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Relationship Between Health Literacy, Health Protective Behaviour, Quality of Life and Social Health in Older Adults Living in the Community

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ABSTRACT

Aims: The aim of this study was to examine the relationship between health literacy, health protective behaviour, quality of life and social health in older adults living in the community.

Design: A cross-sectional study.

Method: This observational study was carried out by interviewing 600 older adult people living in a province in the South Marmara region of Turkey using a multi-stage cluster sampling method. The dependent variable of the study was social health perception, and multivariate linear regression analysis was used in the analyses. Reporting of the study followed the STROBE checklist.

Results: The social health of the participants is at a medium level. As a result of linear regression analysis, the social health score was found in those who have high school education or higher, those who live with their children and those who live alone to be significantly lower in those with poor general health perception. As age increases, health literacy increases, and quality of life decreases, the social health score decreases ($p < 0.05$).

Conclusion: In this context, steps should be taken to increase social harmony and social support for the older adult; the perceived environment should be improved, and environments that facilitate the lives of the older adult should be created.

Relevance to Clinical Practice: Determining the level of social health of the older adult and identifying the related factors is important in terms of improving the quality of services to be provided for the older adult. In this context, it is important for health professionals to take initiatives to improve the lifestyle, health literacy and quality of life of the older adult.

1 | Introduction

The older adult, one of the priority groups in society in terms of public health, constitutes approximately 10% of the population (TURKSTAT 2023). Health problems that occur with ageing are evaluated in terms of whether they are diseases or not (Bao et al. 2018). It is important to evaluate the health of the older adult in terms of perceived health, social health and the support they receive from the environment. Social health is a concept that includes both individual and social aspects, as well as physical and mental health, and can be measured by social support, social harmony and the perceived environment (Bao et al. 2018). Social support refers to the support an individual receives from others, and social cohesion refers to the individual's adaptive capacity to actively interact with his or her environment, and perceived environmental community

Summary

- What does this paper contribute to the wider global community?
  - The mean social health score indicated a moderate level (50.48) among participants. Lower social health scores were associated with:
    Lower educational attainment (high school or below).
    Living alone or with children (possibly suggesting complex social dynamics).
    Negative self-perceptions of general health.
    Lower quality of life.
    Age (though the impact was minimal).
    Interestingly, higher health literacy showed a modest positive association with social health.
- Why does this paper matter?
  - This research provides valuable insights into the social determinants of health among older adults. By identifying key factors influencing social well-being, this study can inform the development of targeted strategies to improve the quality of life for older adult populations. The study suggests that interventions aimed at fostering social connections, promoting a sense of community belonging and improving environmental factors might contribute to enhanced social health in this population.
  - Overall, this research provides valuable insights into factors influencing social health in older adults. The findings can inform strategies to improve their well-being and quality of life.

management and service. In the literature, it is seen that the Social Health for the Elderly (SHSE) score is low in some studies and moderate in others (42.80–57.27) (Bao et al. 2018; Cevik et al. 2024; Goktas and Cevik 2023; Izadi-Avanji et al. 2023; Yu et al. 2020). SHSE decreases with increasing age, living alone, being single and decreasing educational status (Bao et al. 2018; Cevik et al. 2024; Goktas and Cevik 2023; Izadi-Avanji et al. 2023; Yu et al. 2020). In addition to determining the social health of the older adult, health-related information records provide statements of abuse and misuse (Durduran et al. 2018). When insufficient, the older adult may have problems understanding their health information and making the right decisions (Freedman and Nicolle 2020) and improving their health (Luo et al. 2020), relationship with health literacy; ensuring a healthy lifestyle and the protection of health provided by improving health (Ay 2022). The emergence of the relationship between quality of life (Alves et al. 2020), which is the older adult's perception of a valued life according to their characteristics and expectations, and SHSE is also important. It is important to address the relationship between social health, which can be defined as a state that does not impair physical and mental well-being in the environment in which the person lives, and the health literacy status, health protection behaviours, quality of life and social health perception of the older adult in a holistic manner. These concepts can also be predictive variables in determining the social health status of the older adult in the process of healthy ageing.

