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ORIGINAL RESEARCH

Factors Influencing Mobility During the COVID-19 Pandemic in Community-Dwelling Older Adults

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Abstract

Objective: To describe and identify factors influencing mobility among older adults during the first 5 months of the COVID-19 pandemic.

Design: A cross-sectional telesurvey.

Setting: Community dwelling older adults, situated within the first 5 months of the COVID-19 pandemic, in Hamilton, Canada.

Participants: A random sample of 2343 older adults were approached to be in the study, of which 247 completed the survey (N=247). Eligible participants were aged ≥65 years.

Interventions: Not applicable.

Main Outcome Measures: Mobility was measured using global rating of change items and the Late Life Function Instrument (LLFI). Multivariate linear regression models were used to examine the association between mobility and related factors based on Webber's model.

Results: 247 older adults (29% male, mean age 78 ± 7.3 years) completed surveys between May and August 2020. Respectively, 26%, 10%, and 9%, rated their ability to engage in physical activity, housework, and move around their home as worse compared with the start of the pandemic. The mean LLFI score was 60.9 ± 13.4. In the model, walking volume (β=0.03 95% confidence interval 0.013, 0.047), fall history (β=-0.04, 95% confidence interval -0.08, -0.04), male sex (β=0.06, 95% confidence interval 0.02, 0.09), unpleasant neighborhood (β=-0.06, 95% confidence interval -0.11, -0.02), musculoskeletal pain (β=-0.07, 95% confidence interval -0.11, -0.03), and self-reported health (β=0.08, 95% confidence interval 0.03, 0.13) had the strongest associations with LLFI scores and explained 64% of the variance in the LLFI score.

Conclusions: Physical and environmental factors may help explain poorer mobility during lockdowns. Future research should examine these associations longitudinally to see if factors remain consistent over time and could be targeted for rehabilitation.

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The pandemic caused by the novel coronavirus, COVID-19, has had serious economic, health, and social ramifications.[1] Since the outset, public health authorities have urged adherence to social distancing measures and, at times, implemented stay-at-home orders. For countries in the northern hemisphere, such measures have been heavily relied upon during each of the 4 surges in cases, even with the availability of vaccines (spring and summer 2020; winter 2021; spring 2021; winter 2022).[2]

Those 65 years and older have a heightened susceptibility to severe illness and outcomes if they contract COVID-19,[3] partly because they are more likely to have multiple health conditions that can weaken the immune system. Thus, older adults may be more cautious and adhere more stringently to public health restrictions to mitigate contracting the virus.[4] Researchers and

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rehabilitation professionals have raised concerns about the health-related consequences of isolation[5] for older adults during the pandemic and the resulting decline in social and physical activities.[5-7] This decline is concerning as engagement in regular social and physical activities is essential to maintaining mobility and reducing disability, especially in later life.[8,9]

Maintaining mobility in older adulthood is critical given its association with healthy aging, overall wellbeing, and reduced disability.[10,11] Defined as the capacity and ability to move in and across different environments,[10] mobility is linked to participation in life activities, quality of life, and social engagement.[11-14] Mobility as a construct can be measured through self-report, performance-based outcomes, or via direct observation using smart technology (eg, accelerometers, smart watches). In the model proposed by Webber et al.,[10] 6 factors influence mobility: financial, psychosocial, environmental, physical, cognitive, and sex/culture/biographic.[10] Many of these factors may have been affected by the public health measures and other effects resulting from the pandemic. Understanding the most relevant factors underlying mobility is critical for informing rehabilitative strategies to build resilience both during this pandemic and in the face of future infectious disease threats—an issue that is recognized as a key priority by international bodies.[6,7,15]

The central importance of mobility to healthy aging and the society-wide effect of COVID-19 has resulted in the need to characterize older adults' mobility during this time of restriction. Further, it is imperative to understand how mobility has been affected by ongoing public health measures. Objective 1 of this study was to describe community-dwelling older adults' perceived mobility changes during the early months of the COVID-19 pandemic within the vicinity of Hamilton, Ontario, Canada. Objective 2 was to identify factors associated with mobility ability during this time in order to guide the development of rehabilitative interventions for older adults living in the community.

