journal homepage: http://kont.zsf.jcu.cz
DOI: 10.32725/kont.2026.067

KONTAKT / Journal of nursing and social sciences related to health and illness

Original research article

Active ageing and its related factors among older adult nursing home residents: a cross-sectional study

Nataša Egeljić-Mihailović [1, 2] *, Dragana Milutinović [3], Dragana Simin [3], Nina Brkić-Jovanović [4], Duška Jović [1]

[1] *University of Banja Luka, Faculty of Medicine, Department of Nursing, Banja Luka, Republic of Srpska, Bosnia and Herzegovina*
[2] *University Clinical Centre of the Republic of Srpska, Banja Luka, Republic of Srpska, Bosnia and Herzegovina*
[3] *University of Novi Sad, Faculty of Medicine, Department of Nursing, Novi Sad, Serbia*
[4] *University of Novi Sad, Faculty of Medicine, Department of Psychology, Novi Sad, Serbia*

Abstract
Background: Population ageing represents a major societal challenge. Identifying factors associated with active ageing among nursing home residents may contribute to the development of strategies aimed at promoting active ageing in institutional settings. This study investigated self-reported active ageing and its associated factors among nursing home residents.
Methods: This cross-sectional study used a survey questionnaire and medical records. Data were collected from August 2020 to September 2021.
Results: The sample included 200 residents. The mean UJACAS score was 151.20 ± 36.31 (maximum 272), indicating low active ageing. Subscale scores were Goals (M = 39.72, SD = 9.65), Activity (M = 42.18, SD = 10.51), Ability (M = 36.13, SD = 10.69), and Opportunity (M = 33.37, SD = 9.96). Multiple regression analysis showed that depressive symptoms were negatively associated with active ageing, whereas social participation and functional independence were positive independent predictors.
Conclusion: Residents showed low active ageing, with higher levels associated with greater functional independence, fewer depressive symptoms, greater social participation, higher education, and higher income, whereas older age and chronic diseases were negative predictors.

Keywords: Active ageing; Factors associated with active ageing; Nursing home residents; Older adults

Introduction

Population ageing is one of the greatest challenges facing us today. It changes society in many ways, which requires assessing the needs of older adults, attending to their mental health, and facilitating their active participation in the community. Considering this, the World Health Organization (WHO) adopted the term "active ageing" in the late 1990s. It defined it as optimising opportunities for health, participation, and security to improve the quality of life throughout the ageing process (WHO, 2002). Defining active ageing is a complex task because it is closely tied to various theories and concepts related to ageing, including healthy ageing, productive ageing, successful ageing, and positive ageing (Ayoubi-Mahani et al., 2023).

Across different cultures, the understanding and components of active ageing vary (Dogra et al., 2022; Paz et al., 2018; Walker, 2002; Wongsala et al., 2021). Active ageing can be seen as a comprehensive strategy to maintain physical, mental, and social health and lifestyle in old age, going beyond disease prevention. The process depends not only on socio-political measures but also on personal choices, with individual perspectives playing a key role (Kalyoncuo and Kartin, 2025). At the individual level, Rantanen et al. (2019) define active ageing as pursuing well-being through activities related to personal goals, functional capacities, and capabilities. While these definitions provide a broad framework, applying them to nursing home residents requires consideration of the specific environmental, social, and health-related constraints faced in institutional settings.

As people age and encounter health challenges, many older adults and their families opt for placement in nursing homes to ensure appropriate care (Evangelista et al., 2014). However, nursing homes often fail to provide comprehensive conditions for active ageing. Intervention programs in long-term care settings often focus mainly on physical or cognitive functioning, while other important aspects of active ageing are frequently overlooked (Van Malderen et al., 2013). To address these shortcomings, an interdisciplinary approach integrating

* **Corresponding author:** Nataša Egeljić-Mihailović, University of Banja Luka, Faculty of Medicine, Department of Nursing, Save Mrkalja St. 14, 78000 Banja Luka, Republic of Srpska, Bosnia and Herzegovina; e-mail: natasa.mihailovic.egeljic@med.unibl.org
http://doi.org/10.32725/kont.2026.067
Submitted: 2026-01-13 • Accepted: 2026-11-23 • Prepublished online: 2026-11-24
KONTAKT 28/x: xxx–xxx • EISSN 1804-7122 • ISSN 1212-4117
© 2026 The Authors. Published by University of South Bohemia in České Budějovice, Faculty of Health and Social Sciences.
This is an open access article under the CC BY-NC-ND license.

biological, psychological, and social perspectives is necessary when researching active ageing among nursing home residents (Zeng, 2018).

A review of the literature shows that research on active ageing predominantly focuses on older adults living in the community, while studies involving those in nursing homes are limited. Moreover, research on older populations in the Republic of Srpska, Bosnia and Herzegovina, remains scarce, highlighting the need for such studies in this context. Understanding active ageing in nursing home residents is crucial for developing interventions that promote physical, mental, and social well-being in this vulnerable population. Therefore, this study aimed to investigate self-reported active ageing among nursing home residents and identify the factors associated with self-reported active ageing in this population.

