CLSA created the "COG_OVERALL_IMP" variable, a binary-valued indicator that identifies whether a participant's overall cognitive performance on a set of four cognitive tests falls within the lowest 5% of the neuro-healthy CLSA norming subgroup.

3.6 Sample Size and Event Rates

We utilized data from the CLSA as a secondary analysis to address our research questions. Based on our inclusion and exclusion criteria, we included 50919 participants from the baseline. Due to the missingness in the follow-up data, 41294 complete cases were included in our final model. Our model incorporated ten continuous and categorical variables, including the exposure of interest, to account for a comprehensive range of potential covariates. To handle categorical variables with multiple levels, we used the n-1 approach, which creates n-1 dummy variables to avoid multicollinearity [70]. This resulted in a total of 25 prognostic factors being included in our model.

Our descriptive analysis found 1112 events (transitions to seniors' housing). To ensure robust model performance, we followed the widely accepted guideline that recommends a minimum of 10 events per prognostic factor to prevent overfitting and to ensure sufficient power [70,75]. Based on this guideline, the minimum number of events required for our model was calculated as:

Minimum number of events = 10 * 25 = 250

This calculation indicated that at least 250 events were necessary to accurately estimate the model parameters and predict transitions to seniors' housing. As the sample size was 41294 for our model and had 1112 events, we believe the event count for our study far exceeded this minimum requirement. This substantial event count provided sufficient power for our analyses. Furthermore, the large sample size allowed us to conduct subgroup analyses, such as province-specific analyses, offering additional insights into regional differences in the association between economic status and the transitions to seniors' housing. Therefore, we believe that our sample size and event rate ensured that our model was adequately powered to predict the outcome and provided confidence in the generalizability of our findings.

3.7 Statistical Methods

3.7.1 Descriptive Analysis

The characteristics of the study variables were analyzed using descriptive statistics, including frequency, percentage, mean, and standard deviation. Bivariate analyses between characteristics of the study variables and transitions to seniors' housing were conducted using the t-test and chi-squared test.

3.7.1 Regression Analysis

We used the unadjusted and adjusted Generalized Estimating Equation (GEE) models with an exchangeable correlation structure to investigate the association between economic status and transitions to seniors' housing. In the adjusted GEE model, economic status (total savings and investments) was the primary exposure variable, and the model was controlled for potential confounders. The predictive performance of our model was assessed using the ROC curve, which

demonstrated the model's ability to distinguish between participants who transitioned to seniors' housing and those who were staying at their own homes.

Province-specific adjusted models were also fit to investigate the provincial variation in the association where the event rate was sufficient. Given the adequate event rate, we could fit the models in Alberta, British Columbia, Ontario, and Quebec. We also create a forest plot segmented by provinces to show the adjusted association between economic status and transitions to seniors' housing at the four provincial levels.

3.7.2 Sensitivity Analysis

A sensitivity analysis was conducted, considering "total household income" as a secondary measure of our exposure of interest in the GEE model to explore the consistency of the economic status measure. The average age of the seniors' housing residents was reported 86.7 years in Ontario [11]. Therefore, we created a relatively small subset of participants aged 75 years and older and fit the GEE model to investigate the consistencies of the association between economic status and the transition to seniors' housing. Due to having the missing data (<10%), we also intended to perform the Weighted Generalized Estimating Equation (WGEE) as a part of our sensitivity analysis. WGEE is suitable for modelling longitudinal or clustered data with binary outcomes and can appropriately handle monotonic missing data under the assumption of missing at random (MAR). In practice, the weights are often unknown and are estimated using a logistic regression model under the MAR assumption. Specifically, this involves calculating the probability of observing a response given the previously observed responses. To assess whether the MAR assumption is violated, we examined the p-value of the prevy (previous responses) estimate in

SAS [76]. Upon checking the prevy estimate and its p-value, we found that the p-value was greater than 0.05, indicating that the assumption is violated. This suggests that the missingness in our study was, in fact, completely at random (MCAR). Therefore, the standard GEE remained a valid model for our study. As a part of sensitivity analysis, we also fit the model after the multiple imputation. Although cognitive impairment was an important variable, its inclusion alone led to a sample size reduction of over 13%. As a result, it was not included in the main model. However, we performed a sensitivity analysis where cognition was incorporated into a separate model. To investigate the impact of missingness, we generated an imputed dataset over a maximum of five iterations and fit a model. The imputation method used for each variable was specified as follows: classification and regression trees (CART) were applied to the variables with missing data. The variables without missing data were not imputed and retained their original values.

3.7.3 Statistical Software and Packages

The analysis was conducted using R version 4.4.1. The GEE models were developed using the `geepack` package, while the forest plot was generated with the `ggplot2`, `dplyr`, and `extrafont` packages. In the multiple imputation by chained equations (MICE) approach, we used the “mice” package in R. The assumption of the WGEE was checked by using SAS. The Sankey diagram was created using SankeyMATIC, a web-based tool for drawing and formatting Sankey diagrams.

3.8 Ethics

All participants in the CLSA have given their written informed consent for participation in the study. CLSA protocol was approved by all participating sites across Canada. For the ethical issue of our study, a protocol was developed and submitted to the Hamilton Integrated Research Ethics

Board (HiREB). HiREB approved our study in July 2023 (Project ID: 16338). All documentation related to the HiREB submission was shared with the CLSA to ensure transparency and adherence to the ethical standards of this project.

4. Results

4.1 Selections of the Cohort

In **Figure 2**, the flowchart illustrates the selection process for eligible participants from an initial cohort of 51,338 individuals in the CLSA study based on our eligibility criteria. Firstly, 391 participants living in seniors' housing were excluded, reducing the number to 50,947. Subsequently, nine participants residing in institutions were excluded, leaving 50,938 eligible participants. Following this, two individuals living in work sites were also excluded, resulting in 50,936 participants. Finally, 17 participants who did not respond were excluded, yielding a final total of 50,919 eligible participants for the study. Overall, the process excluded 419 based on our exclusion criteria, ensuring that the final cohort meet the eligibility criteria of our study.

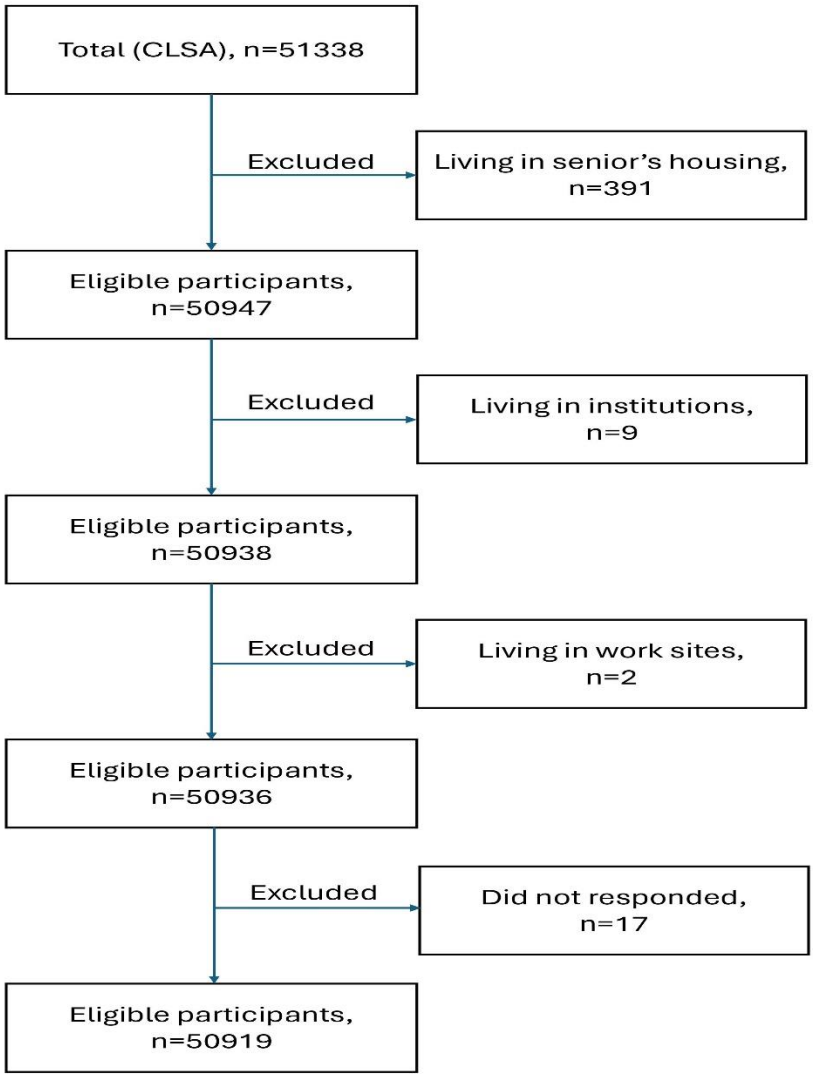

Figure 2: A Flow Chart shows the selection process for eligible participants from the total CLSA sample.

4.2 Descriptive Characteristics of the Participants

Figure 3 presents a Sankey Plot that illustrates seniors' transitions between their own homes and the seniors' housing across the CLSA study period from baseline (B) to follow-ups (F1 and F2). At the CLSA baseline, 50,919 participants were living in their own homes. By follow-up-1, 44,116 of these participants remained in their own homes, while 666 had transitioned to seniors' housing. Additionally, 6,528 participants were missing from baseline to follow-up-1. The transitions from follow-up-1 to follow-up-2 show further changes: of the 44,116 participants who were still in their own homes at follow-up-1, 39,134 continued to live in their homes until follow-up-2, but 835 transitioned to seniors' housing. The number of missing participants increased over time, with 11,341 participants unaccounted for by follow-up-2.

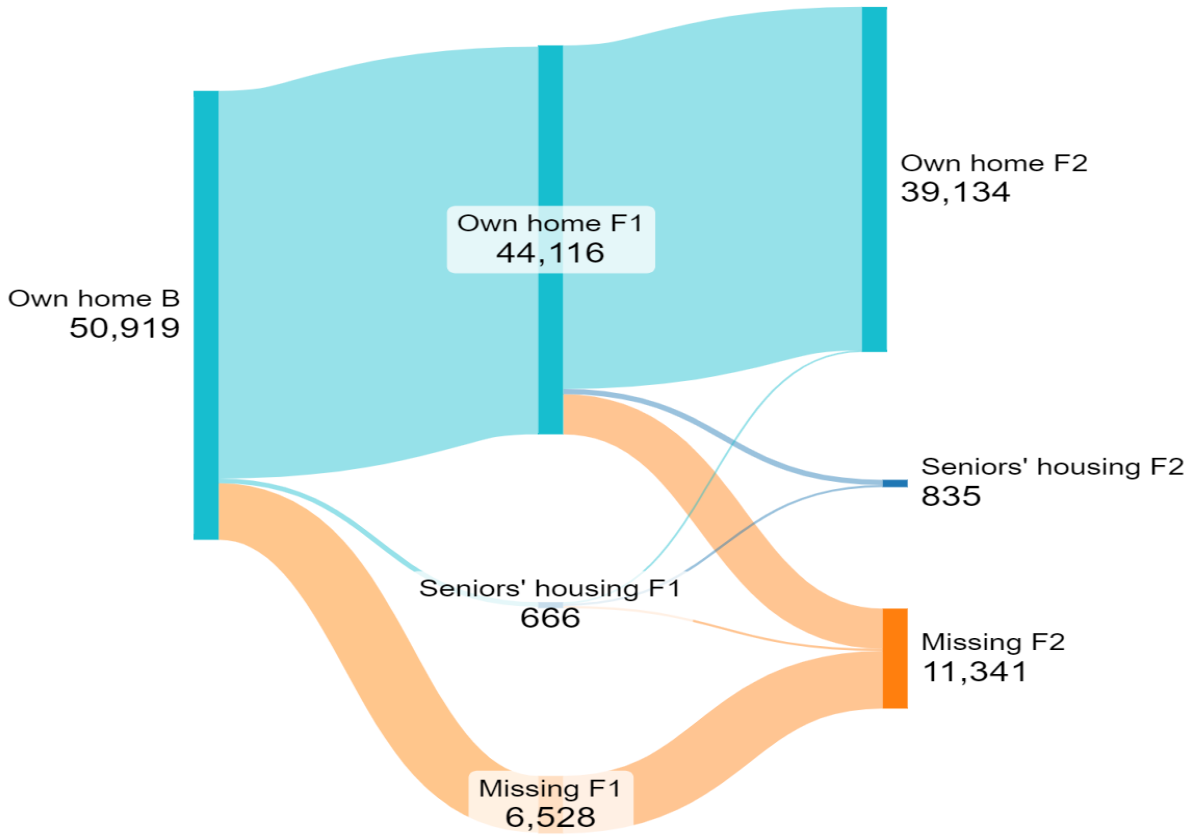

Figure 3: *A Sankey Diagram illustrates the flow of participants from their initial living status at the baseline (B) through two follow-up times (F1 and F2) in the study. The Sankey plot was created by https://www.sankeymatic.com/.*

In our study, we observed that transitions to seniors' housing incidence were 1.12% at Time Point 1 (2015-2018), increasing to 1.49% at Time Point 2 (2018-2022). Time Point 1 represents the baseline and first follow-up of the CLSA, while Time Point 2 represents the first follow-up of CLSA as its baseline and the second follow-up of CLSA as its follow-up.

