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Older Adults' Quality of Life in Long-Term Care: A Cross-Sectional Comparison Before and During the COVID-19 Pandemic

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Article

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Résumé

Cette étude vise à évaluer les changements en qualité de vie des résidents des établissements de soins de longue durée avant et durant la pandémie de COVID-19. Une étude prétest-posttest portant sur 49 paramètres de qualité de vie, tirés des quatre dimensions du questionnaire d'autoévaluation de la qualité de vie interRAI, a été menée. Des données secondaires de 2019 (n = 116) et 2020 (n = 128) ont été analysées pour évaluer le changement en qualité de vie des personnes âgées. Une baisse significative a été observée dans 12 paramètres, indiquant un changement en qualité de vie des résidents des établissements de soins de longue durée pendant la pandémie. La vie sociale a été la dimension la plus touchée, les résidents déclarant avoir moins d'occasions de passer du temps avec d'autres résidents partageant les mêmes idées, d'explorer de nouvelles compétences et de nouveaux intérêts, de participer à des activités religieuses porteuses de sens, et d'avoir des activités agréables à faire le soir. Des changements significatifs ont été constatés dans plusieurs paramètres mesurant l'autonomie, la réactivité et l'attention du personnel, ainsi que le sentyiment de sécurité. Les résultats peuvent éclairer les stratégies futures de préparation aux pandémies et aux épidémies. L'équilibre entre la sécurité des résidents et l'attention portée à leur qualité de vie devrait être une priorité à l'avenir.

Abstract

This study aims to assess changes in long-term care (LTC) residents' quality of life (QoL) before and during the COVID-19 pandemic. A pre-test post-test study of 49 QoL measures, across four dimensions from the interRAI self-reported QoL survey, was conducted. Secondary data from 2019 (n = 116) and 2020 (n = 128) were analysed to assess the change in QoL. A significant decline in 12 measures was observed, indicating a change in QoL of LTC residents during the pandemic. Social life was the dimension mostly affected with residents reporting less opportunities to spend time with like-minded residents, explore new skills and interests, participate in meaningful religious activities, and have enjoyable things to do in the evenings. Several measures of personal control, staff responsiveness and care, and safety also demonstrated a significant change. The results can inform future strategies for pandemic and outbreak preparedness. Balancing the safety of residents with attention to their QoL should be a priority moving forward.

Introduction

Canada's population is aging as evidenced by the last census results showing that approximately 19 per cent of the population was over 65 years old (Statistics Canada, 2022). This number is expected to rise to 25 per cent of the population by 2036 (Canadian Medical Association, 2016). Canada's aging population has increased demands for long-term care (LTC) (Kehyayan, Hirdes, Tyas, & Stolee, 2015; Sinha, 2012). LTC homes constitute environments where adults receive 24-hour nursing care, personal care, and assistance with activities of daily living (Hsu et al., 2020). In total, Canada has 2,039 LTC homes, and specifically in Ontario, there are 626 LTC homes accounting for over 30 per cent of all LTC homes in the country and that care for approximately 100,000 residents (Canadian Institute for Health Information, 2020; Wilkinson, Haroun, Wong, Cooper, & Chignell, 2019).

With improved life expectancy, the risk of older adults developing chronic disease is also increasing (Sinha, 2012). It has been reported that more than 75 per cent of older adults live with one or more chronic diseases (Canadian Medical Association, 2016). Frailty is highly prevalent among older adults admitted to LTC, and quality of life (QoL) has been recognized as an important indicator for health outcomes of LTC residents (Kehyayan et al., 2015; Lang, Roessler, Schmitt, Bergmann, & Holthoff-Detto, 2021).

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QoL represents the subjective and perceived health status of an individual, and encompasses multiple items related to one's physical, psychological, and social well-being (Mortada, Salem, Elseifi, & Khalil, 2018). It is frequently measured using deficit-oriented measures, such as functional decline (Edvardsson et al., 2019), and it is monitored to determine and address the respective needs of individuals and to improve decision-making in health care settings (Lang et al., 2021).

In Canada, QoL indicators in LTC homes are often assessed using the International Resident Assessment Instrument (interRAI) measures (Heckman, Gray, & Hirdes, 2013). InterRAI represents a not-for-profit collaborative team of researchers and practitioners who developed and validated standardized measurement instruments of clinical outcomes and QoL, which have been adopted by over 35 countries worldwide (interRAI, n.d.-a; Kehyayan et al., 2015; Morris, 2009).