Methods

Study design and sample

A cross-sectional analysis of a longitudinal tele-survey study administered to a random sample of older adults living in Hamilton, Ontario, Canada. Details of the protocol have been published elsewhere.[16] Briefly, participants were recruited through consecutive phone calls made to a list of random phone numbers obtained from ASDE Survey Sampler. Any individual living in the community and equal to or over the age of 65 years was eligible to participate. Exclusion criteria included those living in a care residence, those with self-identified severe and uncorrectable visual or hearing impairments, or with self-identified severe cognitive impairments. All participants provided verbal consent for participation. This study received ethics approval from Hamilton Integrated Research Ethics Board of McMaster University (2020-10814-GRA) and an ethics board at the University of Waterloo (ORE# 4229).

List of abbreviations:

LLFI Late Life Function Instrument

Setting and context: timeline of the pandemic and public health measures

As context for this study, it is important to note the timeline of the COVID-19 pandemic, and the associated measures put in place in Hamilton. Additional details can be found in the protocol.[16] Briefly, on March 11, 2020, the WHO formally declared COVID-19 a pandemic.[17] Subsequently, on March 17, 2020, the province of Ontario in Canada was placed under a state of emergency and most retail, restaurants, and recreational facilities were closed. Limits were placed on the number of individuals allowed to gather indoors and outdoors. Baseline data were collected by survey from May 2020 to August 2020. During this time, Ontario entered Phase 1 (May 19, 2020) of reopening, which allowed some facilities to open while maintaining gathering limits. Phases 2 (June 12, 2020) and 3 (August 3, 2020) allowed outdoor services, personal care services, and relaxing of some indoor restrictions. Across all these phases, limitations remained in place on the number of individuals allowed to gather, with strict physical distancing and health and safety protocols.

Assessment of mobility

Self-perceived changes in mobility

Descriptive data captured participant-perceived changes in mobility since the beginning of the pandemic and related social/physical distancing measures. Using global rating of change scales,[18]we determined participant perceived self-reported changes in 3 different mobility domains: ability to move around one's home, ability to complete housework, and ability to engage in physical activity. The response options were based on a Likert scale from 1-much worse to 5-much better.

Late life function instrument

Mobility was assessed using the Function component of the Late Life Function Instrument (LLFI).[19] The LLFI is composed of 32 items assessing an individual's self-reported ability to complete discrete physical tasks. These tasks are considered as part of daily routines making up one's mobility, which is consistent with leading disablement frameworks.[20,21] An example item in the instrument is as follows: how much difficulty do you have walking a mile, taking rests a necessary, with response options ranging from no difficulty (5) to cannot do (1). Item scores are summed and the total raw score is transformed to a scale from 0 to 100, with higher scores indicating better function and mobility ability. The scale also consists of 3 sub-scales, which are derived from specific items of the scale. These subscales are upper extremity function (activities using hands and arms), basic lower extremity function (activities involving standing, stooping, or walking), and advanced lower extremity function (activities requiring a greater degree of physical ability and endurance). The subscale scores are also transformed from 0 to 100. Higher scores indicate greater ability to perform sub-scale specific activities. The LLFI has been shown to have strong convergent validity with performance-based mobility measures and good test-retest reliability among community dwelling older adults.[19,22]

