ACTIVE AGING IN SENIOR HOUSING RESIDENTS AND COMMUNITY-DWELLING OLDER ADULTS: A COMPARATIVE STUDY IN FINLAND

ABSTRACT

Objectives: Leading an active life in old age underpins positive life experience. This study aimed to compare the levels of active aging in senior housing residents and community-dwelling older people.

Methods: We combined data from the BoAktiv senior house survey (N=336, 69% women, mean age 83 years) and AGNES cohort study among community-dwelling older adults (N=1021, 57% women, mean age 79 years). Active aging was assessed with the University of Jyvaskyla Active Aging scale. Data were analyzed with general linear models and the analyses were stratified by sex.

Results: Men in senior houses demonstrated lower active aging scores in general than community-dwelling men. Women in senior houses showed greater will to be active, but poorer ability and possibilities for activity than community-dwelling women.

Discussion: Despite the social and supporting environment, senior housing residents' possibilities for leading an active life seem to be compromised, potentially leading to an unmet activity need.

Keywords: activity, participation, wellbeing, communal housing

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INTRODUCTION

With the constantly growing number of older adults, we need to ensure that the ever longer lives remain meaningful and delightful. At the societal level, positive life experience may be promoted by applying active aging policies, such as the one established by the World Health Organization (WHO). In the WHO framework, societies are guided to optimize "opportunities for health, participation and security in order to enhance quality of life as people age" (WHO 2002), and their realization may be measured with the Active Aging Index, which considers various societal indicators, such as enabling environment, participation in society, and employment (Karpinska & Dykstra 2015). However, active aging is a relevant concept also at the individual level, as older people have substantial potential to contribute to their own wellbeing. Additionally, many older adults state that having an active approach to life, e.g. keeping busy and getting out of the house, generates wellbeing (Guell et al. 2016; Halaweh et al. 2018). This was noted already in the 1960's as the activity theory was proposed. It stated that positive life experiences are generated by staying involved in personally valued life situations and social relations with advancing age (Havighurst 1963). In line with this idea, the continuity theory posited a couple decades later that, with advancing age, people may aim to preserve and maintain their existing activity patterns by applying knowledge, skills, and strategies attained during the life span (Atchley 1993).

On these premises, active aging at the individual level was defined as striving for well-being through activity that is in line with one's preferences, functional abilities, and overall possibilities (Rantanen et al. 2019). To capture the phenomenon in its full form, a measure comprising four sub-scores describing

what people want to do, what they are able to do, what kind of opportunities they have to do the activity, and how much or how often they do the activity, and a summed total score of these was developed (Rantanen et al. 2019). The central idea of active aging from the individual point of view is that participating in any meaningful activity in later life promotes positive life experiences. Indeed, in previous studies, higher active aging scores have been found to coincide with better self-rated health and greater autonomy, life-space mobility, and quality of life (Rantanen et al. 2019, 2021). In addition, it has been found that older people who demonstrate greater resilience, i.e. the ability to cope with adversity, achieve higher active aging scores, regardless of early-phase mobility decline (Siltanen et al. 2021).

To date, majority of research on active aging has been conducted among community-dwelling older adults, whereas the possibilities for leading an active life among older people in other housing types have been underreported. For many older adults, a home that once facilitated active family life and leisure time, may in later life become an environment that restricts daily functioning and outdoor mobility (Granbom et al. 2016). Thus, relocating to a more age-friendly housing will be a necessity for a growing portion of older people in the future (Granbom et al. 2016). Senior housing has increased its popularity as a housing type in the recent years (Jolanki 2021; Tyvimaa 2010). Comparable to retirement communities, senior houses may be described as non-institutional facilities, which function as “in-between” housing when living in ordinary private dwelling is no longer feasible but there is yet no need for proper residential care (Jolanki 2021). Senior houses are typically targeted for people aged 55 years or older who can live independently. They provide organized activities and common spaces, but unlike long-term care institutions, not continuous care, or assistance. Thus, they are designed to support an independent lifestyle and facilitate social interaction between the residents (Lotvonen et al. 2018). Typical reasons for relocating from one’s private dwelling into a senior house include declined physical function, heavy maintenance of home and lack of services (Tyvimaa & Kemp 2011),

but also a will to have company and activities around (Tyvimaa 2010). In general, people move into senior housing due to convenience, not due to a need for functional assistance.