The coronavirus disease (COVID-19) pandemic has brought to light challenges in the care provided to older adults as it exposed cases of physical and emotional suffering in LTC homes across Canada (Estabrooks et al., 2020). Compared to other countries, Canada reported the highest proportion of resident deaths in the LTC sector, with 81 per cent of the total COVID-19 deaths attributed to LTC residents as of May 2020 (Estabrooks et al., 2020). The fatality rate for individuals affected by COVID-19 is estimated at 8.2 per cent, as compared to 25 per cent in LTC homes (Estabrooks et al., 2020).

In addition, restrictions were placed on LTC homes across the country in an effort to reduce the spread of COVID-19, which may have affected older adults' well-being (Chu, Ronquillo, Khan, Hung, & Boscart, 2021). Most notably, restrictions were imposed on visitors to LTC homes that were deemed "non-essential." Only those considered essential visitors (i.e., people visiting residents who require end-of-life care) were allowed to visit residents of LTC homes in Ontario (Hsu et al., 2020). These restrictions meant that residents were isolated for months, without visitation from their loved ones (Bowers et al., 2021; Chu et al., 2021), which has been shown to have a negative impact on residents and families and friends (Low et al., 2021). Thus, increase in loneliness, responsive behaviours (e.g., aggression, agitation, wandering), and loss of function, which are all expected to impact residents' QoL, were reported in LTC homes during this period (Low et al., 2021).

While research on QoL of older adults prior to the pandemic is abundant, studies that examined the impacts of the COVID-19 pandemic on QoL in the context of LTC in Canada are limited (Estabrooks et al., 2020). This calls for more research to understand the extent to which the pandemic has affected the QoL of LTC residents and inform the development of future planning and interventions to mitigate these impacts. This study addresses this gap and presents the results of an evaluation before and during the pandemic that examined the change in QoL of residents at one of the largest LTC homes in Ontario, the most populous province in Canada (Ng et al., 2020).

Methods

Study Design and Setting

A pre–post design was used to assess the change in LTC residents' QoL in 2019–2020 at Perley Health, which is the largest LTC home in the capital of Canada, and one of the largest LTC homes in Ontario. Perley Health has 450 LTC beds, and the average resident length of stay is approximately 18 months. Table 1 presents an overview of this organization and its LTC environment.

Table 1. General overview of the LTC home and environment

	2019	2020
Number of Residents*	562	405
Long-Term Care Beds	450 beds	450 beds
Average Resident Age	85 years	83 years
Registered Practical Nurses**		
Full-time	78	78
Part-time	73	71
Casual	11	17
Registered Nurses**		
Full-time	23	19
Part-time	21	14
Casual	17	21
Personal Support Workers**		
Full-time	178	178
Part-time	171	154
Casual	25	36
Therapeutic Arts and Recreation Staff**		
Full-time	25	22
Part-time	11	10
Casual	1	1
Occupational Therapists**		
Full-time	5	5
Part-time	1	1
Casual	0	0

*The number of residents includes both their current residents and those who were newly admitted, which is why 2019 is greater than the total number of available LTC beds.
**The staffing numbers for 2019 and 2020 were from December of each year and may have fluctuated throughout the year.

Data Collection and Measures

This study used secondary data that were previously collected using the QoL survey in 2019 and 2020. The "pre" assessment period T1 (i.e., before the COVID-19 pandemic) included a sample of *116 LTC residents* who completed the survey between January and December 2019. The "post" assessment period T2 (i.e., during the COVID-19 pandemic) included a sample of *128 LTC residents* who completed the survey between February and December 2020; during this period, data collection stopped between the months of April and June due to the pandemic and resulting lockdowns. It is important to note that, while there were not yet any lockdown conditions in January and February 2020, actions were being taken by Perley Health in an effort to prepare for the pandemic (e.g., screening of all visitors for respiratory illness, updates to the business continuity plan, increased nursing, housekeeping, and personal protective equipment supply orders and N95 fit testing clinics for staff members). The date of the first lockdown at Perley Health was March 11, 2020, and as epidemiological evidence changed, various restrictions were implemented, including the

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Table 2. Survey dimensions and measures

Survey Dimensions and Questions
Demographics (4 items)
Staff Responsiveness and Care Scale (14 items)
Personal Control Scale (9 items)
Social Life Scale (10 items)
Safety, Comfort, and Food-Related Items (16 items)
Total number of respondents at T1 = 116. Total number of respondents at T2 = 128.

suspension of all volunteer activity, requiring frequent COVID-19 rapid antigen tests from staff and caregivers, and physical distancing of two metres.