The descriptive characteristics of study participants at both Time Point 1 and Time Point 2 are detailed in **Table 1**. At Time Point 1, the average age of individuals who transitioned to seniors' housing was 76.50 (SD=7.20) years, while those who did not transition had an average age of 62.30 (SD=10.10). At Time Point 2, the average age of individuals who transitioned to seniors' housing was 78.70 (SD=7.50) years, compared to 65.10 (SD=9.70) years for those who did not transition. At Time Point 1, 60.34% of females transitioned to seniors' housing, compared to 50.96% of females who did not transition. At Time Point 2, 64.01% of females transitioned to seniors' housing, compared to 51.25% of females who did not transition. At Time Point 1, 39.34% of individuals who transitioned to seniors' housing had total savings and investments of less than 50,000 CAD, compared to 23.87% of those who did not transition. At Time Point 2, 37.30% of those who transitioned had less than 50,000 CAD in total savings and investments, compared to 22.40% of individuals who did not transition. At Time Point 1, 18.80% of individuals who transitioned to seniors' housing had a total household income of less than 20,000 CAD, compared to 4.88% of those who did not transition. At Time Point 2, 15.25% of individuals who transitioned had a total household income of less than 20,000 CAD, compared to 4.17% of those who did not transition. At Time Point 1, 58.62% of individuals who transitioned to seniors' housing lived alone, compared to 21.09% of those who did not transition. At Time Point 2, 58.19% of individuals who transitioned lived alone, while 22.30% of those who did not transition lived alone. At Time Point

1, 29.12% of individuals who transitioned to seniors' housing were from Quebec, compared to 18.86% of those who did not transition. At Time Point 2, 34.18% of individuals who transitioned were from Quebec, compared to 18.89% of those who did not transition. At Time Point 1, 15.13% of those who transitioned to seniors' housing were from Ontario, compared to 22.04% of those who did not transition. At Time Point 2, 15.14% of those who transitioned were from Ontario, compared to 22.20% of those who did not transition. At Time Point 1, 8.83% of individuals who transitioned to seniors' housing reported being in excellent health, compared to 20.52% of those who did not transition. At Time Point 2, 10.00% of those who transitioned reported excellent health, compared to 18.16% of those who did not transition. At Time Point 1, individuals who transitioned to seniors' housing had a mean social support score of 73.60 (SD=19.60), compared to 82.20 (SD=17.10) for those who did not transition. At Time Point 2, the social support score for those who transitioned was 73.40 (SD=20.60), compared to 82.90 (SD=17.20) for those who did not transition. At Time Point 1, 20.31% of individuals who transitioned to seniors' housing received formal home care, compared to 4.15% of those who did not transition. At Time Point 2, 27.72% of those who transitioned received formal home care, compared to 6.18% of those who did not transition. At Time Point 1, 6.42% of individuals who transitioned to seniors' housing had moderate or greater ADL impairment, compared to 0.94% of those who did not transition. At Time Point 2, 7.26% of those who transitioned had moderate or greater ADL impairment, compared to 1.41% of those who did not transition. At Time Point 1, individuals who transitioned to seniors' housing had an average of 6.50 (SD=3.5) chronic diseases, compared to 4.0 (SD= 2.80) for those who did not transition. At Time Point 2, individuals who transitioned had an average of 6.90 (SD=3.80) chronic diseases, compared to 4.50 (SD=3.10) for those who did not transition.

Table 1: Descriptive Characteristics of the Participants at Time Point 1 (CLSA Baseline to Follow-up-1) and Time Point 2 (CLSA Follow-up-1 to Follow-up-2)

Characteristics	Time 1 (2015-2018) (n= 44727)				Time 2 (2018-2022) (n=39969)			
	Baseline, n (%) / mean (sd)	Transition, n (%) / mean (sd)	No Transition, n (%) / mean (sd)	P value	Baseline, n (%) / mean (sd)	Transition, n (%) / mean (sd)	No Transition, n (%) / mean (sd)	P value
Age	62.60 (10.2)	76.50 (7.20)	62.30 (10.10)	**<0.001**	65.40 (9.90)	78.70 (7.50)	65.10 (9.70)	**<0.001**
Sex								
Male	21850 (48.84)	207 (39.66)	21553 (49.04)	**<0.001**	19352 (48.44)	212 (35.99)	18988 (48.75)	**<0.001**
Female	22884 (51.16)	315 (60.34)	22398 (50.96)		20601 (51.56)	377 (64.01)	19958 (51.25)	
Total savings and investment								
<50k CAD	9472 (24.19)	166 (39.34)	9195 (23.87)	**<0.001**	8349 (22.78)	188 (37.30)	8014 (22.40)	**<0.001**
50k -<100K CAD	6519 (16.65)	70 (16.59)	6413 (16.65)		5903 (16.11)	99 (19.64)	5742 (16.05)	
100k - <1m CAD	19316 (49.32)	161 (38.15)	19093 (49.56)		18589 (50.73)	186 (36.90)	18270 (51.06)	
>1m CAD	3854 (9.84)	25 (5.92)	3824 (9.93)		3805 (10.38)	31 (6.15)	3754 (10.49)	
Total household income								
<20k CAD	2177 (5.18)	88 (18.80)	2016 (4.88)	**<0.001**	1682 (4.48)	81 (15.25)	1528 (4.17)	**<0.001**
20k - <50k CAD	10002 (23.81)	192 (41.03)	9708 (23.50)		8546 (22.77)	232 (43.69)	8146 (22.23)	
50k -<100K CAD	15260 (36.33)	147 (31.41)	15077 (36.49)		13809 (36.79)	168 (31.64)	13545 (36.97)	
100k-<150k CAD	9784 (19.01)	32 (6.84)	7943 (19.22)		7256 (19.33)	34 (6.40)	7203 (19.66)	
>150k CAD	6585 (15.68)	9 (1.92)	6572 (15.91)		6246 (16.64)	16 (3.01)	6219 (16.97)	
Number of people living in the household								
Alone	22590 (50.49)	306 (58.62)	9270 (21.09)	**<0.001**	9306 (23.36)	341 (58.19)	8660 (22.30)	**<0.001**
One	6110 (13.66)	192 (36.78)	22338 (50.82)		21374 (53.66)	226 (38.57)	21037 (54.18)	
Two	6268 (14.01)	16 (3.07)	6092 (13.86)		4996 (10.53)	14 (2.39)	4942 (12.73)	
Three and more	9773 (21.84)	8 (1.53)	6258 (14.24)		4196 (10.53)	5 (0.85)	4190 (10.79)	
Provinces								
Ontario	9809 (21.92)	79 (15.13)	9693 (22.04)	**<0.001**	8789 (22)	89 (15.14)	8647 (22.20)	**<0.001**
British Columbia	7970 (17.81)	62 (11.88)	7864 (17.88)		7251 (18.15)	73 (12.41)	7122 (18.29)	

Alberta	4505 (10.07)	75 (14.37)	4409 (10.03)		4032 (10.09)	67 (11.39)	3911 (10.04)	
Quebec	8512 (19.02)	152 (29.12)	8293 (18.86)		7690 (19.25)	201 (34.18)	7358 (18.89)	
Atlantic	8872 (19.82)	75 (14.37)	8751 (19.90)		5304 (13.28)	58 (9.86)	5202 (13.36)	
Western	5090 (11.37)	79 (15.13)	4965 (11.29)		6883 (17.23)	100 (17.01)	6707 (17.22)	
General health status								
Excellent	9095 (20.33)	46 (8.83)	9019 (20.52)	**<0.001**	7168 (17.96)	59 (10.00)	7066 (18.16)	**<0.001**
Very good	18383 (41.10)	180 (34.55)	18114 (41.22)		16779 (42.04)	169 (28.64)	16472 (42.33)	
Good	12988 (29.04)	187 (35.89)	12710 (28.92)		11808 (29.58)	221 (37.46)	11438 (23.40)	
Fair	3524 (7.88)	87 (16.70)	3393 (7.72)		3503 (8.78)	112 (18.98)	3318 (8.53)	
Poor	736 (1.65)	21 (4.03)	708 (1.61)		656 (1.64)	29 (4.92)	615 (1.58)	
Eyesight rating								
Excellent	10143 (22.68)	80 (0.79)	10023 (22.81)	**<0.001**	7355 (18.48)	87 (14.87)	7207 (18.57)	**<0.001**
Very Good	17324 (38.73)	174 (1.01)	17066 (38.83)		15441 (38.79)	188 (32.14)	15122 (38.97)	
Good	13870 (31.01)	187 (1.36)	13590 (30.90)		13575 (34.10)	218 (37.26)	13192 (34.00)	
Fair	2837 (6.34)	68 (2.43)	2731 (6.21)		2905 (7.30)	64 (10.94)	2796 (7.21)	
Poor	553 (1.24)	12 (2.19)	535 (1.22)		530 (1.33)	28 (4.79)	488 (1.26)	
Social support availability	82.10 (17.20)	73.60 (19.60)	82.20 (17.10)	**<0.001**	82.70 (17.40)	73.40 (20.60)	82.90 (17.20)	**<0.001**
Received formal home care								
Yes	1992 (4.45)	106 (20.31)	1826 (4.15)	**<0.001**	2693 (6.74)	163 (27.72)	2404 (6.18)	**<0.001**
No	42766 (95.55)	416 (79.69)	42149 (95.85)		37234 (93.26)	425 (72.28)	36517 (93.82)	
ADL impairment								
No	40381 (90.58)	338 (65.76)	39887 (91.05)	**<0.001**	33901 (87.63)	335 (59.29)	33350 (88.39)	**<0.001**
Mild	3721 (8.35)	143 (27.82)	3506 (8.00)		4158 (10.75)	189 (33.45)	3848 (10.20)	
≥ Moderate	477 (1.07)	33 (6.42)	413 (0.94)		629 (1.63)	41 (7.26)	531 (1.41)	
Chronic diseases	4.00 (2.90)	6.5 (3.5)	4.00 (2.80)	**<0.001**	4.60 (3.10)	6.90 (3.80)	4.50 (3.10)	**<0.001**

4.3 Association between the Economic Status and Transition to Seniors' Housing

Table 2 illustrates the associations between economic status (total savings and investments) and the transition to seniors' housing, with adjustments for the participants' characteristics. In the adjusted GEE model, we found a significant association between "total savings and investment" and the transition to seniors' housing. Seniors with higher total savings and investments, such as 50,000 CAD to less than 100,000 CAD (AOR = 0.78, 95% CI: 0.64-0.98, p = 0.023), 100,000 CAD to less than 1 million CAD (AOR = 0.73, 95% CI: 0.61-0.87, p < 0.001), and higher than 1 million CAD (AOR = 0.70, 95% CI: 0.51-0.96, p = 0.025), had significantly lower odds of transitioning compared to those with low economic status "less than 50,000 CAD". With each additional year of age, the odds of transitioning increased by 15% significantly (AOR = 1.15, 95% CI: 1.14-1.17, p < 0.001). Compared to seniors living alone, those living with at least one other person had 48% significantly lower odds of transitioning (AOR = 0.52, 95% CI: 0.44-0.61, p < 0.001). Those living with two others had 74% significantly lower odds of transitioning (AOR = 0.26, 95% CI: 0.15-0.40, p < 0.001), and those living with three or more others had 76% significantly lower odds of transitioning (AOR = 0.24, 95% CI: 0.12-0.47, p < 0.001). Compared to seniors with poor general health status, those in excellent health had 62% significantly lower odds of transitioning (AOR = 0.38, 95% CI: 0.24-0.61, p < 0.001), those in very good health had 51% significantly lower odds (AOR = 0.49, 95% CI: 0.32-0.76, p = 0.001), and those in good health had 40% significantly lower odds (AOR = 0.60, 95% CI: 0.40-0.92, p = 0.018) of transitioning. Compared to Ontario, seniors in Alberta had 2.21 times higher odds of transitioning (AOR=2.21, 95% CI: 1.68-2.90), seniors in Quebec had 2.55 times higher odds of transitioning (AOR=2.55, 95% CI: 2.02-3.20), while those in the Western provinces (Manitoba and Saskatchewan) had 1.81 times higher odds of transitioning (AOR=1.81, 95% CI: 1.39-2.35).

Compared to seniors with poor eyesight, those with very good eyesight had 31% significantly lower odds of transitioning (AOR = 0.69, 95% CI: 0.39-0.94, p = 0.023), and those with good eyesight had 31% significantly lower odds (AOR = 0.61, 95% CI: 0.40-0.94, p = 0.025). Increased social support availability was significantly associated with lower odds of transitioning (AOR = 0.99, 95% CI: 0.98-0.99, p < 0.001). Those who received formal home care had 37% significantly higher odds of transitioning compared to those who did not receive formal home care (AOR = 1.37, 95% CI: 1.12-1.68, p = 0.003). Seniors with "mild" ADL impairment had 40% (AOR = 1.40, 95% CI: 1.15-1.70, p =0.001), and "moderate and more" ADL impairment seniors had 65% (AOR = 1.65, 95% CI: 1.11-2.44, p =0.013) significantly higher odds of transitioning compared to those without impairment. Finally, each additional chronic disease significantly increased the odds of transitioning by 4% (AOR = 1.04, 95% CI: 1.01-1.07, p = 0.002).

