Life-Space Mobility and Active Aging as Factors Underlying Quality of Life among Older People before and during COVID-19 Lock-down in Finland – a Longitudinal Study

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Abstract

Background. Social distancing, i.e. avoiding places with other people and staying at home, was recommended to prevent viral transmission during the COVID-19 pandemic. Potentially, reduced out-of-home mobility and lower activity levels among older people may lower their quality of life (QOL). We studied cross-sectional and longitudinal associations of and changes in life-space mobility, active ageing and QOL during COVID-19 social distancing compared to two years before.

Methods. Altogether 809 community-living participants initially aged 75, 80 or 85 years of our active aging study (AGNES) conducted in 2017-2018 took part in the current AGNES-COVID-19 survey in May and June 2020. Outdoor mobility was assessed with the Life-Space Assessment (range 0-120). Active approach to life was assessed with the University of Jyväskylä Active Aging Scale (range 0–272), and QOL with the shortened Older People's Quality of Life Questionnaire (range13-65; higher scores better for all). Data were analyzed with General Estimating Equations, General Linear Models, and Oneway-ANOVA.

Results. Life-space mobility (B -10.8, SE 0.75, $p<0.001$), the active ageing score (B -24.1, SE 0.88, $p<0.001$) and the QOL score (B -1.65, SE 0.21, $p<0.001$) were lower during COVID-19 social distancing vs. two years before. Concurrent life-space mobility and active ageing scores, age and sex explained 48% of QOL at the baseline and 42% during social distancing. Longitudinally, steeper declines in all three variables coincided.

Conclusions. The observed declines indicate compliance with social distancing recommendation, but underline the importance of participation in meaningful life situations as a factor underlying good QOL also during COVID-19 pandemic.

Keywords: Participation, well-being, social distancing, population-based, octogenarian

Introduction

Quality of life (QOL) stems from multifaceted perceptions of how satisfied one is with essential sections of one's life, such as health, social relationships, or living environment and reflects positive life experiences. Among older people, good QOL is an important public health goal. Satisfaction with possibilities for participation in valued life situations is one of the key components of QOL in old age (1,2).

In spring 2020 social distancing, i.e. limiting close contact with others outside one's household and avoiding places with other people, was recommended for people aged 70 and over in Finland to prevent the spread of the SARS-CoV-2 virus causing the COVID-19. The lock-down was enhanced by closing of restaurants, discontinuing physical activity and cultural classes, shutting down venues, and banning events and gatherings comprising more than 10 people. Consequently, social distancing disabled participation in most activities that take place outside the home and involve other people. Concerns emerged that restricted possibilities for many activities during COVID-19 social distancing may predispose older people to declining QOL.

Activity refers to everything that people do. We have adopted a broad view for defining and assessing an active approach to life during aging. We emphasize the importance of participation in any meaningful activities based on individual predispositions, because this provides an inclusive picture of active aging (2). Our recent definition of active aging as "the striving for activities relating to a person's goals, functional capacities and opportunities" (3) acknowledges the diversity of individual goals and other premises for activity. Our definition stems from the WHO active aging definition (see 2) – a policy goal, which we translated to the context of an individual's life.

To study active aging from a broad and inclusive view, we developed and validated the University of Jyväskylä Active Aging Scale (UJACAS; 3). The novelty of our scale is that it captures diverse forms of activity in old age, and the included activities are described in a generic way and are thus in principle possible for all, regardless of their functional status. We do not present strict objective criteria for performing the activity but rather the purpose of each activity. For example, one person may consider the item 'practicing memory' referring to doing a crossword puzzle, while for somebody else taking part in a supervised class to write up one's life story may underlie the response. The items assess active agency in essential life areas outlined in the International Classification of Functioning, Disability and Health (1). The UJACAS four subscores assess will to act, ability to act, opportunity to act, and frequency and volume in each of the queried 17 activities (3).