The QoL survey consists of 53 items (Table 2), which allows LTC residents to share their perceptions across four major dimensions that assess: staff responsiveness and care; personal control over what the resident does; social life activities; and safety, comfort, and food-related information. All data across these dimensions are assessed on a 0- to 4-point scale: *Never* (0), *Rarely* (1), *Sometimes* (2), *Most of the time* (3), and *Always* (4) (interRAI, n.d.-b). Higher scores indicate better QoL, with the exception of one item (i.e., *I am bothered by the noise here.*); in this case, lower scores indicate better QoL in relation to this question. Respondents may also specify their answer as *Don't know*, *Refused*, or *No response/can't be coded* (Kehyayan et al., 2015); for these cases, we included a column in the results tables showing the number of residents for which the information was unavailable.

All participants who completed the surveys were LTC residents at Perley Health and had a Cognitive Performance Scale (CPS) score of 2 or below. The CPS consists of four items (short-term memory recall, cognitive skills for daily decision making, expressive communication, and eating impairment) and has been validated against the Mini-Mental State Examination (Canadian Institute for Health Information, 2013). The CPS score represents the cognitive status of a person and ranges from 0 (intact) to 6 (very severe impairment) (Canadian Institute for Health Information, 2013). To be eligible to participate in the QoL survey, residents must have the capacity to respond to the questions included in the survey, which is self-reported; therefore, residents with a CPS score of 3 (moderate impairment) or higher are not usually included in the QoL survey.

For the purpose of data collection, Perley Health administers the interRAI QoL survey using the QOL PRO software, which is a software application used by LTC homes that adheres to the items and scales found in the interRAI self-reported QoL survey (QOL PRO, n.d.). LTC residents completed the survey with the help of an interviewer, who was not involved in their care, and assisted them in filling out the different sections. The interviewers were volunteer medical students who were not employed by Perley Health and helped eligible residents complete the survey at T1 and T2, which is in line with the practice in previous studies (Kehyayan et al., 2015). Ethics approval for secondary data use was received from the University of Ottawa Research Ethics Board.

Data Analysis

Data from the pre- and post-surveys were analysed using descriptive statistics (median, minimum, and maximum) in SPSS version 28.0 (SPSS Inc., Armonk, NY). The χ^2 test was used to assess the significant differences on the residents' demographic characteristics at T1 (pre) and T2 (post). The Mann-Whitney U test was used to compare the change in the median scores for the measures of all the items included in the QoL survey.

Results

This section presents details on the residents' characteristics and the findings of this study across the different QoL items assessed in the survey: staff responsiveness and care; personal control; social life; and safety, comfort, and food-related information. Of the 562 residents who lived at Perley Health in 2019 (T1), 134 were eligible to participate in the QoL survey (CPS scores ≤ 2), of whom 116 completed the survey representing an 86.5 per cent response rate. In 2020 (T2), 139 (CPS score ≤ 2) of 405 residents were eligible to complete the QoL survey, of whom 128 completed the survey, representing a 92 per cent response rate. Table 1 presents an overview of the setting at T1 and T2; there were no significant differences in the staffing and number of health care professionals between 2019 and 2020.

Residents' Characteristics

Table 3 presents details on the LTC residents' characteristics and the differences between the pre- and post-samples (T1 and T2, respectively). Overall, most of the respondents were male, 85 years and older, not part of a couple, and living at Perley Health for more than one year (see Table 3). At T1 and T2, more residents who were not Veterans participated in the QoL survey (66% and 58% of respondents, respectively), although the difference was not significant. More than 50 per cent of the residents had a CPS score of 0–1 and did not perceive their health as fair/poor. Importantly, there were no significant differences between the sample considered in the pre- and post-assessments on the major demographic characteristics, Veteran status, CPS scores, and perceived health status.

Staff Responsiveness and Care Scale

There were 14 items covering the dimension of staff responsiveness and care. As shown in Table 4, the medians for the questions assessing staff responsiveness were generally greater than 3, thus indicating that staff were perceived as being responsive *Always* or *Most of the time.* Two measures showed a statistically significant change during the pandemic. Specifically, the perception of staff providing the health services that the resident needs and the resident being able to get other needed services significantly decreased at T2. Although not statistically significant, both the ability to get help right away if needed and the perception of the care (p = 0.06) declined at T2, and the observed change was borderline significant.