Recent evidence suggests that active aging correlates with sense of community and social participation (Lahti et al. 2019). This may indicate that senior housing residents, living in a social environment, have greater opportunities for leading an active life compared to their community-dwelling peers. Social participation, together with sense of connectedness and belonging, has also been found to coincide with enhanced quality of life and a more meaningful everyday life (Sirén et al. 2023). Furthermore, senior houses are designed to be near amenities, recreational spaces, and public transport (Jolanki 2021; Tyvimaa 2010), in order to make participation in various activities accessible for their residents. This may enhance the possibilities for active aging among senior housing residents. On the other hand, it has been found that men living in senior houses have poorer physical performance compared to community-dwelling men, while women living in senior houses are lonelier than community-dwelling women (Lahti et al. 2021). Compromised physical and social function may, in turn, restrict the possibilities for leading an active life in senior housing residents.

To the authors' best knowledge, no study has thus far investigated active aging between senior house residents and community-dwelling older adults. However, to fully understand and effectively promote active aging, information is needed on the levels of active aging in older people residing in various environments. The aim of this cross-sectional study was to examine whether the active aging total score and its four sub-scores including *will, ability and possibility to be active and frequency of activity*, differ between older adults residing independently in senior houses and in the community. We were especially interested in the differences between women and men as they may have distinct opportunities for leading an active life.

METHODS

Study design and participants

We utilized data from two studies: the BoAktiv senior housing survey (Lahti et al. 2019) and the Active Aging—Resilience and External Support as Modifiers of the Disablement Outcome (AGNES) study (Rantanen et al. 2018). The BoAktiv data included people residing independently in Folkhälsan owned private senior houses, who were over 55 years of age, and Finnish- or Swedish-speaking. Data were collected in 2018 in 12 senior houses around coastal regions of Finland by surveys, which the researchers delivered to the residents either personally in the public area of the senior houses as a part of a data collection event or to their private mailboxes in case the resident was unable to participate in the event. A total of 465 persons were invited to the study and of them, 42 % (N=194) participated. Another wave of data collection was executed in 2020 including three new senior houses. In 2020, a total of 588 individuals were invited, and of them, 42 % (N=247) participated. In the present study, we utilized individual baseline data from the first data collection on each participant, resulting in a sample size of 336 participants. Of these, 231 responded to the survey only in 2018 or 2020. In addition, 105 individuals answered the survey both in 2018 and 2020 but as we wanted to use a cross-sectional design, only answers from 2018 were included from these persons. The BoAktiv study participants are herein referred to as “senior housing residents”.

The study design and recruitment process of the AGNES study have been presented in detail elsewhere (Portegijs et al. 2019; Rantanen et al. 2018). Briefly, AGNES was a population-based cohort study comprising older people from three birth cohorts initially aged 75, 80, or 85 years. The study was conducted in Jyväskylä, Central Finland, and included independently living community-dwelling people who were able to communicate. Baseline data were collected in 2018 with home interviews. Totally

2348 persons were invited to the study and of them, 43 % (N=1021) consented to participate. The AGNES study participants are herein referred to as “community-dwelling persons”.

Both studies were conducted in line with the guidelines of the Declaration of Helsinki. BoAktiv was approved by the University of Helsinki Ethical Review Board in the Humanities and Social and Behavioral Sciences and AGNES by the Central Finland Health Care District. All participants provided written informed consent.

