Factors contributing to self-rated health in community-dwelling independent 75-year-old Finns: a population-based cross-sectional cohort study

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Abstract

Background Self-rated health (SRH) reflects biological, social, and functional aspects of an individual, incorporating personal and cultural beliefs as well as health behaviours. A deeper understanding of the structure of SRH can help health professionals focus on patients' personal health and functional goals and guide preventive health policies. This study aimed to examine the associations between SRH and independent factors by gender.

Methods The population-based, cross-sectional cohort study included 2,539 community-dwelling 75-year-old Finns who participated in the Turku Senior Health Clinic study. Data were collected through clinical examinations, questionnaires, and interviews, which included assessments of SRH, sociodemographic factors (living arrangements, education, self-rated financial status), psychosocial factors (sense of life meaningfulness, satisfaction with relationships, loneliness), health-related behaviours (smoking, alcohol use, physical activity), physical functioning (use of a mobility device, self-rated ability to walk 400 m, history of falls), and health conditions (pain, depressive symptoms, central obesity, vision, sleep quality, and number of self-reported diseases). A backward logistic regression analysis with an inclusion criterion of $p < 0.001$ was used to identify independent variables associated with SRH.

Results Fifty percent of both men and women reported having a poor SRH. There were no significant interactions between gender and independent variables regarding SRH. Independent variables associated with poor SRH were experiencing difficulties in walking 400 m (odds ratio 7.45, 95% confidence interval 4.91–11.30), being multimorbid (≥ 6 diseases 6.00, 4.11–8.75; 2–5 diseases 2.97, 2.18–4.06), poor self-rated financial status (3.46, 2.82–4.24), lower levels of life meaningfulness (2.53, 2.07–3.11), having poor (2.34, 1.70–3.21) or moderate (1.58, 1.26–1.98) sleep quality, experiencing depressive symptoms (2.08, 1.57–2.77), reporting at least moderate (2.01, 1.59–2.54) or mild (1.31, 1.01–1.70) pain, and vision impairment (1.50, 1.21–1.86). The area under the curve of this model was 0.842.

Conclusions Our findings support early and proven prevention strategies for the most disabling chronic diseases, as well as promoting self-care management, physical activity, and muscle strength. Additionally, a balanced treatment approach that addresses vision impairments and manages symptoms such as pain, poor sleep, and depression is important for older adults' health.

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Introduction

Self-rated health (SRH) serves as a commonly utilized, readily obtainable, and patient-centred measure reflecting an individual's health status. It encapsulates various dimensions such as biological, social, and functional elements, incorporating personal and cultural beliefs alongside health-related behaviours [1]. It seems that the subjective feeling of one´s health may be as powerful predictor of mortality as comprehensive, multidimensional, and time-consuming objective assessment of health [2, 3]. SRH has also been shown to predict institutionalization as well as frailty indexes [4]. Recent study on multidimensional successful aging models revealed a significant link between good self-rated health and successful aging among older adults in Finland [5]. In clinical practice, SRH offers unique insights that specific tools cannot provide, completing the understanding of an older person's disease burden and morbidity [6, 7].

It has been suggested that men and women may differ when evaluating their health [8]. Among US-born older adults, women had a more favourable view of their SRH than men whereas men weighted physical functioning deficits and negative health behaviours more heavily than women [9]. On the contrary, in the Survey of Health, Aging and Retirement in Europe (SHARE), men assessed their own health more positively than women in all regions in Europe [10]. Also, Swedish elderly males have reported to have better SRH compared to their female counterparts [11]. Otherwise, no significant gender differences in SRH levels have been found among older adults in western Europe [1, 4, 12, 13].

A recent systematic review [14] found a significant association between SRH and mortality in older adults. In various older populations across different age groups and countries, several sociodemographic factors (e.g., low education, economic status, living arrangements), psychosocial factors (e.g., life satisfaction, life attitude, sense of purpose, social networks, and loneliness), and health-related behaviours (e.g., smoking, alcohol use, physical activity levels), lowered physical functioning (e.g., falls, lowered walking ability), and health conditions (e.g., chronic diseases, pain, depressive symptoms, central obesity, vision impairment, sleep quality, and chronic diseases) have been linked to SRH [1, 13, 15–26]. A better understanding of the factors associated with SRH might help health professionals recognize gender differences in health, focus on patients' personal health and functional goals, support necessary changes in older adults' lives, and guide preventive health policies [8, 14, 27–30].