LTC residents' perception of staff care was generally lower (medians < 3) at T1 and T2 compared to staff responsiveness, with some variation across the medians for various questions/measures. Only one measure (i.e., residents' perception of having a special relationship with a staff member) showed a significant decline during the pandemic. The perception of staff asking the residents how to meet their needs declined at T2 (borderline significant p value of 0.08).

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Table 3. Overview of the resident demographic characteristics at T1 and T2

Residents	T1 (n = 116) n (%)	T2 (n = 128) n (%)	p-value [T1–T2]*
Sex			
Male	82 (70.7)	83 (64.9)	0.22
Female	34 (29.3)	45 (35.2)	
Age			
Under 45	0 (0)	0 (0)	0.10
45-64	1 (0.9)	5 (3.9)	
65-74	4 (3.4)	14 (10.9)	
75-84	9 (7.8)	11 (8.6)	
85 and over	102 (87.9)	98 (76.6)	
Resident category			
Veteran	40 (34)	54 (42)	0.29
Non-Veteran	76 (66)	74 (58)	
Time living at Perley Health			
< 1 year	38 (21.6)	32 (25.)	0.27
1-2 years	25 (21.6)	30(23.4)	
> 2 years	53 (45.7)	66 (51.6)	
Part of a couple			
Yes	24 (20.7)	29 (22.7)	0.66
No	92 (79.3)	99 (77.3)	
My health is fair/poor			
Yes	46 (39.7)	56 (43.8)	0.45
No	70 (60.3)	72 (56.3)	

*Significant p-value ($p < 0.05$).

Personal Control Scale

There were more significant changes observed in relation to the perceived personal control of residents, which comprised nine items (Table 5). Overall, variations were observed in the reported scores across these items, with variations in responses on the different items from *Sometimes* to *Most of the time.* A significant change (decrease in median scores at T2 compared to T1) was observed for three measures assessing the ability of the resident to go outside when they wish, to go where they want on the "spur of the moment," and to decide what clothes they will wear.

Social Life Scale

A similar pattern was observed in relation to the perceived social life measures, which consisted of 10 items (Table 6). Generally, residents reported median scores below 3 (i.e., range between *Never* and *Sometimes*) on most questions assessing the social life dimension. The frequency of having opportunities to spend time with like-minded residents, explore new skills or interests, participate in meaningful religious activities, and have enjoyable things to do in the evenings all significantly declined at T2. Notably, two items were not statistically significant at 5 per cent significance level but showed a decline at T2 with borderline significance: people asking the residents for their help or advice (p = 0.08) and having participated in meaningful activities in the past week (p = 0.09).

Safety, Comfort, and Food-Related Items Scale

As shown in Table 7, there were 16 items assessing the QoL dimension related to safety, comfort, and food. Generally, considerable variations in the frequency across the different measures of safety, comfort, and food-related aspects were observed. Two measures showed a significant decrease in frequency at T2 versus T1; these related to having the same personal support worker most of the time and believing that the staff know what they are doing. Interestingly, residents reportedly indicated getting their favourite foods more at T2 compared to T1. Two measures showed a decline over time with borderline significance. Specifically, the medians for getting services delivered when the residents want them and having the residents' privacy respected when people care for them were lower at T2 compared to T1 with borderline significance (p = 0.08 and 0.06, respectively).

Discussion

QoL represents an important attribute in older adults' well-being. Given its association with physical, psychological, and social well-being, QoL is an indication of how well older adults perceive their health and experience in life. Thus, it should be central to efforts aiming to improve the care and health outcomes of residents in LTC homes.

The COVID-19 pandemic has emphasized challenges faced in Canada's LTC homes. Long-standing staffing and resource challenges were further exacerbated by the pandemic (Hsu et al., 2020), as a result of handling the surge of residents with COVID-19, which put residents' QoL at risk (Estabrooks et al., 2020). Hence, in a policy briefing for the Royal Society of Canada, Estabrooks et al. called for routine data collection of LTC residents' QoL, using validated tools (Estabrooks et al., 2020). To date, limited research has explored the impacts of the pandemic on the QoL of residents in LTC in Canada. This study addressed this under-researched area by presenting the results of a pre–post evaluation of changes in the QoL of residents at Perley Health. Although data on residents with severe cognitive impairment cannot be included in this analysis given the nature of the self-reported survey, this research presents an initial step to understanding the changes observed during this particularly difficult period for a sub-group of LTC residents with intact cognitive level or with minimal impairment.