Study variables

Active aging was assessed using the University of Jyväskylä Active Aging Scale (UJACAS) (Rantanen et al. 2019). The scale incorporates 17 activity items, such as practicing memory, using a computer, enjoying the outdoors, helping others, maintaining friendships, getting to know new people, practicing artistic hobbies, participating in events, exercising, and making one’s home cozy and pleasant. Each activity is assessed from four perspectives: will (to what extent one wants to do the activity), ability (to what extent one is able to do it), possibility (to what extent one perceives opportunities to do it), and frequency of activity (how often or how much one does it). The responses are given based on the past 4 weeks and rated on a five-point Likert scale ranging from 0 (lowest, e.g., not at all) to 4 (highest, e.g. very strongly or almost daily). First, we formed the four sub-scores (will, ability, possibility, and frequency; range 0-68 in each) by summing the individual item scores. Second, we formed the UJACAS total score (range 0-272) by summing the sub-scores for all participants with two missing items at most in each sub-score. For each sub-score, the missing data were imputed as follows: (sub-score sum/sub-score items responded to) x sub-score items offered. The measure has been validated (Rantanen et al. 2019), and in the present study the Cronbach alpha’s for the UJACAS total score and will, ability,

possibility, and frequency sub-scores were 0.96, 0.86, 0.93, 0.92, and 0.81, respectively, indicating a high level of internal consistency and reliability.

Other main variables were sex (men vs. women) and housing type (community-dwelling, i.e. AGNES participants vs. senior housing residents, i.e. BoAktiv participants).

Background variables. Covariates included factors that were considered as theory-based confounders (Rantanen et al. 2018; Rowe & Kahn 1997). These were age, educational level, perceived financial situation, self-rated health, and depressive symptoms. Age was either counted based on self-reported birth year (BoAktiv) or drawn from the national population register (AGNES). Educational attainment was self-reported and categorized as follows: high (high school diploma or university degree), intermediate (middle school, folk high school, vocational school, or secondary school), and low (primary school or less). Perceived financial situation and self-rated health were both categorized into three: good or very good, moderate or fair, and poor or very poor. Depressive symptoms were assessed using the Center for Epidemiologic Studies Depression Scale (CES-D; range 0-60, with higher scores indicating the presence of more symptomatology) (Radloff 1977). Other background variables were living alone (yes vs. no), being a caregiver (yes vs. no) and marital status, which was categorized into four: 1) married or in a relationship, 2) single, 3) divorced, and 4) widowed.

Statistical analyses

Differences in background characteristics of the study participants were analyzed using Mann-Whitney U-test (continuous variables) and chi squared test (categorical variables). Mann-Whitney U-test was used due to non-normality of the data. The tests were conducted separately for men and women and differences between housing types were compared. To further analyze the associations between

housing type, sex, and active aging, we used general linear modeling (GLM), which may be used for non-normally distributed data. Each UJACAS sub-score and total score were set as outcomes one at a time and analyzed separately. These GLM analyses were stratified by sex and first, adjusted for age. The second model was adjusted for age, educational attainment, and self-rated health, and finally, the fully adjusted model was additionally adjusted for perceived financial situation and depressive symptoms. Lastly, we carried out the GLM analyses with housing type*sex interaction term on active aging to investigate whether the associations between housing type and active aging differ between the two sexes. All statistically significant interaction effects were illustrated.

In the AGNES study, altogether 51 participants (5 %) were living independently in a senior house. To assess whether this affects the findings, we conducted sensitivity analyses by excluding these persons from the GLM analyses. All analyses were conducted with SPSS Statistics 28 for Windows.

RESULTS

Of the community-dwelling participants, 43 % (n=436) were men and 57 % (n=585) were women. The respective proportions for senior housing residents were 31 % (n=104) and 69 % (n=232). Community-dwelling older people were younger, had fewer depressive symptoms and lower educational attainment than senior housing residents (Table 1). A greater proportion of community-dwelling people were married and functioned as caregivers, but a smaller proportion was living alone compared to senior housing residents. In addition, community-dwelling women had better perceived financial situation than women living in senior houses. The active aging scores were also higher among community-dwelling men and women than among senior housing residents, except for the will sub-

score, in which no difference was found between community-dwelling men and men living in senior houses.

[Insert Table 1 here]

The GLM analyses showed that even after controlling for various confounders, men living in senior houses had lower active aging scores than their community-dwelling peers (Table 2). This difference was observed for all other UJACAS scores, except for the will sub-score, in which no difference was found between men in the two housing types. For women, the results were a little more complex. No difference was found in active aging total score and the frequency of activity sub-score between women in the two housing types (Table 2). However, women living in senior houses had higher scores on will sub-score, but lower scores on ability and possibility sub-scores than their community-dwelling peers. The fully adjusted models explained about 40-45 % of the variance in terms of UJACAS total score and ability and possibility sub-scores, and about 20-25 % of the variance in terms of UJACAS will and frequency sub-scores (Table 2).