The aim of this study was to examine the associations between SRH and sociodemographic factors, psychosocial factors, health-related behaviours, physical functioning, and health conditions by gender to inform preventive health care for community-dwelling older adults in Finland.
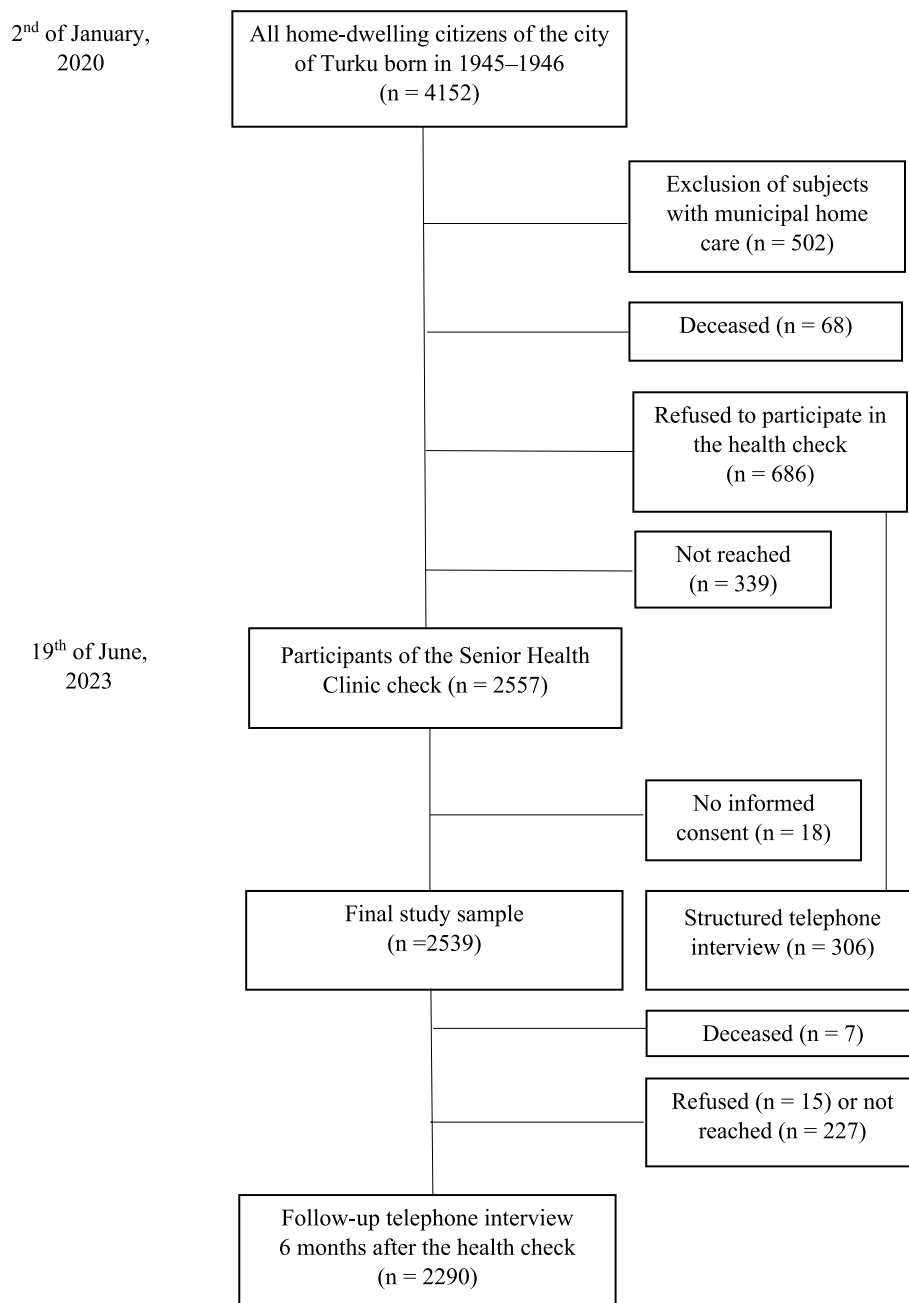
Material and methods

Study population

The population of the Turku Senior Health Clinic study (TSHeC) consisted of all Finnish- and Swedish-speaking community-dwelling citizens of the city of Turku in southwestern Finland, born in 1945 and 1946 (N=4,152). Individuals receiving municipal home care (n=502) were excluded from the TSHeC study population. Additionally, 68 were deceased before the invitation to participate, 686 refused to participate in the clinic's health check, and 339 were not reached. Of the 2,557 examined at the clinic between January 2020 and June 2023, 18 subjects declined to participate in the study, leaving 2,539 study participants (71% of those eligible). The flowchart of the study is shown in Fig. 1.