Assessment of factors related to mobility

To identify potentially relevant factors underlying mobility and LLFI scores during the pandemic, we used Webber's Theoretical Framework for Mobility.[10] The Framework posits that mobility is the "ability to move oneself within community environments that expand from one's home, to the neighborhood, and to regions beyond"[10] and is influenced by 6 intersecting concepts. The measures used from our survey for each construct, except cognitive factors, are reported in detail in Supplemental table S1. These are: (1) Sex and biographic factors: self-reported age, sex, height (meters), and mass (kilograms, kg). Body mass index (BMI) was calculated by dividing mass in kg by height in meters squared; (2) Financial factors: participants' self-reported household income and education; (3) Psychosocial factors: psychosocial factors were measured using validated questionnaires: the Impact of Events Scale-Revised[23,24] examining distress caused by events; the Brief Resilience Scale[25,26] examining resilience from stress; and the EuroQol 5D-5L questionnaire[27,28] examining quality of life. In terms of social connections, participants were asked a single question from the Center for Epidemiologic Studies Depression Scale[29] examining loneliness; if they had someone they could rely on for support; their pre-pandemic social contact frequency; any lost supports since the start of the pandemic; and health assistance they received in the past 12 months; (4) Environmental factors: two questions about participants' neighborhood; the extent to which their neighborhood is safe (generally); and the extent to which they feel it is unpleasant to walk in their neighborhood; and (5) Physical factors: medical history; whether they had experienced musculoskeletal pain in the past 30 days[30]; general self-rated health; nutrition risk using the Seniors in the Community: Risk Evaluation of Eating and Nutrition Abbreviated[31]; volume of walking[32] and volume of strength fitness[32]; and if they had a fall in the past year.

Statistical analysis

Descriptive statistics are presented as means and standard deviations (SDs) for continuous normally distributed variables and medians and interquartile range for nonparametric data. For categorical variables, frequencies and proportions are presented. For data completeness, we excluded 25 participants (9%) who had missing data for the explanatory variables.

Multivariate linear regression assessed the association between factors from Webber's framework with mobility measured using the LLFI. Separate regression models were run for the LLFI total score for overall function and the 3 subscales (upper extremity, basic lower extremity, and advanced lower extremity). The LLFI total score for overall function was logarithmically transformed to meet the assumption of normality of the residuals. Correlations between all pairs of independent variables were assessed using Pearson or Spearman tests to detect any potential collinearity and identify variables to include in the full model. A multivariate model was constructed using backward elimination. From the full model, we manually removed variables that did not significantly contribute to the model, as indicated by P value$\leq$0.05. We also examined the adjusted R^2, F statistic, and changes in the regression coefficient differences between the full and reduced models to identify the most predictive combination of variables. This model building technique was repeated for each of the LLFI subscales. The variables included in the final models for each subscale were distinct. For all models, we tested for linear regression assumptions and multicollinearity. All analyses were conducted using StataIC (v.16), using a level of significance of 0.05.

Results

Participant characteristics

Study staff called 2343 random phone numbers from the ASDE sample list. Of these, 312 older adults were recruited (13%), 272 completed the baseline tele-survey, with 25 participants (9%) excluded because of missing data (fig 1). Table 1 outlines participants' characteristics. Mean age was 78.0 ± 7.3 and 28.7% (n=71) identified as male. Almost half of the participants had completed a post-secondary degree (46.6%, n=115), and 10.9% (n=27)