It was decided to conduct this study because there are limited studies in the literature evaluating social health for the ages (Barkhori et al. 2021; Goktas and Cevik 2023; Izadi-Avanji et al. 2023), and there is no study evaluating the relationship between social health literacy, health protection behaviour and quality of life with social health.

The aim of this study was to examine the relationship between health literacy, health protection behaviour, quality of life and social health in older adults living in the community.

2 | Materials and Methods

2.1 | Study Design

This observational study was conducted by interviewing people aged 60 and over living in the urban Adnan Menderes neighbourhood and semi-urban Sakarya neighbourhoods in the Karesi District of Balikesir Province between 20 December 2022 and 20 April 2023. This study adhered to the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) guidelines for cross-sectional studies (File S1).

2.2 | Participants Recruitment and Eligibilities

The population of the research consists of people aged 60 and over ($N = 3289$) living in these two neighbourhoods. The sample size was calculated as 534 in the population of 2843 people in the Epiinfo 7.0 program (CDC 2022) taking into account 50% prevalence, 95% confidence level, 1.5 pattern effect and 5% deviation; a total of 600 people were reached by multi-stage sampling. The dependent variable of the research is the social health status of the older adult, and the independent variables are sociodemographic characteristics such as age, gender, marital status, education level, health literacy, health protection behaviours and quality of life.

2.3 | Data Collection

The data of the study are collected by using the 'Sociodemographic Characteristics Form', 'Social Health Scale for the Elderly', 'Turkish Health Literacy Scale', 'Health Protective Behavior Scale', 'World Health Organization Quality of Life Scale-Short Form', in which the sociodemographic characteristics of individuals are questioned.

2.3.1 | Sociodemographic Characteristics Form

Based on the literature, the form consists of a total of 23 questions on characteristics such as age, gender, place of residence, marital status, income and lifestyle characteristics such as sleep quality, smoking, alcohol use and health service utilisation (Bao et al. 2018; Goktas and Cevik 2023; Yu et al. 2020).

2.3.2 | Social Health Scale for the Elderly (SHSE)

The scale was developed to evaluate the social well-being of the older adult and was adopted in Turkish. It consists of social

support, social harmony and perceived environment dimensions, which consist of 25 questions and can be scored between 5 and 125. As the scores from the scale increase, social well-being also increases (Bao et al. 2018; Cevik et al. 2020; Cevik et al. 2024). While the Cronbach's alpha coefficient of the scale is 0.90 in the adaptation study, the Cronbach's alpha coefficient is 0.96 in our study.

2.3.3 | Turkish Health Literacy Scale—Short Form (THLS-SF)

The scale was developed by Okyay et al. in 2016 to evaluate health literacy. The THLS-32 form was reduced to eight questions (Abacıgil et al. 2015; Simsek et al. 2023). As the score obtained from the scale increases, the health literacy of the older adult also increases. While Cronbach's alpha coefficient of the scale is 0.928 in the developed study, it is 0.960 in our study.

2.3.4 | Health Protective Behavior Scale (HPBS)

The scale was developed by Ping et al. in 2016 and adapted to Turkish, consisting of 32 items and five sub-dimensions: Interpersonal Relationship, General Behaviour, Self-Knowledge, Nutritional Behaviour, and Health Service. Each dimension of the Health Protective Behavior Scale and the overall score of the scale are obtained by summing the answers to the questions, and the overall score of the scale varies between 32 and 145. As the scale score increases, health protection behaviour also increases (Ay 2022; Ping et al. 2018). The Cronbach's alpha coefficient of the scale is 0.82 in the adaptation study and 0.96 in this study.

2.3.5 | World Health Organization Quality of Life Scale—Short Form (WHOQOL-BREF)

The scale, developed by Eser et al. and adapted into Turkish, consists of 27 questions and physical, spiritual, social and environmental well-being sub-dimensions (Eser et al. 1999a, 1999b). As the score obtained from the scale increases, the quality of life increases. The original Cronbach's alpha internal consistency coefficient of the scale was 0.89, and in this study, it is 0.96.