[Insert Table 2 here]

The housing type by sex interaction term was statistically significant in terms of UJACAS total score and will, ability, and frequency sub-scores (Figure 1a-d), indicating that the associations between housing type and these three perspectives of active aging were different in women and men. While women living in senior houses surpassed their community-dwelling peers in will to be active, men showed an opposite association. Regarding the ability, frequency, and total scores, the differences between community-dwelling women and women residing in senior houses were smaller than among men in these two housing types. In terms of the possibility sub-score, the housing type by sex interaction term did not reach statistical significance (p=.061). This indicates that both men and women showed a

similar association between housing type and overall possibilities to be active, i.e. senior housing residents demonstrated lower scores than their community-dwelling peers in both sexes.

[Insert Figure 1a-d here]

In the sensitivity analyses, the sample size of AGNES was 970. Excluding those AGNES participants who resided in a senior house did not affect the findings at all. The results of the sensitivity analysis are presented in a Supplementary table.

DISCUSSION

This is, to our knowledge, the first study to show that senior housing residents differ from their community-dwelling peers in terms of leading an active life in older age assessed from four perspectives: will, ability, and possibility to act, and the frequency of activity. Men living in senior houses demonstrated poorer ability and possibilities to be active, and a lower frequency of activity compared to community-dwelling men. This resulted in lower active aging total scores among men living in senior houses. In women, the associations were more complex, and we found no differences in the active aging total score. However, women living in senior houses surpassed their community-dwelling peers in will to be active but did not equal their ability and possibilities to be active. These findings imply that senior houses may not fulfill the activity needs of older people who have chosen to move into a more social and age-friendly environment for convenience.

Unlike we assumed, senior houses' proximity of amenities, recreational spaces, and public transport (Jolanki 2021; Tyvimaa 2010) seemed to be insufficient to enhance the residents' possibilities for

various activity. In addition, although it was recently reported that active aging correlates with sense of community and social participation (Lahti et al. 2019; Sirén et al. 2023), the findings of this study suggest that senior housing residents, living in a communal environment with organized activities, did not perceive equal levels of active aging compared to community-dwelling older people. This is likely due to poorer function of senior housing residents (Lahti et al. 2021) and may reflect the "in-between" nature of senior houses when living in a private dwelling is no longer feasible but there is still potential for leading an independent life. It has been shown that as physical and psychological function and mobility decline, also active aging scores tend to decline (Siltanen et al. 2021, 2022). The findings also imply a person-environment misfit, where individual characteristics do not match the environmental demands in senior houses. Thus, instead of facilitating optimal functioning, the person-environment interaction leads to maladaptive behavior (Lawton & Nahemow 1973), here considered as insufficient or unsatisfactory engagement in important life areas. It may also be that the organized activities are not suitable for many. As shown in the present descriptive results, senior housing residents had more variation in their health and active aging scores compared to community-dwelling peers, indicating that they are very heterogeneous and thus, may have different expectations and needs for their everyday activities. However, due to the nature of the present study design, we cannot rule out the possibility that the current senior housing residents would show even lower levels of active aging if they still were to live at home.

Men differed from women in most aspects of active aging. Men in senior houses had in general lower active aging scores than community-dwelling men, whereas women in senior houses scored lower than community-dwelling women only in ability and possibility to be active. This may reflect the different reasons for women and men to relocate from a private dwelling into a senior house. In the BoAktiv study, the most common reasons for men to move were own comfort, health and mobility issues, and declining function. For women the most common reasons were own comfort, health issues, loneliness,

and heavy maintenance of own home. Moreover, it has recently been reported that while men in senior houses manifest poorer physical function than their community-dwelling peers, women in senior houses express more loneliness than community-dwelling women (Lahti et al. 2021). Hence, it may be that men move into senior housing because their health and function require a more age-friendly environment. Women, in turn, may move into senior housing in a hope for more social and communal environment and be seeking a more active everyday life. It has also been noted that women in senior houses are typically widowed, and instead of remarrying in old age, they look for company in senior communities (Tyvimaa & Kemp 2011). In the present study, 55% of the women in senior houses were widowed, while the respective proportion among community-dwelling women was 35%.