Older people, who have higher life space mobility (4) are physically more active (5, 6), have better physical performance capacity, and report greater autonomy in outdoor mobility (7), and less walking difficulty (8). Life-space mobility refers to the area where people move in their daily life ranging from being confined to one room, to moving in the town and beyond, and incorporates the frequency and independence of travel (4). Our earlier findings showed that the higher the life-space mobility, the higher was quality of life (9) and that a decline in life-space mobility coincided with decline in quality of life (10). Similarly, our pilot study suggested that the higher the active aging score, the better are the indicators of quality of life (3) suggesting that any meaningful activities may propel propitious experiences.

Generally, people with walking difficulty receive lower active aging scores (3, 11). At the same time, some people with walking difficulty, who are probably unable to travel far from home, may maintain an active life approach despite of potential difficulty to leave away from home (11). As people may receive similar scores with different activity profiles, we cannot rule out that maintaining an active approach to life and a good QOL is possible also during

social distancing for at least some older people. Knowledge on how social distancing recommendation during COVID-19 pandemic in spring 2020 influenced life-space mobility, participation in meaningful activities and QOL is limited or anecdotal. A Swedish study among 60-71-year old people found that during early phases of social distancing, life satisfaction and loneliness remained stable and self-rated health and financial satisfaction improved slightly in 2020 compared to previous years. However, worry about health and financial consequences correlated with worse ratings (12).

In all, the recommendation for social distancing aims at reducing chances to get COVID-19, whilst the recommendation potentially promotes a cascade of adverse events i.e. reduced outdoor mobility, unfeasibility of doing meaningful activities and eventually reduced QOL. The first aim of this study is to describe the changes that took place in life-space mobility, active aging and QOL during social distancing compared to approximately two years before among men and women initially aged 75, 80 or 85 years. The second aim is to examine the association of life-space mobility and active aging with the QOL before and during social distancing in Finland, and to assess whether changes in life-space mobility and active aging coincided with parallel changes in QOL.

Method

Context. Data were collected between May 14 and June 23 in 2020 during the social distancing recommendation. On 16th of March 2020 following the COVID-19 pandemic, Emergency Powers Act was entered into force in Finland closing all cultural and social institutions, restaurants and exercise facilities, and banned visits to older peoples' care facilities and recommended self-quarantine for people aged 70 years and over. Third sector organizations and religious communities shut their activities. Shops remained open. State of emergency was lifted and use of powers under the Emergency Powers Act ended on June

16th, and age-based recommendations regarding avoiding close physical contacts for people aged 70 years and over was no longer issued as of 23rd of June 2020. However, keeping a safe physical distance to other people was still advised.

Study design and participants. We present cross-sectional and longitudinal results of the observational 'Active aging – resilience and external support as modifiers of the disablement outcome' (AGNES) study. Baseline data were collected between September 2017 and December 2018 and the follow-up data in May and June 2020. The protocol, recruitment to and participation in the baseline study have been reported in detail before (13, 14). Briefly, AGNES comprises three age cohorts of people (75, 80, and 85 years) living independently in the city of Jyväskylä, in Central Finland. Our goal was to recruit 1000 people. To reach this goal we sent invitations to 2791 people drawn from the Digital and Population Data Services Agency in Finland, and interviewed 2348 of them on the phone about their willingness to take part in the study. We excluded people who did not live independently in the recruitment area or were unable to communicate. Of the 1324 people who were contacted but refused to participate, 866 (65.4%) agreed to provide answers to a brief interview conducted over the phone. Most frequently reported reasons for not participating were lack of time, poor physical or cognitive health, and unwillingness to participate. The baseline postal questionnaire and home interview were completed by 1004 and 1018 participants, respectively. Generally, those participating in the baseline study more often reported good self-rated health (45%) and daily outdoor mobility (85%) than those not participating (28% and 73%, respectively). Home interviews were conducted using computer assisted personal interviewing to minimize missing data and optimize data quality (14).

Flow chart of the current study entitled AGNES-COVID-19 survey is shown in Figure 1. Of the 1021 baseline participants who had not withdrawn their consent and who had responded either to the questionnaire or home interview, 985 were surviving and they formed the target

group of this study. To keep personal contacts minimal, we collected data using postal questionnaires and by interviews over the phone, in case the participant had difficulty answering the questionnaire or preferred an interview. We received 809 valid responses (seven phone interviews and 802 questionnaires), which forms 82% of the target group. Of the 176 non-respondents (18% of the target group), 127 were not interested in participating, 30 were not reached, four were deceased and 15 were excluded because of inability to respond or having moved to an assisted living facility.