Dependent and independent variables

SRH was the dependent variable in this study. Independent variables were selected based on earlier studies about factors associated with SRH. The description and distribution of the original dependent and independent variables are presented in Table 1. Original variables were re-categorised for the analyses as follows: SRH (1. good, 2. poor), sociodemographic factors (living arrangements [1. living alone, 2. living with someone], education [1. university, 2. university of applied sciences, 3. upper secondary or vocational school at most], self-rated financial status [1. good, 2. poor]), psychosocial factors (living a meaningful life [1. yes, 2. moderately at most], satisfaction with relationships [1. satisfied, 2. not satisfied], loneliness [1. no, 2. at least sometimes]), health behavior (smoking [1. never, 2. stopped or current smoker], use of alcohol [1. once a month at most, 2. at least 2–4 times a month], physical activity [1. active: exercising for at least 30 min 4–7 times a week, 2. passive: exercising for at least 30 min 3 times a week at most]), physical functioning (use of mobility device [1. no, 2. yes], self-rated ability of

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2nd of January, 2020

All home-dwelling citizens of the city of Turku born in 1945–1946 (n = 4152)

Exclusion of subjects with municipal home care (n = 502)

Deceased (n = 68)

Refused to participate in the health check (n = 686)

Not reached (n = 339)

19th of June, 2023

Participants of the Senior Health Clinic check (n = 2557)

No informed consent (n = 18)

Final study sample (n = 2539)

Structured telephone interview (n = 306)

Deceased (n = 7)

Refused (n = 15) or not reached (n = 227)

Follow-up telephone interview 6 months after the health check (n = 2290)

Fig. 1 Flow chart of the study

walk 400 m [1. without difficulties, 2. with difficulties or not at all], falls [1. no, 2. at least one]), and health conditions (pain [1. no, 2. mild, 3. at least moderate], feelings of depression [1. no, 2. yes], central obesity [1. no, 2. yes], vision impairment [1. no, 2. yes], sleep quality [1. good, 2. moderate, 3. poor], number of self-reported diseases [1. 0–1, 2. 2–5, 3. 6 or more]) were included in the analyses.

Most of the study data were collected through surveys. A physiotherapist collected data on the use of mobility devices and falls through interviews. A nurse collected data on participants' pain and vision through interviews and measured the waist circumference to assess central obesity. Waist circumference was measured directly on bare skin with the participant in an upright standing position, ensuring even weight distribution on both feet. The measurement site was defined as the midpoint between the lowest rib and the iliac crest. The participant was instructed to take a deep inhalation, and the

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Table 1 Description and distribution of the original dependent and independent variables

Dependent variable	Instrument/Question	Response options	n (%)
Self-rated health	How do you rate your health?	1 = very good	118 (5)
		2 = good	1144 (45)
		3 = moderate	1042 (41)
		4 = rather poor	214 (8)
		5 = very poor	20 (1)
Independent variables			
Sociodemographic variables			
Living arrangement	Who do you live with?	1 = alone	964 (38)
		2 = with a spouse	1507 (59)
		3 = with a spouse or with someone else	40 (2)
		4 = with my child (and his or her family)	13 (1)
		5 = with someone else	14 (1)
Education	What is your highest grade or level of education?	1 = university	520 (21)
		2 = university of applied sciences	609 (24)
		3 = upper secondary or vocational school	634 (25)
		4 = elementary school	766 (30)
		5 = no education	4 (0)
Self-rated financial status	How do you rate your financial status?	1 = very good	252 (10)
		2 = rather good	1059 (42)
		3 = satisfied	1101 (43)
		4 = rather poor	113 (4)
		5 = very poor	11 (0)
Psychosocial variables			
Living a meaningful life	Do you think your life is meaningful?	1 = very much	317 (13)
		2 = much	878 (35)
		3 = moderately	1180 (47)
		4 = a little	149 (6)
		5 = not at all	8 (0)
Satisfaction with relationships	How satisfied you are with your relationships?	1 = very satisfied	419 (17)
		2 = satisfied	1661 (66)
		3 = not satisfied nor dissatisfied	394 (16)
		4 = rather dissatisfied	56 (2)
		5 = very dissatisfied	4 (0)
Loneliness	Are you suffering from loneliness?	1 = not at all	1709 (67)
		2 = sometimes	788 (31)
		3 = often or always	38 (2)
Health behaviour			
Smoking	Do you smoke?	1 = I haven't ever	1373 (54)
		2 = I have stopped	1016 (40)
		3 = yes	141 (6)
Use of alcohol	How often do you drink beer, wine, or other alcoholic beverages?	1 = never	469 (19)
		2 = once a month at most	845 (33)
		3 = 2–4 times a month	732 (29)
		4 = 2–3 times a week	368 (15)
		5 = at least 4 times a week	113 (4)