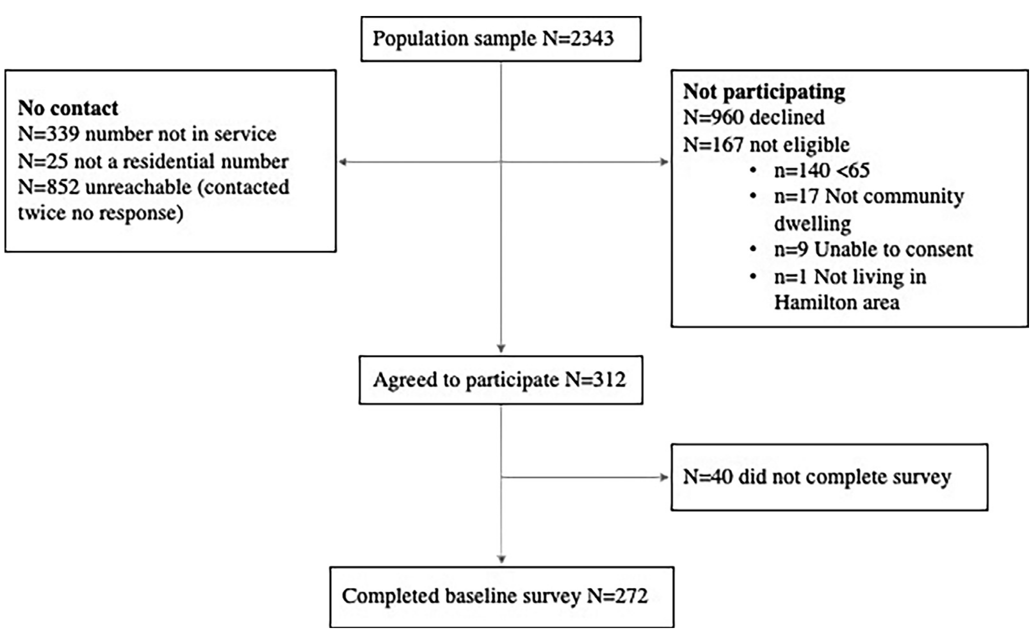

Fig 1 Flow diagram.

Table 1 Select study participant characteristics

Characteristic	N=247
Age, y, mean (SD)	78.0 (7.3)
65-74	94 (38.1)
75-84	108 (43.7)
85+	45 (18.2)
Male sex, frequency (%)	71 (28.7)
Body mass index, **frequency (%)**	27.2 (5.4)
<25 kg/m^2	82 (33.2)
≥25 kg/m^2	156 (63.2)
Financial factors	
Education, frequency (%)	
Less than secondary school	27 (10.9)
Secondary school graduation but no post-secondary education	49 (19.8)
Some post-secondary education	56 (22.7)
Post-secondary degree/diploma	115 (46.6)
Environmental factor	
Unpleasant walking, frequency (%)	
Disagree	186 (75.3)
Agree	61 (24.7)
Physical factors	
Perceived overall health status, frequency (%)	
Good/very good/excellent	197 (79.8)
Poor/fair	50 (20.2)
Number of comorbidities, mean (SD)	3.7 (2.21)
Most common conditions, frequency (%)	
Cataracts	115 (46.6)
Osteoporosis	42 (17.0)
Osteoarthritis	96 (28.9)
Back pain	67 (27.1)
High blood pressure	113 (45.7)
Experienced musculoskeletal pain in the past month, frequency (%)	159 (64.4)
Experienced a fall in the previous 12 months, frequency (%)	84 (34)
Use a walking aid, frequency (%)	77 (31.2)
Types of health assistance received, frequency (%)	
No receipt of health assistance	142 (57.5)
Personal care	44 (17.8)
Medical care	26 (10.5)
Medical appointments	18 (7.3)
Housework, home maintenance	11 (4.5)
Transportation	5 (2.0)
Meal preparation	1 (0.4)
Frequency of physical activity (walking), frequency (%)	
0-2 days	105 (42.5)
3-7 days	142 (57.5)
Psychosocial factors	
Perceived mental health status, frequency (%)	
Poor/fair	22 (8.9)
Good/very good/excellent	225 (91.1)
Brief resilience scale score, median (IQR)	3.8 (0.8)
Fear of falling, mean (SD)	3.3 (2.4)

Abbreviations: IQR, interquartile range.

had less than a secondary school education. Mean number of comorbidities reported was 3.7 ± 2.2, where cataracts (46.6%, n=115), high blood pressure (45.7%, n=113), back pain (27.1%, n=67), osteoarthritis (28.9%, n=96), and osteoporosis (17%, n=42) were the most common. The mean total physical function score of the LLFI was 60.9 ± 13.4 (table 2). Supplemental fig S1 identifies the mean LLFI total scores by age group, comorbidity status, education, and sex.

Self-reported changes in mobility since the start of the pandemic

Participants' perceived changes in their ability to move around the home from the beginning of the pandemic was reported as worse for 9.3% (n=23), as was their perceived ability to engage in housework (9.7%, n=24) and physical activity (26.3%, n=65) (fig 2 and Supplemental table S2). Only a small proportion of participants reported improvements in their ability to move around home (2.8%, n=7,), ability to engage in housework (1.6%, n=4), and ability to engage in physical activity (4.5%, n=11). Most participants reported no perceived change in mobility since the start of the pandemic across the 3 self-reported domains.