Materials and methods

Study design

This cross-sectional study used a survey questionnaire and medical records to identify factors associated with active ageing among nursing home residents.

Setting and participants

The study included 200 older adults aged 60–95 years from four nursing homes in the Republic of Srpska, Bosnia and Herzegovina, with preserved orientation to person, place, and time. Cognitive functioning was screened using the Mini-Mental State Examination (MMSE). Respondents with a score of 25 or higher were included in the study, as recommended in the standardised manual (Folstein et al., 2011). Residents with chronic diseases that did not significantly impair their functional ability and whose conditions were adequately managed through therapy or assistive technologies were included in the study. Additionally, residents with a history of malignant disease who were free of disease-related symptoms that could interfere with their participation were also included.

The exclusion criteria included poor general health, disorientation, and inability to cooperate. Residents with severe visual, hearing, speech, or language impairments, psychiatric conditions, or acute health issues affecting participation were also excluded. These conditions were assessed using data from medical records and information provided by nursing home staff.

The sample size for the convenience sample was determined using Cochran's sample size formula (Uakarn et al., 2021), with a confidence level of 95%, a margin of error of 5%, and an estimated population proportion of 50%, as recommended in public health studies. The estimated population of cognitively healthy nursing home residents aged 60 and above in the Republic of Srpska is approximately 600, resulting in a minimum required sample size of 200.

Data collection procedure

Data were collected from August 2020 to September 2021. As data collection took place during the COVID-19 pandemic, measures were implemented to ensure maximum protection of residents and nursing home staff. Researchers were required to provide a confirmed negative PCR test for COVID-19 and adhere to protective measures. A total of 258 nursing home residents were assessed, and 58 were excluded because they scored below 25 on the Mini-Mental State Examination.

Survey sessions were scheduled in advance to accommodate residents' availability, with each session carefully tailored to their health status and mood, lasting between 20 and 45 minutes.

Study instruments

A survey questionnaire was used as the data collection instrument. The questionnaire was designed for the purposes of this study and consisted of two parts. The first part includes sociodemographic data, anamnestic data on the presence of chronic and malignant diseases and possible disability, as well as questions related to the impact of the COVID-19 pandemic on daily activities in the nursing home, mood, and social contacts both within and outside the home. The second part contains a set of scales adapted for this study. A detailed description of the scales used is provided in the Supplementary materials.

Data analysis

Data were analysed using IBM SPSS Statistics (Version 20.0). Descriptive statistics were used to summarise sample characteristics and active ageing across the UJACAS domains, and internal consistency was assessed using Cronbach's alpha (α). Bivariate associations between active ageing and continuous variables were assessed using Pearson's correlation coefficient (r). Spearman's rank correlation coefficient (ρ) was used to assess associations with monthly income, which was treated as an ordinal variable. Differences in active ageing according to categorical variables were examined using the independent-samples t-test or Mann–Whitney U test, as appropriate. For Mann–Whitney U tests, effect size was calculated as $r = |Z|/\sqrt{N}$, where Z represents the standardised Mann–Whitney test statistic and N represents the number of valid observations included in the respective comparison. Effect sizes of approximately 0.10, 0.30, and 0.50 were interpreted as small, medium, and large, respectively. For the bivariate analysis, marital status was dichotomised according to current partner status into residents without a partner (single, divorced, or widowed; $n = 195$) and residents with a partner (married or in a relationship; $n = 5$), due to the very small number of participants in some of the original marital-status categories.

Multiple linear regression analysis was used to identify independent predictors of the total active ageing score. Unstandardised regression coefficients (B), standard errors (SE), standardised coefficients (β), 95% confidence intervals (CI), and p-values were reported. Cohen's f^2 was used to assess the overall effect size of the multiple regression model, with values of 0.02, 0.15, and 0.35 interpreted as small, medium, and large effects, respectively. Statistical significance was set at $p < 0.05$.

Ethical considerations

The study was conducted in accordance with the principles of the Declaration of Helsinki. Ethical approval was obtained from the Ethics Committee of the Faculty of Medicine, University of Novi Sad, Serbia (16.07.2020.01-39/211), as well as from the administrations of the participating nursing homes. Participation was voluntary, and all participants received written information about the study aims. Written informed consent was obtained from all participants before enrolment. Responses were anonymous, ensuring the confidentiality of the collected data.

Results

Socio-demographic characteristics of residents

The sample comprised 200 nursing home residents aged 60–95 years. The mean age was 77.27 years (SD = 7.44;

range = 60–95), and the mean length of stay was 5.79 years (SD = 5.60). Other sociodemographic characteristics are presented in Table 1.