2.4 | Statistical Analyses

Collected surveys Statistical Package for the Social Sciences 26.0 program were made by entering the Sciences 26.0 program. Number, percentage, mean and standard deviation were used in descriptive analyses. The situation of continuous data meeting the normality assumption Shapiro– Wilk test and kurtosis were evaluated according to whether the skewness coefficients were between +1.5 and −1.5. When the normality assumption was met, the Student's t-test was used to compare the means of two groups, and the ANOVA test (post hoc: Tukey's HSD) was used to compare the means of three or more groups. In further analyses, variables found to be significant in univariate analyses were evaluated using linear regression analysis. In the study, type I error was accepted as 0.05.

2.5 | Ethics Statement

Before starting the study, permission was obtained from Balikesir University Health Sciences Non-Interventional Research Ethics Committee (dated 6 December 2022, numbered 2022/119), Balikesir Governorship (dated 6 January 2023, numbered 1499), and verbal consent was obtained from the participants, and the study was conducted in accordance with the Declaration of Helsinki.

3 | Results

Of the research group ($n=600$), 58.3% of the participants live in a semi-urban area, 78.7% are in the 60–74 age group, and the average age is 70.19 ± 6.17. Research group: 61.3% are women, 76% are married, 54% have an income less than their expenses, 62.7% are primary school graduates, 54% have an income less than their expenses, 91.5% have children, 81% live in their own home, 77% of them live with their spouses, 56% of them live in a detached house, and 85% of them are retired people. 90.3% of the participants have at least one chronic disease, 91.8% constantly use medication, 86.5% use auxiliary equipment, 18.5% exercise, 76.2% have moderate sleep quality, 70.8% use tobacco products, 4.3% use alcohol, 31.3% have a hobby they are interested in, 45.8% have a moderate general health perception, 59.5% have a physician who follows them regularly, 44% usually go to the public hospital emergency department when they have any health problems, 26.7% of whom have fallen in the last 6 months, and the average Body Mass Index (BMI) of the participants is 29.02 ± 4.41 (Table 1).

Table 2 presents the SHSE, HPBS, THLS-SF WHOQOL-BREF scale and subscale scores of the study group.

The SHSE score of the participants was significantly higher in the 60–84 age group ($F=16.058$; $p<0.001$), those living in semi-urban areas ($t=-3.048$; $p=0.002$), those who were married ($t=2.362$; $p=0.008$), those with primary education or less ($F=21.088$; $p<0.001$), those who were employed ($t=3.012$; $p=0.03$), those who had children ($t=2.160$; $p=0.031$), those who do not live in their children's home ($F=69.233$; $p<0.001$), those who do not live alone ($t=3.913$; $p<0.001$) ($p<0.05$) 3. SHSE score does not show a significant difference ($p>0.05$) according to gender, income level, housing type, presence of chronic disease, number of medication and assistive equipment used continuously (Table 3).

In the research group, SHSE score is significantly higher ($p<0.05$) in those with good/medium sleep quality ($F=8.132$, $p<0.001$), in those whose general health perception is not bad ($F=222.400$; $p<0.001$) and in those who usually go to the family physician/emergency department when they have a health problem ($F=6.008$; $p=0.003$) in those who have not fallen in the last 6 months ($t=-2.958$; $p=0.003$). There is no significant difference between the SHSE score and the score based on exercise, tobacco use, alcohol use, hobbies of interest and the presence

TABLE 1 | Sociodemographic characteristics of the research group ($n = 600$).