Factors associated with LLFI scores during the pandemic

The final model for the LLFI function total score explained 64% of the total variance (table 3) demonstrated no collinearity concerns between the independent variables (Variance Inflation Factor<10) and met all assumptions. By magnitude of association, younger age, less fear of falling, fewer comorbidities, less assistance required, greater volume of walking, no falls, male sex, less unpleasant neighborhood for walking, lower musculoskeletal pain, and better self-reported health were positively associated with LLFI scores. Because the baseline tele-survey was conducted over 4 phases of lockdown/reopening during the initial months of the pandemic, we performed a sensitivity analysis, controlling for pandemic phase. Thirty-nine participants were between phases 0 and 1, with a mean LLFI score of 60.23 (± 13.95), whereas n=208 participants were between phases 2 and 3, with a mean score of 61.03 (± 13.31). Our sensitivity analysis found no association of pandemic phase with mobility. The results of this analyses have been included in Supplemental table S3.

The final models for each of the LLFI subscales are provided in table 4. For the LLFI upper extremity score, the model explained 56% (adj 0.5404) of the variance ($F_{10,236}$=29.93, P<.005). Younger age, male sex, fewer comorbidities, greater volume of walking, no history of falls, less fear of falling, greater resilience, and less unpleasant neighborhood were positively associated with upper extremity LLFI scores. For the LLFI basic lower extremity score, higher scores were associated with younger age, fewer number of comorbidities, greater volume of walking, less fear of falling, greater self-rated health, and not unpleasant to walk in the neighborhood and explained 40% (adj. 0.3748) of the variance ($F_{11,235}$=14.40). Last, for the LLFI advanced lower extremity score, higher scores were associated with younger age, male sex, fewer comorbidities, greater volume of walking, no use of a walking aid, less fear of falling, and less unpleasant neighborhood and explained 65% (adj 0.6311) of the variance ($F_{10,236}$=43.08).

Discussion

This is the first study to examine mobility as reflected by the function scores of the LLFI in a random sample of community-dwelling older adults during the early months of the COVID-19

Table 2 Late life function scores

Late Life Function Scores	N=247
LLFI — total score, mean (SD)	60.9 (13.4)
LLFI — upper extremity, median (IQR)	77.5 (19.6)
LLFI — basic lower extremity, median (IQR)	72.1 (28.0)
LLFI — advanced lower extremity, mean (SD)	47.6 (23.2)
Mean scores by age group, mean (SD)	
65-74 (n=94)	66.7 (13.4)
75-84 (n=108)	60.2 (12.7)
≥85 (n=45)	52.6 (10.3)
Mean scores by sex, mean (SD)	
Male	64.9 (15.6)
Female	59.3 (12.1)
Mean scores by comorbidity	
<4 (n=130)	66.1 (13.5)
≥4 (n=117)	55.2 (10.7)
Mean scores by education level	
Less than secondary school	54.5 (8.7)
Secondary school graduation but no post-secondary education	58.1 (13.6)
Some post-secondary education	59.9 (13.4)
Post-secondary degree/diploma	64.2 (13.4)

Abbreviations: IQR, interquartile range.

pandemic. We found 26% of older adults rated their level of physical activity as worse since the start of the pandemic compared with only 4.5% who rated it as better. Physical and environmental factors, specifically, greater volume of walking, no falls in the past 12 months, male sex, pleasant walkable neighborhood, less musculoskeletal pain, and greater self-reported health had the greatest association with mobility ability. Our model explained a high portion (64%) of the variance in mobility, highlighting the importance of physical health and environmental factors for older adults' mobility during the pandemic.