Table 1 (continued)

Dependent variable	Instrument/Question	Response options	n (%)
Physical activity	How often you walk or exercise (e.g. swim, gym, dance, cycle, ski, etc.) at least 30 min?	1 = every day	1122 (44)
		2 = 3–6 times a week	205 (8)
		3 = 1–2 times a week	625 (20)
		4 = 2–3 times a month	258 (10)
		5 = few times a year at most	270 (11)
		6 = I'm not able to do any exercises because of my health or an injury	59 (2)
Physical functioning			
Use of mobility devices	Mobility device in use	1 = no mobility devise in use	2293 (91)
		2 = a walking stick	38 (2)
		3 = crutch	43 (2)
		4 = Nordic walking sticks	62 (2)
		5 = a rollator or a walker	83 (3)
		6 = wheelchair	6 (0)
		7 = someone helps	4 (0)
Self-rated ability to walk 400 m	Are you able to walk at least 400 m (around a block)?	1 = without difficulties	2176 (86)
		2 = with difficulties	290 (11)
		3 = if someone helps	20 (1)
		4 = no	50 (2)
Falls	Number of falls during the previous year	1 = none	1893 (75)
		2 = 1	461 (18)
		3 = 2	108 (4)
		4 = 3 or more	67 (3)
Health conditions			
Pain	Have you got any pain during the previous 4 weeks?	1 = no	966 (40)
		2 = mild	534 (22)
		3 = moderate	545 (23)
		4 = strong	290 (12)
		5 = very strong	74 (3)
Feelings of depression	Have you had any feelings of depression, hopelessness, or reluctance during the previous 4 weeks?	1 = no	422 (18)
		2 = yes	2076 (82)
Central obesity	Measurement of waist circumference	1 = non-obese (men < 100 cm, women < 90 cm)	1533 (61)
		2 = obese (men ≥ 100 cm, women ≥ 90 cm)	993 (39)
Vision impairment	Has your vision impaired in the way that it affects your everyday life?	1 = no	1699 (67)
		2 = yes, to some extent	760 (30)
		3 = yes, very much	73 (3)
Sleep quality	How do you sleep at night?	1 = very well	155 (6)
		2 = well	728 (29)
		3 = moderately	1231 (49)
		4 = poorly	361 (14)
		5 = very poorly	62 (2)
Number of self-reported diagnoses (range 0–19)	Self-reported diseases diagnosed by a doctor	1 = 0–1	379 (15)
		2 = 2–5	1655 (65)
		3 = 6 or more	505 (20)

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measurement was recorded at the end of a normal exhalation [31]. The data collection process for the TSHeC is described in more detail elsewhere [32].

Ethics

The TSHeC study was conducted in accordance with the guidelines of the Declaration of Helsinki. The Ethics Committee of the Hospital District of Southwest Finland approved the study protocol (Diary number 87/1801/2019). Participants provided written informed consent.

Statistical analyses

Differences in SRH and independent factors between men and women were tested using the Chi-Squared test. The modifying effect of gender on the association between independent factors and SRH was tested with the interaction between gender and independent factors using logistic regression analyses. A backward logistic regression analysis (with inclusion criteria $p < 0.05$, $p < 0.01$, and $p < 0.001$) was used to identify the independent variables associated with SRH. The Hosmer–Lemeshow goodness-of-fit test and area under the curve (AUC) values were calculated for models with different inclusion criteria. The results of the final model are presented with odds ratios (ORs) and their 95% confidence intervals (95% CI). P-values less than 0.05 were considered statistically significant. All statistical analyses were performed using SAS System for Windows, version 9.4 (SAS Institute Inc., Cary, NC, USA).