The strategies to facilitate retention in the study included local newspaper articles and reminders in case of no response. The reminders included first a repeat letter and questionnaire, and second a phone call. If relevant, interview times were scheduled flexibly at participants' convenience. We did not offer any rewards for participation other than feedback about the study results.

Ethics. The ethical committee of the Central Finland Hospital district provided an ethical statement about AGNES on August 23, 2017. In their positive ethical statement on May 13th 2020, the same ethical committee considered that the initial signed consent covers the current survey, because the AGNES-COVID-19 survey is an extension of the initial study, and not a separate study.

Assessments. *Life-Space Mobility* was assessed with the University of Alabama at Birmingham Study of Aging Life-Space Assessment (4). Life-space levels range from the person's bedroom to other rooms, yard, neighborhood, town, and beyond town. A composite measure of life- space (LS- C) combines the components of life- space level attained (scoring 0-5), degree of independence (2=independent, 1.5=using equipment, 1=personal assistance reported), and frequency of attainment during the previous for weeks (1=less than once a week, 2=1–3 times a week, 3=4–6 times a week, and 4=daily). Each life- space level

reached is multiplied by the degree of independence, and the frequency of attainment. The level- specific values are then summed (4). The higher the score the greater is the life-space mobility (range 0-120). The validity and reliability of the measure have been established among older people in Finland (15).

Active aging. The University of Jyväskylä Active Aging Scale (UJACAS; 3) consists of 17 items: practicing memory, using a computer, advancing matters in one's own life, exercising, enjoying the outdoors, taking care of one's appearance, crafting or DIY, making the home cozy and pleasant, helping others, maintaining friendships, getting to know new people, balancing personal finances, making one's days interesting, practicing artistic hobbies, participating in events, advancing societal/communal matters, and doing things according to one's world view. Participants evaluate on a five-point Likert scale their striving to accomplish each activity, their ability and opportunity to perform the activity and their amount or frequency of doing the activity during the four weeks immediately prior to the measurement. Response options range from zero (not at all/very low) to four (very much/very high) with verbalization of rating depending on the wording of the question. Subscores (range 0–68) for the will to act, ability to act, opportunities to act, and frequency and volume of doing the activity, and the summed composite score (range 0–272) were calculated with higher scores reflecting a higher level of active aging. We have previously shown that the scale has good psychometric properties, test–retest reliability and that it assesses a unidimensional latent construct of active aging (3).

We assessed *QOL* with the short version of the Older People's Quality of Life Questionnaire (OPQOL-brief). The scale includes 13 items. They cover a person's satisfaction with life overall, future prospects, health, social relationships, activity, leisure, home, safety and financial situation. Response options range from one (strongly disagree) to five (strongly agree) and the sum score from 13 to 65, with higher scores indicating higher QOL (16).

Baseline characteristics. Age and sex were obtained as part of the sampling data drawn from the Digital and Population Data Services Agency in Finland in the context of recruitment. Perceived financial situation and self-rated health were assessed on a five-category scale ranging from very good to very poor (17). Cognitive functioning was tested with Mini Mental State Examination (MMSE; 18) with higher scores indicating better results. Lower extremity performance was assessed with the Short Physical Performance Battery (SPPB; 19), which includes a standing balance test, a chair stand test and a walking speed test with scoring ranging between 0-12 and higher scores indicating better performance. Depressive mood was assessed with the Center for epidemiologic Studies Depression Scale (CES-D; 20) where higher points indicate more depressive symptoms.

Perceived *limitation in opportunities to engage in activities of choice* during COVID-19 social distancing was studied by a question with response option ranging from not at all to very much.

Statistical analysis

We compared the baseline characteristics between respondents and non-respondents of the AGNES-COVID-19 survey using cross-tabulation with Chi square –test for categorical variables and t-tests for independent samples for continuous variables. Similarly, we described the characteristics of men and women who took part in the AGNES-COVID-19 survey. The changes over time were analyzed using the Generalized Estimating Equations (GEE) with unstructured working correlation matrix. Our GEE modelling takes into account all available data when estimating within subject changes over time. The effect size of time (i.e. within-subject changes) was estimated using partial η^2.