Our findings are consistent with a systematic review of studies reporting a general trend for reduction in physical activity among older adults during the pandemic,[33] as well as with a recent analysis from the Canadian Longitudinal Study on Aging COVID-19 study.[18] We found that 26% of our participants reported a decrease in their ability to engage in physical activity since the start of the pandemic, as compared with 25.2% in the large population-based study.[18] This reduction likely reflects a shift from active to sedentary behaviors as numerous studies have shown that older adults are spending more time sitting during COVID-19.[33-36] These findings are concerning because extended periods of reduced mobility and limited physical activity in older adults can lead to long-term mobility loss and heightened risk of adverse events over time.[37,38] During the early phases of the pandemic, there were calls to action to try to prevent activity decline,[39] spurring the development of creative physical activity programs with early promising results[40,41]is that highlighted the potential role of rehabilitation in meeting the needs of people living in the community. In addition, our study adds to the findings in the COVID-19 literature that mobility can be affected both directly and indirectly by COVID-19. For example, a large population-based study recently showed a higher risk of new onset mobility difficulty among older adults with probable or confirmed COVID-19 living in the community, even in the absence of serious illness or hospitalization. This population-based study also reported mobility declines of a similar magnitude to our study among the general population living in the community during the pandemic. Given the ongoing high burden of COVID-19 illness in the community, there is an even greater risk of further mobility decline among older adults as the pandemic continues. Recent rehabilitation frameworks highlight the need for rehabilitation experts to mitigate both direct and indirect effects of COVID-19 and to help older adults be as physically active and mobile as possible to counteract both the effects of lockdown and to promote recovery from illness.[6,42]

Our study is the first, to our knowledge, to examine the factors associated with mobility using a validated and standardized self-report measure during the pandemic. Other comparable research used non-validated measures,[36] or life space mobility assesments,[34,43,44] which makes interpretation challenging because changes in life space mobility may be due to public health restrictions rather than declines in older adults' capabilities.[22] Physical and environmental factors such as greater volume of walking, less perceived unpleasantness of one's neighborhood, less musculoskeletal pain, and greater self-reported health were most strongly associated with mobility. Our findings were also fairly consistent across the 3 subscales: upper extremity, basic lower extremity, and advanced lower extremity function. Other longitudinal[18,44,45] and cross-sectional[36] studies comparing individuals' mobility before and during the pandemic also found that better self-reported health, or fewer comorbidities, were linked to

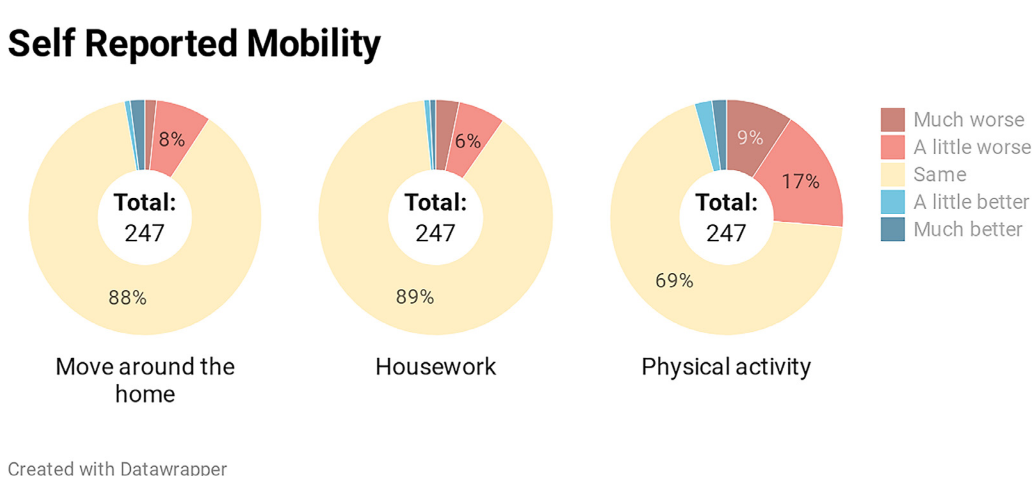

Fig 2 Self-reported mobility.