Results

Self-rated health and independent variables in men and women

Poor SRH was reported by 50% of both men and women. A greater percentage of women than men lived alone (women: 49%, men: 20%) and experienced loneliness at least sometimes (women: 38%, men: 24%). The prevalence of smoking, alcohol consumption (at least 2–4 per month), and engagement in physical activity was notably higher among men compared to women. Specifically, 61% of men and 36% of women reported current or past smoking habits, 64% of men and 37% of women reported regular alcohol use, and 56% of men and 50% of women reported being physically active.

More women than men used mobility devices (women: 11%, men: 7%), experienced at least moderate pain (women: 43%, men: 30%), had depressive symptoms (women: 21%, men: 12%), had vision impairment (women: 35%, men: 30%), and reported poor sleep quality (women: 20%, men: 11%). Distributions of independent variables and statistical differences in independent variables between genders are presented in Table 2.

Independent variables associated with self-rated health

There were no significant interactions between gender and independent variables regarding SRH (data not shown). As a result, analyses were carried out using the entire dataset.

Variables included in the final model and p-values of Hosmer–Lemeshow goodness-of-fit test and AUC by the different inclusion criteria used in the backward logistic regression models are presented in Table 3. Based on the number of variables included and the AUC values of the model (0.852, 0.851, and 0.842 for the inclusion criteria of $p < 0.05$, $p < 0.01$, and $p < 0.001$, respectively), the model with an inclusion criterion of $p < 0.001$ was selected. Results of the final model are shown in Table 4. Independent variables associated with poor SRH among 75-year-old community-dwelling Finns were an inability to walk 400 m without difficulties (OR 7.45, 95% CI 4.91–11.30), multimorbidity (≥ 6 diseases 6.00, 4.11–8.75; 2–5 diseases 2.97, 2.18–4.06), not having a good self-rated financial status (3.46, 2.82–4.24), a lower level of life meaningfulness (2.53, 2.07–3.11), having poor (2.34, 1.70–3.21) or moderate (1.58, 1.26–1.98) sleep quality, depressive symptoms (2.08, 1.57–2.77), at least moderate (2.01, 1.59–2.54) or mild (1.31, 1.01–1.70) pain, and vision impairment (1.50, 1.21–1.86).

Discussion

The aim of this study was to examine the relationship between SRH and sociodemographic factors, psychosocial factors, health-related behaviors, physical functioning, and health conditions by gender among community-dwelling older adults aged 75 years. The primary findings were that every other participant, regardless of gender, assessed their health to be poor. Contributing factors, for both men and women, included experiencing difficulties in walking 400 m, multimorbidity, having a negative self-rated financial status, reporting lower levels of life meaningfulness, having poor or moderate sleep quality, experiencing depressive symptoms, having pain or vision impairment.

Due to the diverse array of response options available in SRH assessments as well as age and cultural differences, drawing direct comparisons of older adults' SRH across different studies is challenging. The proportion of 75-year-olds who reported having poor SRH (50% of the study subjects) was consistent with previous findings, which indicate that 45% to 60% of older adults in Western Europe report poor SRH [1, 4, 12]. In our study, there were no significant differences in SRH levels between

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Table 2 Distributions of and differences in self-rated health and possible related factors among 75-year-old community-dwelling older Finnish people by gender (*n* = 2539)