Table 2: Associations between Economic Status and Transition to Seniors' Housing (n=41, 294)

Variable	Unadjusted Odds	P value	Adjusted Odds	P value
Economic status (total savings and investments)				
<50k CAD	Reference		Reference	
50k CAD - <100K CAD	0.68 (0.56-0.82)	**<0.001**	0.78 (0.64-0.98)	**0.023**
100k CAD - <1m CAD	0.44 (0.37-0.51)	**<0.001**	0.73 (0.61-0.87)	**<0.001**
>1m CAD	0.38 (0.28-0.51)	**<0.001**	0.70 (0.51-0.96)	**0.025**
Age (by year)	1.18 (1.17-1.19)	**<0.001**	1.15 (1.14-1.17)	**<0.001**
Sex				
Male	Reference		Reference	
Female	1.55 (1.34-1.78)	**<0.001**	1.12 (0.95-1.33)	0.165
Number of people living in the household				
Alone	Reference		Reference	
One	0.27 (0.23-0.31)	**<0.001**	0.52 (0.44-0.61)	**<0.001**
Two	0.06 (0.04-0.09)	**<0.001**	0.26 (0.16-0.42)	**<0.001**
Three and more	0.03 (0.02-0.06)	**<0.001**	0.24 (0.12-0.47)	**<0.001**
Provinces				
Ontario	Reference		Reference	
British Columbia	1.16 (0.90-1.50)	0.250	1.10 (0.84-1.43)	0.486
Alberta	1.99 (1.54-2.59)	**<0.001**	2.21 (1.68-2.90)	**<0.001**
Quebec	2.60 (2.09-3.23)	**<0.001**	2.55 (2.02-3.20)	**<0.001**
Atlantic	0.96 (0.73-1.28)	0.799	1.10 (0.82-1.48)	0.521

Western	1.72 (1.34-2.21)	**<0.001**	1.81 (1.39-2.35)	**<0.001**
General health status				
Excellent	0.19 (0.13-0.28)	**<0.001**	0.39 (0.24-0.63)	**<0.001**
Very good	0.28 (0.19-0.40)	**<0.001**	0.51 (0.33-0.80)	**0.004**
Good	0.47 (0.32-0.67)	**<0.001**	0.59 (0.38-0.92)	**0.010**
Fair	0.84 (0.58-1.24)	0.380	0.86 (0.55-1.35)	0.516
Poor	Reference		Reference	
Eyesight rating				
Excellent	0.22 (0.15-0.33)	**<0.001**	0.69 (0.44-1.08)	0.106
Very Good	0.25 (0.17-0.36)	**<0.001**	0.61 (0.39-0.94)	**0.023**
Good	0.35 (0.24-0.51)	**<0.001**	0.61 (0.40-0.94)	**0.025**
Fair	0.56 (0.37-0.85)	**0.006**	0.72 (0.45-1.13)	0.168
Poor	Reference		Reference	
Social support availability	0.98 (0.97-0.98)	**<0.001**	0.99 (0.98-0.99)	**<0.001**
Received formal home care				
Yes	6.16 (5.23-7.27)	**<0.001**	1.37 (1.12-1.68)	**0.003**
No	Reference		Reference	
ADL impairment				
No	Reference		Reference	
Mild	5.07 (4.35-5.91)	<0.001	1.40 (1.15-1.70)	**0.001**
≥Moderate	8.18 (6.07-11.00)	<0.001	1.65 (1.11-2.44)	**0.013**
Chronic diseases	1.23 (1.21-1.25)	**<0.001**	1.04 (1.01-1.07)	**0.002**

4.4 Predictive Accuracies of the Adjusted GEE Model

The ROC curve demonstrates the predictive accuracies of our adjusted GEE model (**Figure 4**). The closer the curve follows the left-hand border and then the top border of the ROC space, the more the model is in predicting the outcome. The AUC in our study was 0.911, indicating excellent predictive accuracy for our adjusted model. This means there is a 91.1% probability that the model will correctly distinguish between a randomly selected senior who transitions to seniors' housing and one who does not.

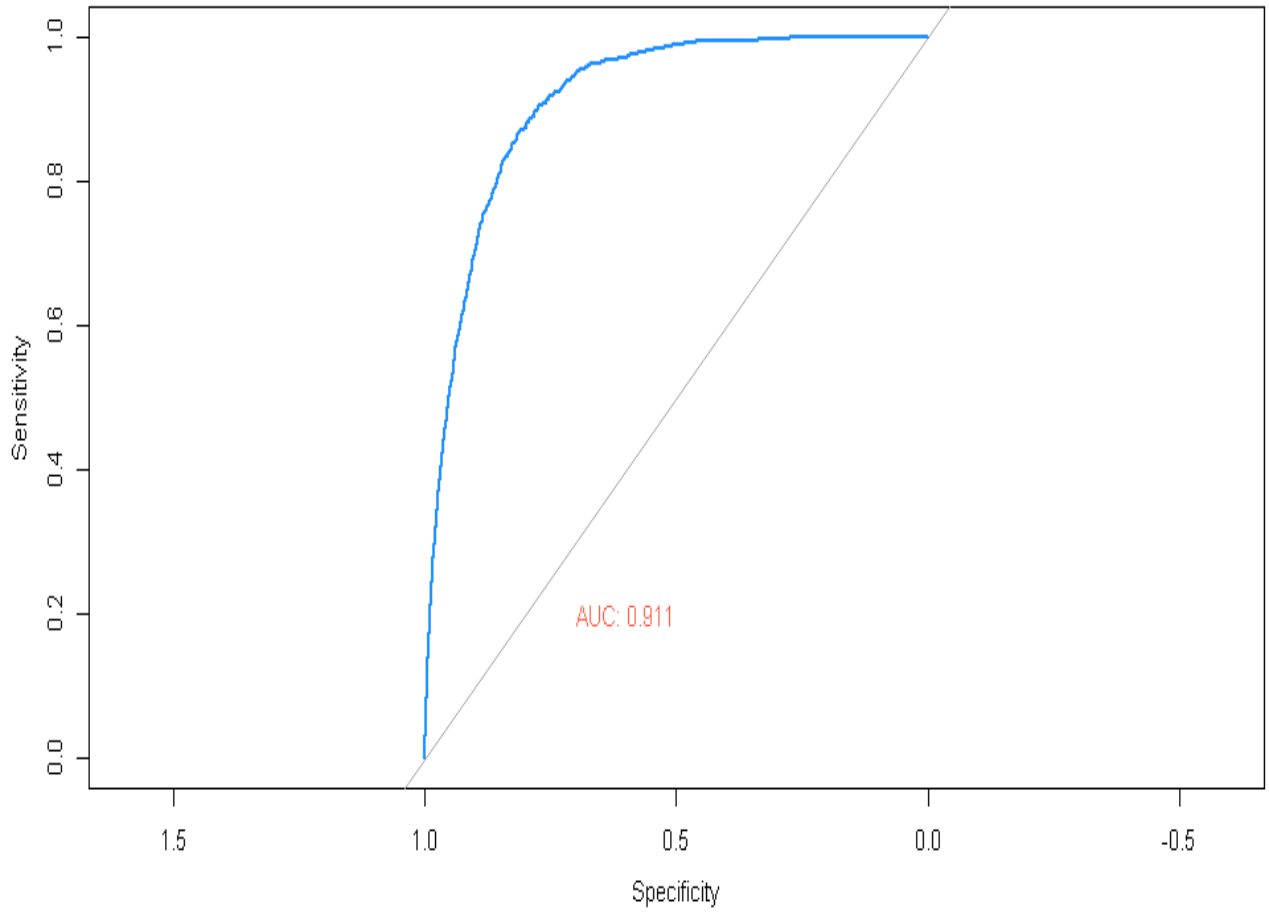

Figure 4*: A Receiver Operating Characteristic (ROC) curve shows the diagnostic accuracy of the adjusted GEE model between the economic status (total savings and investments) and transition to seniors' housing.*

4.5 Associations between Economic Status and Transition to Seniors' Housing in Alberta, British Columbia, Ontario, and Quebec

We fit adjusted GEE models for the four provinces of Alberta, British Columbia, Ontario, and Quebec, as these regions had sufficient sample sizes to explore provincial variations. The Forest Plot **(Figure 5)** illustrates the adjusted associations between economic status (total savings and investments) and transitions to seniors' housing across these four Canadian provinces. The forest plot illustrates the adjusted association between economic status (total savings and investments) and transitions to seniors' housing in Alberta, British Columbia, Ontario, and Quebec. In Alberta, seniors with higher economic status, such as 50,000 CAD to less than 100,000 CAD (AOR = 0.43, 95% CI: 0.24-0.80), 100,000 CAD to less than 1 million CAD (AOR = 0.44, 95% CI: 0.28-0.70), and higher than 1 million CAD (AOR = 0.28, 95% CI: 0.11-0.68), were significantly associated with lower odds of transitioning compared to those with low economic status less than 50,000 CAD. In British Columbia, higher economic status was associated with lower odds of transitioning, but the association was not statistically significant. In Ontario, higher economic status was associated with higher odds of transitioning, although this was also not statistically significant. In Quebec, seniors with higher economic status of 100,000 CAD to less than 1 million CAD (AOR = 0.70, 95% CI: 0.51-0.94) and higher than 1 million CAD (AOR = 0.42, 95% CI: 0.19-0.97) were significantly associated with the lower odds of transitioning. The details of the models by province are provided in **Appendix 3, 4, 5, and 6.**

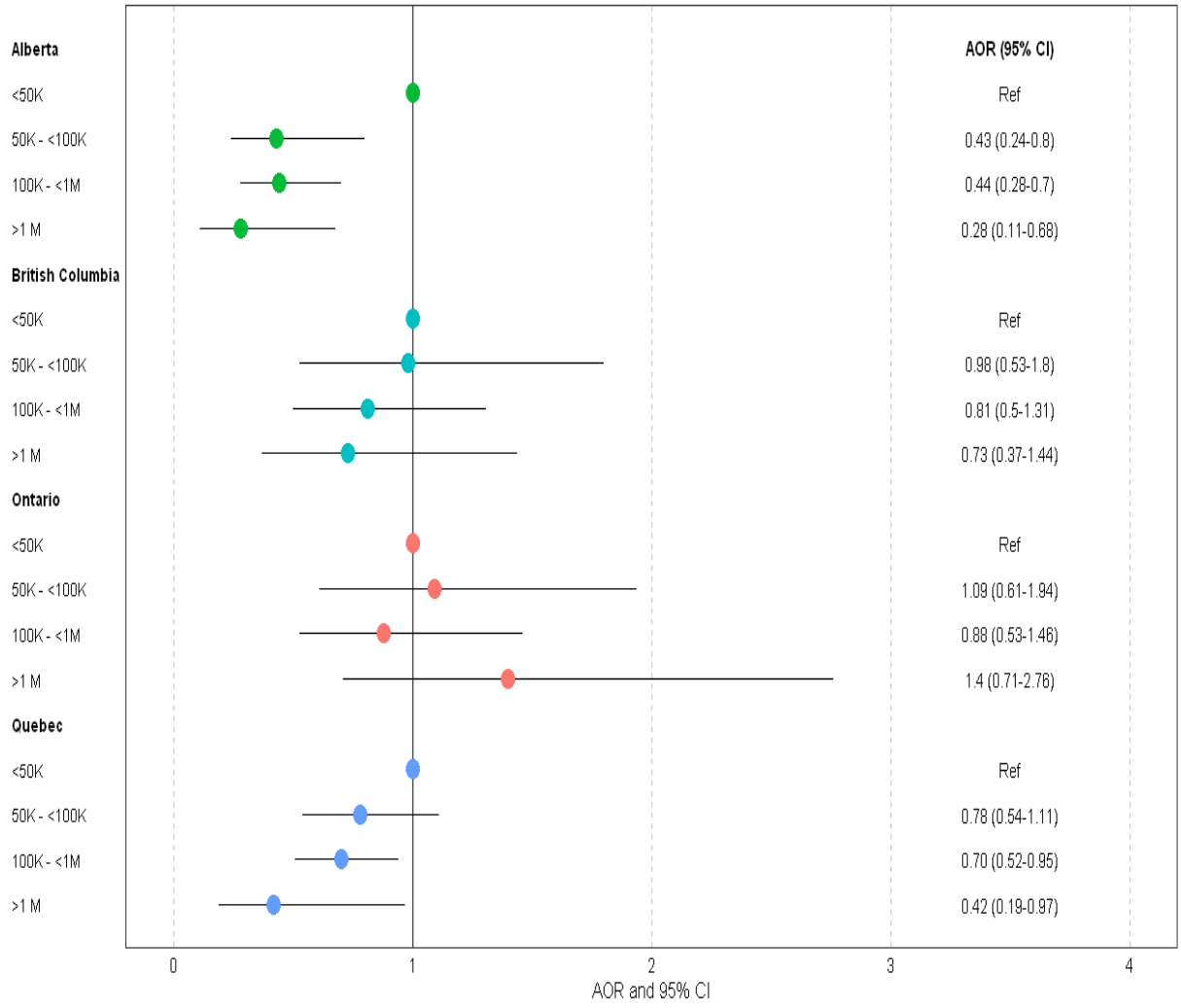

Figure 5: A Forest Plot shows the adjusted associations between the economic status (total savings and investments) and transitions to seniors' housing in Alberta, British Columbia, Ontario, and Quebec.

4.6 Sensitivity Analysis

As a part of our sensitivity analysis, we fit an adjusted GEE model to examine the association between total household income (secondary measure of exposure) and transitions to seniors' housing (**Appendix 7)**. The analysis showed that higher yearly total household income was significantly associated with lower odds of transitioning to seniors' housing. This result underscores the consistency of the secondary measure of economic status with the primary measure (total savings and investments) in predicting transitions. In a relatively small subset of participants aged 75 years and older, we found higher savings and investments were associated with lower odds of transitioning to seniors' housing, but the association was statistically non-significant (**Appendix 8)**. In our sensitivity analysis, which included cognitive impairment as having more than 13% missing values, the reduced sample size still showed that the association between economic status and transition to seniors' housing was consistent with the overall model in the smaller subset (**Appendix 9)**. As an extension of our sensitivity analysis, we fit a model after applying multiple imputations to investigate the associations between "total savings and investments" and transition (**Appendix 10)**. In the multiple imputed data, we found consistent results that higher economic status was significantly associated with lower odds of transitions as in the overall sample.

5. Discussion

5.1 Main Findings

We observed that the incidence of transitions to seniors' housing was 1.12% at Time Point 1 (2015-2018), increasing to 1.49% at Time Point 2 (2018-2022). Our study hypothesized that seniors with higher economic status would have fewer transitions to seniors' housing overall. We also

hypothesized that this association would vary across Canadian provinces as there are differences in regulations and definitions of the seniors' housing sector. Our study found that Canadian seniors with higher economic status were significantly less likely to transition to seniors' housing. In our provincial analysis, this association was consistent in Alberta and Quebec, where seniors with higher economic status showed a significantly lower likelihood of transitioning. We observed a similar trend in British Columbia, though the association was not statistically significant. In Ontario, we observed the opposite trend, such as seniors with higher economic status were highly likely to transition to senior housing, but the association was not statistically significant. We also found that factors such as age, number of people living in the household, general health status, eyesight rating, social support availability, received formal home care, ADL impairment, and chronic disease were significantly associated with transitions to seniors' housing. This finding emphasizes that seniors' demographic, economic needs and social and health circumstances heavily influence transitions to seniors' housing.