Sociodemographic characteristics	*n*	%
Area		
Urban	250	41.7
Semi-urban	350	58.3
Age $X \pm SD$ (70.19 ± 6.17)		
60–74	472	78.7
75–84	91	15.2
85 and above	37	6.2
Gender		
Woman	368	61.3
Male	232	38.7
Marital status		
Married	456	76.0
Single	4	0.7
Lives separately	22	3.6
Divorced	9	1.5
His wife is dead	109	18.2
Income		
Income is less than expenses	324	54.0
Income equals expenses	276	46.0
Education status		
Primary school	376	62.7
Middle school	148	24.7
High school	23	3.8
Associate degree	2	0.3
University	2	0.3
Having children		
Yes	549	91.5
No	51	8.5
Living place		
In your own home	486	81.0
Rent	83	13.8
At your children's house	31	5.2
Living person		
Alone	100	16.7
With his wife	462	77.0
With other family members	38	6.3
Housing type		
Detached house	336	56.0
Apartment with elevator	20	3.3
Apartment without elevator	24.4	40.7
Working status		
Retired	510	85.0
Worker	90	15.0
Chronic disease		
There is	54.2	90.3
None	58	9.7
Continuously used medication		
There is	551	91.8
None	49	8.2
Using auxiliary equipment		
There is	519	86.5
None	81	13.5
Exercise		
Doesn't do	489	81.5
Doing	111	18.5
Perception of sleep quality		
Very good	2	0.3
Good	88	14.7
Middle	457	76.2
Bad	53	8.8
Using tobacco		
Yes	425	70.8
No	175	29.2
Drink alcohol		
No	410	68.3
I used to use it before, but I stopped.	164	27.3
Every day.	26	4.3
Hobbies of interest		
No	412	68.7
Yes	188	31.3
General health perception		
Too bad	10	1.7
Bad	59	9.8
Middle	275	45.8
Good	256	42.7

(Continues)

TABLE 1 | (Continued)

Sociodemographic characteristics	*n*	%
Presence of a regular follow-up physician		
There is	357	59.5
None	243	40.5
I'm undecided		
Institutions usually consulted for health problems		
State hospital-emergency	264	44.0
State hospital-polyclinic	202	33.7
Family doctor	134	22.3
BMI $X \pm SD$ (29.02 ± 4.41)		
Fall in the last 6 months		
No	440	73.3
Yes	160	26.7
Total	600	100.0

Note: This table presents demographic details, such as age, gender, marital status, educational status and income levels of the participants.
Abbreviations: BMI, body mass index; *n*, number; SD, standard deviation; *X*, mean.

of a physician who constantly monitors the patient ($p > 0.05$) (Table 4).

According to the correlation analysis, there is a negative, weakly significant relationship between SHSE and age ($r = -0.19$, $p < 0.001$); with THLS-SF, it is negative, moderately significant ($r = -0.33$, $p < 0.001$). There is a positive, moderately significant relationship with HPBS and its subdimensions ($p < 0.001$), and a positive, moderate significant relationship with WHOQOL-BREF and its sub-dimensions ($p < 0.001$). There is no significant relationship between SHSE and the number of chronic diseases, the number of medications used regularly, and BMI ($p > 0.05$).

As a result of univariate analyses, the statistically significant variables were age, region, marital status, education level, employment, having children, place of residence, person with whom I lived, sleep quality, general health perception, institution usually applied to, fall in the last 6 months, THLS-SF, HPBS, WHOQOL BREF. These variables were included in the model in linear regression analysis (Adjusted $R^2 = 0.327$, $F = 18.194$, $p < 0.001$, Durbin Watson = 1.530).

As a result of the analysis, SHSE among those with high school education or higher ($\beta = -3.337$; %95 CI −5.26; −1.41), among those living with their children ($\beta = -5.857$; %95 CI = −10.18; −1.52) and among those living alone ($\beta = -3.678$; %95 CI = −5.71;-1.64) in those with poor general health perception ($\beta = 2.333$; %95 CI = 1.10; 3.57) is significantly lower. As age increases ($\beta = -0.133$; CI 0.25; −0.04), as the THLS-SF score increases ($\beta = -0.080$; %95 CI = −0.15; −0.006), as WHOQOL BREF decreases ($\beta = 0.219$; %95 CI = 0.17; 0.26), SHSE decreases significantly. Region, employment status, having children, sleep quality, health institution usually applied to, falls in the last 6 months and HPBS, which were significant in univariate analyses, lost their significance ($p > 0.05$) (Table 5).