Overall, our study showed a statistically significant decrease in the median for several items assessing LTC residents' QoL in the post- versus pre-periods, thus indicating a lower frequency of some activities that are associated with their well-being (Table 8). Although the decline was observed across the four dimensions covered in the survey, the largest number of affected items was associated with the social life dimension.

Staffing Challenges

The decline on questions related to staff responsiveness and care may be explained by the resource constraints and increasing demands on the health human resources during the pandemic (Estabrooks et al., 2020). In fact, infection prevention and control (IPAC) requirements, such as frequent COVID-19 testing and droplet and contact precautions (e.g., donning and doffing gowns,

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Table 4. Comparison of perceived staff responsiveness and care by residents at T1 and T2 [0–4 scale]

	T1 (*n* = 116)		T2 (*n* = 128)		
	Median [Min-Max]	Unavailable Information	Median [Min-Max]	Unavailable Information	*p*-value [T1-T2]
Staff Responsiveness Scale					
I am able to get help right away if needed.	3.00 [0–4]	4	3.00 [0–4]	8	0.06
I am able to get other needed services.	4.00 [0–4]	1	3.00 [0–4]	6	0.005*
I am treated with respect by the staff.	4.00 [2–4]	0	4.00 [1–4]	3	0.90
Staff respect what I like/dislike.	3.00 [0–4]	2	3.00 [0–4]	14	0.66
Staff pay attention to me.	3.50 [0–4]	2	3.00 [0–4]	4	0.23
The care and support I get help me live my life the way I want.	3.00 [0–4]	7	3.00 [0–4]	13	0.06
Staff respond quickly when I ask for assistance.	3.00 [0–4]	3	3.00 [0–4]	10	0.14
I can get the health services that I need.	4.00 [2–4]	2	3.00 [0–4]	9	< 0.001*
Caring Staff Scale					
I consider a staff member my friend.	3.00 [0–4]	2	3.00 [0–4]	9	0.36
Staff ask how to meet my needs.	3.00 [0–4]	3	3.00 [0–4]	8	0.08
Some of the staff know the story of my life.	2.00 [0–4]	12	2.00 [0–4]	16	0.72
Staff take the time to have a friendly conversation with me.	3.00 [0–4]	1	3.00 [0–4]	10	0.73
Staff act on my suggestions.	3.00 [0–4]	22	3.00 [0–4]	28	0.59
I have a special relationship with a staff member.	2.00 [0–4]	8	2.00 [0–4]	18	0.037*

*Significant *p*-value ($p < 0.05$).

gloves, medical masks, and eye protection) (Government of Canada, 2020), might have taken away from the amount of time that the staff could spend with residents and their ability to provide help to them right away. While the added requirements were important for the safety of residents, they may have exacerbated the staffing challenges that LTC homes experienced during the pandemic. Recent literature has discussed that direct-care staff in LTC homes have experienced burn-out due to staffing shortages and increased overtime hours (White, Wetle, Reddy, & Baier, 2021), which may also lead to absenteeism. Staff are often conflicted between completing the mandated documentation requirements and taking time to have a special relationship with residents due to staffing shortages (Lowndes, Struthers, & Ågotnes, 2021). In addition, restrictions implemented on places of employment in Ontario forced staff to work in one LTC or retirement home only (Hsu et al., 2020). As a result, Perley Health lost over 100 staff members as of July 2020 because of both government restrictions and personal reasons, which may have had implications on timely

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Table 5. Comparison of perceived personal control [0–4 scale] by residents at T1 and T2