5.2 Age Profile of the Participants

Most seniors transition to seniors' housing at advanced ages, typically over 85 years [77]. Manis et al. found that in Ontario, Canada, the average age of residents in seniors' housing was 86.7 years [11]. Our study, derived from the CLSA, consisted of relatively younger seniors, with a mean age of 76.5 years at the baseline and 78.7 years at the first follow-up. Therefore, the event rate might be relatively low (1.12% at Time Point 1 and 1.49% at Time Point 2) in the younger CLSA sample, limiting our ability to predict transitions to seniors' housing precisely when it is most needed. In this current sample, we conducted a sensitivity analysis specifically among participants aged 75 and older and found that higher economic status was associated with lower odds of transitioning

to seniors' housing. At this stage of the CLSA, the younger age of participants may affect the association between economic status and transition to seniors' housing, warranting further investigation in the near future.

5.3 Economic Status and Transition to Seniors' Housing

A significant association between higher economic status and less transitioning to seniors' housing was found in our study, highlighting that higher economic status may enable seniors to avoid transitioning to seniors' housing facilities due to affording alternative options. Our provincial analysis found a significant association between higher economic status and less transition to seniors' housing in Alberta and Quebec. In British Columbia, we found the same results: higher economic status and less likelihood of transitioning, although it was not statistically significant. Due to insufficient sample sizes, we could not conduct provincial analysis in other provinces. In Ontario, we found a statistically non-significant positive association between higher economic status and more transition to seniors' housing.

The existing literature concerning the economic status and transition to seniors' housing was extremely limited. Few Canadian literatures reported an association between lower economic status and higher transitions to congregated settings. For example, Sarma et al. found that higher household income was associated with lower transitioning from own homes among Canadian seniors [32]. According to a report by Sander, lower economic seniors were more likely to transition to seniors' housing across the provinces in Canada [78]. In the context of long-term care, a similar trend was observed among Canadian seniors, as reported by Claudia et al. [31].

We found the provincial variations which highlighted these economic disparities in seniors' housing utilizations, underscoring the need for a comprehensive understanding of provincial differences in seniors' housing policies in Canada. The provincial differences may be due to variations in the subsidies, regulations and definitions of seniors' housing throughout the provinces [12]. For instance, some provinces provide subsidies for seniors' housing while others do not [79]. According to Manis et al., the eight provinces—Alberta, British Columbia, Saskatchewan, Manitoba, New Brunswick, Nova Scotia, Prince Edward Island, and Newfoundland and Labrador—offer some form of financial assistance but are limited to middle- and low-net-income seniors [12]. Manis et al. also reported that assisted living facilities are private residences in Quebec, but a refundable tax credit is available to both community-dwelling seniors and seniors residing in seniors' housing. Overall, in provinces like Alberta, British Columbia, and Quebec, where financial support and subsidies are available, seniors with lower economic status were more likely to transition to seniors' housing. These programs may reduce the financial barriers for lower-income seniors, making seniors' housing a more viable option.

In contrast, according to Manis et al., Ontario had no subsidies or financial support based on economic status [12]. This lack of financial assistance in Ontario likely contributes to the distinct trends that we observed in our study. Ontario, which lacks such targeted financial support for seniors' housing, we found an opposite trend compared to Alberta, British Columbia, and Quebec, where seniors with higher economic status were more likely to transition to seniors' housing. This suggests that the absence of economic support mechanisms may deter lower-income seniors in Ontario from transitioning into seniors' housing, possibly due to affordability concerns. However, we emphasize that the provincial results in both British Columbia and Ontario were not statistically

significant. This lack of statistical significance indicates that while trends were observed, they may not be robust or conclusive.

In British Columbia, seniors had to pay a substantial portion of their income, ranging from 50% to 70%, within various seniors' housing options [78]. According to Manis et al., Ontario had the highest fee of $3,845 for seniors' housing, followed by Nova Scotia at $3,404 and Alberta at $3,292 [12]. Therefore, in certain provinces, seniors with higher economic status may experience fewer transitions due to the potential for increased expenses and financial losses. This is largely because subsidies are more accessible to lower-income seniors, while those with higher economic status have limited access to such financial support. As a result, those with lower economic status in provinces with subsidies might experience lower economic burdens when transitioning to seniors' housing, leading to lower economic concerns. This could explain the differences in provinces like Ontario, where there are no subsidies for seniors' housing. In Ontario, we observed that seniors with higher economic status were more likely to make the transition to seniors' housing, suggesting that the absence of subsidies means financial support may not play as significant a role in this decision compared to other provinces.

In the USA, the seniors' housing market was expanded over the past four decades to address more complex needs; however, many middle-income seniors (ages 75 and older) find these options financially inaccessible, as the industry primarily targets higher-income individuals [80]. Pearson et al. projected that 54% of middle-income seniors will lack sufficient financial resources by 2029 to afford seniors' housing in the USA [80]. Schnure and Venkatesh reported that in the USA, from 1968 to 2011, higher economic status was significantly associated with seniors' staying at their own

homes; however, that association was reported to be shifted recently, higher economic status was then associated with higher transitioning to seniors' housing [45]. They described that change as a shift in the type of seniors' housing facilities, transitioning from those primarily focused on medical needs and skilled nursing to newer retirement communities that offer a higher level of non-medical services, activities, and amenities.

5.4 Factors Associated with the Transition to Seniors' Housing

We found age was significantly positively associated with the transition to seniors' housing. Similarly, Garner et al. also found age was a significant predictor of transition to seniors' housing in Canada [30]. In our study, the transition to seniors' housing was significantly lower for seniors living in households with more family members compared to those living alone. Loneliness was identified as a significant predictor of healthcare utilization, regardless of health or functional capacities, demonstrating that lonely older persons frequently seek social interaction [81]. This need for social contact may lead them to transition to the seniors' housing, where they can access healthcare services as well as alleviate their isolation. We also found that with the increased score of the social support availability, the transition to the seniors' housing was reduced. According to Chaulagain et al., when seniors experience a loss or decrease in support from their family members, their desire for social connections increases [82]. They also reported that this desire, driven by social isolation, influences their decision to transition to the seniors' housing, where they can be associated with individuals of similar age and rebuild their social connections [82].

Our study found that seniors with good to excellent perceived health exhibited significantly lower transitioning to congregated housing compared to those with poor general health status. A previous

Canadian study indicated that a decline in self-reported health status increases institutionalization among seniors [32]. The transition to seniors' housing was reported to be associated with both poor physical and mental health symptoms [56]. On the other hand, increased physical activity and improved self-reported health were observed among residents already living in seniors' housing [83]. Therefore, seniors with poorer perceived health may anticipate that transitioning will enhance their health status, whereas those with excellent or good health may not perceive the same need for such transitions. This finding is quite obvious, as we found with the increase in chronic disease counts associated with transitioning to seniors' housing as well. Our finding aligns with previous literature indicating that multiple chronic conditions significantly increase institutionalization among seniors [84,85].

Our study found that seniors who utilized formal home care had a significantly higher transition to seniors' housing compared to those who did not. This reliance on formal home care often indicates a higher need for assistance with daily activities and medical care, which may be costly to some extent and thus make the supportive environment of seniors' housing more appealing and necessary [86,87]. A Canadian study reported that the availability of publicly provided homecare services reduced institutionalization, highlighting the importance of accessible homecare in supporting seniors to live independently in their own homes [32]. Consistent with this finding, we also observed that seniors with higher ADL impairments had a higher transition compared to those without impairments. Impairments in ADL, which include basic self-care tasks like bathing, dressing, and eating, often lead to increased dependence on caregivers and a greater need for the structured support provided in senior living communities [88,89]. These findings stressed the significant role of ADL impairments in the transition to seniors' housing among Canadians.

5.5 Sensitivity Analysis

Our sensitivity analysis confirmed the robustness of our findings. Including the total household income as a secondary measure of our expense of interest in an adjusted GEE model, we found that higher total household income, like higher " total savings and investments", was significantly associated with lower odds of transitioning to seniors' housing. This consistency was further supported by results from a multiple imputation analysis. The model of multiple imputation showed that higher savings and investments were associated with lower odds of transitions. We extended our sensitivity analysis to include participants aged 75 and older, as this is the typical age for seniors' housing according to the literature. Even within this older age group, the trend of higher economic status being associated with lower transitions to seniors' housing persisted, though it was not always statistically significant. We could not find a statistically significant association, maybe due to the smaller sample size in this subgroup.

5.6 Implications

The main finding of our study is that seniors with higher economic status are less likely to transition to seniors' housing. In comparison, those with lower economic status are more likely to transition to seniors' housing. However, this association may vary across different jurisdictions, yet it clearly highlights the economic disparities in transitions to seniors' housing across Canada. This highlights significant economic disparities in seniors' housing transitions among Canadian seniors. To address these disparities, there is a need for integrated approaches that include expanded financial assistance and enhanced home care services, ensuring that all seniors, regardless of economic status, can remain in their homes or transition to the seniors' housing if they prefer. Policies should focus on reducing economic and provincial differences, while research

should emphasize the regulation, definition, and standardization of seniors' housing, as well as the long-term impacts on equity. These measures are crucial for improving the accessibility and quality of seniors' housing in Canada, regardless of economic situation or jurisdiction.

5.6.1 Policy Implications

We found that seniors with lower economic status were more likely to transition to seniors' housing, while those with higher economic seniors were less likely to transition. Our provincial analysis revealed that this trend was evident in Alberta, Quebec, and British Columbia, but the opposite was observed in Ontario. These results highlight the existence of differences that influence the direction of this association. Therefore, ensuring equal access to all housing options and alternative services for seniors in Canada requires urgent policy interventions. For example, standardizing the definition and regulation of seniors' housing at the federal level and expanding financial assistance programs across all provinces are crucial steps to mitigate economic disparities and ensure equitable access to seniors' housing for all Canadians, regardless of their jurisdiction. Another important aspect is enhancing publicly funded seniors' housing for seniors with lower economic status. We believe that by providing funding and integrating these services with healthcare equally in all jurisdictions, it may be possible to enable low-income seniors to transition to seniors' housing. Our study found that seniors with higher economic status had lower transitions in the overall sample, which may be due to being more likely to afford alternative services compared to the seniors' housing for this high economic senior solely as most of the provinces have no subsidies for them. Therefore, integrated and standardized administrative data collection and rigorous research at the provincial level could help tailor policies to specific provincial needs. At the same time, real-time data and analysis can provide solid evidence and inform more effective

policy interventions. Since living alone was found to potentially impact transitions to seniors' housing, developing social support programs and promoting intergenerational housing models can help reduce social isolation among seniors, thereby potentially decreasing the need for such transitions. Caregivers play a vital role in supporting seniors, particularly those with a lower economic status who experience more transitions, which may increase the burden on caregivers. However, the growing demands on caregivers at home and in seniors' housing are a significant concern in Canada, as they can lead to burnout and compromise the quality of care provided. Initiatives should be taken to alleviate the burden on caregivers, enabling them to provide better care at seniors' housing facilities. Alternatively, health and wellness initiatives, including preventive health programs and mental health support, are crucial for maintaining seniors' health at the community level and delaying the need for seniors' housing. We believe extensive research is necessary before implementing comprehensive policy measures seniors' housing sector in Canada.

5.6.2 Research Implications

The findings of this study on the economic status and transition to seniors' housing in Canada have essential research implications. Firstly, there is a need for more extensive longitudinal studies that follow seniors over time to understand the long-term effects of economic status—both subjectively and objectively measured—along with health and social factors on housing transitions. Such studies can offer deeper insights into the patterns and predictors of these transitions, allowing for more precise targeting of interventions. Further research should explore opportunities to standardize definitions and regulations and integrate them into a centralized database, addressing provincial variations in seniors' housing policies, subsidies, and support systems. We believe that

more comparative studies across provinces can identify best practices and inform policy adjustments that address provincial disparities. Additionally, research should focus on identifying the barriers faced by lower- and middle-income seniors, who often fall through the gaps in support programs, to develop strategies to make seniors' housing and alternative options accessible to this group equally. The role of preventive physical and mental health programs and strategies and their impact on delaying the need for seniors' housing warrants more investigation. Research should also focus on the impact of social support networks and community integration on seniors' decisions to transition to seniors' housing. Moreover, investigating how economic constraints and available subsidies influence seniors' decision to transition can inform provincial policies, helping to better align resources with seniors' preferences and needs. We believe that by addressing these research gaps, future studies can contribute to more informed policies and practices that support seniors, ensuring that all seniors have access to safe, affordable, and supportive housing options regardless of their economic situation across Canada.

5.7 Limitations

Our study has several limitations. Our study participants were relatively younger compared to those in existing literature, which may have contributed to the low number of observed events in the overall sample. As such, this study represents an early initiative in utilizing CLSA data to investigate the association between economic status and the transition to seniors' housing. This younger age profile may limit the application of our findings to the broader senior population. Furthermore, we were able to fit models for Alberta, Quebec, British Columbia, and Ontario, but we were unable to do so across all provinces due to an insufficient number of events. Moreover, our literature review revealed a lack of a clear, consistent definition of seniors' housing across

provinces in Canada, making it challenging to explain provincial inequalities. This inconsistency complicates comparative analysis, as variations in how seniors' housing is defined and understood can lead to discrepancies in the data. We used self-reported data to estimate seniors' overall economic status based on their "total savings and investments" and "annual total household income". While self-reported measures are useful, objective assessments of economic status would give more consistent and accurate exposure measurements, potentially increasing the accuracy of our findings. Furthermore, the CLSA did not include items asking participants if they had any transitions between their own houses and seniors' housing at the baseline and follow-up. This may limit our capacity to measure transitions precisely, perhaps resulting in underreporting or misclassification. We fit a model using the overall CLSA sample and by provinces, where we observed provincial differences in the association between the economic status and the transition to the seniors' housing. However, drawing conclusions about these differences is challenging because access to home care and publicly funded long-term care significantly impacts the demand for seniors' housing, which serves as a middle ground between home care and long-term care. For instance, if one province has better access to publicly funded home care and long-term care, the use of seniors' housing by wealthier individuals may become less relevant. Moreover, we did not include the transition to long-term care due to the low event rate, which limited our ability to observe differences in transitions to seniors' housing, long-term care, or no transition at all. Including these transitions would have enabled us to fit an ordinal regression model to better understand the significance of transitions related to seniors' housing and long-term care compared to no transitions. Finally, no causal relationship between economic status and transitioning to seniors' housing could be established as the nature of the cohort study design. Addressing these

shortcomings may strengthen the validity and relevance of the transition to seniors' housing in future research.