The cross-sectional associations of life-space mobility, active ageing and QOL at the baseline and during social distancing were studied using General Linear Models adjusted for age and sex.

We calculated change variables as the difference between baseline and follow-up values for life-space mobility, active ageing and QOL scores. The change score in QOL ranged from a 13-point increase to a 42-point decrease, and the distribution was normal. We then categorized changes in QOL into three as follows: 'declined'(decrease ≥ 6 points; approximately the lowest quantile), 'unchanged' (difference between -5 and 2 points), and improved (increase ≥3 points; approximately the highest quantile). We compared active ageing and life-space mobility scores and their changes between the categories of change in QOL using Oneway ANOVA.

To test the robustness of our findings we stratified main analyses based on sex and age groups. The associations did not change materially. We therefore present models with both sexes and all age groups included together.

IBM SPSS Statistics 26 (SPSS Inc., Chicago, IL) was used for statistical analyses, and the statistical significance was set at $p < 0.05$.

Results

The average follow-up time in the current AGNES-COVID-19 survey was 2.0 years (SD 0.35; range 1.5-2.7 years). The participation rate (82%) did not differ according to sex or perceived financial situation. The oldest baseline participants were less likely to respond in the AGNES-COVID-19 survey ($p<0.001$), but still 71% of those initially aged 85 years responded vs. 84% of those aged 75 years and 81% of those aged 80 years. Of those with good or very good self-rated health at the baseline, 87% took part in the current survey, while

among those with poor or very poor self-rated health 71% responded ($p<0.001$). Current respondents had better cognitive capacity and physical performance at the baseline (MMSE; Mean, M, 27.5; Standard Deviation, SD, 2.1; SPPB, M 10.1; SD, 2.2) than non-respondents (M 25.8; SD 3.5 and M 8.9; SD 2.9; respectively; $p<0.001$ for both). Only 11% of respondents did not perceive that the social distancing had limited their possibility for activities of choice, while 89% of the respondents reported perceiving at least little limitations and 24% a great deal of limitations. Table 1 shows the characteristics of the men and women who took part in the AGNES-COVID-19 survey.

The baseline values and changes in life-space mobility composite score, active ageing score and QOL score are shown in Table 2. Compared to the baseline, there was a consistent and statistically significant decline in the active ageing score (age and sex adjusted within subject B -24.1, SE 0.88, $p<0.001$; η^2 for time 0.508) and the life-space mobility score (B -10.8, SE 0.75, $p<0.001$; η^2 0.193, correspondingly). QOL declined statistically significantly, but the effect size of time was small (B -1.65, SE 0.21, $p<0.001$; η^2 0.087, correspondingly), and did not reach statistical significance in all age and sex groups.

The baseline life-space mobility composite score and active ageing score explained together with age and sex 48% of the baseline QOL score distribution (Table 3). During the social distancing, cross-sectionally 42% of QOL distribution was explained by the same measures. The association of active ageing score and QOL was slightly stronger and QOL and life-space mobility score slightly weaker during social distancing compared to two years before.

The correlation of QOL score assessed during social distancing and two years before was rather low even though significant ($r=0.611$, $p<0.001$) suggesting that variability in QOL during social distancing was explained mostly by factors other than the baseline QOL. Table 4 shows that during social distancing QOL was more likely to decline among those with

higher and increase among those with lower QOL score two years before. The concurrent active aging score rather than the baseline score was associated with QOL during social distancing. The life-space mobility of those with declined QOL was lower to start with and decreased more during the social distancing compared to the other categories. Among those with improved QOL, life-space mobility declined less during social distancing, but the differences did not quite reach statistical significance.

