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Elsevier Inc.

2025-05-01

Kolster, A, Rautiainen, L J, Aalto, U L, Jansson, A, Partonen, T, Sachs, A L, Litt, J S, Masó-Aguado, M & Pitkälä, K H 2025, 'The importance of nature and wishes for nature-based experiences among older adults in assisted living facilities', *Geriatric Nursing*, vol. 63, pp. 300-306. <https://doi.org/10.1016/j.gerinurse.2025.03.061>

<http://hdl.handle.net/10138/595208>

[10.1016/j.gerinurse.2025.03.061](https://doi.org/10.1016/j.gerinurse.2025.03.061)

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ELSEVIER

Contents lists available at ScienceDirect

Geriatric Nursing

journal homepage: www.gnjournal.com

The importance of nature and wishes for nature-based experiences among older adults in assisted living facilities



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ARTICLE INFO

Article history:

Received 1 August 2024

Received in revised form 19 January 2025

Accepted 31 March 2025

Available online xxx

Keywords:

Aged

Nature-based interventions

Assisted living facilities

Green space

Active ageing

Nature connection

ABSTRACT

Nature-based interventions potentially support physical, mental, and social health. Understanding the needs of the target group is essential when developing such methods as part-of-care.

This cross-sectional mixed method survey explores the wishes for nature-based experiences among older adults in assisted living facilities, 854 respondents were included. Diagnoses were confirmed from medical records, while functioning, wellbeing and the meaning of nature were inquired.

Respondents' average age was 83 years; 73% were women, and 54% had dementia. Only 24% could move about outdoors independently, 55% suffered from loneliness, and 45% felt depressed at least sometimes. In thematic analyses, open-ended answers highlighted the multifaceted meaning of nature. Nature is a valued source of resilience and a place for physical activity. Although 96% considered nature important, only 51% could have nature contact as often as desired. Respondents provided clear, feasible wishes for activities and 83% were interested in participating in nature-based interventions.

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Introduction

Older adults residing in assisted living facilities (ALFs) commonly live with frailty, have cognitive and functional decline limiting their independence, and need daily assistance.¹ Being actively engaged in life predicts survival and improves quality of life.² Maintaining and improving wellbeing and quality of life is one of the main goals of care.

Interaction with nature and natural elements, such as plants and animals, may support human health and capability through various pathways. Accessible natural surroundings promote physical and social activity, supporting emotional, physiological, and cognitive

capacities, and resilience, while natural vegetation reduces harmful exposure, such as pollution or extreme temperature.^{3,4} Living close to greenspace, i.e., parks and forests, is associated with a reduction in all-cause mortality, particularly among older adults with chronic diseases.⁵ Contact with natural spaces and spending time outdoors potentially supports their wellbeing.^{6–8}

However, residents in ALFs have limited possibilities to access the outdoors on their own. Nature-based interventions (NBIs) utilize natural surroundings or natural elements to support identified needs.⁶ Such needs include physical activity,^{9,10} experiences supporting mental health,¹¹ or supporting social interaction.¹² NBIs and outdoor activity are feasible both among community-dwelling older adults and residents in long-term care.^{8,10,12} Declining health requires adaptation, and although older adults find new ways to interact with nature, many hope to keep up previous outdoor activities.^{10,13} In long-term care settings, gardening and animal assisted interventions

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have been the most explored types of NBIs, however, we lack evidence on the impact, effectiveness and efficacy.^{7,12,14–17} Also, understanding the wishes of participants supports person-centered solutions and thereby increases the motivation to participate in NBIs.¹⁰

Nature connection refers to a personal relationship and is known to affect the outcome from nature contacts.¹⁸ This subjective connection might have a bigger impact on wellbeing than the actual time spent in nature.¹⁹ Nature connection measures include overlapping concepts, such as nature relatedness, connectedness and reciprocity, however, we have not identified studies exploring these concepts among older adults.²⁰ Existing nature connection scales include dimensions reflecting identity, experience, culture and philosophy.²⁰ To understand how aging and cognitive decline are associated with these complex issues, we chose a qualitative approach, with a focus on the meaning of nature, expressed in participants' own words. Although NBIs have been implemented in the care of older adults, few studies explored participants' views on nature and especially wishes among those living in long-term care are understudied.²¹

The present study aims to understand the importance of nature for older adults living in ALFs, and their perception of whether the meaning of nature has changed with aging. Furthermore, we explore residents' wishes for nature experiences.