Table 1. Socio-demographic characteristics of residents

Socio-demographic characteristics	Total (*N* = 200)	
	n	%
Age		
60–75 years	81	40.5
76–90 years	116	58.0
>90 years	3	1.5
Gender		
Male	94	47.0
Female	106	53.0
Place of residence		
City	60	30.0
Village	140	70.0
Level of education		
Primary school	61	30.5
High school	82	41.0
Higher school	34	17.0
College	23	11.5
Marital status		
Single	47	23.5
Married	2	1.0
Divorced	35	17.5
A widower	113	56.5
In a relationship	3	1.5
Children		
Yes	123	61.5
No	77	38.5
Monthly income to life needs		
Very good	28	14.0
Sufficient	98	49.0
Hardly enough	48	24.0
Insufficient	26	13.0

Health and functional status of residents

One or more chronic diseases were present in 79.5% of nursing home residents. The mean duration of treatment for chronic diseases was 129.31 months (SD = 122.6). Malignant disease was reported in 3% of residents, with breast cancer being the most common type. The mean time since completion of cancer treatment was 68.83 months (SD = 45.54). Residents' health and functional status are presented in Table 2.

Additionally, residents were also asked to what extent the COVID-19 pandemic affected their everyday activities in the nursing home. Residents rated the impact of the COVID-19 pandemic on their daily activities as substantial (M = 7.31, SD = 2.45), with similar effects reported for mood (M = 7.11, SD = 2.51) and social contacts inside and outside the nursing home (M = 7.86, SD = 2.39).

Active ageing of nursing home residents

The total mean score on the UJACAS scale was 151.20 ± 36.31 out of a maximum of 272, indicating a low level of active ageing. The means and standard deviations of the subscales were as follows: Goals (M = 39.72, SD = 9.65), Activity (M = 42.18, SD = 10.51), Ability (M = 36.13, SD = 10.69), and Opportunity (M = 33.37, SD = 9.96).

Table 2. Health and functional status of residents

Health status	Total (*N* = 200)	
	n	%
Chronic diseases		
Yes	159	79.5
No	41	20.5
Diagnosis of chronic disease		
Cardiovascular diseases	83	40.7
Respiratory diseases	14	6.9
Bone-joint diseases	40	19.6
Rheumatic diseases	58	28.4
Urinary diseases	9	4.4
Malignant diseases		
Yes	6	3.0
No	194	97.0
Physical disability		
Yes	11	5.5
No	189	94.5
Type of disability		
Amputation	3	27.3
Cerebral palsy	1	9.1
Shorter left leg	1	9.1
Right shoulder prosthesis	2	18.2
Bad eyesight	2	18.2
Stiffness due to Parkinson's disease	1	9.1
Artificial hip implant	1	9.1

Relationship between active ageing and socio-demographic characteristics of residents

When examining sociodemographic differences, a statistically significant difference was found between male and female residents in the Activity domain ($t = 3.436$, $p = 0.001$), with a medium effect size (Cohen's d = 0.49). Furthermore, urban residents showed significantly higher active ageing scores across all domains compared to rural residents, with effect sizes ranging from small-to-medium (Cohen's d = 0.35 to 0.63). Regarding continuous variables, age showed statistically significant negative correlations with the Goals ($r = –0.235$, $p = 0.001$) and Activity ($r = –0.212$, $p = 0.003$) domains, representing small-to-medium effect sizes. All sociodemographic relationships are presented in Table 3.

Relationship between active ageing and health and functional status of residents

Regarding health and functional status, the presence of chronic diseases showed a statistically significant difference only in the Opportunity domain ($U = 1515.5$, $p = 0.013$), representing a small effect size ($r = 0.18$). In contrast, functional independence was significantly associated with higher scores across all UJACAS domains ($p < 0.01$), with effect sizes ranging from small-to-medium ($r = 0.19$ to 0.35). Detailed health characteristics are presented in Table 4.

Table 3. Relationship between the UJACAS scale domain scores and socio-demographic characteristics of residents

Socio-demographic characteristics	UJACAS																			
	Goals					Activity					Ability					Opportunity				
	M	SD	*t//U/r/ρ*	*p*	d	M	SD	*t//U/r/ρ*	*p*	d	M	SD	*t//U/r/ρ*	*p*	d	M	SD	*t//U/r/ρ*	*p*	d
Gender																				
Male	2.37	0.45	0.791	0.430	0.11	2.63	0.58	3.436	0.001*	0.49	2.19	0.62	1.406	0.161	0.20	2.03	0.53	1.566	0.119	0.22
Female	2.31	0.66				2.33	0.64				2.07	0.64				1.90	0.62			
Place of residence																				
City	2.42	0.54	4.054	0.003*	0.63	2.54	0.62	2.235	0.027*	0.35	2.21	0.59	4.046	0.003*	0.63	2.05	0.54	3.309	0.001*	0.51
Village	2.16	0.61				2.32	0.64				1.92	0.68				1.76	0.65			
Current partner status																				
Without partner	2.34		18.0	0.170	0.08	2.47		26.0	0.333	0.16	2.12		46.0	0.980	0.46	1.96		30.0	0.435	0.20
With partner	2.32					2.75					2.38					1.96				
Age			–0.235	0.001**				–0.212**	0.003*				–0.133	0.060				–0.122	0.085	
Monthly income			0.033	0.644				0.000	0.999				0.104	0.146				0.062	0.386	