Another interesting finding was that the senior housing residents' desire to be active did not differ from of the community-dwelling older people. This implies that regardless of their reasons for relocating into a more age-friendly environment, senior housing residents want to lead an active and meaningful life. In addition, this finding suggests that there is a potential unmet activity need among senior housing residents, meaning that their desires to be active and their factual possibilities to be active do not meet. One potential explanation to this unmet need might be that, except for having poorer physical function and manifesting more loneliness, senior housing residents also have more depressive symptoms than community-dwelling older people, as noted also in previous research (Adams & Sanders 2004; Taylor et al 2018). Especially women in senior houses scored high on the depression scale in the present study, as their mean score in CES-D was 15.1, while the cutoff score for risk of depression is 16 (Radloff 1977). It has previously been reported that depressive symptoms correlate negatively with active aging (Lahti et al. 2021; Yu et al. 2012) and increase the risk for unmet physical activity need (Rantakokko et al. 2010). The potential unmet activity need among senior housing residents warrants further inspection, as it may lead to a vicious cycle, where depressive symptoms and functional decline restrict striving for meaningful activities, which, in turn, may further

agitate depressive symptoms and functional decline, and eventually result in adverse outcomes such as disability, increased need of health and social care, and premature death (von Bonsdorff et al. 2006).

This study lays a foundation for new, more holistic study questions related to leading an active and meaningful life in older age. As previous studies have focused on establishing factors underlying active aging in community-dwelling older populations, this study expanded the perspective to include also older people who have relocated from their private dwellings into a more age-friendly environment, in this case, senior houses. Another strength of this study is that it combines two comprehensive datasets with similar data collection methods and times. The sample sizes in both datasets are reasonable and they include both men and women. Additionally, this study utilizes established and validated measures, and the robustness of the findings is confirmed in a sensitivity analysis. In addition to senior housing, the present findings may be generalizable also to retirement communities and other similar housing types in Western countries involving independently living residents and supporting social interaction. However, the study also has some limitations. First, the BoAktiv study participants were recruited from senior houses in the coastal regions of Finland, while the AGNES study participants were residing in a municipality in Central Finland. Typically, people in coastal regions have lower morbidity and healthier lifestyle compared to people in more Eastern and Northern parts of Finland. In addition, the Swedish-speaking minority living in the coastal regions traditionally demonstrates greater life expectancy and better functional ability than the Finnish-speaking majority (Hyyppä & Mäki 2001; Suominen 2014). Recent population-based studies, however, show that among adults over 65 years of age, the regional differences in wellbeing, e.g., in quality of life and loneliness, are marginal (Karvonen 2019). Thus, we may assume that the present population groups are comparable enough. It is also notable, that we could not consider the participant's cognitive function, although it would have been sensible when using self-report measures. Nevertheless, it is known that activity studies draw initially active and healthy people, whereas people with most decline in function tend to drop

out or refuse to participate (Portegijs et al. 2019). Hence, we may presume that the present study participants' cognition has not had a significant impact on the reliability of the findings. Finally, we must note that based on the present cross-sectional design, we may only conclude on associations in a certain timepoint. Longitudinal and causal investigations await future studies.

CONCLUSION

In conclusion, despite living in a communal and supporting environment, men in senior houses did not achieve equal levels of active aging as their community-dwelling peers. This is plausibly explained by their poorer physical function and health. For women, no significant difference was found in active aging total score or the frequency of activity sub-score. However, the ability and overall possibilities to be active were poorer, whereas the desires to be active were higher among women in senior houses compared to community-dwelling women. This may be explained by higher prevalence of depressive symptoms and loneliness among senior housing residents. Overall, these findings suggest that older people who want to increase their participation and activity in everyday life may seek a solution from communal housing but fail to find it. In the future, to decrease unmet activity need and improve the person-environment fit among their residents, senior houses should encourage even the neediest residents to strive for meaningful activity and ensure that the organized activities are feasible for everybody despite declining function. This study sheds light on the possibilities of leading an active life in old age also for people who have relocated from a private dwelling into a more age-friendly environment. However, future studies should investigate whether the levels of active aging differ between senior housing residents and community-dwelling older people also in a longitudinal study setting, and whether active aging may be promoted among senior housing residents.