Table 3 Multiple regression analysis for factors associated with LLFI overall function scores

Variables	Coefficient (95% CI)	%Change Mobility Scores+
Age	-0.01 (-0.011 to -0.005) *	↓ 0.81% for increase in age
Sex		
Female	REF	
Male	0.06 (0.02-0.09) †	↑ 5.6% compared with REF
Education		
Less than secondary school	REF	
Secondary degree/diploma	-0.01 (-0.08 to 0.06)	↓ 1.2% compared with REF
Some post-secondary	0.01 (-0.06 to 0.08)	↑ 1% compared with REF
Post-secondary degree/diploma	0.04 (-0.02 to 0.10)	↑ 3.8% compared with REF
Musculoskeletal pain		
No	REF	
Yes	-0.07 (-0.11 to -0.03) †	↓ 6.5% compared with REF
Total number of comorbidities	-0.02 (-0.03 to -0.08) *	↓ 1.7% for increase in comorbidity
Self-reported health		
Poor/fair	REF	
Good/very good/excellent	0.08 (0.03-0.13) †	↑ 8.5% compared with REF
Volume of walking	0.03 (0.013-0.047) †	↑ 3.1% for increase in walking
Receive assistance	-0.03 (-0.04 to -0.01) †	↓ 2.7% for increase in amount of assistance
Fall status		
No	REF	
Yes	-0.04 (-0.08 to -0.04) †	↓ 4.3% compared with REF
Fear of falling	-0.01 (-0.02 to -0.01) †	↓ 1.3% for increase in fear of fall
Unpleasant to walk in neighborhood		
No	REF	
Yes	-0.06 (-0.11 to -0.02) †	↓ 6.2% compared with REF
Constant	4.8 (4.58-5.02)*	

	R-Squared	Adjusted R-Squared	F-Value	d.f.
Model parameters	0.6407*	0.6207	31.97	13, 233

NOTES. REF indicates the reference value; %change Mobility scores was determined using the exponential growth equation to calculate ratios, where ↓ indicates a decrease in mobility scores, ↑ indicates an increase in mobility scores.
Abbreviations: CI, confidence interval, REF, reference value
* *P*<.001.
† *P*<.05.

better mobility, highlighting the importance of physical health for sustaining one's mobility when public health restrictions are put in place. Better physical health has previously been shown to mitigate adverse events prior to COVID-19, with significantly lower rates of hospitalization, falls, and serious illness among those with higher self-rated physical health.[46,47]

Environmental design features (eg, walking access and uneven pavement) affect mobility.[48,49] In the context of the restrictions put in place because of COVID-19, our results suggest older adults who rated their neighborhood environment as more pleasant to walk in had higher mobility scores. COVID-19 infection rates are closely linked to community[50] and geographic influences,[51] which in turn may affect older adults' perceived walkability. Recognizing that these restrictions might have deleterious effects, 1 strategy used during COVID-19 was to regulate and create outdoor spaces to promote physical activity without compromising safety (eg, mixed land use, pedestrian, and bicycle systems, compliant with disability needs).[52] Based on our findings, there is a clear role for rehabilitation professionals to help improve participants' function to better meet the demands of their environment.[6] Further, future longitudinal research is needed to better understand to what extent environmental design may influence mobility in the event of restrictions and how to ameliorate any negative effect.

Pre-pandemic research has emphasized the importance of personal and social influences on mobility (eg, socioeconomic status, mental health, and social relations).[14,53,54] Yet, these factors were not significant in our model, suggesting physical and environmental factors become of greater importance to mobility when public health restrictions are in place. That said, given the inequities made apparent as a result of COVID-19,[51] it was surprising that the socioeconomic status indicator (ie, education) was not associated with mobility.[43,55] This may be because close to half of our sample completed post-secondary education. It was surprising few mental health and social constructs were associated with mobility, as multiple studies have reported increases in depression, anxiety, loneliness, distress, and experiences of ageism since the start of the pandemic.[35,56,57] Although these constructs have not been examined in mobility during the pandemic, multiple studies have linked reduced physical activity to increases in mental health distress,[33,35,58] indicating there is likely a role for mental health support in mobility maintenance.