Discussion

During COVID-19 pandemic and social distancing in spring 2020, better QOL was associated with higher scores in active ageing and life-space mobility similarly as two years before. Life-space-mobility, active ageing score and QOL declined, however, the decline in QOL was less notable. The longitudinal analyses suggested that declines in life-space mobility, active ageing and QOL coincided, and that less decline in the active ageing score coincided with less or no decline in QOL. As far as we know, we are the first to report on changes in life-space mobility and active ageing during the COVID-19 pandemic, making the findings novel. One earlier study among people in their sixties reported that during the early phases of social distancing in 2020, life satisfaction and loneliness remained stable and self-rated health and financial satisfaction improved slightly in Sweden (12). The decline of QOL in our study may be explained by the fact, that we collected data later when social distancing recommendation had been in effect longer, our participants were older, and the restrictions in Sweden were milder than in Finland. The current results concerning declines in life-space mobility and active ageing scores demonstrate compliance with the social distancing policy recommendations for older people.

The changes in the current study were most likely also meaningful in addition to being statistically significant. For example, for a person not needing a walking aid, a decrease in

frequency of going to town from 4-6 times a week to less than once a week will lead to a decline of more than ten points in the life-space mobility score. Similarly, for person not needing a walking a walking aid, the decline in frequency of attaining the neighborhood from 1–3 times a week to not at all results in a ten-point decline. Several earlier studies have used 10 points as the limit for clinically meaningful change (4, 21, 22). In our earlier study, we showed that LSA-C <52.3 or LSA-C decline >11.7 identified people at risk of developing ADL-disability short term (21). In the current study, the proportion of people with LSA-C <52.3 increased from 17% from two years before to 38% during social distancing, suggesting that the proportion of people at risk of developing severe disability short term increased notably. We previously reported extremely low daily step counts (≤ 615 steps) and short moderate activity times (≤ 6.8 min) among 70% of people whose life-space was restricted to at most neighborhood level (6), which signals about impaired functional ability but in the same time is a risk factor for further functional decline (23). Among all people, a day stayed indoors at the home decreased the step count with 630 steps compared to a day when moving through the neighborhood (5). A recent study reported that among older people, a three-hour sitting period increased blood pressure and cerebrovascular resistance increasing the risk for brain health decline in the long-term (24).

We believe that the active ageing score decline was meaningful even though validated cut-off values for meaningful change are not available. The UJACAS score is formed as a sum of the subscores indicating the aspects of will, ability and opportunity to act and frequency of activity. The average within person decline of 24 points would correspond e.g. to one point decline in all four assessed aspects of six activities. The preliminary analyses suggest that the most steeply deteriorated aspect was the perceived opportunity to act (data not shown). It was followed by the will to act and the frequency of doing the activity while the perceived ability to do the activity declined the least. It is logical that the social distancing policies worsened

the perceived opportunities especially for out-of-home activities, which were suspended during the social distancing, i.e. events, artistic hobbies, social gatherings, exercise classes or political and religious meetings. Social distancing complicated also some of the other activities queried. Examples include making one's days interesting, helping others, meeting new people or maintaining social relationships.

In the current study, the association with the active ageing score and QOL score were high and the social distancing made this association slightly stronger. This is logical and highlights the importance of people's activity of choice as a factor underlying their QOL. QOL describes a person's satisfaction in aspects of life. Many of these aspects are, at least to some extent, results of one's own efforts, e.g. the home, financial situation, social relationships and having interesting things to do. The UJACAS enquires a person's will, ability, opportunity and volume of the efforts to advance these matters, while QOL assesses how satisfied the person is with the result. Some of the items in the OPQOL and UJACAS scales are in line, but they do not overlap, since they capture different phases of the active ageing process in individuals' lives. An UJACAS item assesses the active agency in advancing a section of life, and OPQOL item the level of satisfaction with it.

One limitation of this study is that we cannot with certainty separate how much of the decline in life-space mobility, active ageing and QOL scores are attributable to social distancing and how much stem from aging of the participants. However, we are convinced that social distancing contributed to the results more than aging. Altogether 89% of the respondents considered that social distancing related to COVID-19 pandemic limited their possibilities to engage in activities of choice. In addition, the follow-up time was rather short, two years, and our earlier studies conducted prior to the COVID-19 pandemic suggest only minor aging changes over such a short period. In a previous sub-study of the current AGNES-project, the naturally occurring one-year decline in the UJACAS and QOL scores were negligible (25),

while in another previous population-based study with comparable age distribution, the average decline in LSA-C over two years was 3.8 points (SD 16.6) (10). Compared to those observations, the current observed declines are substantial: two- to three-fold in LSA-C and 20-27 points in the active aging score, depending on the age and sex of the participants.