5.8 Strengths

Despite certain limitations, this study is the first of its kind to investigate the association between economic status and the transition to seniors' housing in Canada. There is limited research exploring how the economic status of Canadian seniors significantly influences their decision-making process regarding the transition to seniors' housing. Our study investigated the association in the overall sample. Also, it focused on key provinces—Alberta, British Columbia, Ontario, and Quebec—providing both a national overview and provincial insights within the same framework. The literature highlights various regulations and subsidies across these provinces, which was reflected in our study. For instance, in Ontario, the findings differed significantly from Alberta's and Quebec's, while British Columbia fell somewhere in between. Moreover, using longitudinal data in our study to calculate transitions makes our outcome measurements more robust than cross-sectional studies. CLSA included the participants using random sampling approaches from across Canada. This broad inclusion improves the generalizability of the study, making the findings applicable across the country. We included 50,919 participants in the study, and this large sample size provided strong statistical power to investigate the associations with a high degree of confidence. Furthermore, we utilized the GEE model, which effectively accounted for correlation in our analysis and provided the most accurate estimates. The model achieved an accuracy rate of 91.10%, which demonstrates its robustness in predicting the transition to seniors' housing. The longitudinal data, provincial analysis, and a robust statistical model make this study a valuable contribution to seniors' housing and economic inequality. Therefore, we believe this study has

strong potential to influence the policy on seniors' housing and contribute to efforts to reduce provincial inequalities across Canada.

6. Conclusions

Our study found a significant association between economic status and transitions to seniors' housing in Canada and various associations across the provinces. Our findings reveal a significant inverse association between higher economic status and the likelihood of transitioning to seniors' housing, with significant provincial variations. Specifically, in Alberta and Quebec, seniors with higher economic status were less likely to transition, a trend that, while present, was not statistically significant in British Columbia. In Ontario, however, an opposite trend was observed, though not statistically significant, with higher economic status associated with a higher likelihood of transitioning. The study underscores the impact of economic status on housing decisions among seniors across Canadian jurisdictions. The preference for transitioning is likely influenced by the economic burdens associated with seniors' housing, particularly in provinces where subsidies are limited or targeted primarily at lower-income seniors. Our analysis also highlighted the importance of other factors such as age, number of people living with the participants, health status, social support, formal home care use, ADL impairment, and chronic disease in determining transitions to seniors' housing. Our study concludes by advocating for policy interventions aimed at reducing economic disparities in transitioning to seniors' housing across Canada. We also emphasize the need for standardized definitions and regulations for seniors' housing and expanded financial assistance for Canadian seniors. We suggest that future research should focus on more robust methods, including older seniors, comprehensively explore provincial variations, and investigate the potential causal pathways between economic status and seniors' housing transitions in Canada.

7. References

1. *Canada's Population Reaches 40 Million*. *Statistics Canada* https://www.statcan.gc.ca/en/subjects-start/population_and_demography/40-million (2023).
2. CIHI. Infographic: Canada's seniors population outlook: Uncharted territory | CIHI. https://www.cihi.ca/en/infographic-canadas-seniors-population-outlook-uncharted-territory (2023).
3. Manis, D. R. *et al.* Association Between Dementia Care Programs in Assisted Living Facilities and Transitions to Nursing Homes in Ontario, Canada: A Population-Based Cohort Study. *J Am Med Dir Assoc* **22**, 2115-2120.e6 (2021).
4. Tzeng, H. M., Okpalauwaekwe, U. & Yin, C. Y. Older adults' suggestions to engage other older adults in health and healthcare: a qualitative study conducted in western Canada. *Patient Prefer Adherence* **13**, 331–337 (2019).
5. Manis, D. R. *et al.* Do assisted living facilities that offer a dementia care program differ from those that do not? A population-level cross-sectional study in Ontario, Canada. *BMC Geriatr* **21**, 1–7 (2021).
6. Manis, D. R. *et al.* Rates of Hospital-Based Care among Older Adults in the Community and Residential Care Facilities: A Repeated Cross-Sectional Study. *J Am Med Dir Assoc* **24**, 1341–1348 (2023).
7. Lanoix, M. No Longer Home Alone? Home Care and the Canada Health Act. *Health Care Analysis* **25**, 168–189 (2017).
8. Ali, S., Alemu, F., Thornton, J., Ali, S. & Carmeli, C. Multimorbidity, low income and unmet need for healthcare: a national study of 41,135 older adults. *Eur J Public Health* **32**, (2022).
9. Canadian Income Survey. https://www150.statcan.gc.ca/n1/daily-quotidien/220323/dq220323a-eng.htm (2020).
10. Elder Law, C. C. for. Discussion Paper on Assisted Living: Past, Present and Future Legal Trends in Canada. *SSRN Electronic Journal* (2008) doi:10.2139/SSRN.1422170.
11. Manis, D. R. *et al.* Rates of health services use among residents of retirement homes in Ontario: a populationbased cohort study. *CMAJ* **194**, E730–E738 (2022).
12. Manis, D. R. *et al.* Defining the Assisted Living Sector in Canada: An Environmental Scan. *J Am Med Dir Assoc* **23**, 1871-1877.e1 (2022).
13. Hoben, M. *et al.* Letter to the Editor Re: Manis DR, Bronskill SE, Rochon PA, et al. Defining the Assisted Living Sector in Canada: An Environmental Scan. J Am Med Dir Assoc. 2022;23(11):1871-1877.e1. *J Am Med Dir Assoc* **24**, 1094–1096 (2023).

14. Poss, J. W. *et al.* Location, Location, Location: Characteristics and Services of Long-Stay Home Care Recipients in Retirement Homes Compared to Others in Private Homes and Long-Term Care Homes. *Healthcare Policy* **12**, 80 (2017).

15. Banerjee, A. An Overview of Long-Term Care in Canada and Selected Provinces and Territories. (2007).

16. Arias-Casais, N. *et al.* What long-term care interventions have been published between 2010 and 2020? Results of a WHO scoping review identifying long-term care interventions for older people around the world. *BMJ Open* **12**, e054492 (2022).

17. Golant, S. M. Do Impaired Older Persons With Health Care Needs Occupy U.S. Assisted Living Facilities? An Analysis of Six National Studies. *The Journals of Gerontology: Series B* **59**, S68–S79 (2004).

18. Park, S., Kim, B. R. & Kwon, E. The Role of Senior Housing in Hospitalizations Among Vulnerable Older Adults With Multiple Chronic Conditions: A Longitudinal Perspective. *Gerontologist* **58**, 932–941 (2018).

19. Smith, S. Choosing an Assisted Living Facility: FAR6017/FM434, 4/2012. *EDIS* **2012**, (2012).

20. Main highlights on income of families and individuals: Subprovincial data from the T1 Family File. https://www150.statcan.gc.ca/n1/daily-quotidien/240819/dq240819b-eng.htm (2022).

21. Canadian Income Survey. https://www150.statcan.gc.ca/n1/daily-quotidien/230502/dq230502a-eng.htm (2021).

22. Experiences of self-employed workers in Canada. https://www150.statcan.gc.ca/n1/pub/71-222-x/71-222-x2024001-eng.htm (2023).

23. Distributions of household economic accounts for income, consumption, saving and wealth of Canadian households, first quarter 2024. https://www150.statcan.gc.ca/n1/daily-quotidien/240717/dq240717a-eng.htm (2024).

24. Income in Canada: Government transfers. https://www150.statcan.gc.ca/n1/pub/75-202-x/2003000/4071471-eng.htm (2023).

25. How much do Canadians need to save per year for retirement? https://www.fidelity.ca/en/insights/articles/how-much-canadians-save-for-retirement/ (2024).

26. Distributions of household economic accounts for income, consumption, saving and wealth of Canadian households, first quarter 2024. https://www150.statcan.gc.ca/n1/daily-quotidien/230704/dq230704a-eng.htm (2023).

27. Hajizadeh, M. Does socioeconomic status affect lengthy wait time in Canada? Evidence from Canadian Community Health Surveys. *European Journal of Health Economics* **19**, 369–383 (2018).

28. Lee, K., Revelli, M., Dickson, D. & Marier, P. Who Cares? Preferences for Formal and Informal Care Among Older Adults in Québec. *https://doi.org/10.1177/0733464820976436* **41**, 227–234 (2020).

29. Vafaei, A. *et al.* Inequities in home care use among older Canadian adults: Are they corrected by public funding? *PLoS One* **18**, e0280961 (2023).

30. Garner, R., Tanuseputro, P., Manuel, D. G. & Sanmartin, C. Transitions to long-term and residential care among older Canadians. *Health Rep* **29**, 13–23 (2018).

31. Sanmartin, C. & Rotermann, M. Using linked health survey and Census data to understand transitions to instutional care among Canadian seniors. *Int J Popul Data Sci* **1**, 18 (2017).

32. Sarma, S., Hawley, G. & Basu, K. Transitions in living arrangements of Canadian seniors: Findings from the NPHS longitudinal data. *Soc Sci Med* **68**, 1106–1113 (2009).

33. Moody, E. *et al.* Out-of-pocket expenses related to aging in place for frail older people: a scoping review. *JBI Evid Synth* **20**, 537–605 (2022).

34. Dupuis-Blanchard, S., Bigonnesse, C., Andrew, M. K., Gould, O. & Maillet, D. Impact of Social Frailty on Relocation of Older Adults. *Journal of Frailty and Aging* **10**, 254–258 (2021).

35. Carbone, J. T., Clift, J., Wyllie, T. & Smyth, A. Housing Unit Type and Perceived Social Isolation Among Senior Housing Community Residents. *Gerontologist* **62**, 889–899 (2022).

36. Calsolaro, R. *et al.* Quality of life and social contacts in old age. *Eur J Public Health* **32**, (2022).

37. Gilmour, H. Health Reports Formal home care use in Canada. *Health Rep* (2018).

38. Lee, J. *et al.* Equity in home care use in Canada: a cross-sectional analysis of the Canadian longitudinal study on ageing. *BMJ Public Health* **2**, e000812 (2024).

39. Painter, G. & Lee, K. O. Housing tenure transitions of older households: Life cycle, demographic, and familial factors. *Reg Sci Urban Econ* **39**, 749–760 (2009).

40. Zhang, W., Sun, H. & L'Heureux, J. Substitutes or complements between informal and formal home care in the Canadian longitudinal study on aging: Functional impairment as an effect modifier. *Health Policy (New York)* **125**, 1267–1275 (2021).

41. Weeks, L., Branton, O. & Nilsson, T. The influence of the family on the future housing preferences of seniors in Canada. *Housing, Care and Support* **8**, 29–40 (2005).

42. Daudt, H. M. & Spargo, E. L. Challenges and Facilitators for Psychosocial Support when Aging and Dying in Place: A Rapid Review of the Literature. *Can J Aging* **42**, 135–153 (2023).

43. Park, J. A. & Choi, B. Factors Affecting the Intention of Multi-Family House Residents to Age in Place in a Potential Naturally Occurring Retirement Community of Seoul in South Korea. *Sustainability 2021, Vol. 13, Page 8922* **13**, 8922 (2021).

44. Miller, K. E. M., Zhao, J., Laine, L. T. & Coe, N. B. Growth of Private Pay Senior Housing Communities in Metropolitan Statistical Areas in the United States: 2015–2019. *Medical Care Research and Review* **80**, 101–108 (2023).

45. Schnure, C. & Venkatesh, S. Demographic and Financial Determinants of Housing Choice in Retirement and the Rise of Senior Living. *SSRN Electronic Journal* (2015) doi:10.2139/SSRN.2588026.

46. Roy, N., Dubé, R., Després, C., Freitas, A. & Légaré, F. Choosing between staying at home or moving: A systematic review of factors influencing housing decisions among frail older adults. *PLoS One* **13**, e0189266 (2018).

47. Faulkner, D. The older population and changing housing careers: Implications for housing provision. *Australas J Ageing* **26**, 152–156 (2007).

48. Morales, M. J., Robert, S. & Davila, H. SOCIAL DETERMINANTS OF TRANSITION OUT OF COMMUNITY RESIDENCE AMONG OLDER ADULTS. *Innov Aging* **2**, 326–326 (2018).

49. Gibler, K. M., Lumpkin, J. R. & Moschis, G. P. Making the decision to move to retirement housing. *Journal of Consumer Marketing* **15**, 44–54 (1998).

50. Weeks, L. E., Keefe, J. & Macdonald, D. J. Factors Predicting Relocation Among Older Adults. *J Hous Elderly* **26**, 355–371 (2012).

51. Huang, H. C. Factors Influencing Intention to Move into Senior Housing. *https://doi.org/10.1177/0733464810392225* **31**, 488–509 (2011).

52. Tate, K., Bailey, S., Deschenes, S., Grabusic, C. & Cummings, G. G. Factors Influencing Older Persons' Transitions to Facility-Based Care Settings: A Scoping Review. *Gerontologist* **63**, 1211–1227 (2023).

53. Kim, S. hyuk, Kim, H. bumm & Gon Kim, W. Impacts of senior citizens' lifestyle on their choices of elderly housing. *Journal of Consumer Marketing* **20**, 210–226 (2003).

54. Weeks, L., Branton, O. & Nilsson, T. The influence of the family on the future housing preferences of seniors in Canada. *Housing, Care and Support* **8**, 29–40 (2005).

55. Ewen, H. H., Hahn, S. J., Erickson, M. A. & Krout, J. A. Aging in Place or Relocation? Plans of Community-Dwelling Older Adults. *J Hous Elderly* **28**, 288–309 (2014).

56. Eriksson, E. *et al.* Perceived Housing in Relation to Retirement and Relocation: A Qualitative Interview Study among Older Adults. *International Journal of Environmental Research and Public Health 2022, Vol. 19, Page 13314* **19**, 13314 (2022).