Note: Student's *t*-test and the Mann–Whitney *U* test were used. UJACAS – The University of Jyvaskyla Active Ageing Scale; M – mean score; SD – standard deviation; *t/U/r/ρ* – Student's *t*-test / Mann–Whitney *U* test / Pearson's correlation coefficient / Spearman's rank correlation coefficient; *p* – *p*-value; d – Cohen's d. Pearson's *r* was used for continuous variables, while Spearman's *ρ* was used for monthly income as an ordinal variable. Effect sizes for *t*-tests are reported as Cohen's d: ≈ 0.20 (small), 0.50 (medium), and 0.80 (large). Correlation coefficients represent effect size magnitude: ≈ 0.10 (small), 0.30 (medium), and 0.50 (large); * $p < 0.05$; ** $p < 0.01$.

Table 4. Relationship between the UJACAS scale domain scores and health and functional status of residents

Health and functional status	UJACAS																			
	Goals					Activity					Ability					Opportunity				
	Mean rank	M	*U*	*p*	*r*	Mean rank	M	*U*	*p*	*r*	Mean rank	M	*U*	*p*	*r*	Mean rank	M	*U*	*p*	*r*
Chronic diseases																				
Yes	97.90	2.32	1732.5	0.093	0.12	97.41	2.44	1646.0	0.086	0.12	98.45	2.11	1828.5	0.185	0.09	96.66	1.93	1515.5	0.013*	0.18
No	118.70	2.49				118.92	2.69				114.86	2.23				127.38	2.20			
Malignant diseases																				
Yes	159.58	2.91	215.5	0.009*	0.19	149.08	4.07	272.5	0.029*	0.16	163.50	2.91	192.0	0.005*	0.20	139.58	2.28	335.5	0.082	0.12
No	97.62	2.32				97.43	2.45				97.50	2.11				98.25	1.96			
Physical disability																				
Yes	88.45	2.26	907.0	0.477	0.05	76.64	2.22	777.0	0.166	0.10	75.00	1.87	759.0	0.133	0.11	77.64	1.72	788.0	0.177	0.10
No	101.20	2.34				101.37	2.49				101.98	2.14				101.83	1.98			
Functional ability																				
Full	104.08	2.37	1071.0	0.007*	0.19	105.06	2.53	800.0	0.000*	0.27	117.15	2.21	516.0	0.000*	0.35	106.96	2.03	550.0	0.000*	0.34
Limited	66.37	2.00				52.11	1.91				37.16	1.36				38.95	1.31			

Note: Mann–Whitney *U* test was used for two-group comparisons. UJACAS – The University of Jyvaskyla Active Ageing Scale; Mean rank – mean rank in the Mann–Whitney *U* test; M – mean score; *U* – Mann–Whitney *U* test; *p* – *p*-value. Effect sizes for Mann–Whitney *U* tests are reported as *r* ≈ 0.1 (small), 0.3 (medium), 0.5 (large); * $p < 0.05$.

Relationship between active ageing and other independent factors

Depressive symptoms (GDS) showed the strongest inverse relationships across all active ageing domains, demonstrating small to medium effect sizes (r = –0.281 to –0.447, p < 0.01). Conversely, social network contacts (LSNS-6) exhibited statistically significant positive correlations across all domains (r = 0.230 to 0.351, p < 0.01), representing small-to-medium effect sizes. Cognitive status (MMSE) showed small positive correlations with Activity (r = 0.263, p < 0.01), Opportunity (r = 0.173, p < 0.05), and Goals (r = 0.149, p < 0.05). Regarding psychological measures, higher scores on the Pearlin Mastery Scale (PM), indicating greater personal mastery and perceived control over one's life, showed statistically significant inverse correlations with all UJACAS domains (r = –0.158 to –0.362, p < 0.05), corresponding to small-to-medium effect sizes. Similarly, the Self-Perception of Old Age Scale (SLO) showed statistically significant inverse correlations with Activity (r = –0.265, p < 0.01), Opportunity (r = –0.271, p < 0.01), and Ability (r = –0.232, p < 0.01), representing small-to-medium effect sizes. Because higher SLO scores indicate a more negative subjective self-perception of ageing, these inverse associations demonstrate that a less favourable self-perception of ageing corresponds with lower active ageing scores. The relationships between UJACAS domains and continuous variables are presented in Table 5.

Table 5. The relationship between UJACAS domains and independent factors of active ageing

Independent factors	UJACAS			
	Goals	Activity	Ability	Opportunity
The Mini-Mental State Examination (MMSE)	0.149*	0.263**	0.137	0.173*
The Geriatric Depression Scale (GDS)	–0.281**	–0.447**	–0.341**	–0.377**
The Nursing Home Resident Satisfaction Scale (NHRSS)	–0.049	0.067	–0.071	–0.029
The Lubben Social Network Scale (LSNS-6)	0.299**	0.230**	0.351**	0.245**
The Pearlin Mastery Scale (PM)	–0.158*	–0.362**	–0.233**	–0.206**
The Self-perception of Old Age Scale (SLO)	–0.113	–0.265**	–0.232**	–0.271**

Note: Pearson's correlation coefficients (r) are reported, which directly serve as measures of effect size $r \approx 0.10$ (small), 0.30 (medium), 0.50 (large). UJACAS – The University of Jyvaskyla Active Ageing Scale; * p < 0.05; ** p < 0.01.