We are not free from limitations of studies relying on postal questionnaires. The participants may have misunderstood the questions, responded incorrectly or left the question unanswered. However, the proportion of missing responses was rather low. We do not know whether the intended respondent actually filled in the questionnaire. We cannot rule out that the difference in the data collection method between the AGNES baseline (CAPI) and the AGNES-COVID-19 survey (postal questionnaire) may have slightly biased the responses. We have to rely solely on self-reports as it was not possible to have personal contacts with the participants. Fortunately, our respondents took part in extensive personal assessments at the baseline two years ago (see 13). Finally, the current respondents form a slightly healthier section of the community-living population of their age, which does not include people in sheltered housing. However, they still form a diverse group of respondents (26). Nevertheless, it is possible that the associations studied are slight underestimates and would have been higher if also those in worse health had responded.

This study has also its strengths. The topic is timely and limited earlier knowledge is available, especially among a population-based sample of community dwelling older people. A population-based sample will reduce the likelihood of biased results that is a risk in studies based on convenience samples. The observed changes are likely related to social distancing actions rather than COVID-19. COVID-19 was implausible among our participants, because by June 2020 there were altogether 102 confirmed infections in our area i.e. the Central Finland Central Hospital district (population 253 000, 21 municipalities). The baseline data collected two years earlier provided a longitudinal view on the topic studied. The high

response rate, the few missing responses and the overall positive reaction toward the study demonstrated that older people were able and willing to inform the researchers about their situation during the social distancing in 2020.

In the current study, we found that during social distancing life-space mobility and active ageing scores declined compared to two years earlier, but the decline in QOL was less notable. The results also underline the fact active agency in meaningful activities contributes to good quality of life regardless of living under normal or exceptional conditions. In the future, it will be interesting to study in more detail the activities that declined the most, the predictors of the decline, and if and how people were able to compensate for their suspended activities by other activities. It will also be interesting to study the unmet need for activity during the social distancing restrictions i.e. which activities people would have wanted to do but perceived no opportunity to do them, and whether they will resume their previous level of activity and life-space mobility when COVID-19 pandemic has been solved.

Conflict of Interest

Dr. Taina Rantanen is a member of the JGMS editorial board.

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Author Contributions

Concept and design (T.R., E.P.), acquisition of data (T.R, J.E., M.K., N.K, K.K., S.S. E.P.), analysis and/or interpretation of data (T.R., E.P., K.K., M.K.), drafting the article (T.R.), critical revision of the article (E.R., T.R, J.E., M.K., E.P., N.K, K.K., S.S.). All authors approved the article.

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Captions for Figures and Tables

Figure 1. The Flow-chart of the study

Table 1. The characteristics of men and women taking part in the AGNES-COVID-19 survey.

Table 2. Baseline values and changes in the active ageing, life-space mobility and quality of life scores between 2017-2018 and COVID-19 social distancing in 2020 among men and women initially aged 75, 80 or 85 years.

Table 3. Linear regression models with QOL as the dependent variable at the baseline and during the social distancing in 2020.

Table 4. Baseline, social distancing and change scores for active ageing, life-space mobility and QOL, age and sex according to categorized QOL changes.

Table 1. The characteristics of men and women taking part in the AGNES-COVID-19 survey.

		Men n=336		Women n=473		
		Mean	SD	Mean	SD	P
SPPB		10.3	2.3	10.0	2.1	0.890[b]
MMSE		27.3	2.2	27.5	2.1	0.880[b]
CES-D		7.5	6.6	8.8	7.0	0.138[b]
		%		%		
Self-rated health[a]	Good	54		43		
	Average	48		53		
	Poor	5		4		0.005[c]
2 km walking[a]	No difficulty	63		58		
	Difficulty	32		34		
	Unable	5		8		0.208[c]
Financial situation[a]	Good	68		57		
	Average	31		41		
	Poor	1		2		0.009[c]
Lives with[a]	Spouse	79		42		
	Other	-		3		
	Alone	21		55		<0.001[c]

Notes. SPPB, Short Physical Performance Battery tested in 2017-2018; MMSE, Mini-Mental State Examination tested in 2017-2018; CES-D, Center for Epidemiologic Studies Depression Scale tested in 2017-2018. [a]Self-reported in 2020; [b]Tested with t-test; [c]Tested with chi-square test.