Methods

This study is a cross-sectional, mixed-method survey. It is part of the international *RECETAS (Re-imagining Environments for Connection and Engagement: Testing Actions for Social Prescribing in Natural Spaces)* project.⁶ *RECETAS* aims to develop and evaluate NBIs primarily reducing loneliness and improving quality-of-life in diverse vulnerable populations. The current survey serves dual purposes. In addition to exploring the research questions, through the questionnaire, we identified and recruited older adults suitable for and interested in participating in the *RECETAS* randomized controlled trial in Finland, the trial is described elsewhere.²²

The participants were older adults (≥ 55 years of age) living in ALFs in the metropolitan region of Helsinki, Finland. Altogether 25 ALFs participated. Within the ALFs, staff identified potential voluntary participants among residents with a Cognitive Performance Scale (CPS) score of < 4 ,²³ thus capable of responding. Of all 2643 residents in the participating ALFs, 1789 were excluded because of severe cognitive impairment, or moderate cognitive impairment and not having a close proxy to give informed consent, or refusal. Finally, 854 residents responded to the survey between September 2022 and August 2023. Participants were interviewed by a trained research nurse or researcher. The survey language was Finnish, and the interview lasted between 15 and 60 minutes.

The study was approved by the ethical committee of Helsinki and Uusimaa Hospital District (HUS/119/2022). Informed consent was received from each respondent. In case of a patient's reduced judgment capacity,²⁴ i.e., MMSE score of < 18 , the closest proxy provided informed consent.

Questionnaire

Each participant was interviewed according to a structured questionnaire. Background data, such as age, sex, and information on medical diagnoses (ICD-10 codes) and regularly used medication were retrieved from medical records. Comorbidity was assessed using the Charlson co-morbidity index (CCI).²⁵ Marital status and the level of education were inquired (primary school or less/ vocational school / high school/ university). Education was categorized as < 8 years (primary school or less) or ≥ 8 years of education.

Participants self-rated their mobility, physical function, perception of loneliness, and depressive symptoms (Suppl. 1). Mobility was considered independent if the participant was able to walk outdoors without aid. For physical functioning, answers "good" and "very good" were pooled as good functional ability. Loneliness and depressive symptoms were assessed by items: "Do you suffer from loneliness?" and "Do you feel depressed?" (seldom or never / sometimes / often or always). Respondents answering either sometimes or often were considered lonely or having depressive symptoms, respectively. These questions have been used in previous studies in the target group.²⁶

The importance and accessibility of nature were inquired by the following questions with response options (yes/no/cannot say): "Nature is important to me"; "It is important to protect nature", and "I am able to go outdoors to nature as often as I want". To explore the current meaning of nature, we asked "Has the meaning of nature changed with age?" (yes / no), followed by the two open-ended questions "If so, how?", and "What kind of nature experiences do you wish for?" Finally, we inquired about the will to take part in a nature-based intervention.

During our visits to the ALFs, we noted that although NBIs are in theory available, the opportunities to participate varied between facilities. Finland is a northern country with distinct seasons, nature is generally highly valued and greenspace present also in urban areas. However, accessibility is challenging especially in winter.

Coding and analysis of qualitative data from open-ended questions

The responses to the open-ended questions were mostly brief and sometimes single-worded. The content of responses was coded thematically, and to estimate the frequency of relevant topics, we documented the numbers of statements per each of the identified themes and categories throughout the coding process.²⁷ When a respondent gave multiple answers to one question, for example describing several favorite nature locations, responses were included in several categories. Two authors (AK and LJR) independently read the qualitative responses to form an overall picture of emerging themes. At the second stage of the analysis, the data was systematically reviewed, the coding process included identifying, classifying, and sorting out the meaning units related to the research questions. Meaningful expressions found in text were reduced to codes and individual expressions.²⁷ This process was flexible, as we added and changed the codes along the way. As some meaning units were coded under several code labels, we reconsidered the sub-groups in a consensus discussion (AK, LJR, UA, KHP). During the third step, we reviewed the meaning units and sorted them into larger *themes* and subgroup *categories*.

Statistical analysis

The data are presented as means with standard deviations (SD) for continuous variables, or as counts (n) with percentages (%) for categorical variables. Data were tested for normality, and gender dependent differences were assessed using Student's t-test or Mann Whitney U test for continuous variables as appropriate, and Pearson's chi-squared test for categorical variables. The statistical analyses were performed using IBM SPSS Statistics, version 28, software.