Personal Control Scale	T1 (*n* = 116) Median [Min-Max]	T1 Unavailable Information	T2 (*n* = 128) Median [Min-Max]	T2 Unavailable Information	*p*-value [T1-T2]
I can be alone when I wish.	3.00 [0–4]	0	3.00 [1–4]	4	0.97
I can easily go outdoors if I want.	4.00 [0–4]	4	3.00 [0–4]	17	<0.001*
I can go where I want on the "spur of the moment."	3.00 [0–4]	6	2.00 [0–4]	13	<0.001*
I decide how to spend my time.	4.00 [0–4]	2	4.00 [0–4]	3	0.26
I can have a bath or shower as often as I wish.	2.00 [0–4]	3	2.00 [0–4]	25	0.83
I control who comes in my room.	3.00 [0–4]	0	3.00 [0–4]	4	0.44
I decide which clothes to wear.	4.00 [0–4]	1	4.00 [0–4]	3	0.041*
I decide when to go to bed.	4.00 [0–4]	0	4.00 [0–4]	1	0.55
I decide when to get up.	3.00 [0–4]	5	3.00 [0–4]	10	0.12

*Significant *p*-value ($p < 0.05$).

staff responsiveness. Nevertheless, it is important to note that, given its larger size compared to other LTC homes, Perley Health was able to make staffing adjustments in the face of persistent staffing shortages. Examples of staffing adjustments included reassigning physiotherapy staff to help with laundry or members of the administrative staff team who were reassigned to assist with comfort care rounding, which involved checking on every resident, every hour, to ensure that their needs were being met. This may have mitigated additional challenges related to perceived responsiveness and care. Thus, we posit that the impact of the pandemic on perceived staff responsiveness and care may have been more marked in smaller LTC homes (with more limited resources), which may have not been able to make similar staffing adjustments during the pandemic.

Social Connectedness and Technology

Social connectedness is associated with better well-being and contributes to better QoL for LTC residents (Bethell et al., 2021; Hande, Taylor, & Keefe, 2021). Studies have shown that self-isolation restrictions during the pandemic have increased anxiety and loneliness in older adults (Hwang, Rabheru, Peisah, Reichman, & Ikeda, 2020; Sepúlveda-Loyola et al., 2020). Despite the importance of social interaction for older adults, it may be complex to balance the residents' safety with opportunities for social interaction during a pandemic. Low et al. suggested that LTC homes implement safe visiting practices, as family and caregiver restrictions do not recognize that family members are essential to the care of LTC residents and their well-being (Low et al., 2021). Thus, we call for future research to explore innovative technologies, which can support connecting LTC residents with family and the external environment, and assess the impacts of these interventions on their QoL.

In general, interventions that increase social opportunities for older adults have been shown to increase well-being (Howell, 2020). To mitigate the impacts of the visitation restrictions, Perley Health implemented a virtual visit program, consisting of phone, Skype, and FaceTime calls with the residents' families and friends. These virtual visits may not be feasible in LTC homes that lack the resources to deploy these tools, including the technology itself, and the staff to facilitate the use of the technology. Thus, we recommend an integrated regional/provincial strategy to support the implementation of digital technologies at the system level, which can leverage networks/alliances of LTC homes, economies of scale, and common infrastructure across LTC homes. We also posit that such strategy should provide incentives for LTC homes to invest in these innovations and create a formal structure that ties financial/reimbursement incentives to improvements in processes and the QoL of LTC residents.

Improvements in Time of Crisis

An unexpected positive byproduct of the pandemic was the change in the LTC residents' perceptions vis-a-vis the frequency of getting their favourite foods, which improved at T2 compared to T1. During the pandemic, Perley Health changed their meals to include meals cooked from scratch onsite, which might have contributed to this change; this improvement pattern was also reported in relation to enjoying mealtimes, having enough variety in their meals, and eating what they want, although not statistically

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Table 6. Comparison of perceived social life [0–4 scale] by residents at T1 and T2

Social Life Scale	T1 (n = 116) Median [Min-Max]	Unavailable Information	T2 (n = 128) Median [Min-Max]	Unavailable Information	p-value [T1-T2]
People ask for my help or advice.	2.00 [0–4]	1	1.00 [0–4]	6	0.08
I have enjoyable things to do on weekends.	2.00 [0–4]	4	2.00 [0–4]	22	0.45
I participated in meaningful activities in the past week.	2.00 [0–4]	0	2.00 [0–4]	16	0.09
I have opportunities to spend time with like-minded residents.	2.00 [0–4]	2	2.00 [0–4]	13	0.050*
I have opportunities to explore new skills and interests.	2.00 [0–4]	4	2.00 [0–4]	12	0.009*
I have opportunities for affection or romance.	0.00 [0–4]	6	0.00 [0–4]	19	0.23
It is easy to make friends here.	2.00 [0–4]	1	3.00 [0–4]	12	0.54
Another resident here is my close friend.	2.00 [0–4]	7	1.00 [0–4]	12	0.41
I have opportunities to participate in religious activities that have meaning to me.	3.00 [0–4]	13	3.00 [0–4]	38	0.041*
I have enjoyable things to do in the evenings.	3.00 [0–4]	0	2.00 [0–4]	12	0.014*