Significance of the regression model and partial contributions of independent factors

Multiple regression analysis showed that the model was statistically significant, $F(15, 184) = 10.65$, p < 0.001, explaining 53.2% of the variance in active ageing (R^2 = 0.532; Cohen's f^2 = 1.14, very large effect). Depressive symptoms (β = –0.357, p < 0.001), age (β = –0.260, p < 0.001), and chronic diseases (β = –0.209, p = 0.001) were significant negative predictors, whereas functional independence (β = 0.241, p < 0.001), history of malignant disease (β = 0.212, p = 0.001), and social participation (β = 0.208, p = 0.008) were positive predictors. Education, income, and marital status also showed significant positive associations. Gender and the remaining variables did not make significant unique contributions to the model (p > 0.05).

Table 6. Multiple regression analysis: model significance and partial contribution of independent factors

Independent factors	B	(SE)	β	t	p	95.0% confidence interval B	
						Lower limit	Upper limit
Constant	185.641	67.879		2.735	0.007	51.457	319.824
Gender	–6.269	5.167	–0.083	–1.213	0.227	–16.484	3.945
Age	–1.347	0.352	–0.260	–3.825	0.000	–2.043	–0.651
Education	7.366	2.647	0.189	2.783	0.006	2.134	12.597
Marital status	4.065	1.898	0.138	2.142	0.034	0.313	7.816
Monthly income	7.327	2.818	0.172	2.600	0.010	1.757	12.897
Chronic diseases	–0.065	0.019	–0.209	–3.366	0.001	–0.102	–0.027
Malignant diseases	50.945	14.986	0.212	3.400	0.001	21.321	80.568
The Maastricht Social Participation Profile (MSPP)	0.925	0.344	0.208	2.693	0.008	0.246	1.605
The Geriatric Depression Scale (GDS)	–3.504	0.943	–0.357	–3.714	0.000	–5.369	–1.639
The Katz Index of Independence in Activities of Daily Living (ADL)	11.096	2.900	0.241	3.826	0.000	5.363	16.830
The Lubben Social Network Scale (LSNS-6)	0.263	0.490	0.040	0.537	0.592	–0.706	1.232
The Pearlin Mastery Scale (PM)	–0.015	0.337	–0.003	–0.043	0.966	–0.682	0.652
The Self-perception Scale of Old Age (SLO)	0.119	0.255	0.037	0.467	0.641	–0.385	0.623
The Nursing Home Resident Satisfaction Scale (NHRSS)	–0.118	0.693	–0.012	–0.170	0.865	–1.488	1.252
The Mini-Mental State Exam (MMSE)	–1.249	1.467	–0.065	–0.851	0.396	–4.149	1.652

Note: Criterion variable: UJACAS – The University of Jyvaskyla Active Ageing Scale total score. Model summary: R = 0.728, R^2 = 0.532, Adjusted R^2 = 0.493, $F(15, 184) = 10.65$, p < 0.001. Overall model effect size: Cohen's f^2 = 1.14 (0.02 = small, 0.15 = medium, 0.35 = large). B – unstandardized coefficient; SE – standard error; β – standardized coefficient; t – t-statistic; p – p-value; CI – confidence interval.

Discussion

This study showed low levels of active ageing among nursing home residents, consistent with previous research (Van Malderen et al., 2013). Nursing homes often lack comprehensive programmes, focusing mainly on physical and cognitive functioning while neglecting social participation and lifelong learning. Staff tend to prioritise basic needs over social and emotional support (Trollebø et al., 2024). Older adults in institutional settings generally exhibit lower levels of active ageing than community-dwelling older adults (Siltanen et al., 2024). These low levels may also reflect the lack of well-designed activities, particularly during the COVID-19 pandemic.

Results showed that men reported higher self-assessed activity than women. Previous research suggests that men and women experience ageing differently because social, cultural, economic, and professional factors influence later life in distinct ways (Foster and Walker, 2015; Paz et al., 2018; Rochelle et al., 2015). These findings may reflect differences in opportunities to engage in activities consistent with individual interests and skills. Earlier family and social roles may also shape activity patterns, as older adults often continue behaviours established earlier in life (Egeljić-Mihailović et al., 2020). However, gender was not an independent predictor in the multivariate model.

Residents from urban areas showed higher levels of active ageing, although most of the sample were from rural areas. However, the UJACAS was developed in a different European sociocultural context and may not fully reflect our local population. Thus, this finding does not necessarily imply lower active ageing among rural residents; their activities may simply not correspond to the scale items.

Age showed small negative correlations with the Goals and Activity domains in the unadjusted analyses. In the final model, older age was a significant negative predictor of active ageing, consistent with previous research reporting an inverse association between age and active ageing, potentially related to age-related functional decline (Kalyoncuo and Kartin, 2025).