	Men *n* = 996 *n* (%)	Women *n* = 1543 *n* (%)	*P*-value[a]
Self-rated health (*n* = 2538)			0.952
Good	496 (50)	766 (50)	
Poor	500 (50)	776 (50)	
Sociodemographic factors			
Living condition (*n* = 2538)			< 0.001
With someone	793 (80)	781 (51)	
Alone	203 (20)	761 (49)	
Education (*n* = 2533)			0.752
University	211 (21)	309 (20)	
University of applied sciences	234 (24)	375 (24)	
Upper secondary school or vocational school at most	549 (55)	855 (56)	
Self-rated financial status (*n* = 2536)			0.050
Good	539 (54)	772 (50)	
Poor	457 (46)	768 (50)	
Psychosocial factors			
Living a meaningful life (*n* = 2532)			0.480
Yes	460 (46)	735 (48)	
Moderately at most	533 (54)	804 (52)	
Satisfaction with relationships (*n* = 2534)			0.824
Satisfied	813 (82)	1267 (82)	
Dissatisfied	180 (18)	274 (18)	
Loneliness (*n* = 2535)			< 0.001
No	752 (76)	957 (62)	
At least sometimes	243 (24)	583 (38)	
Health behaviour			
Smoking (*n* = 2530)			< 0.001
Never	386 (39)	987 (64)	
Stopped or current smoker	607 (61)	550 (36)	
Use of alcohol (*n* = 2527)			< 0.001
Once a month at most	353 (36)	961 (63)	
At least 2–4 times a month	639 (64)	574 (37)	
Physical activity			0.005
Active[b]	555 (56)	772 (50)	
Inactive	441 (44)	771 (50)	
Physical functioning			
Use of mobility devices (*n* = 2529)	70 (7)	166 (11)	0.002
Self-rated ability to walk 400 m (*n* = 2536)			0.058
Without difficulties	870 (87)	1306 (85)	
With difficulties, with help, or not at all	125 (13)	235 (15)	
Falls during the previous year (*n* = 2529)			0.835
None	744 (75)	1149 (75)	
At least one	247 (25)	389 (25)	
Health conditions			
Pain during the previous four weeks (*n* = 2409)			< 0.001
Not at all	448 (48)	518 (35)	
Mild	208 (22)	326 (22)	
At least moderate	281 (30)	628 (43)	

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Table 2 (continued)

	Men n = 996 n (%)	Women n = 1543 n (%)	P-value[a]
Feelings of depression (n = 2518)	116 (12)	326 (21)	< 0.001
Central obesity[c] (n = 2526)	392 (40)	601 (39)	0.840
Vision impairment (n = 2532)	294 (30)	539 (35)	0.005
Sleep quality (n = 2537)			< 0.001
Good	399 (40)	484 (31)	
Moderate	485 (49)	746 (48)	
Poor	112 (11)	311 (20)	
Number of self-reported diseases			0.378
0–1	157 (16)	222 (14)	
2–5	633 (64)	1022 (66)	
≥ 6	206 (21)	299 (19)	

[a] Chi squared test or Fisher's exact test

[b] At least 30-min exercise at least three times a week

[c] Waist circumference: men > 100 cm, women > 90 cm

Table 3 Variables included in the final model and p-values of Hosmer–Lemeshow goodness-of-fit test and area under curve (AUC) by the different inclusion criteria used in the backward logistic regression models

Inclusion criterion of the model	Variables included in the final model	n	Hosmer–Lemeshow goodness-of-fit test p-value	AUC
p < 0.05	Education Living circumstances Self-rated financial status Living a meaningful life Satisfaction with relationships Feelings of loneliness Physical activity Use of mobility devices Self-rated ability to walk 400 m Pain during the previous 4 weeks Feelings of depression Vision impairment Sleep quality Number of self-reported diseases	2353	0.243	0.852
p < 0.01	Education Living circumstances Self-rated financial status Living a meaningful life Satisfaction with relationships Physical activity Use of mobility devices Self-rated ability to walk 400 m Pain during the previous 4 weeks Feelings of depression Vision impairment Sleep quality Number of self-reported diseases	2354	0.154	0.851
p < 0.001	Self-rated financial status Living a meaningful life Self-rated ability to walk 400 m Pain during the previous 4 weeks Feelings of depression Vision impairment Sleep quality Number of self-reported diseases	2371	0.760	0.842

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Table 4 Adjusted odds ratios (OR) and their 95% confidence intervals (CI) for independent factors strongest associated with self-rated health among 75-year-old community-dwelling older Finnish people (*n* = 2371) according to backward logistic regression analyses (inclusion criterion of *p* < 0.001)