4 | Discussion

This research is one of the first community-based studies in the literature that examines social health, health protection behaviours, health literacy and quality of life in the older adult together. In the study, the SHSE score was at a medium level, 50.48 ± 8.98, and the Social Support subscale score was 50.21 ± 9.22; the Perceived Environment subscale score was 50.65 ± 9.22; the Social Cohesion subscale score was 50.14 ± 9.80. The fact that the SHSE score is not high may be because services for the older adult in Turkey are carried out separately from the health and social services dimensions, urbanisation and nuclear family structure are widespread, and the older adult are relatively lonelier and more isolated. In the research, it is seen that the subscale scores of the Social Health Scale are not high, as is the case with the total score. This shows that the social adaptation needs of the older adult are not met in terms of social support and perceived environmental resources. In a study conducted in Turkey using the SHSE scale, the scale score was found to be moderate (50.00 ± 10.00), similar to this study (Goktas and Cevik 2023). In the literature, it is seen that the SHSE Short Form score is 42.80 ± 13.00 in the population where social health score adaptation was made in the Yu et al.'s (2020) study, close to the social health level in our study and 40.13 ± 12.27 in the general population in the Bao et al. (2018) study. In this study conducted in China, the lower relative social health compared with our study may be due to the difference in the older adult population between the two and the fact that China is more cosmopolitan, multi-ethnic and multi-cultural compared to Turkey. In a study conducted in Iran using the same scale as our study, it was found to be slightly higher than this study (Izadi-Avanji et al. 2023). In another study conducted by Barkhori et al. in Iran with older adult ($n = 192$) using Keyes' Social Health Scale, the social health level of older adult was found to be high (Barkhori et al. 2021). This difference may be because a different scale was used in the relevant study, it was conducted in a smaller sample group compared with our study, and Iran is more conservative. In the light of these data, it can be said that the limited health and social services for the older adult, because Turkey entered the ageing process late, negatively affects social health and is related to the low social health score. As a matter of fact, Yilmaz et al. in their study, it was stated that older adult health problems have come to the fore in the last few decades in Turkey and policies have begun to be created. Still, health and social services have not been addressed as a whole, and community-based policies covering all older adult people are insufficient (Yilmaz et al. 2013). Considering both our study and all the studies in the literature (Bao et al. 2018; Barkhori et al. 2021; Cevik et al. 2024; Goktas and Cevik 2023; Lu et al. 2020; Yu et al. 2020), it is thought-provoking that it is a condition that does not exceed a moderate level of social well-being.

In our research, the SHSE score and the variables that were significant as a result of univariate analyses were evaluated with

TABLE 2 | Descriptive characteristics of the scores obtained from the applied scales ($n = 600$).

Scales	Minimum	Maximum	$X \pm SD$
SHSE	13.53	76.95	50.48 ± 8.98
Social support	20.07	79.29	50.21 ± 9.22
Social cohesion	24.40	82.12	50.14 ± 9.80
Perceived environment	18.77	75.95	50.65 ± 9.22
THLS-SF	2.08	43.75	19.82 ± 10.30
HPBS	63.0	145.0	101.59 ± 20.51
General behaviour	12.0	34.0	22.42 ± 4.94
Interpersonal relationship	16.0	39.0	29.24 ± 6.78
Health care	13.0	30.0	22.45 ± 4.64
Nutrition	10.0	25.0	17.77 ± 3.63
Self-knowledge	6.0	14.0	9.70 ± 2.31
WHOQOL-BREF	39.81	92.59	68.16 ± 15.33
General health	25.0	100.0	72.02 ± 24.53
Physical health	32.14	96.43	65.86 ± 16.26
Psychological health	37.50	95.83	70.92 ± 18.45
Social relations	25.0	91.67	65.48 ± 15.29
Environmental health	40.63	93.75	69.32 ± 14.38

Note: This table shows minimum, maximum, mean and standard deviation scores for SHSE, THLS SF, HPBS, and WHOQOL-BREF scales.
Abbreviations: *n*, number; SD, standard deviation; *X*, mean.

linear regression analysis. According to this, the SHSE score is significantly lower in those with high school education or higher, those living with their children, those living alone and those with poor general health perception. As age increases, the SHSE score decreases significantly as the THLS-SF score increases and the WHOQOL-BREF decreases.