Older adults without chronic diseases demonstrated higher levels of active ageing, consistent with evidence that chronic conditions may impose physical and psychological barriers to active engagement (Fernández-Mayoralas et al., 2015). Interestingly, a history of malignant disease was positively associated with active ageing. This unexpected finding may reflect post-treatment resilience, successful rehabilitation, or greater motivation to maintain quality of life; however, given that only 3% of the sample had a history of malignant disease, it should be interpreted with caution.

Bivariate analyses showed that better cognitive status and broader social networks were positively associated with active ageing. Unexpectedly, greater personal mastery and perceived control were inversely associated with the UJACAS domains in the bivariate analyses. However, personal mastery did not remain independently associated with total active ageing in the multivariable model ($\beta = -0.003$, $p = 0.966$). Therefore, the inverse bivariate associations should be interpreted cautiously and should not be considered evidence of an independent negative relationship between personal mastery and active ageing. In contrast, depressive symptoms emerged as the strongest negative predictor ($\beta = -0.357$). Given the prevalence of depressive symptoms among nursing home residents and their adverse effects on functioning and quality of life (Al-Amer et al., 2019; Ashida et al., 2016; Buedo-Guirado et al., 2020; Kouvatsou et al., 2020; Tesky et al., 2019), depression screening and targeted interventions should be integral to active ageing strategies (Ribeiro et al., 2020).

Residents with regular social interactions reported higher levels of active ageing. Functional independence in activities of daily living ($\beta = 0.241$) and social participation ($\beta = 0.208$) were significant positive predictors of active ageing. Social participation may foster a sense of purpose and reduce social isolation (Douglas et al., 2017; Ejiri et al., 2019). In this study, residents reported substantial effects of the pandemic on daily activities, mood, and social contacts, while previous research reported declines in mental health and cognitive functioning among older adults during the pandemic, particularly in the context of social distancing (Dogra et al., 2022; Ibsen et al., 2025). Consistent with our findings, Fu et al. (2022) highlighted the importance of functional ability in the relationship between depression and active ageing. These findings support interventions that maintain functional independence, social participation, and psychological well-being in nursing home settings.

Study limitations

This study has several limitations. The cross-sectional design precludes causal inferences. Only cognitively intact and oriented residents were included, limiting generalisability to residents with cognitive impairment, and age subgroup differences were not examined. Data were collected during the COVID-19 pandemic, restricting participation in activities and preventing comparison with pre-pandemic levels. Long questionnaires may cause fatigue and reduced concentration, potentially affecting response accuracy. Finally, the UJACAS requires further adaptation and validation for this sociocultural context.

Conclusion

This study showed low levels of active ageing among nursing home residents. Higher active ageing was independently associated with greater functional independence, fewer depressive symptoms, active social participation, higher education, and higher monthly income, whereas older age and chronic diseases were negative predictors.

Supporting active ageing requires an integrated and individualised approach that prioritises functional preservation, depression screening, and social engagement according to residents' abilities, interests, and life histories.

Conflict of interest

The authors have no conflict of interest to declare.

References

1. Al-Amer R, Subih M, Aldaraawi H, Randall S, Othman WMM, Salamonson Y (2019). Prevalence of Depression and Its Influence on the Quality of Life of Jordanians Living in Residential Care Facilities. J Nurs Res 27(6): e54. DOI: 10.1097/JNR.0000000000000337.
2. Ashida T, Kondo N, Kondo K (2016). Social participation and the onset of functional disability by socioeconomic status and activity type: The JAGES cohort study. Prev Med 89: 121–128. DOI: 10.1016/j.ypmed.2016.05.006.
3. Ayoubi-Mahani S, Eghbali-Babadi M, Farajzadegan Z, Keshvari M, Farokhzadian J (2023). Active aging needs from the perspectives of older adults and geriatric experts: a qualitative