	OR (95% CI), *p*-value
Sociodemographic factors	
Self-rated financial status	
Good	1
Not good	3.46 (2.82–4.24), < 0.001
Psychosocial factors	
Living a meaningful life	
Yes	1
Moderately at most	2.53 (2.07–3.11), < 0.001
Physical functioning	
Self-rated ability to walk 400 m	
Without difficulties	1
With difficulties, with help, or not at all	7.45 (4.91–11.30), < 0.001
Health condition	
Pain during the previous 4 weeks	
Not at all	1
Mild	1.31 (1.01–1.70), 0.042
At least moderate	2.01 (1.59–2.54), < 0.001
Feelings of depression	
No	1
Yes	2.08 (1.57–2.77), < 0.001
Vision impairment	
No	1
Yes	1.50 (1.21–1.86), < 0.001
Sleep quality	
Good	1
Moderate	1.58 (1.26–1.98), < 0.001
Poor	2.34 (1.70–3.21), < 0.001
Number of self-reported diseases	
0–1	1
2–5	2.97 (2.18–4.06), < 0.001
≥ 6	6.00 (4.11–8.75), < 0.001

genders, aligning with many prior research findings on older adults in Western Europe [1, 4, 12, 13]. In a Swedish study of 65–84-year-old adults, men assessed their own health more positively than women [11]. The absence of gender differences in SRH in our study may also be attributed to the applied selection criteria, which excluded dependent individuals receiving municipal home care, a group in which dependency is typically more prevalent among women.

In our research, we observed no significant interactions between gender and independent factors concerning SRH. This suggests that older men and women interpreted and/or valued health-related factors similarly when making assessments of their health. We identified several factors independently associated with SRH that are certainly amenable to intervention by healthcare professionals. These included difficulties in walking 400 m, multimorbidity, suboptimal sleep quality, depressive symptoms, pain, and vision impairment. Moreover, poor self-assessed financial status, as well as decreased levels of perceived life meaningfulness, were found to be associated with SRH.

Lower physical functioning has been found to be associated with worse SRH among older people, including those in Latvia [16] and in Sweden [16, 18], and in Norway [13]. Eckerblad et al. [33] highlighted that older adults often feel restricted by their diseases, leading to a reduction in their range of activities. Research by Landi et al. [34] revealed that the inability to do leisure and everyday activities was more strongly linked to poor SRH than to medical diagnoses and chronic diseases. This underscores prevention strategies targeting the most disabling chronic diseases and innovative programs aimed at promoting self-care management, physical activity, and muscle strength among older adults. Additionally, Nivestam et al. [35] stressed the importance of dialogue with older individuals regarding the challenges and limitations faced in everyday life and empowering them to reflect on their own strengths and abilities to enhance their overall health and well-being.

A scoping review [19] suggested that the most frequently cited factors associated with SRH were the number of chronic conditions and the presence of depressive symptoms which have been found to be associated with SRH also in other studies among older adults [15, 36–38]. These findings are consistent with our own. While depressive symptoms and multimorbidity each independently affect SRH, it is known that the risk of depressive symptoms increases with multimorbidity. Furthermore, the co-occurrence of both depressive symptoms and multimorbidity could have a synergistic effect on SRH [19, 36]. As a result, achieving treatment targets for chronic diseases and ensuring timely diagnosis and treatment of depression are crucial considerations for this population.

Our finding that having poor or moderate sleep quality is related to poor SRH is consistent with two studies of non-institutionalized Spanish older adults [17, 39]. Sleep changes with normal aging. In general, aging is associated with advanced sleep timing, decreased nocturnal sleep time and sleep efficiency, increased frequency of daytime naps, increased nocturnal awakenings, and decreased slow-wave sleep. Poor sleep quality and sleep disturbances are not necessarily due to aging alone. Multiple factors that accompany the aging process, including medical and psychiatric conditions, and lifestyle changes (e.g., maintaining adequate sleep patterns) can contribute

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to sleep problems in older adults [40]. Further, according to a meta-analysis, older adults' lack of good sleep quality is significantly related to depression [41].

Also, in other studies [13, 15, 42], as in ours, pain was associated with SRH among older adults residing in their own homes. Pain is also associated with impairments that detrimentally impact the daily lives of older adults living independently [43]. Helping patients cope with their pain may lead to improvements in SRH [27]. The treatment of an individual symptom, however, can become intricate when other symptoms are present (e.g. pain affecting poor sleep quality by mediating depression) [44]. When promptly identified and treated comprehensively, issues like poor sleep quality, pain, and depressive symptoms can often be alleviated. However, if neglected or under-treated, these symptoms may contribute to the onset of frailty and ultimately result in adverse outcomes [45].