Results

The respondents' ($n=854$) average age was 82.8 years (8.7 SD), and 72.5% were women. Comorbidities and polypharmacy were common, and 54% were diagnosed with dementia. Loneliness was widespread, as 55% felt lonely at least sometimes. Approximately 45% felt depressed at least sometimes, and depressive symptoms were more

Table 1
Background data of the participants.

	Men n= 235 (27.5 %)	Women n=619 (72.5 %)	P value
Age, mean (SD)	80 (9.2)	84 (8.2)	< 0.001
Marital status, n (%)			< 0.001
Married	80 (34.3)	113 (18.7)	
Widowed	63 (27)	252 (39.7)	
Unmarried or divorced	90 (38.6)	240 (41.7)	
Education < 8 years, n (%)	77 (33.5)	225 (36.6)	0.63
CCI ¹ , mean (SD)	2.06 (1.55)	1.96 (1.38)	0.59
Dementia, n (%)	121 (52.6)	327 (54.6)	0.56
Number of medications, mean (SD)	8.9 (3.7)	9.4 (4.1)	0.11
Able to walk independently outdoors, n (%)	68 (28.9)	137 (22.1)	0.11
Functional ability, n (%)			< 0.001
Good	94 (40.3)	173 (28)	
Average	89 (38.2)	314 (50.9)	
Poor	50 (21.5)	130 (21.1)	
Suffering from loneliness, n (%)	124 (53)	343 (55.5)	0.51
Feeling depressed, n (%)	86 (37.1)	284 (46.3)	0.02
<i>Questions on nature relatedness</i>			
"Nature is important to me", n (%)	217 (92.7)	599 (96.8)	0.02
"It is important to protect nature", n (%)	228 (97.9)	606 (97.0)	0.53
"I am able to go outdoors into nature as often as I want", n (%)	135 (57.9)	300 (48.5)	0.03
"Meaning of nature has changed with aging", n (%)	105 (48.6)	302 (52)	0.40
Interested in participating in nature-based intervention, n (%)	195 (84.4)	510 (82.7)	0.54

SD= standard deviation; CCI=Charlson Comorbidity Index²⁵

common among women. Only one in four could move independently outdoors without devices. The genders differed regarding functional ability. Only 28% of women considered their functioning to be good, whereas the corresponding figure for men was 40% ($p < 0.001$; see Table 1).

Importance and meaning of nature

The general perceived importance of nature was high, as 96% regarded nature important and 98% considered protection of nature important. However, less than half of the women and only 58% of the men were able to visit the outdoors as often as they desired. Of all responders, 83% were interested in participating in a nature-based intervention, and 51% reported that the meaning of nature had changed with age (Table 1). In total, 323 participants elaborated on the change in open-ended answers to the question "how has the meaning of nature changed?" The response "I don't know." was classified as empty ($n=32$), resulting in a final number of 291 analyzed meaningful units forming four themes (Table 2).

The first theme, *Valuing nature* ($n=141$), included two subcategories. Expressions of increased importance and longing for nature formed the category meaningful nature ($n=113$). As exemplified: "Nature has become increasingly important." Respondents reflected on the changing meaning of nature over time. The increased importance of nature was also related to spirituality, forming the second category: Responses illustrate a deep and personal connection to nature.

The second theme, *Limited access* ($n=73$), consisted of two categories that are related to poor health and disabilities, e.g., "You can no longer access nature in the same way. With this illness, it is not possible", and factors limiting access to nature, e.g., "... but you can't get there." For many respondents, nature felt inaccessible and getting outdoors difficult.

The third theme, *Increasing awareness* ($n=47$), also included two categories. The first is related to paying attention to nature, e.g., "There are different animals that I follow from the window." Respondents were concerned of nature protection, including climate change and loss of natural environments, e.g., "There is less nature,"

or "... it's annoying when nature is tarnished." The examples in this theme showed the myriads of ways that nature gave meaning to respondents' daily life.

The fourth theme, *Letting go of nature* ($n=29$), consisted of two categories. Respondents describe the reduced desire of nature related to loss of autonomy, and fears related to nature. Loss of important places, hobbies, friends, and autonomy were coined as "... now you cannot do what you want."

Wishes for nature-related experiences and activities

The question "What kind of nature experiences do you wish for?" was interpreted in two ways. Of articulated responses ($n=755$), most were pragmatic requests considering the current living conditions, a minority were escapist dreams for traveling and adventures. The responses formed five themes (Table 3).