57. Chyr, L., Fabius, C. & Drabo, E. Patterns and Predictors of Residential Care Transitions Over Time Among Medicare Beneficiaries. *Innov Aging* **4**, 52–52 (2020).

58. Franco, B. B. *et al.* Push and Pull Factors Surrounding Older Adults' Relocation to Supportive Housing: A Scoping Review. *Can J Aging* **40**, 263–281 (2021).

59. Holland, C. *et al.* Transition from community dwelling to retirement village in older adults: cognitive functioning and psychological health outcomes. *Ageing Soc* **37**, 1499–1526 (2017).

60. Mitchell, J. M. & Kemp, B. J. Quality of Life in Assisted Living Homes: A Multidimensional Analysis. *The Journals of Gerontology: Series B* **55**, P117–P127 (2000).

61. Raina, P. S. *et al.* The Canadian Longitudinal Study on Aging (CLSA)*. *Can J Aging* **28**, 221–229 (2009).

62. Raina, P. *et al.* Cohort Profile: The Canadian Longitudinal Study on Aging (CLSA). *Int J Epidemiol* **48**, 1752 (2019).

63. Elm, E. von *et al.* Strengthening the reporting of observational studies in epidemiology (STROBE) statement: guidelines for reporting observational studies. *BMJ : British Medical Journal* **335**, 806 (2007).

64. Lee, E. S. A theory of migration. *Demography* **3**, 47–57 (1966).

65. Golledge, R. G. . & Stimson, R. J. . Decision making and spatial behaviour : a geographic perspective. 622 (1997).

66. Gibler, K. Planning to move to retirement housing. *Financial Services Review* **7**, 291–300 (1998).

67. Gibler, K. M., Lumpkin, J. R. & Moschis, G. P. Mature Consumer Awareness and Attitudes Toward Retirement Housing and Long-Term Care Alternatives. *Journal of Consumer Affairs* **31**, 113–138 (1997).

68. Tyvimaa, T. & Kemp, C. L. Finnish Seniors' Move to a Senior House: Examining the Push and Pull Factors. *J Hous Elderly* **25**, 50–71 (2011).

69. Stimson, R. J. & McCrea, R. A Push – Pull Framework for Modelling the Relocation of Retirees to a Retirement Village: The Australian Experience. *http://dx.doi.org/10.1068/a36206* **36**, 1451–1470 (2004).

70. Babyak, M. A. What you see may not be what you get: a brief, nontechnical introduction to overfitting in regression-type models. *Psychosom Med* **66**, 411–421 (2004).

71. Oremus, M. *et al.* Social support availability is positively associated with memory in persons aged 45–85 years: A cross-sectional analysis of the Canadian Longitudinal Study on Aging. *Arch Gerontol Geriatr* **86**, 103962 (2020).

72. Mayhew, A. J. *et al.* The Association Between Self-Reported and Performance-Based Physical Function With Activities of Daily Living Disability in the Canadian Longitudinal Study on Aging. *The Journals of Gerontology: Series A* **75**, 147–154 (2020).

73. Raina, P. S. *et al.* Ascertainment of Chronic Diseases in the Canadian Longitudinal Study on Aging (CLSA), Systematic Review*. *Can J Aging* **28**, 275–285 (2009).

74. Tuokko, H., Griffith, L. E., Simard, M. & Taler, V. Cognitive measures in the Canadian Longitudinal Study on Aging. *Clin Neuropsychol* **31**, 233–250 (2017).

75. Peduzzi, P., Concato, J., Kemper, E., Holford, T. R. & Feinstem, A. R. A simulation study of the number of events per variable in logistic regression analysis. *J Clin Epidemiol* **49**, 1373–1379 (1996).

76. Salazar, A., Ojeda, B., Dueñas, M., Fernández, F. & Failde, I. Simple generalized estimating equations (GEEs) and weighted generalized estimating equations (WGEEs) in longitudinal studies with dropouts: guidelines and implementation in R. *Stat Med* **35**, 3424–3448 (2016).

77. Koenig, R. Supportive Housing. *Disability in American Life: An Encyclopedia of Concepts, Policies, and Controversies: Volume 1: A-L: Volume 2: M-Z* **2**, 1–6 (2019).

78. Sander L. Environmental scan of seniors social housing models in support of 'An age-inclusive approach to housing for vulnerable older adults'. (2020).

79. Sylvestre, G. M. & Smith, G. C. Spatial aspects of the residential adjustments of older parents moving to low-income senior housing: A longitudinal study. *Geoforum* **40**, (2009).

80. Pearson, C. F. *et al.* The forgotten middle: Many middle-income seniors will have insufficient resources for housing and health care. *Health Aff* **38**, (2019).

81. Stall, N. M., Savage, R. D. & Rochon, P. A. Loneliness in older adults. *CMAJ* **191**, E476–E476 (2019).

82. Chaulagain, S., Pizam, A., Wang, Y., Severt, D. & Oetjen, R. Factors affecting seniors' decision to relocate to senior living communities. *Int J Hosp Manag* **95**, 102920 (2021).

83. Vigezzi, G. Pietro *et al.* Transition to retirement impact on health and lifestyle habits: analysis from a nationwide Italian cohort. *BMC Public Health* **21**, 1–10 (2021).

84. Agüero-Torres, H., Von Strauss, E., Viitanen, M., Winblad, B. & Fratiglioni, L. Institutionalization in the elderly: The role of chronic diseases and dementia. Cross-sectional and longitudinal data from a population-based study. *J Clin Epidemiol* **54**, 795–801 (2001).

85. Viljanen, A. *et al.* Chronic conditions and multimorbidity associated with institutionalization among Finnish community-dwelling older people: an 18-year population-based follow-up study. *Eur Geriatr Med* **12**, 1275–1284 (2021).

86. Carrière, G. Seniors' use of home care. *Health Rep* **17**, 43–47 (2006).

87. Guerriere, D. N. *et al.* Costs and determinants of privately financed home-based health care in Ontario, Canada. *Health Soc Care Community* **16**, 126–136 (2008).

88. Guthrie, D. M. *et al.* Combined impairments in vision, hearing and cognition are associated with greater levels of functional and communication difficulties than cognitive impairment alone: Analysis of interRAI data for home care and long-term care recipients in Ontario. *PLoS One* **13**, e0192971 (2018).

89. Ajay, S., Kasthuri, A., Kiran, P. & Malhotra, R. Association of impairments of older persons with caregiver burden among family caregivers: Findings from rural South India. *Arch Gerontol Geriatr* **68**, 143–148 (2017).

Appendices

Appendix 1: STROBE Statement—Checklist of items that should be included in reports of **cohort studies**

	Item No	Recommendation	Pages
Title and abstract	1	(a) Indicate the study's design with a commonly used term in the title or the abstract	I, II
		(b) Provide in the abstract an informative and balanced summary of what was done and what was found	IV-VI
Introduction			
Background/rationale	2	Explain the scientific background and rationale for the investigation being reported	1-13
Objectives	3	State specific objectives, including any prespecified hypotheses	14
Methods			
Study design	4	Present key elements of study design early in the paper	14
Setting	5	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	14-15
Participants	6	(a) Give the eligibility criteria, and the sources and methods of selection of participants. Describe methods of follow-up	15-18

		(b) For matched studies, give matching criteria and number of exposed and unexposed	NA
Variables	7	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	19-22
Data sources/ measurement	8*	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	22-24
Bias	9	Describe any efforts to address potential sources of bias	57-58
Study size	10	Explain how the study size was arrived at	27-28
Quantitative variables	11	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	19-22
Statistical methods	12	(a) Describe all statistical methods, including those used to control for confounding	27-29
		(b) Describe any methods used to examine subgroups and interactions	29
		(c) Explain how missing data were addressed	29
		(d) If applicable, explain how loss to follow-up was addressed	29
		(e) Describe any sensitivity analyses	29-30

Results			
Participants	13*	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed	31-34
		(b) Give reasons for non-participation at each stage	33-34
		(c) Consider use of a flow diagram	34
Descriptive data	14*	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders	35-38
		(b) Indicate number of participants with missing data for each variable of interest	37-38
		(c) Summarise follow-up time (eg, average and total amount)	37-38
Outcome data	15*	Report numbers of outcome events or summary measures over time	35
Main results	16	(a) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	39-42

		(b) Report category boundaries when continuous variables were categorized	NA
		(c) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	NA
Other analyses	17	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	45-47
Discussion			
Key results	18	Summarise key results with reference to study objectives	47-48
Limitations	19	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	57-59
Interpretation	20	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	49-54
Generalisability	21	Discuss the generalisability (external validity) of the study results	59-60
Other information			
Funding	22	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	NA

*Give information separately for exposed and unexposed groups.

Note: An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at http://www.plosmedicine.org/, Annals of Internal Medicine at http://www.annals.org/, and Epidemiology at http://www.epidem.com/). Information on the STROBE Initiative is available at http://www.strobe-statement.org.

Appendix 2: Checked for Multicollinearity among the Initially Selected Variables

Variable 1	Variable 2	Correlation
ADL_OARS_binary	ADL_OARS_cat	-0.9595111
ADL_OARS_cat	ADL_OARS_binary	-0.9595111
age_cat	AGE_NMBR_COM	0.9543142
AGE_NMBR_COM	age_cat	0.9543142
income_total_new	income_total	0.9417224
income_total	income_total_new	0.9417224
satisfaction_life_cat	satisfaction_life	0.8612204
satisfaction_life	satisfaction_life_cat	0.8612204
CR2_FAM_AC_COM	informal_COM_care	0.7783230
informal_COM_care	CR2_FAM_AC_COM	0.7783230
ADL_OARS_binary	ADL_DSUM_COM_coded	0.7766708
ADL_DSUM_COM_coded	ADL_OARS_binary	0.7766708
CR2_FAM_TR_COM	informal_COM_care	0.7613618
informal_COM_care	CR2_FAM_TR_COM	0.7613618
CR1_PRO_AC_COM	formal_COM_care	0.7382960
formal_COM_care	CR1_PRO_AC_COM	0.7382960
CR2_FAM_ML_COM	informal_COM_care	0.7131069
informal_COM_care	CR2_FAM_ML_COM	0.7131069
healthy_aging	general_health	-0.6811785
general_health	healthy_aging	-0.6811785
retirement	AGE_NMBR_COM	-0.6482123

AGE_NMBR_COM	retirement	-0.6482123
retirement	age_cat	-0.6305569
age_cat	retirement	-0.6305569
CR2_FAM_ML_COM	CR2_FAM_TR_COM	0.6242261
CR2_FAM_TR_COM	CR2_FAM_ML_COM	0.6242261
CR2_FAM_ML_COM	CR2_FAM_AC_COM	0.6140646
CR2_FAM_AC_COM	CR2_FAM_ML_COM	0.6140646
ADL_OARS_cat	ADL_DSUM_COM_coded	-0.6022287
ADL_DSUM_COM_coded	ADL_OARS_cat	-0.6022287
CR2_FAM_TR_COM	CR2_FAM_AC_COM	0.5571694
CR2_FAM_AC_COM	CR2_FAM_TR_COM	0.5571694
CR1_PRO_MD_COM	formal_COM_care	0.5512699
formal_COM_care	CR1_PRO_MD_COM	0.5512699
general_mhealth	general_health	0.5230866
general_health	general_mhealth	0.5230866
healthy_aging	general_mhealth	-0.4976500
general_mhealth	healthy_aging	-0.4976500
CR2_FAM_ML_COM	CR2_FAM_PR_COM	0.4890601
CR2_FAM_PR_COM	CR2_FAM_ML_COM	0.4890601
CR2_FAM_PR_COM	informal_COM_care	0.4581981
informal_COM_care	CR2_FAM_PR_COM	0.4581981
CR2_FAM_TR_COM	CR2_FAM_PR_COM	0.4404238
CR2_FAM_PR_COM	CR2_FAM_TR_COM	0.4404238

CR2_FAM_AC_COM	CR2_FAM_PR_COM	0.4248021
CR2_FAM_PR_COM	CR2_FAM_AC_COM	0.4248021
satisfaction_life	general_mhealth	0.4181887
general_mhealth	satisfaction_life	0.4181887
CR1_PRO_ML_COM	formal_COM_care	0.4092417
formal_COM_care	CR1_PRO_ML_COM	0.4092417
social_support	satisfaction_life	0.3989608
satisfaction_life	social_support	0.3989608
CR2_FAM_MD_COM	informal_COM_care	0.3984619
informal_COM_care	CR2_FAM_MD_COM	0.3984619
people_living_with	AGE_NMBR_COM	-0.3969748
AGE_NMBR_COM	people_living_with	-0.3969748
CR2_FAM_MD_COM	CR2_FAM_PR_COM	0.3959392
CR2_FAM_PR_COM	CR2_FAM_MD_COM	0.3959392
depression	satisfaction_life	-0.3865559
satisfaction_life	depression	-0.3865559
CR2_FAM_ML_COM	CR2_FAM_MD_COM	0.3864829
CR2_FAM_MD_COM	CR2_FAM_ML_COM	0.3864829
people_living_with	age_cat	-0.3802975
age_cat	people_living_with	-0.3802975
chronic_disease	general_health	-0.3704970
general_health	chronic_disease	-0.3704970
people_living_with	income_total_new	0.3682809

income_total_new	people_living_with	0.3682809
CR2_FAM_TR_COM	CR2_FAM_MD_COM	0.3635861
CR2_FAM_MD_COM	CR2_FAM_TR_COM	0.3635861
satisfaction_life	healthy_aging	-0.3607585
healthy_aging	satisfaction_life	-0.3607585
people_living_with	income_total	0.3594335
income_total	people_living_with	0.3594335
CR1_PRO_TR_COM	formal_COM_care	0.3590474
formal_COM_care	CR1_PRO_TR_COM	0.3590474
depression	general_mhealth	-0.3514905
general_mhealth	depression	-0.3514905
CR1_PRO_PR_COM	formal_COM_care	0.3472638
formal_COM_care	CR1_PRO_PR_COM	0.3472638
ADL_DSUM_COM_coded	formal_COM_care	0.3470008
formal_COM_care	ADL_DSUM_COM_coded	0.3470008
CR1_PRO_ML_COM	CR1_PRO_PR_COM	0.3463412
CR1_PRO_PR_COM	CR1_PRO_ML_COM	0.3463412
satisfaction_life	general_health	0.3388669
general_health	satisfaction_life	0.3388669
depression	satisfaction_life_cat	-0.3384437
satisfaction_life_cat	depression	-0.3384437
CR1_PRO_TR_COM	CR1_PRO_PR_COM	0.3372118
CR1_PRO_PR_COM	CR1_PRO_TR_COM	0.3372118