In our study, we found an association between vision impairment and poor SRH. Vision impairment is linked to various geriatric conditions, including frailty, susceptibility to falls, depression, and cognitive decline [46], and is most often the result of age-related macular degeneration, age-related cataracts, glaucoma, and diabetic retinopathy [47]. It is imperative for healthcare professionals to evaluate functional vision in daily activities among older adults. This assessment can facilitate timely referrals to ophthalmologists for further evaluation, particularly to determine the necessity of cataract extraction [46]. In addition, timely diagnosis and appropriate treatment of age-related macular degeneration, glaucoma, and diabetic retinopathy are important to inhibit the progression of these diseases and maintain functional ability and independence.

Self-rated financial status was associated with SRH in our study. Similarly, other studies in different countries have shown that poor economic status was associated with lower SRH [48, 49], and high income was independently associated with better SRH in older adults [15]. The impact of financial status on SRH could potentially manifest through the reinforcement of social participation, shaping lifestyle choices, and influencing healthcare utilization patterns. For instance, higher economic standing among older adults may afford them enhanced access to prompt consultations with specialized physicians and private-sector rehabilitation services [32, 48].

Meaning in life, associated with SRH in older adults in our study, is a complex concept involving notions of life being comprehensible and coherent, having purpose and direction, as well as having significance and being worth living [50]. In the English Longitudinal Study of Ageing [51], the sense of doing worthwhile things in life was related to better SRH among subjects aged 50 and older. Meaning in life has also been found to be associated with

subjective indicators of physical health in adult population [52]. Interventions that increase older adults´ internal loci of control, self-efficacy, positive outlooks, social circles, and sense of belonging should be implemented with the aim of enhancing their perception of competence and self-esteem and increasing their sense of meaning in life and resilience [53].

Although our study findings suggested that older men and women interpreted and/or valued health-related factors similarly when making statements about their health, experiencing pain, feelings of depression, vision impairment, and poor sleep quality, independent factors of SRH, were found to be more prevalent among women compared to men. Also, in the study by Josefsson et al. [11] which aimed to describe SRH among Swedish older adults experiencing pain, feeling of depression, and having trouble sleeping were more common among women than men. Therefore, special attention should be paid to the treatment of pain, depression, and poor sleep quality in older women.

The strengths of this study were a large sample of community-dwelling older people with a high response rate and a low amount of missing data. Altogether, 71% of all people living in Turku who were born in 1945 or 1946 and eligible to participate were reached. Also, a wide range of independent variables were used to investigate their association with SRH. However, there are also limitations that should be recognized. The cross-sectional design, which does not enable the assessment of cause-and-effect relationships, is the main limitation of the study. The data were self-reported (except the data on central obesity). In addition, SRH is dependent on language, context and living conditions of population [7], and therefore, the generalizability of the results of our study should be considered carefully. According to the non-response analysis of TSHeC study, more women than men participated, and health status and physical functioning of participants were slightly better than those of non-participants; poor financial status and feelings of loneliness, instead, were less common among non-participants than participants [32]. Even so, our study contributes to increased knowledge of the factors associated with SRH in the older community-dwelling population, especially in Finland.

SRH is a powerful predictive tool based on subjective and individual judgement. It is important to encourage older people to describe their health status themselves [28, 54]. Clinical use of SRH could lead to prevention, early treatment, and reduced health and social care costs and therefore should be highly recommended [1].

In conclusion, the present study found that facing challenges in mobility, being multimorbid, poor self-rated financial status, experiencing lowered levels of life meaningfulness, having poor sleep quality, experiencing

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depressive symptoms, having pain, and vision impairment were associated with poor SRH in 75-year-old community-dwelling Finnish population. In this sense, our results confirm the multidimensional nature of SRH and underscore the importance of enhancing the knowledge about risk factors, early use of proven prevention strategies that target the most disabling chronic diseases, promote self-care management, physical activity, and muscle strength. Achieving a balanced treatment approach for chronic diseases, appropriate treatment of vision impairments, and addressing and treating symptoms such as pain, poor sleep quality, and depressive symptoms are also crucial for older adults to be healthy and feel healthy.

Abbreviations

AUC	Area under the curve
CI	Confidence interval
OR	Odds ratio
SRH	Self-rated health
TSHeC	The Turku Senior Health Clinic study

Data availability
The datasets generated and/or analysed during the current study are available from the corresponding author on reasonable request.

Declarations

Ethics approval and consent to participate
The study was conducted according to the guidelines of the Declaration of Helsinki. The Ethics Committee of the Hospital District of Southwest Finland approved the study protocol. Participants provided written informed consent for the study.

Consent of publication
Not applicable.

Competing interests
The authors declare no competing interests.

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