Table 2. Baseline values and changes in the active ageing, life-space mobility and quality of life scores between 2017-2018 and COVID-19 social distancing in 2020 among men and women initially aged 75, 80 or 85 years.

		Baseline 2017-2018			Social distancing 2020		Time[a]
		n	Mean	SD	B	SE	P
UJACAS (total)							
Men	75 years	*193*	200	28.7	-24.86	1.90	<0.001
	80 years	*148*	191	31.6	-20.455	2.30	<0.001
	85 years	*90*	181	32.3	-22.02	3.63	<0.001
Women	75 years	*262*	201	28.3	-26.87	1.61	<0.001
	80 years	*186*	196	31.2	-22.71	1.88	<0.001
	85 years	*131*	176	35.0	-24.80	2.90	<0.001
LSA-C							
Men	75 years	*193*	81.2	18.1	-7.94	1.71	<0.001
	80 years	*147*	74.7	18.2	-4.14	2.14	0.053
	85 years	*91*	68.1	19.3	-6.83	2.94	0.020
Women	75 years	*262*	71.9	17.7	-12.05	1.33	<0.001
	80 years	*183*	67.9	16.1	-9.18	1.66	<0.001
	85 years	*131*	57.7	17.0	-10.70	1.87	<0.001
QoL							
Men	75 years	*189*	55.7	5.3	-1.10	0.41	0.050
	80 years	*140*	54.1	5.4	-0.90	0.54	0.098

	85 years	*81*	53.2	6.6	-1.61	0.76	0.034
Women	75 years	*259*	55.1	6.0	-1.90	0.38	<0.001
	80 years	*179*	54.7	5.9	-2.29	0.57	<0.001
	85 years	*122*	51.5	6.7	-2.11	0.70	0.003

Notes. LSA-C, life-space assessment composite score; UJACAS, University of Jyväskylä Active Ageing Scale; QoL, QOL assessed with the Brief Older People's QOL Scale.
[a]Within-person change tested with Generalized Estimating Equation.

Table 3. Linear regression models with QOL as the dependent variable at the baseline and during the social distancing in 2020.

	Baseline 2017-2018		Social distancing 2020	
	Beta	95% CI	Beta	95% CI
UJACAS (score)	0.122	0.112-0.132	0.133	0.119-0.147
LSA-C (score)	0.036	0.019-0.132	0.027	0.006-0.047
Age group	0.000	-0.081-0.081	-0.101	-0.219-0.017
Women vs. men	-0.035	-0.615-0.544	-0.793	-1.673-0.078
R^2	0.480		0.423	