The most common theme, *Interacting with natural elements* ($n=233$), included requests related to enjoying nature outdoors, desire for physical activity, as well as observing animals. If the activity emphasized contact with nature, i.e., "I would like to wander in the forest and listen to the sounds of nature," it was coded under this theme.

Visits to important places ($n=224$) most frequently included the sea, or a lake. Also, forest landscapes were highly desired, as were personally important places, such as a previous home or childhood region.

In the theme *Resignation and hesitation* ($n=172$), replies addressed reluctance to nature experiences, the answer "I do not need anything." was common. Respondents either did not long for contact with nature or considered participating in activities impossible. The responses expressed belittlement of one's own needs, as well as existential separation from nature-environment and nature contacts in relation to the reduction of functional capacity resources and self-efficacy.

Nature was related to *Longing for experiences* ($n=140$), such as social interaction, excursions and traveling. Nature was also seen to offer tranquility and solitude, e.g., "To be alone in nature, in peace

Table 2
Responses ($n=291$) to the open question exploring how the meaning of nature changed along with ageing coded by *Theme* and *Category*.

Theme	Category	Example
Valuing nature ($n=141$)	Meaningful nature ($n = 113$)	"I have missed nature; I wish it was summertime so that I could be sitting there."
	Spirituality and feeling close to nature ($n=28$)	"I have spent a lot of time in nature, now I experience more of a sense of sacredness, nature has enormous importance."
Limited access ($n=73$)	Restriction due to poor health and disabilities ($n=35$)	"I used to go picking mushrooms and berries and now I cannot do that anymore, I miss that."; "You can no longer access nature in the same way. With this illness, it is not possible."
	Nature is inaccessible ($n=38$)	"But you can't get there. I like and I have always spent time in nature."; "It has just fallen away, only memories remain."
Increasing awareness ($n=47$)	Paying attention to nature ($n=33$)	"When I was young, I didn't think so much about nature. As you get older, you have more time to think."
	Nature protection, Environmental and climate change ($n=14$)	"Nature is not valued as it used to be. It is not protected enough." and "The winters are warmer."
Letting go of nature ($n=29$)	Reduced desire for nature ($n=18$)	"It kind of gets out of mind when you are in a bad shape."; "Fears have increased, as I am afraid of falling and ticks et cetera."
	Loss of autonomy ($n=11$)	"Now you cannot do what you want."

and quiet." Respondents also valued nature indoors, mentioning the view or watching nature-related television programs.

The theme *Revisiting hobbies from a prior life* ($n=82$) consisted of both relaxing hobbies and exercising. Taking part in outdoor chores was a common desire, e.g., "... if I could go picking blueberries and mushrooms.", or "... to go and row a boat." When an answer emphasized physical activity, e.g., "outdoor gymnastics", rather than the environment, it was coded as exercising.

Discussion

The older adults answering this survey found nature highly important. Although cognitive decline was common, participants articulated clear wishes and ideas regarding nature experiences. Many respondents felt they were unable to go outside as often as they wanted. The high interest in taking part in NBIs encourages future development of such interventions supporting wellbeing.

The profound meaning of nature was underscored in the open-ended questions. We have not identified previous studies exploring this topic among residents in ALFs. Especially, a lack of studies describing personal wishes of older adults with cognitive decline has been recognized.²¹ A qualitative study exploring home-dwelling older adults' thoughts on nature interaction noted an individual variance in coping methods to age-related changes.¹³ The study found that novel ways of interacting in and enjoying nature, such as

gardening, might become more important along with age.¹³ In our study, approximately half of the respondents recognized a subjective change in the meaning of nature, and the answers exemplify both possibilities and challenges for interacting in nature. Respondents portraying an amplified importance of nature with aging mentioned themes that were related to increased awareness, feeling of belonging and spiritual connection. These themes resonate well with previously described pathways linking nature and social health, including interpersonal (i.e., opportunities for social interaction), intrapersonal including existential connectedness (i.e., reinforcing autonomy, enjoyment and purpose), and environmental (i.e., place attachment) pathways.²⁸ Responses resonate with the understanding that health-effects of NBIs depend on the individual nature-connectedness,¹⁹ and also mirror the importance of aesthetics.²⁹

Few respondents felt nature itself had lost its meaning. Loss of autonomy, mobility and health, places and lack of company made nature inaccessible. This added yet another loss to the aging individual. It is important to understand whether gradual disengagement in outdoor activities is voluntary or not.¹⁰ The importance of outdoor physical activity was clear, but the thematic analyses noted that the role of physical activity varied. For some, exercise was the primary goal of being outdoors, while others considered physical activity a way to interact with nature. Similar individual differences have been identified among middle-aged adults.³⁰ Eco-distress has mostly been described in younger populations.³¹ However, our results show that

Table 3
Responses ($n=755$) to the open question: "What kind of nature experiences do you wish for?"