*Significant p-value ($p < 0.05$).

significant. In fact, mealtimes in LTC homes are a form of social engagement for residents (Lowndes, Armstrong, & Daly, 2015), and lower staffing levels may cause mealtimes to become rushed, which contributes to lower resident satisfaction (Lowndes et al., 2015). In addition, improved nutritional outcomes are associated with increased social supports for older adults, as family and friends can impact dietary patterns (Howell, 2020). To mitigate the impacts of the pandemic on residents' experience, Perley Health hired meal helpers and adopted a flexible mealtime schedule, which may have contributed to the improvements observed along this dimension. These lessons learned from the pandemic time may be replicated in other contexts given their positive impacts on residents.

QoL Assessment and Recommendations

It is worth noting that, while the interRAI self-reported QoL survey has shown to be both reliable and valid (Kehyayan et al., 2015), and has been instrumental to gathering information on the QoL of residents in LTC, revisiting the design of the survey may benefit future research by the addition of a reference period for each of the items assessed (e.g., in the last week, in the last month). This will allow respondents to better anchor their answers to the different questions in the survey and inform timely clinical and management interventions. This is particularly important for data collected during the pandemic as it was unclear which wave or period of the pandemic the residents were referencing when they provided their responses to the survey.

QoL data collection is not yet a reporting requirement in Ontario, therefore not all LTC homes are routinely collecting data on residents' QoL (Estabrooks et al., 2020). At present, LTC homes lack a "gold-standard" measurement tool and there is little consensus on specific comprehensive measures to use to assess QoL in LTC homes (Aspden, Bradshaw, Playford, & Riazi, 2014). Other tools that have been proposed to assess QoL include the World Health Organization Quality of Life (WHOQOL), which covers additional items that are not part of the interRAI self-reported QoL survey, such as satisfaction with living conditions and ability to perform daily activities (Edvardsson et al., 2019). In a systematic review, Aspden et al. identified 13 instruments that have been validated for measuring QoL (Aspden et al., 2014). They found that QUALIDEM is best used for measuring QoL in residents with dementia (Aspden et al., 2014). QUALIDEM is an observational instrument that evaluates QoL based on nine domains; however, it does not cover the physical well-being domain (Aspden et al., 2014). Moving forward, it will be important for policy makers to consider requiring LTC homes to consistently report on a standardized set of common QoL measures based on existing research evidence and validated tools/scales. This will be invaluable to gain a better understanding of the well-being of LTC residents and to address the impacts of a crisis, like this pandemic, on residents.

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Table 7. Comparison of perceived safety, comfort, and food-related perspective [0–4 scale] by residents at T1 and T2

Safety, Comfort, and Food-Related Items	T1 (*n* = 116) Median [Min-Max]	Unavailable Information	T2 (*n* = 128) Median [Min-Max]	Unavailable Information	*p*-value [T1-T2]
The food is the right temperature when I eat it.	3.00 [0–4]	1	3.00 [0–4]	4	0.83
I feel my possessions are safe.	4.00 [0–4]	1	3.00 [0–4]	10	0.46
I feel safe when I am alone.	4.00 [0–4]	1	4.00 [1–4]	1	0.62
This place feels like home to me.	3.00 [0–4]	3	3.00 [0–4]	11	0.61
I am bothered by the noise here.	1.00 [0–4]	0	1.00 [0–4]	2	0.89
I can express my opinion without fear of consequences.	4.00 [0–4]	5	4.00 [0–4]	10	0.98
Staff have enough time for me.	3.00 [0–4]	2	3.00 [1–4]	9	0.32
Services are delivered when I want them.	3.00 [0–4]	4	3.00 [0–4]	10	0.08
I have the same personal support worker most of the time.	2.00 [0–4]	11	2.00 [0–4]	27	0.029*
I enjoy mealtimes.	3.00 [0–4]	0	3.00 [0–4]	8	0.49
I have enough variety in my meals.	3.00 [0–4]	0	3.00 [0–4]	7	0.51
I get my favourite foods here.	2.00 [0–4]	3	2.00 [0–4]	15	0.040*
Staff know what they are doing.	3.00 [0–4]	2	3.00 [0–4]	9	0.014*
My privacy is respected when people care for me.	4.00 [0–4]	0	3.00 [0–4]	4	0.06
I can eat when I want.	2.00 [0–4]	4	2.00 [0–4]	16	0.35
I would recommend this organization to others.	4.00 [0–4]	2	4.00 [0–4]	8	0.20

*Significant *p*-value ($p < 0.05$).