retirement	income_total_new	0.3339841
income_total_new	retirement	0.3339841
CR1_PRO_ML_COM	CR1_PRO_TR_COM	0.3311665
CR1_PRO_TR_COM	CR1_PRO_ML_COM	0.3311665
1802	CR2_FAM_MG_COM	CR2_FAM_MD_COM 0.3309143
CR2_FAM_MD_COM	CR2_FAM_MG_COM	0.3309143
AGE_NMBR_COM	income_total	-0.3302470
income_total	AGE_NMBR_COM	-0.3302470
ADL_DSUM_COM_coded	CR1_PRO_PR_COM	0.3297704
CR1_PRO_PR_COM	ADL_DSUM_COM_coded	0.3297704
retirement	income_total	0.3290390
income_total	retirement	0.3290390
satisfaction_life_cat	general_mhealth	0.3270020
general_mhealth	satisfaction_life_cat	0.3270020
AGE_NMBR_COM	income_total_new	-0.3260881
income_total_new	AGE_NMBR_COM	-0.3260881
chronic_disease	AGE_NMBR_COM	0.3249781
AGE_NMBR_COM	chronic_disease	0.3249781
CR1_PRO_TR_COM	CR1_PRO_AC_COM	0.3247364
CR1_PRO_AC_COM	CR1_PRO_TR_COM	0.3247364
ADL_DSUM_COM_coded	CR1_PRO_AC_COM	0.3204968
CR1_PRO_AC_COM	ADL_DSUM_COM_coded	0.3204968
CR2_FAM_AC_COM	CR2_FAM_MD_COM	0.3194593

CR2_FAM_MD_COM	CR2_FAM_AC_COM	0.3194593
age_cat	income_total	-0.3189475
income_total	age_cat	-0.3189475
age_cat	income_total_new	-0.3153682
income_total_new	age_cat	-0.3153682
social_support	satisfaction_life_cat	0.3143570
satisfaction_life_cat	social_support	0.3143570
chronic_disease	age_cat	0.3111523
age_cat	chronic_disease	0.3111523
white_cat	immigration_cat	-0.3085027
immigration_cat	white_cat	-0.3085027
people_living_with	retirement	0.3021617
retirement	people_living_with	0.3021617

Appendix 3: Association between Economic Status (Total Savings and Investments) and Transition in Alberta (n=4,181)

Variable	Unadjusted	P value	Adjusted	P value
Economic status (total savings and investments)				
<50k CAD	Reference		Reference	
50k CAD to <100K CAD	0.39 (0.23-0.69)	**0.001**	0.43 (0.24-0.80)	**0.008**
100k CAD to <1m CAD	0.28 (0.18-0.43)	**<0.001**	0.44 (0.28-0.70)	**<0.001**
>1m CAD	0.11 (0.05-0.26)	**<0.001**	0.28 (0.11-0.68)	**0.005**
Age	1.20 (1.16-1.23)	**<0.001**	1.17 (1.14-1.21)	**<0.001**
Sex				
Male	Reference		Reference	
Female	1.74 (1.17-2.57)	**0.006**	1.38 (0.88-2.16)	0.166
Number of people living in the household				
Alone	Reference		Reference	
One	0.24 (0.16-0.36)	**<0.001**	0.50 (0.32-0.81)	**0.004**
Two	0.11 (0.05-0.28)	**<0.001**	0.52 (0.20-1.36)	0.183
Three and more	0.07 (0.02-0.22)	**<0.001**	0.51 (0.13-1.99)	0.333
General health status				
Excellent	0.21 (0.07-0.61)	**0.004**	0.43 (0.11-1.71)	0.233
Very good	0.67 (0.24-1.92)	0.459	0.68 (0.20-2.27)	0.530
Good	0.59 (0.23-1.52)	0.272	0.80 (0.24-2.68)	0.721
Fair	0.33 (0.13-0.85)	**0.022**	0.81 (0.22-2.92)	0.744
Poor	Reference		Reference	

Eyesight rating				
Excellent	0.20 (0.08-0.50)	**<0.001**	0.32 (0.12-0.85)	**0.021**
Very Good	0.15 (0.06-0.37)	**<0.001**	0.17 (0.07-0.43)	**<0.001**
Good	0.25 (0.10-0.60)	**0.002**	0.20 (0.08-0.50)	**<0.001**
Fair	0.39 (0.14-1.07)	0.069	0.26 (0.09-0.76)	**0.014**
Poor	Reference		Reference	
Social support availability	0.98 (0.97-99)	**<0.001**	0.99 (0.98-1.01)	0.587
Received formal home care				
Yes	6.62 (4.17-10.50)	**<0.001**	1.44 (0.82-2.54)	0.207
No	Reference		Reference	
ADL impairment				
No	Reference		Reference	
Mild	5.90 (3.91-8.91)	**<0.001**	1.37 (0.82-2.29)	0.224
≥ Moderate	4.32 (1.31-14.20)	**0.016**	0.54 (0.15-2.03)	0.363
Chronic diseases	1.25 (1.20-1.30)	**<0.001**	1.04 (0.97-1.11)	0.274

Appendix 4: Association between Economic Status (Total Savings and Investments) and Transition in British Columbia (n=7,481)

Variable	Unadjusted	P value	Adjusted	P value
Economic status (total savings and investments)				
<50k CAD	Reference		Reference	
50k CAD - <100K CAD	0.88 (0.50-1.54)	0.647	0.98 (0.53-1.80)	0.949
100k CAD - <1m CAD	0.58 (0.37-0.90)	**0.015**	0.81 (0.50-1.31)	0.380
>1m CAD	0.58 (0.31-1.09)	0.093	0.73 (0.37-1.44)	0.367
Age	1.22 (1.19-1.26)	**<0.001**	1.19 (1.15-1.23)	**<0.001**
Sex				
Male	Reference		Reference	
Female	1.67 (1.14-2.43)	**0.008**	1.05 (0.66-1.67)	0.828
Number of people living in the household				
Alone	Reference		Reference	
One	0.26 (0.18-0.38)	**<0.001**	0.57 (0.36-0.89)	**0.015**
Two	0.04 (0.01-0.18)	**<0.001**	0.21 (0.05-0.94)	**0.049**
Three and more	0.00 (0.00-0.00)	**<0.001**	0.00 (0.00-0.00)	**<0.001**
General health status				
Excellent	0.29 (0.10-0.87)	**0.027**	0.34 (0.10-1.25)	0.105
Very good	0.28 (0.10-0.81)	**0.019**	0.28 (0.08-0.96)	**0.043**
Good	0.47 (0.16-1.32)	0.152	0.37 (0.11-1.20)	0.097
Fair	1.15 (0.39-3.35)	0.802	0.83 (0.25-2.81)	0.763
Poor	Reference		Reference	

Eyesight rating				
Excellent	0.14 (0.06-0.30)	**<0.001**	0.64 (0.23-1.76)	0.388
Very Good	0.13 (0.06-0.28)	**<0.001**	0.53 (0.19-1.45)	0.215
Good	0.13 (0.06-0.27)	**<0.001**	0.33 (0.12-0.89)	**0.028**
Fair	0.20 (0.08-0.49)	**<0.001**	0.34 (0.11-1.07)	0.064
Poor	Reference		Reference	
Social support availability	0.98 (0.97-0.99)	**<0.001**	0.99 (0.98-1.00)	0.250
Received formal home care				
Yes	9.17 (6.11-13.70)	**<0.001**	1.71 (1.05-2.81)	**0.033**
No	Reference		Reference	
ADL impairment				
No	Reference		Reference	
Mild	7.35 (4.97-10.90)	**<0.001**	1.79 (1.08-2.96)	**0.024**
≥ Moderate	11.70 (5.71-24.00)	**<0.001**	1.48 (0.48-4.56)	0.469
Chronic diseases	1.27 (1.22-1.32)	**<0.001**	1.05 (0.98-1.11)	0.157

Appendix 5: Association between Economic Status (Total Savings and Investments) and Transition in Ontario (n=9,113)

Variable	Unadjusted	P value	Adjusted	P value
Economic status (total savings and investments)				
<50k CAD	Reference		Reference	
50k CAD - <100K CAD	1.03 (0.59-1.78)	0.775	1.09 (0.61-1.94)	0.775
100k CAD - <1m CAD	0.53 (0.33-0.84)	0.612	0.88 (0.53-1.46)	0.612
>1m CAD	0.73 (0.40-1.36)	0.330	1.40 (0.71-2.76)	0.330
Age	1.21 (0.18-1.25)	**<0.001**	1.19 (1.15-1.22)	**<0.001**
Sex				
Male	Reference		Reference	
Female	1.81 (0.25-2.63)	0.120	1.40 (0.92-2.14)	0.121
Number of people living in the household				
Alone	Reference		Reference	
One	0.27 (0.18-0.39)	**<0.001**	0.65 (0.42-1.01)	0.053
Two	0.06 (0.02-0.19)	**<0.001**	0.40 (0.12-1.39)	0.151
Three and more	0.02 (0.01-0.14)	**<0.001**	0.17 (0.02-1.32)	0.091
General health status				
Excellent	0.09 (0.04-0.22)	**<0.001**	0.21 (0.07-0.63)	0.113
Very good	0.14 (0.06-0.30)	**<0.001**	0.25 (0.09-0.69)	**0.018**
Good	0.24 (0.11-0.52)	**<0.001**	0.31 (0.11-0.81)	**0.007**
Fair	0.47 (0.20-1.07)	**0.072**	0.45 (0.17-1.21)	**0.006**
Poor	Reference		Reference	

Eyesight rating				
Excellent	0.47 (0.11-0.04)	0.310	1.83 (0.37-9.16)	0.459
Very Good	0.58 (0.14-2.42)	0.460	1.64 (0.35-7.77)	0.536
Good	0.76 (0.18-3.18)	0.710	1.68 (0.36-8.00)	0.512
Fair	2.15 (0.50-9.26)	0.300	2.88 (0.59-14.00)	0.189
Poor	Reference		Reference	
Social support availability	0.97 (0.96-0.98)	**<0.001**	0.98 (0.97-0.99)	**<0.001**
Received formal home care				
Yes	6.30 (4.10-9.69)	**<0.001**	1.58 (0.98-2.57)	0.063
No	Reference		Reference	
ADL impairment				
No	Reference		Reference	
Mild	4.78 (3.20-7.16)	**<0.001**	1.10 (0.68-1.77)	0.710
≥ Moderate	8.41 (3.84-18.40)	**<0.001**	1.25 (0.49-3.20)	0.645
Chronic diseases	1.26 (1.21-1.32)	**<0.001**	1.07 (1.00-1.13)	**0.035**

Appendix 7: Association between Economic Status (Total Savings and Investments) and Transition in Quebec (n=9,725)

Variable	Unadjusted	P value	Adjusted	P value
Economic status (total savings and investments)				
<50k CAD	Reference		Reference	
50k CAD to <100K CAD	0.68 (0.50-0.94)	**0.021**	0.78 (0.54-1.11)	0.163
100k CAD to <1m CAD	0.52 (0.39-0.69)	**<0.001**	0.70 (0.51-0.94)	**0.020**
>1m CAD	0.38 (0.17-0.85)	**0.019**	0.42 (0.19-0.97)	**0.041**
Age	1.17 (1.15-1.19)	**<0.001**	1.14 (1.12-1.16)	**<0.001**
Sex				
Male	Reference		Reference	
Female	1.59 (1.24-2.04)	**<0.001**	1.12 (0.84-1.49)	0.427
Number of people living in household				
Alone	Reference		Reference	
One	0.30 (0.23-0.39)	**<0.001**	0.50 (0.37-0.68)	**<0.001**
Two	0.07 (0.03-0.17)	**<0.001**	0.29 (0.11-0.73)	**0.009**
Three and more	0.02 (0.002-0.11)	**<0.001**	0.16 (0.02-1.18)	0.073
General health status				
Excellent	0.29 (0.11-0.77)	**0.012**	0.58 (0.19-1.80)	0.347
Very good	0.44 (0.17-1.09)	0.075	0.76 (0.26-2.24)	0.623
Good	0.70 (0.28-1.72)	0.432	0.84 (0.29-2.43)	0.750
Fair	1.22 (0.48-3.11)	0.683	1.12 (0.38-3.36)	0.836
Poor	Reference		Reference	

Eyesight rating				
Excellent	0.24 (0.11-0.54)	**<0.001**	0.76 (0.31-1.86)	0.548
Very Good	0.27 (0.12-0.59)	**0.001**	0.76 (0.32-1.81)	0.534
Good	0.36 (0.17-0.78)	**0.010**	0.78 (0.33-1.83)	0.565
Fair	0.38 (0.16-0.90)	**0.028**	0.57 (0.22-1.46)	0.240
Poor	Reference		Reference	
Social support availability	0.98 (0.98-0.99)	**<0.001**	0.99 (0.99-1.00)	0.063
Received formal home care				
Yes	5.12 (3.83-6.83)	**<0.001**	1.33 (0.90-1.95)	0.148
No	Reference		Reference	
ADL impairment				
No	Reference		Reference	
Mild	4.09 (3.09-5.41)	**<0.001**	1.17 (0.82-1.67)	0.397
≥ Moderate	7.00 (4.11-11.90)	<0.001	1.66 (0.81-3.41)	0.165
Chronic diseases	1.23 (1.19-1.27)	**<0.001**	1.04 (0.99-1.09)	0.112

Appendix 7: Association between Economics Status (Total Household Income) and Transition (n=42,745)