Theme	Category	Example
Interacting with natural elements ($n=233$)	Experiencing and observing the outdoors ($n=130$)	"To sit in the yard and smell the scents, listen.", "Getting outdoors!"
	Physical activity outside ($n=67$)	"Experiences of moving around in nature."
	Animal contacts ($n=36$)	"Bird chirping, bears could come up against you and growl."
Important places ($n=224$)	Personally important place ($n=29$)	"At the cottage, and sauna and water.", "To go to Lapland in the ruska [autumn] season, berry picking."
	Forest and countryside landscape ($n=61$)	"Into the forest to listen to a bird singing.", "Primeval, old forest."
	Lake or sea ($n=94$)	"Let's go to the lake, have a campfire and go fishing, catch some perch."
	Parks and places nearby ($n=29$)	"Sit in the garden and listen to the closeness of nature."
	Constructed environment ($n=11$)	"If a nurse came to take me to the shops to visit. That's all."
Resignation and hesitation ($n=172$)	Uncertain ($n=118$)	"Don't know, as you can't get there.", "Can't say, I just live one day at a time."
	No wish for experiences ($n=50$)	"I do not need anything."
	Limited possibilities ($n=4$)	"Nothing is possible anymore.", "Can't go anymore."
Longing for experiences ($n=140$)	Excursions ($n=68$)	"A camping site, where you can eat and drink something.", "Allowing freedom."
	Nature experience outdoors and indoors ($n=34$)	"Every day experiences of nature.", "Nature-themed TV programs."
	Social interaction ($n=24$)	"Discussion about what nature experience means."
	Experiential travelling ($n=14$)	"Experience of travelling around the world."
Revisiting hobbies of prior life ($n=82$)	Relaxing hobbies ($n=56$)	"If I could go swimming in the lake.", "Going to the real forest to pick some mushrooms and berries."
	Exercising ($n=26$)	"Pavilion dancing."

also older adults experience ecological grief, such as concern of loss of biodiversity, natural surroundings, and climate change. The inhabitants in ALFs valued nature even higher than the general population, as in a recent population survey in Finland, 87% answered that nature was important in their current life.³² Women older than 65 years reported the highest appreciation of nature in this online-survey.³²

The high prevalence of loneliness and depressive symptoms supports the need for interventions alleviating these experiences. Loneliness, depression, cognitive decline, and poor functional ability often coexist.³³ Psychosocial interventions improving wellbeing and alleviating loneliness have been found to improve quality of life among older adults.³⁴ Such interventions may reduce the need for hospital care and even mortality.³⁵ Interventions building on connections with natural elements potentially improve wellbeing,⁶ and the high interest to participate in NBIs supports future development of such interventions. Considering the aging society and the carrying capacity of health care, the need for effective health interventions is immense.^{36,37}

According to our study, nature was commonly perceived as a source of relaxation. Restorative experiences using favorite places refers to active use of a valued place for self-regulating psychological strain.³⁸ Although a specific place was one of the most mentioned wishes for interaction with nature in our study, loss of autonomy prevents use of favorite places for emotional self-regulation. Loss of favorite places is associated with place-dependent loneliness.²⁶ Natural elements could support mental restoration also when outdoor visits are not possible.³⁹ Virtual reality might be a feasible way to enjoy nature.⁴⁰ Sounds, visual elements, scents, and digital solutions are interesting potential future solutions.

In our study, lakes and the sea, i.e., blue space, were preferred surroundings, adding understanding to the increasing research on the mental benefits from affinity to water.⁴¹ Winter was mentioned both in positive and negative terms. Winter sports, such as skiing, were mentioned as previously important hobbies. On the other hand, slippery and cold conditions commonly restricted going outdoors, as recognized in literature.⁴² The importance of accessible outdoor areas in the direct affinity to long-term care institutions is recognized,⁴³ as community and spatial exclusion are forms of social exclusion in later life.⁴⁴ Activity close to the living facilities reduces the need for transport and assisting personnel. Frequent self-reported outdoor visits correlate with better subjective well-being among residents in long-term care in Finland.⁴⁵

This study explores the wishes of a target group overlooked in many studies.²¹ A strength is that the cohort is not self-selected, and it is representative of older residents in ALFs residents in the Finnish metropolitan area. A limitation is that the cross-sectional survey explores the perception of change in meaning of nature at only one time-point. Also, the cohort is culturally one-sided, and their wishes reflect the Finnish context. However, one of our main findings is that despite cognitive decline and poor functional ability, older adults can explicate their needs and desires.