Limitations

Lastly, it is important to recognize the limitations of this study. We presume the changes in QoL are not attributed to demographic characteristics as there were no significant differences on the demographics that we tested (see Table 3). However, given the secondary nature of the data, we cannot assert with confidence that there were no differences between the pre- and post-samples on variables that may have not been accounted for. While we acknowledge that Perley Health had lost over 100 staff members as of July 2020, this number does not account for absenteeism. In addition, we noted the absence of data on some items (more at T2 compared to T1), which might have been due to the pandemic situation that impacted the reporting of data in the QoL survey, especially on the social life scale (e.g., the item *I have opportunities to participate in religious activities that are meaningful to me* had 38 unavailable responses at T2). These questions may have been perceived as less relevant by the respondents during the pandemic. This calls for further research into the items that had more unavailable

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Table 8. Summary of significant changes in QoL measures

Scale	Significantly Lower Frequency (T2 vs. T1)	Significantly Higher Frequency (T2 vs. T1)
Staff Responsiveness and Care	Ability to get other needed services Ability to get the health services needed Having a special relationship with a staff member	
Personal Control	Ability to easily go outdoors Ability to go where one wants Deciding which clothes to wear	
Social Life	Having opportunities to spend time with like-minded residents Having the opportunity to explore new skills and interests Having enjoyable things to do in the evening Having opportunities to participate in meaningful religious activities	
Safety, Comfort, and Food	Having the same personal support worker most of the time Staff knowing what they are doing	I get my favourite foods here.

information to better understand why it occurred and how to prevent it in the future.

This study assessed resident's QoL before and during the pandemic using multiple, simultaneously tested hypotheses, which may have increased the chances of concluding that our results were statistically significant, when they were not actually significant (Chen, Feng, & Yi, 2017). Corrections for the multiple testing problem (e.g., the Bonferroni correction) would increase the chances of a true relationship going unnoticed, where interesting and important findings may not be reported (Groenwold, Goeman, Cessie, & Dekkers, 2021); therefore, we did not adjust the *p* value of this study.

The QoL survey is self-reported by residents and could be subject to recall bias. Measures of clinical significance are often based on standards identified by clinicians and patients (Kraemer et al., 2003). Future research should identify standards of clinical significance that are meaningful for clinicians and residents in LTC homes based on the interRAI QoL items. In addition, Perley Health has beds that are reserved for Veterans; hence the percentage of Veterans might be larger than other LTC homes and as such there were more male residents than female residents. It is worth noting that the secondary nature of the data precluded examining the differences between residents with intact cognitive levels and those with minimal impairment due to the absence of reported CPS scores in the data set. Furthermore, only residents with no/very limited cognitive impairment were included in this study; thus, the results may not be generalizable to the overall population of LTC residents. Last, during the pandemic (T2), there was an interruption in the data collection between April and June 2020 due to the increasing restrictions imposed as new epidemiological evidence emerged after March 2020, which may have impacted the results. Therefore, future research should explore the changes in residents' QoL based on each wave of the pandemic, as the residents included in this survey may have had different experiences, depending on when they completed the survey, due to the increasing restrictions imposed on LTC homes across Canada.

Conclusion and Implications

In conclusion, this study presents a first step to uncovering the impacts of the COVID-19 pandemic on the QoL of LTC residents in Canada. The results present evidence of the implications that the pandemic had on LTC residents across different QoL items, which should trigger further research and interventions to address them. The findings may be used to inform future strategies and planning for emergency preparedness, in case of outbreaks at the organizational and system levels. As LTC homes are considered a person's "home," it is important to balance the rights and QoL of residents with the need to keep them safe. Technological interventions present promising tools that may support resident care in LTC homes in times of crises, and address challenges related to QoL. Future research should evaluate interventions that facilitate social connections for residents in LTC homes and the broader community. Timely access to human health care resources and virtual consultations while ensuring safety should be considered to mitigate the negative impacts of the pandemic.

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