Variable	Unadjusted	P value	Adjusted	P value
Total household income				
<20k CAD	Reference		Reference	
20k to <50k CAD	0.50 (0.42-0.61)	**<0.001**	0.67 (0.53-0.85)	**0.001**
50k CAD to <100K CAD	0.23 (0.19-0.28)	**<0.001**	0.69 (0.53-0.89)	**0.004**
100k CAD to <150k CAD	0.09 (0.07-0.12)	**<0.001**	0.55 (0.39-0.78)	**0.001**
>150k CAD	0.04 (0.03-0.06)	**<0.001**	0.40 (0.24-0.65)	**<0.001**
Age	1.18 (1.17-1.19)	**<0.001**	1.15 (1.14-1.16)	**<0.001**
Sex				
Male	Reference		Reference	
Female	1.60 (1.40-1.83)	**<0.001**	1.16 (0.99-1.36)	0.068
Number of people living in the household				
Alone	Reference		Reference	
One	0.26 (0.23-0.30)	**<0.001**	0.55 (0.47-0.66)	**<0.001**
Two	0.06 (0.04-0.09)	**<0.001**	0.31 (0.19-0.49)	**<0.001**
Three and more	0.02 (0.01-0.05)	**<0.001**	0.24 (0.11-0.49)	**<0.001**
Provinces				
Ontario	Reference		Reference	
British Columbia	1.17 (0.91-1.50)	0.230	1.08 (0.83-1.39)	0.569
Alberta	1.99 (1.54-2.57)	**<0.001**	2.19 (1.67-2.87)	**<0.001**
Quebec	2.75 (2.23-3.39)	**<0.001**	2.57 (2.06-3.22)	**<0.001**

Atlantic	1.05 (0.81-1.36)	0.730	1.19 (0.90-1.56)	0.222
Western	1.66 (1.30-2.12)	**<0.001**	1.71 (1.33-2.21)	**<0.001**
General health status				
Excellent	0.80 (0.56-1.14)	0.220	0.34 (0.21-0.55)	0.411
Very good	0.43 (0.31-0.60)	**<0.001**	0.47 (0.30-0.72)	**0.007**
Good	0.25 (0.18-0.35)	**<0.001**	0.56 (0.37-0.86)	**0.001**
Fair	0.16 (0.11-0.24)	**<0.001**	0.83 (0.55-1.28)	**<0.001**
Poor	Reference		Reference	
Eyesight rating				
Excellent	0.22 (0.15-0.32)	**<0.001**	0.73 (0.48-1.11)	0.144
Very Good	0.25 (0.17-0.35)	**<0.001**	0.64 (0.43-0.96)	**0.031**
Good	0.34 (0.24-0.48)	**<0.001**	0.60 (0.40-0.90)	**0.013**
Fair	0.55 (0.38-0.81)	**0.003**	0.73 (0.48-1.13)	0.164
Poor	Reference		Reference	
Social support availability	0.98 (0.97-0.98)	**<0.001**	0.99 (0.98-0.99)	**<0.001**
Received formal home care				
Yes	6.45 (5.52-7.54)	**<0.001**	1.37 (1.21-1.67)	**0.002**
No	Reference		Reference	
ADL impairment				
No	Reference		Reference	
Mild	1.42 (1.18-1.70)	**<0.001**	1.42 (1.18-1.70)	**<0.001**
≥ Moderate	1.82 (1.18-1.70)	**0.002**	1.82 (1.25-2.67)	**0.002**
Chronic diseases	1.23 (1.22-1.25)	**<0.001**	1.04 (1.01-1.06)	**0.003**

Appendix 8: Association between Economic Status (total savings and investments) and Transition among Seniors ≥ 75 years (n=8,104)

Variable	Unadjusted	P value	Adjusted	P value
Economic status (total savings and investments)				
<50k CAD	Reference		Reference	
50k CAD to <100K CAD	0.87 (0.68-1.10)	0.240	0.98 (0.76-1.25)	0.845
100k CAD to <1m CAD	0.70 (0.58-0.86)	**<0.001**	0.98 (0.79-1.22)	0.867
>1m CAD	0.68 (0.49-0.93)	**0.016**	1.08 (0.76-1.53)	0.678
Age	1.19 (1.17-1.22)	**<0.001**	1.16 (1.13-1.19)	**<0.001**
Sex				
Male	Reference		Reference	
Female	1.69 (1.43-1.99)	**<0.001**	1.26 (1.03-1.54)	**0.022**
Number of people living in household				
Alone	Reference		Reference	
One	0.46 (0.39-0.54)	**<0.001**	0.68 (0.56-0.83)	**<0.001**
Two	0.24 (0.13-0.44)	**<0.001**	0.35 (0.19-0.67)	**0.001**
Three and more	0.14 (0.04-0.43)	**<0.001**	0.19 (0.06-0.62)	**0.006**
Provinces				
Ontario	Reference		Reference	
British Columbia	1.25 (0.94-1.67)	0.124	1.19 (0.89-1.60)	0.238
Alberta	2.14 (1.58-2.90)	**<0.001**	2.14 (1.56-2.93)	**<0.001**
Quebec	2.63 (2.03-3.39)	**<0.001**	2.41(1.84-3.16)	**<0.001**
Atlantic	0.94 (0.68-1.31)	0.716	1.10 (0.78-1.55)	0.600

Western	1.61 (1.19-2.16)	**0.002**	1.67 (1.22-2.27)	**0.001**
General health status				
Excellent	0.31 (0.17-0.56)	**<0.001**	0.57 (0.30-1.07)	0.078
Very good	0.45 (0.26-0.78)	**0.004**	0.75 (0.42-1.36)	0.349
Good	0.70 (0.40-1.20)	0.194	0.91 (0.51-1.63)	0.753
Fair	1.10 (0.62-1.95)	0.741	1.25 (0.69-2.29)	0.462
Poor	Reference		Reference	
Eyesight rating				
Excellent	0.26 (0.17-0.41)	**<0.001**	0.44 (0.26-0.72)	**0.001**
Very Good	0.32 (0.21-0.48)	**<0.001**	0.48 (0.30-0.76)	**0.002**
Good	0.35 (0.23-0.53)	**<0.001**	0.44 (0.28-0.70)	**<0.001**
Fair	0.43 (0.27-0.69)	**<0.001**	0.48 (0.29-0.80)	**0.005**
Poor	Reference		Reference	
Social support availability	0.98 (0.98-0.98)	**<0.001**	0.99 (0.98-0.99)	**<0.001**
Received formal home care				
Yes	2.58 (2.12-3.13)	**<0.001**	1.32 (1.06-1.66)	**0.015**
No	Reference		Reference	
ADL impairment				
No	Reference		Reference	
Mild	2.38 (1.99-2.85)	**<0.001**	1.33 (1.08-1.65)	**0.008**
≥ Moderate	2.96 (2.02-4.34)	**<0.001**	1.20 (0.76-1.89)	0.442
Chronic diseases	1.11 (1.08-1.14)	**<0.001**	1.03 (1.00-1.05)	0.053

Appendix 9: Associations between Economic Status and Transition to Seniors' Housing, Including Cognitive Impairment (n=38825)

Variable	Unadjusted Odds	P value	Adjusted Odds	P value
Economic status (total savings and investments)				
<50k CAD	Reference		Reference	
50k CAD - <100K CAD	0.71 (0.57-0.87)	**<0.001**	0.81 (0.65-1.02)	0.074
100k CAD - <1m CAD	0.41 (0.34-0.48)	**<0.001**	0.70 (0.58-0.86)	**0.001**
>1m CAD	0.38 (0.28-0.52)	**<0.001**	0.75 (0.54-1.05)	0.090
Age (by year)	1.18 (1.17-1.19)	**<0.001**	1.15 (1.14-1.17)	**<0.001**
Sex				
Male	Reference		Reference	
Female	1.58 (1.36-1.85)	**<0.001**	1.13 (0.95-1.36)	0.175
Number of people living in the household				
Alone	Reference		Reference	
One	0.26 (0.23-0.31)	**<0.001**	0.52 (0.43-0.63)	**<0.001**
Two	0.06 (0.03-0.09)	**<0.001**	0.25 (0.15-0.43)	**<0.001**
Three and more	0.03 (0.01-0.06)	**<0.001**	0.21 (0.10-0.45)	**<0.001**
Provinces				
Ontario	Reference		Reference	
British Columbia	0.98 (0.74-1.29)	0.867	0.91 (0.69-1.22)	0.531
Alberta	1.81 (1.36-2.40)	**<0.001**	1.98 (1.47-2.66)	**<0.001**
Quebec	2.49 (1.98-3.13)	**<0.001**	2.37 (1.86-3.02)	**<0.001**
Atlantic	0.89 (0.66-1.19)	0.422	1.02 (0.75-1.40)	0.877

Western	1.52 (1.16-1.99)	**<0.001**	1.63 (1.23-2.15)	**<0.001**
General health status				
Excellent	0.18 (0.13-0.28)	**<0.001**	0.34 (0.20-0.59)	0.495
Very good	0.28 (0.19-0.43)	**<0.001**	0.48 (0.29-0.79)	**0.026**
Good	0.48 (0.32-0.72)	**<0.001**	0.57 (0.35-0.94)	**0.004**
Fair	0.89 (0.58-1.37)	0.601	0.84 (0.51-1.39)	**<0.001**
Poor	Reference		Reference	
Eyesight rating				
Excellent	0.24 (0.15-0.38)	**<0.001**	0.77 (0.46-1.27)	0.303
Very Good	0.26 (0.17-0.40)	**<0.001**	0.63 (0.39-1.02)	0.061
Good	0.38 (0.25-0.59)	**<0.001**	0.68 (0.42-1.10)	0.113
Fair	0.63 (0.39-1.00)	**0.051**	0.79 (0.47-1.32)	0.368
Poor	Reference		Reference	
Social support availability	0.98 (0.97-0.98)	**<0.001**	0.99 (0.98-0.99)	**<0.001**
Received formal home care				
Yes	6.05 (5.04-7.26)	**<0.001**	1.33 (1.06-1.67)	**0.016**
No	Reference		Reference	
ADL impairment				
No	Reference		Reference	
Mild	4.95 (4.18-5.87)	<0.001	1.35 (1.10-1.67)	**0.005**
≥Moderate	7.76 (5.54-10.90)	<0.001	1.52 (0.97-2.36)	0.066
Cognitive Impairment				
Yes	1.72 (1.15-2.57)	**0.008**	1.71 (1.06-2.74)	**0.027**

No	Reference		Reference	
Chronic diseases	1.24 (1.21-1.26)	**<0.001**	1.04 (1.01-1.07)	**0.006**

Appendix 10: Associations between Economic Status and Transition to Seniors' Housing in the Multiple Imputed Data (n=39761)

Variable	Unadjusted Odds	P value	Adjusted Odds	P value
Economic status (total savings and investments)				
<50k CAD	Reference		Reference	
50k CAD - <100K CAD	0.70 (0.58-0.85)	**<0.001**	0.83 (0.68-1.02)	0.083
100k CAD - <1m CAD	0.50 (0.43-0.58)	**<0.001**	0.83 (0.70-0.98)	**0.032**
>1m CAD	0.35 (0.26-0.47)	**<0.001**	0.69 (0.50-0.94)	**0.020**
Age (by year)	1.17 (1.62-1.18)	**<0.001**	1.15 (1.14-1.16)	**<0.001**
Sex				
Male	Reference		Reference	
Female	1.61 (1.41-1.85)	**<0.001**	1.12 (0.96-1.31)	0.166
Number of people living in the household				
Alone	Reference		Reference	
One	0.28 (0.24-0.32)	**<0.001**	0.54 (0.46-0.64)	**<0.001**
Two	0.07 (0.05-0.11)	**<0.001**	0.33 (0.21-0.51)	**<0.001**
Three and more	0.04 (0.02-0.07)	**<0.001**	0.31 (0.17-0.57)	**0.001**
Provinces				
Ontario	Reference		Reference	
British Columbia	1.02 (0.78-1.32)	**0.891**	1.03 (0.79-1.34)	0.850
Alberta	1.94 (1.50-2.51)	**<0.001**	2.22 (1.70-2.91)	**<0.001**
Quebec	2.86 (2.32-3.53)	**<0.001**	3.01 (2.42-3.75)	**<0.001**
Atlantic	1.12 (0.86-1.45)	**0.411**	1.24 (0.94-1.62)	0.125

Western	1.81 (1.42-2.30)	**<0.001**	1.85 (1.44-2.37)	**<0.001**
General health status				
Excellent	0.18 (0.12-0.27)	**<0.001**	0.39 (0.24-0.64)	**<0.001**
Very good	0.30 (0.21-0.42)	**<0.001**	0.55 (0.36-0.86)	**0.008**
Good	0.48 (0.34-0.69)	**<0.001**	0.64 (0.42-0.98)	**0.038**
Fair	0.85 (0.58-1.23)	0.378	0.84 (0.54-1.30)	0.427
Poor	Reference		Reference	
Eyesight rating				
Excellent	0.22 (0.15-0.32)	<0.001	0.75 (0.49-1.14)	0.182
Very Good	0.26 (0.18-0.36)	<0.001	0.69 (0.46-1.03)	0.071
Good	0.34 (0.24-0.49)	<0.001	0.68 (0.45-1.00)	**0.052**
Fair	0.50 (0.34-0.74)	**0.001**	0.73 (0.47-1.12)	0.148
Poor	Reference		Reference	
Social support availability	0.98 (0.98-0.98)	**<0.001**	0.99 (0.98-0.99)	**<0.001**
Received formal home care				
Yes	6.22 (5.32-7.27)	**<0.001**	1.36 (1.12-1.65)	**0.002**
No	Reference		Reference	
ADL impairment				
No	Reference		Reference	
Mild	4.92 (4.25-5.70)	<0.001	1.42 (1.18-1.71)	**<0.001**
≥Moderate	8.39 (6.34-11.09)	<0.001	1.90 (1.31-2.75)	**<0.001**
Chronic diseases	1.23 (1.21-1.25)	**<0.001**	1.05 (1.03-1.08)	**<0.001**