study. Front Public Health 11: 1121761. DOI: 10.3389/fpubh.2023.1121761.
4. Buedo-Guirado C, Rubio L, Dumitrache CG, Romero-Coronado J (2020). Active aging program in nursing homes: Effects on psychological well-being and life satisfaction. Psychosocial Intervention 29(1): 49–57. DOI: 10.5093/pi2019a18.
5. Chang, Q, Sha F, Chan CH, Yip PSF (2018). Validation of an abbreviated version of the Lubben Social Network Scale ("LSNS-6") and its associations with suicidality among older adults in China. PloS One 13(8): e0201612. DOI: 10.1371/journal.pone.0201612.
6. Chen YL, Hsiung PC, Chung L, Chen SC, Pan AW (2013). Psychometric properties of the Mastery Scale-Chinese version: applying classical test theory and Rasch analysis. Scand J Occup Ther 20(6): 404–411. DOI: 10.3109/11038128.2013.838999.
7. Demir Erbil D, Hazer O (2019). University of Jyvaskyla Active Aging Scale: the study of validity and reliability. Int J Eurasia Soc Sci 10(38): 1157–1175.
8. Dogra S, Dunstan DW, Sugiyama T, Stathi A, Gardiner PA, Owen N (2022). Active Aging and Public Health: Evidence, Implications, and Opportunities. Annu Rev Public Health 43: 439–459. DOI: 10.1146/annurev-publhealth-052620-091107.
9. Douglas H, Georgiou A, Westbrook J (2017). Social participation as an indicator of successful aging: an overview of concepts and their associations with health. Aust Health Rev 41(4): 455–462. DOI: 10.1071/AH16038.
10. Egeljić-Mihailović N, Brkić-Jovanović N, Krstić T, Simin D, Milutinović D (2022). Social participation and depressive symptoms among older adults during the Covid-19 pandemic in Serbia: A cross-sectional study. Geriatr Nurs 44: 8–14. DOI: 10.1016/j.gerinurse.2021.12.014.
11. Egeljić-Mihailović N, Pavlović J, Jović D, Knežević D (2020). Povezanost subjektivnog osjećaja zadovoljstva i kvaliteta života starih osoba [Correlation between subjective well-being and quality of life in elderly]. Biomed Istraz 11(2): 126–135. DOI: 10.7251/BII2002126E.
12. Ejiri M, Kawai H, Fujiwara Y, Ihara K, Watanabe Y, Hirano H, et al. (2019). Social participation reduces isolation among Japanese older people in urban area: a 3-year longitudinal study. PLoS One 14(9): e0222887. DOI: 10.1371/journal.pone.0222887.
13. Evangelista RA, Bueno Ade A, Castro PA, Nascimento JN, Araújo NT, Aires GP (2014). Perceptions and experiences of elderly residents in a nursing home. Rev Esc Enferm USP 48(2): 81–86. DOI: 10.1590/S0080-623420140000800013.
14. Fernández-Mayoralas G, Rojo-Pérez F, Martínez-Martín P, Prieto-Flores ME, Rodríguez-Blázquez C, Martín-García S, et al. (2015). Active ageing and quality of life: factors associated with participation in leisure activities among institutionalized older adults, with and without dementia. Aging Ment Health 19(11): 1031–1041. DOI: 10.1080/13607863.2014.996734.
15. Folstein MF, Folstein SE, White T, Messer MA (2011). Kratko ispitivanje mentalnog statusa: priručnik [Mini-Mental State Examination: Manual]. Naklada Slap. [online] [cit. 2026-01-22]. Available from: https://www.nakladaslap.com/pds/pregled/b580c9f456a81486aad1e880d3f60681b
16. Foster L, Walker A (2015). Active and successful aging: a European policy perspective. The Gerontologist 55(1): 83–90. DOI: 10.1093/geront/gnu028.
17. Fu X, Su Y, Zeng C, Liu L, Guo Y, Wu Y (2022). The mediation and interaction of depressive symptoms in activities of daily living and active aging in rural elderly: A cross-sectional survey. Front Public Health 10: 942311. DOI: 10.3389/fpubh.2022.942311.
18. Gerrard P (2013). The hierarchy of the activities of daily living in the Katz index in residents of skilled nursing facilities. J Geriatr Phys Ther 36(2): 87–91. DOI: 10.1519/JPT.0b013e318268da23.
19. Greenberg SA (2012). The geriatric depression scale (GDS). Best Practices in Nursing Care to Older Adults 4(1): 1–2.
20. Ibsen TL, Zotcheva E, Bergh S, Gerritsen D, Livingston G, Lurås H, et al. (2025). The Role of Social Media in Mitigating the Long-Term Impact of Social Isolation on Mental and Cognitive Health in Older Adults Durning the COVID-19 Pandemic: The HUNT Study. Int J Geriatr Psychiatry 40(5): e70097. DOI: 10.1002/gps.70097.
21. Kalyoncuo S, Kartin PT (2025). The relationship between active aging and healthy lifestyle behaviors of individuals aged 65 years and older: A cross-sectional study. Geriatr Nurs 61: 316–323. DOI: 10.1016/j.gerinurse.2024.10.063.
22. Kouvatsou K, Iliadou M, Kalatzi P, Evanthia S, Christos P, Maria K, Tziaferi S (2020). Depression Among Elderly Users of Open and Closed Care Facilities in a Rural Region of Greece: an Important Public Health Issue. Mater Sociomed 32(1): 35–40. DOI: 10.5455/msm.2020.32.35-40.
23. Kukić B, Brkić-Jovanović N, Milutinović D, Krstić T, Egeljic N, Marinković D (2020). Social participation of oncology patients over 60 years of age. Medicinski Pregled 73(5–6): 145–151. DOI: 10.2298/MPNS2006145K.
24. Lubben J, Blozik E, Gillmann G, Iliffe S, von Renteln Kruse W, Beck JC, Stuck AE (2006). Performance of an abbreviated version of the Lubben Social Network Scale among three European community-dwelling older adult populations. Gerontologist 46(4): 503–513. DOI: 10.1093/geront/46.4.503.
25. Mars GM, Kempen GI, Post MW, Proot IM, Mesters I, van Eijk JT (2009). The Maastricht social participation profile: development and clinimetric properties in older adults with a chronic physical illness. Qual Life Res 18(9): 1207–1218. DOI: 10.1007/s11136-009-9537-4.
26. Mendoza-Núñez VM, Sarmiento-Salmorán E, Marín-Cortés R, Martínez-Maldonado ML, Ruiz-Ramos M (2018). Influence of the Self-Perception of Old Age on the Effect of a Healthy Aging Program. J Clin Med 7(5): 106. DOI: 10.3390/jcm7050106.
27. Paz A, Doron I, Tur-Sinai A (2018). Gender, aging, and the economics of "active aging": Setting a new research agenda. J Women Aging 3(3): 184–203. DOI: 10.1080/08952841.2017.1295677.
28. Pearlin LI, Schooler C (1978). The structure of coping. J Health Soc Behav 19(1): 2–21. DOI: 10.2307/2136319.
29. Rantanen T, Portegijs E, Kokko K, Rantakokko M, Törmäkangas T, Saajanaho M (2019). Developing an Assessment Method of Active Aging: University of Jyvaskyla Active Aging Scale. J Aging Health 31(6): 1002–1024. DOI: 10.1177/0898264317750449.
30. Ribeiro O, Teixeira L, Araújo L, Rodríguez-Blázquez C, Calderón-Larrañaga A, Forjaz MJ (2020). Anxiety, depression and quality of life in older adults: trajectories of influence across age. Int J Environ Res Public Health 17(23): 9039. DOI: 10.3390/ijerph17239039.
31. Rochelle TL, Yeung DK, Bond MH, Li LM (2015). Predictors of the gender gap in life expectancy across 54 nations. Psychol Health Med 20(2): 129–138. DOI: 10.1080/13548506.2014.936884.
32. Siltanen S, Keskinen KE, Lahti AM, Rantanen T, von Bonsdorff M (2024). Active Aging in Senior Housing Residents and Community-Dwelling Older Adults: A Comparative Study in Finland. Journal of Aging and Health 36(5–6): 299–307. DOI: 10.1177/08982643231186627.
33. Tesky VA, Schall A, Schulze U, Stangier U, Oswald F, Knopf M, et al. (2019). Depression in the nursing home: a cluster-randomized stepped-wedge study to probe the effectiveness of a novel case management approach to improve treatment (the DAVOS project). Trials 20(1): 424. DOI: 10.1186/s13063-019-3534-x.
34. Trollebø SØ, Taraldsen K, Heiland JS, Hawley-Hague H, Bardal EM, Skjaeret-Maroni N (2024). Uncovering perspectives on physical activity in nursing homes: a qualitative exploration of the experiences of healthcare professionals and family caregivers. BMC Health Serv Res 24(1): 1222. DOI: 10.1186/s12913-024-11711-8.
35. Uakarn C, Chaokromthong K, Sintao N (2021). Sample size estimation using Yamane and Cochran and Krejcie and Morgan and Green formulas and Cohen statistical power analysis by G* power and comparisons. Apheit Int J Interdiscip Soc Sci Technol 10(2): 76–88.
36. Van Malderen L, Mets T, Gorus E (2013). Interventions to enhance the Quality of Life of older people in residential long-