Table 4 LLFI subscale multiple regression analysis

Variables	Upper Extremity Coefficient	Basic Lower Extremity Coefficient	Advanced Lower Extremity Coefficient
Age	-0.4* (-0.6 to -0.2)	-0.6* (-0.9 to -0.4)	-0.7* (-1 to -0.4)
Sex			
Female	REF	REF	REF
Male	4.2† (0.8-7.6)	2.7 (-0.7 to 6.7)	5.3† (1.3-9.4)
Education			
Less than secondary school	REF	REF	REF
Secondary degree/diploma	-1.8 (-7.5 to 4.0)	1.3 (-4.5 to 7.1)	-0.9 (-7.7 to 5.9)
Some post-secondary	-2.5 (-8.2 to 3.1)	-0.8 (-6.5 to 4.9)	0.8 (-5.9 to 7.5)
Post-secondary degree/diploma	0.7 (-4.5 to 5.9)	3.4 (-1.8 to 8.7)	1.7 (-4.5 to 8.0)
Total number of comorbidities	-1.4† (-2.2 to -0.7)	-1.1† (-1.9 to -0.3)	-2.6* (-3.5 to -1.7)
Volume of walking	1.5† (0.0-3.0)	2.8* (1.2-4.2)	3.8* (2.1-5.6)
Fall status			
No	REF	NA	NA
Yes	-4.2† (-7.6 to -0.7)		
Use of a walking aid			
No	NA	NA	REF
Yes			-17.7† (-22.5 to -13.0)
Fear of falling	-1.2† (-1.9 to -0.5)	-1.2† (-1.9 to -0.5)	-1.1† (-1.9 to -0.3)
Self-rated health (0-100)	NA	0.3* (0.2-0.4)	NA
Brief resilience score	2.5† (0.3-4.7)	NA	NA
Unpleasant to walk in neighborhood			
No	REF	REF	REF
Yes	-4.8† (-8.4 to -1.2)	-4.6† (-8.3 to -0.9)	-8.1† (-12.4 to -3.8)
Constant	110.7* (90.5-130.9)	103.1* (80.8-125.42)	115.2† (92.2-138.1)

NOTE. REF indicates the reference value.
Abbreviations: NA, not applicable
* $P<.001$.
† $P<.05$.

Limitations

While our findings are important, there are a few limitations. First, the original study survey design was not based on Webber's Mobility Framework. To that end, measures of cognition were not included. Given some of the concerns around cognitive decline during the COVID-19 pandemic,[59] this may have been overlooked as an important factor. As well, we measured mobility using the self-report LLFI, which focuses on the ability to perform discrete physical tasks and may not have included all relevant aspects of mobility (eg, use of public transportation or driving), nor captured actual mobility performance in daily life (eg, accelerometry).[60] Second, given the symptoms of COVID-19, it is possible that contracting COVID-19 may have affected participants' mobility levels to some extent; however, only 1 participant reported a positive test at baseline. A larger sample size would be needed to examine this further. Third, while we contacted a random sample for inclusion in this study, we had a low participation rate likely indicative of volunteer bias; and, all participants answered the phone, indicating they were able to complete this instrumental activity of daily living. Further, we excluded 25 participants from the analysis because of missing data. We made this decision after verifying there were no substantial differences in baseline data between those who had missing data and those who did not. Finally, given that this was a cross-sectional analysis, we cannot make any predictions or causal inferences. Rather, our findings can be used as a starting point for examining future ways to maintain older adults' physical function mobility as we begin to move forward in the COVID-19 era.

Conclusions

In conclusion, during the first 5 months of the pandemic a quarter of older adults reported a decrease in their ability to engage in physical activity, with 10% reporting decreases in other mobility domains. Our findings contribute to the reports emerging on the condition of older adults during COVID-19 and show that physical and environmental factors are especially important for mobility during periods of lockdown. Future longitudinal analyses will be needed to determine if these factors remain consistent.

Keywords

Aged; Community dwelling; COVID-19; Independent living; Mobility; Older adult; Physical function performance; Rehabilitation

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