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Table 1. Background characteristics of the participants by sex and housing type.

Variable	Men			Women		
	Community-dwelling	**Senior house**	***p*-value**	**Community-dwelling**	**Senior house**	***p*-value**
	N=436	**N=104**		**N=585**	**N=232**	
Age, *mean (SD)*	78.3 (3.6)	82.5 (7.8)	<.001[a]	78.2 (3.7)	82.8 (7.6)	<.001[a]
CES-D, *mean (SD)*	8.0 (7.0)	12.2 (8.3)	<.001[a]	9.0 (7.1)	15.1 (8.7)	<.001[a]
Educational attainment, *n (%)*			<.001[b]			<.001[b]
High	122 (28)	66 (65)		246 (25)	129 (57)	
Intermediate	210 (49)	26 (26)		281 (49)	81 (36)	
Low	97 (23)	10 (10)		150 (26)	18 (8)	
Financial situation, *n (%)*			.683[b]			<.001[b]
Good or very good	283 (66)	69 (66)		323 (56)	111 (49)	
Moderate or fair	141 (33)	33 (32)		240 (42)	97 (43)	
Poor or very poor	4 (1)	2 (2)		13 (2)	18 (8)	
Self-rated health, *n (%)*			.063[b]			.139[b]
Good or very good	210 (49)	59 (58)		253 (43)	115 (50)	

Moderate or fair	204 (47)	35 (35)		298 (51)	105 (46)	
Poor or very poor	19 (4)	7 (7)		32 (6)	8 (4)	
Living alone, *n (%)*	95 (22)	57 (55)	<.001[b]	324 (55)	190 (82)	<.001[b]
Married or in a relationship, *n (%)*	347 (80)	55 (53)	<.001[b]	251 (43)	45 (20)	<.001[b]
Caregiver, *n (%)*	83 (20)	5 (5)	<.001[b]	95 (18)	8 (4)	<.001[b]
UJACAS will, *mean (SD)*	42.5 (9.5)	42.4 (12.0)	.511[a]	44.4 (9.5)	46.1 (12.2)	.007[a]
UJACAS ability, *mean (SD)*	59.6 (8.6)	50.9 (15.4)	<.001[a]	58.4 (8.8)	52.9 (13.7)	<.001[a]
UJACAS possibility, *mean (SD)*	50.9 (10.3)	45.4 (14.2)	.002[a]	50.3 (10.8)	45.8 (13.7)	<.001[a]
UJACAS frequency, *mean (SD)*	39.7 (9.0)	36.0 (12.6)	.008[a]	40.6 (8.9)	38.4 (11.4)	.020[a]
UJACAS total score, *mean (SD)*	192.8 (31.3)	174.8 (49.6)	.004[a]	193.7 (32.5)	183.6 (45.6)	.033[a]

Note. CES-D = Center for Epidemiologic Studies Depression Scale, UJACAS = University of Jyvaskyla Active Aging Scale. [a] tested with Mann-Whitney U test. [b] tested with chi square test.

Table 2. Estimated marginal means (MM) and standard errors (SE) of active aging total and subscores and regression coefficients (B) with 95% confidence intervals (CI) by housing type stratified by sex.