term care: a systematic review. Ageing Res Rev 12(1): 141–150. DOI: 10.1016/j.arr.2012.03.007.

37. Vilar-Compte M, Vargas-Bustamante A, Lubben J (2018). Validation Study of the Abbreviated Version of the Lubben Social Network Scale Spanish Translation among Mexican and Mexican-American Older Adults. J Cross Cult Gerontol 33(1): 83–99. DOI: 10.1007/s10823-017-9341-5.
38. Walker A (2002). A strategy for active ageing. Int Soc Secur Rev 55(1): 121–139. DOI: 10.1111/1468-246X.00118.
39. Wallace M, Shelkey M; Hartford Institute for Geriatric Nursing (2007). Katz Index of Independence in Activities of Daily Living (ADL). Urol Nurs 27(1): 93–94.
40. WHO (2002). Active ageing: A policy framework. World Health Organization. [online] [cit. 2026-01-22]. Available from: https://iris.who.int/server/api/core/bitstreams/0418705f-1c82-4fe2-82d6-d4faee89dfa0/content
41. Wongsala M, Anbäcken EM, Rosendahl S (2021). Active ageing – perspectives on health, participation, and security among older adults in northeastern Thailand – a qualitative study. BMC Geriatr 21(1): 41. DOI: 10.1186/s12877-020-01981-2.
42. Zeng Y (2018). Preface to the Special Collection on Interdisciplinary Research on Healthy Aging. Demographic Res 38: 227–232. DOI: 10.4054/DemRes.2018.38.9.
43. Zinn JS, Lavizzo-Mourey R, Taylor L (1993). Measuring satisfaction with care in the nursing home setting: The Nursing Home Resident Satisfaction Scale. J Appl Gerontol 12(4): 452–465. DOI: 10.1177/073346489301200404.