The SHSE scores in those with high school education or higher may be because social health awareness increases as the education level increases, and the older adults with higher education levels are lonelier and more isolated. In the Cevik et al.'s (2023) study conducted with the older adults, it was found that a significant portion of the older adults had high loneliness scores and, accordingly, were exposed to abuse. In a study conducted in Turkey, similar to our study, the SHSE score was found to be high in those with high school education and above (Cevik et al. 2024).

The SHSE scores of those who live with their children are lower; the situation of being with their children compared to those who live in a detached house or rent, the spread of nuclear family structure and the fact that the children living at the home of the older adult y person generally have an active working life; therefore, the older adult individuals take a greater role in housework or stay at home for longer periods. It is thought that the social health score of older adult individuals in our study was low due to being alone for a long time. As a matter of fact, in a study conducted in Brazil on older adult individuals who do or do not live with their children, it was found that those who live with their children have a greater burden (Oliveira et al. 2020). On the contrary, studies are showing that older adult individuals have high social health scores in their lives with their children (Paquet et al. 2023). This situation brings to mind the importance of the structure of the family, the socioeconomic status of the household and the role of the older adult person in the home, if the elderly person lives only with his or her child.

In our study, the low SHSE score in those living alone may be related to the lack of social support of lonely older adults (Cevik et al. 2023; Courtin and Knapp 2017; Gardiner et al. 2018). In a study conducted in China (Yu et al. 2020), the SHSE score was low (Goktas and Cevik 2023).

In this research, the low SHSE score in people who do not have a good general health perception is related to the fact that the health perceived by the participants includes social health, considering that health consists of physical, mental and social components and the relationship between poor health perception and social health is related to the fact that health is a whole with physical and mental aspects. In a study conducted in Turkey, similar to our study, the SHSE score was found to be low in people with poor health perception (Cevik et al. 2024).

In the study, as the age of the participants increases, the SHSE score decreases. This may be because older adults become lonely, and their dependencies increase as they get older. In the Yu et al.'s study conducted in China (Bao et al. 2018) and the study conducted by Goktas and Cevik (2023) in Turkey, another study conducted by Cevik et al. (2024) found that social health decreased with increasing age, similar to this study. In their study where Kashaninia and Haghani (2021) evaluated social

TABLE 3 | Relationship between SHSE scores and sociodemographic characteristics ($n = 600$).

Sociodemographic characteristics	*n*	$X \pm SD$	Test value	*p*
Age				
60–74[a]	472	51.23 ± 8.29	$F = 16.058$	< 0.001 a = b > c
75–84 years[b]	91	49.68 ± 9.60		
85 and above[c]	37	42.87 ± 11.96		
Region of residence				
Urban	442	49.82 ± 8.95	$t = -3.048$	0.002
Semi-urban	158	52.34 ± 8.81		
Gender				
Female	368	50.50 ± 8.92	$t = 0.060$	0.952
Male	232	50.45 ± 9.08		
Marital status				
Married	456	51.03 ± 8.33	$t = 2.362$	0.019
Not married	144	48.75 ± 10.62		
Education status				
Illiterate[a]	27	50.18 ± 9.51	$F = 21.088$	< 0.001 a = b > c
Primary education[b]	524	51.22 ± 8.28		
High school and above[c]	49	42.79 ± 12.17		
Working status				
Working	90	53.09 ± 8.81	$t = 3.012$	0.003
Not working	510	50.02 ± 8.94		
Having children				
Yes	549	50.72 ± 8.82	$t = 2.160$	0.031
No	51	47.89 ± 10.2		
Income				
My income is less than my expenses	324	50.83 ± 8.84	$t = 1.025$	0.306
My income equals my expenses	276	50.08 ± 9.13		
Experienced place				
Detached house[a]	486	51.40 ± 8.05	$F = 69.233$	< 0.001 a = b > c
Rent[b]	83	51.31 ± 7.66		
With your children[c]	31	33.80 ± 9.95		
Living person				
Alone	100	47.31 ± 10.53	$t = 3.913$	< 0.001
Not alone	500	51.12 ± 8.50		
Housing type				
Detached house	336	50.78 ± 9.28	$t = 0.910$	0.363
Apartment	264	50.11 ± 8.58		