	Men				Women			
General linear models	**Community-dwelling**	**Senior house**			**Community-dwelling**	**Senior house**		
UJACAS will	MM (SE)	B (95% CI)	*p*-value	R^2	MM (SE)	B (95% CI)	*p*-value	R^2
Model 1	42.5 (0.5)	0.1 (-2.3, 2.5)	.951	.002	44.0 (0.4)	3.5 (1.8, 5.2)	<.001	.065
Model 2	40.9 (0.8)	-2.7 (-5.2, -0.3)	.028	.137	43.1 (0.6)	0.8 (-1.0, 2.5)	.393	.159
Fully adjusted	41.9 (1.8)	-2.3 (-4.8, 0.2)	.074	.184	43.1 (0.8)	2.5 (0.7, 4.3)	.008	.197
UJACAS ability								
Model 1	59.3 (0.5)	-6.9 (-9.3, -4.5)	<.001	.109	57.9 (0.4)	-3.4 (-5.1, -1.7)	<.001	.142
Model 2	54.1 (0.7)	-9.3 (-11.5, -7.1)	<.001	.374	54.8 (0.5)	-5.5 (-7.1, -3.9)	<.001	.335
Fully adjusted	55.2 (1.7)	-8.3 (-10.5, -6.1)	<.001	.423	53.9 (0.7)	-3.1 (-4.8, -1.5)	<.001	.399
UJACAS possibility								
Model 1	50.6 (0.5)	-3.5 (-6.2, -0.9)	.008	.080	49.7 (0.5)	-1.4 (-3.3, 0.5)	.146	.147
Model 2	46.2 (0.8)	-6.7 (-9.1, -4.2)	<.001	.319	46.5 (0.6)	-5.5 (-7.2, -3.7)	<.001	.375
Fully adjusted	49.5 (1.8)	-5.6 (-8.1, -3.2)	<.001	.394	45.8 (0.8)	-2.6 (-4.4, -0.9)	.003	.440

UJACAS frequency								
Model 1	39.6 (0.5)	-3.1 (-5.4, -0.8)	.009	.030	40.2 (0.4)	-0.4 (-2.0, 1.2)	.628	.068
Model 2	36.8 (0.7)	-5.2 (-7.5, -2.9)	<.001	.183	38.2 (0.5)	-3.2 (-4.8, -1.6)	<.001	.209
Fully adjusted	39.3 (1.8)	-4.9 (-7.2, -2.5)	<.001	.237	37.9 (0.7)	-1.0 (-2.6, 0.7)	.260	.254
UJACAS total								
Model 1	192.1 (1.7)	-13.4 (-21.8, -5.1)	.002	.057	191.7 (1.4)	-1.1 (-7.0, 4.8)	.712	.126
Model 2	177.7 (2.4)	-23.7 (-31.5, -16.0)	<.001	.313	182.7 (1.9)	-12.7 (-18.2, -7.1)	<.001	.332
Fully adjusted	185.7 (5.8)	-21.0 (-28.7, -13.3)	<.001	.388	180.6 (2.5)	-3.8 (-9.5, 1.9)	<.196	.396

Note. Analyzed with univariate general linear model (GLM). UJACAS = University of Jyvaskyla Active Aging Scale. Model 1: adjusted for age. Model 2: Adjusted for age, educational attainment, and self-rated health. Fully adjusted model: Adjusted for age, educational attainment, self-rated health, perceived financial situation, and depressive symptoms.

Figure 1a. Estimated marginal means of UJACAS will subscore (0-68) with 95% confidence intervals using housing type by sex interaction term.

Note. Analyzed with univariate general linear model (GLM). Model adjusted for age, educational attainment, self-rated health, perceived financial situation, and depressive symptoms. *P*-value for the housing type by sex interaction term = .012.

Figure 1b. Estimated marginal means of UJACAS ability subscore (0-68) with 95% confidence intervals using housing type by sex interaction term.

Note. Analyzed with univariate general linear model (GLM). Model adjusted for age, educational attainment, self-rated health, perceived financial situation, and depressive symptoms. *P*-value for the housing type by sex interaction term = .002.

Figure 1c. Estimated marginal means of UJACAS frequency subscore (0-68) with 95% confidence intervals using housing type by sex interaction term.

Note. Analyzed with univariate general linear model (GLM). Model adjusted for age, educational attainment, self-rated health, perceived financial situation, and depressive symptoms. *P*-value for the housing type by sex interaction term = .027.

Figure 1d. Estimated marginal means of UJACAS total score (0-272) with 95% confidence intervals using housing type by sex interaction term.

Note. Analyzed with univariate general linear model (GLM). Model adjusted for age, educational attainment, self-rated health, perceived financial situation, and depressive symptoms. *P*-value for the housing type by sex interaction term = .002.