When visiting the ALFs during our study, solutions supporting connection with nature, e.g., gardens, plants, walking groups and pets, were already widely present. We acknowledge that NBIs are incorporated in the everyday activities in long-term care, but very few studies report on the impact on health and the meaning of nature in this target group beyond the horticultural context.^{7,12} The desires for nature-based activities echoed the life lived, reflecting culture and traditional gender roles. The wishes of ALFs residents were similar to home-dwelling adults in northern Sweden.¹⁰ Our results should not be interpreted as a list of activities, rather, we emphasize the importance of assessing preferences and desires of a target group as a way to empower participants and meet their needs. Thereby, our findings can be applied in a broad context.

Conclusions and implications

Nature remains important in later life, and the importance may even increase along with age despite the simultaneously accumulating functional limitations. Nature is commonly considered a source of resilience and a place for physical activity. However, it is often inaccessible due to personal or surrounding-related issues. Older adults expressed clear wishes for contact with nature, and their interest in participating in nature-based interventions was high.

Brief summary

Contact with nature potentially supports health, wellbeing and resilience among older adults. Nature-based activities, such as gardening and walking-groups are occasionally available in assisted living facilities, but hardly any scientific studies explore residents' wishes for nature contact and the meaning of nature. Understanding the needs of older adults is crucial when developing nature-based interventions supporting health.

In this survey-study, we interviewed 854 residents in assisted living facilities in Finland. The respondents' average age was 83 years, and more than half were diagnosed with dementia. Only 24% were able to move about outdoors independently, 55% suffered from loneliness, and 45% felt depressed at least sometimes. Of the respondents, 96% considered nature and 98% nature protection important, but only 51% were able to have nature contact as often as they wished.

Our results show that nature remains important in later life, and the importance may even increase along with age despite the simultaneously accumulating functional limitations. Nature is commonly considered a source of resilience and a place for physical activity. However, it is often inaccessible due to personal or surrounding-related issues. Older adults expressed clear and feasible wishes for contact with nature, and their interest in participating in nature-based interventions was high.

Declaration of competing interest

The manuscript is original, and it has not been submitted elsewhere. All authors meet the ICJME criteria for authorship stated in the Uniform Requirements for Manuscripts Submitted to Biomedical Journals. The authors declare no conflicts of interest. The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

CRediT authorship contribution statement

Annika Kolster: Writing – review & editing, Writing – original draft, Visualization, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Laura J. Rautiainen:** Writing – review & editing, Writing – original draft, Visualization, Formal analysis, Conceptualization. **Ulla L. Aalto:** Writing – review & editing, Supervision, Project administration, Formal analysis, Conceptualization. **Anu Jansson:** Writing – review & editing, Supervision, Project administration, Methodology, Conceptualization. **Timo Partonen:** Writing – review & editing, Supervision, Conceptualization. **Ashby Lavell Sachs:** Writing – review & editing, Project administration, Funding acquisition, Conceptualization. **Jill S Litt:** Writing – review & editing, Supervision, Project administration, Funding acquisition, Conceptualization. **Montse Masó-Aguado:** Writing – review & editing, Validation, Conceptualization. **Kaisu H. Pitkälä:** Writing – review & editing, Supervision, Project

administration, Methodology, Investigation, Funding acquisition, Data curation, Conceptualization.

Funding

This work was supported by the European Union's Horizon 2020 Research and Innovation Programme under grant agreement no. 945095 and Helsinki University Hospital VTR funding. AK has received funding from Perkléns stiftelse, Suomen Lääketieteen säätiö and Finska Läkärsällskapet. Funding resources have not influenced the content of this study. Open access funded by Helsinki University Library.

Acknowledgements

We thank the participating ALFs and their dedicated staff. The dutiful work of our research nurses Katri Torssonen, Kaisa Karvinen, Anja Punkka and Riitta Pajakari was crucial for collecting the material used in this study.

This study protocol has been developed in close collaboration with the international RECETAS consortium. We thank you for the inspiring cooperation.

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.gerinurse.2025.03.061.

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