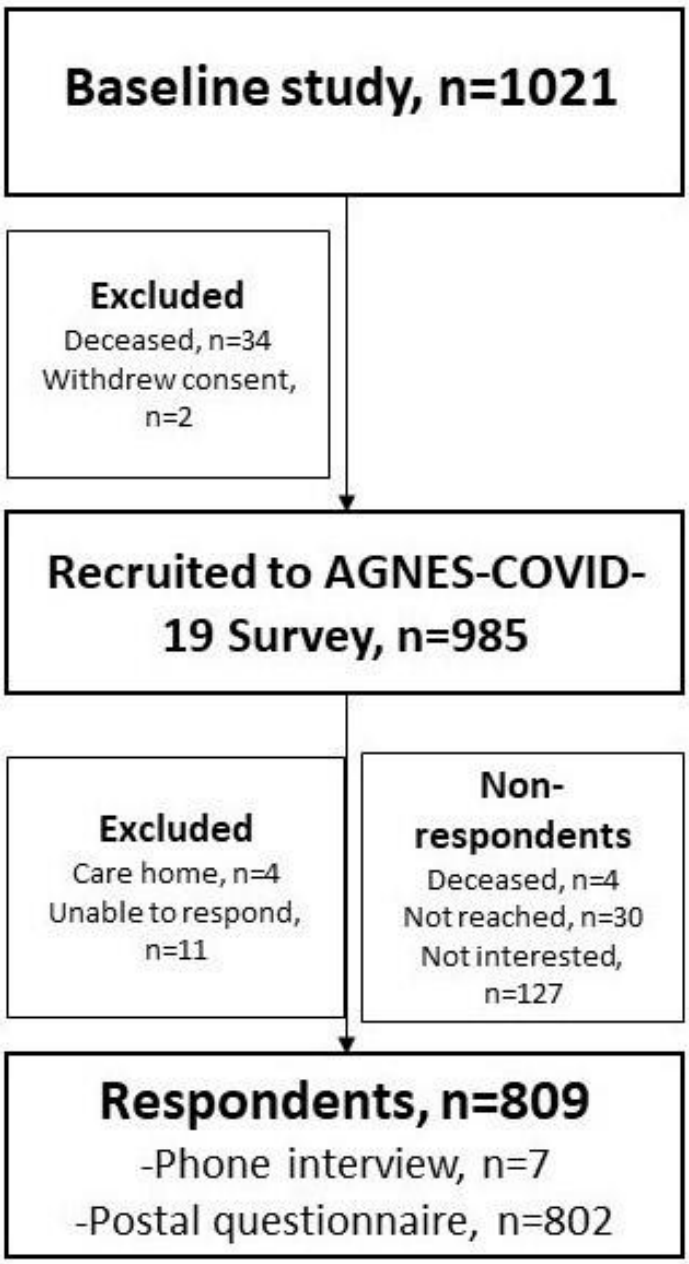
Notes. UJACAS, University of Jyväskylä Active Ageing Scale; LSA-C, life-space assessment composite score; QoL, QOL assessed with the Brief Older People's QOL Scale; CI, Confidence Interval

Table 4. Baseline, social distancing and change scores for active ageing, life-space mobility and QOL, age and sex according to categorized QOL changes.

		QOL						
		Improved n=153		Stable n=423		Declined n=171		
		Mean	SE	Mean	SE	Mean	SE	P
UJACAS	BL	196	2.41	199	1.37	195	2.71	0.224[a]
	SocDi	184	2.29	174	1.48	156	3.11	<0.001[a]
	Change	-12.5	1.76	-25.2	1.10	-38.4	1.92	<0.001[a]
LSA-C	BL	72.6	1.50	74.4	0.74	69.3	1.40	0.006[a]
	SocDi	66.6	2.02	64.7	1.13	57.9	1.88	0.002[a]
	Change	-6.72	1.78	-10.1	1.00	-12.3	1.50	0.053[a]
QOL	BL	52.9	0.42	55.0	0.27	56.5	0.46	<0.001[a]
	SocDi	58.5	0.43	53.7	0.28	46.7	0.556	<0.001[a]
	Change	5.58	0.20	-1.25	0.10	-9.77	0.34	<0.001[a]
		%		%		%		
Age, BL	75	19		62		19		
	80	22		53		25		
	85	22		50		28		0.092[b]
Sex, BL	Men	22		60		18		
	Women	20		54		26		0.035[b]

Notes. UJACAS, University of Jyväskylä Active Ageing Scale; LSA-C, life-space assessment composite score; QOL, Quality of Life assessed with the Brief Older People's QOL Scale; BL, Baseline in 2017-2018; SocDi, Social Distancing in 2020; Change, difference between BL and SocDi values; SE, Standard Error; Improved QOL score, increase ≥ 3 points; Stable, QOL score change 3 to -5; Declined QOl, score decrease ≥ 6 points

Figure 1


Baseline study, n=1021
Excluded
Deceased, n=34
Withdrew consent, n=2
Recruited to AGNES-COVID-19 Survey, n=985
Excluded
Care home, n=4
Unable to respond, n=11
Non-respondents
Deceased, n=4
Not reached, n=30
Not interested, n=127
Respondents, n=809
-Phone interview, n=7
-Postal questionnaire, n=802