(Continues)

TABLE 3 | (Continued)

Sociodemographic characteristics	*n*	*X* ± SD	Test value	*p*
Presence of chronic disease				
None	55	49.55 ± 7.87	$t = -0.807$	0.420
There is	545	50.58 ± 9.08		
Continuously used medication				
None	49	49.37 ± 7.43	$t = -902$	0.368
There is	551	50.58 ± 9.10		
Auxiliary equipment				
None	81	51.75 ± 7.38	$t = 1.365$	0.173
There is	519	50.29 ± 9.19		

Note: This table presents the differences in Social Health Scale for the Elderly (SHSE) scores according to demographic factors such as age, education and marital status.That in the age variable, a = 60-74, b = 75-84, c = 85 and above; that in the education status variable, a = illiterate, b = primary education, c = high school and above; that in the experienced variable, a = detached house, b = rent, c = with your children.
Abbreviations: n, number; X, mean; SD, standard deviation; t, Student's t-test;F, ANOVA (posthoc: Tukey HSD).

health with Keyes' Social Health Scale, social health increases as age increases, similar to our study.

In this study, as health literacy increases, SHSE decreases. Although there is no study in the literature that evaluates health literacy with SHSE, in our study, the decrease in SHSE as health literacy increases may be related to the fact that the group who is conscious of health literacy is more aware of their social needs and has higher expectations.

In the study, as the quality-of-life score decreases, the SHSE score decreases, which may be because quality of life is one of the important components of health and is positively related to health. Bao et al. conducted a study on the development of Bao et al. (2018), in the study conducted by Goktas and Cevik in Turkey (Goktas and Cevik 2023), Lu et al. conducted a study in China (Lu et al. 2020). Similarly, it was found that as the quality-of-life score increased, social health status also improved. In a study conducted in Turkey, similar to our study, it was found that increasing quality of life positively affected social health (Cevik et al. 2024). As a matter of fact, a study conducted in Italy found a significant relationship between low social relations of the elderly peopleand low quality of life (de Belvis et al. 2008).

In this research, there is no statistically significant difference between SHSE and gender, region of residence, marital status, education level, employment status, having children, income, place of residence, housing type, presence of chronic disease, continuous medication use, use of auxiliary equipment, exercise status, sleep quality, smoking, alcohol use, hobbies of interest, presence of a constantly monitoring physician, the health institution usually applied to, falls in the last 6 months, BMI and HPBS.

There is no significant difference between gender and SHSE. In the Bao et al.'s study conducted by Cevik and Goktas, there is no significant difference between genders (Bao et al. 2018; Goktas and Cevik 2023). There is no significant difference between the region of residence and SHSE. There is no significant relationship between educational status and SHSE (Goktas and Cevik 2023). Unlike our study, a study conducted in China found that SHSE was lower in people with higher education levels (Yu et al. 2020). This difference may be related to the high social health perceptions, awareness and expectations of the older adult in the study conducted in China.

There is no significant relationship between having children and the number of children who tend to live separately from their children and receive support from the environment. In a cross-sectional study conducted in Kuwait, unlike our study, having children was found to be an important regulator of somatic symptoms in the older adult (Al-Kandari and Crews 2014). This difference may be due to the different sociocultural characteristics of the regions where the two studies were conducted.

SHSE for the older adult, similar to the literature (Goktas and Cevik 2023), there is no significant relationship between chronic disease and SHSE in this study. Unlike our study, Yu et al. in his study found a relationship between the presence of chronic disease and SHSE (Yu et al. 2020). Although chronic disease is a component that affects life, the fact that this significance was lost in further analysis may be because the interviewees were relatively young and older adults and their level of dependence on chronic diseases was low. In a study conducted in Turkey, unlike our study, social health perception was found to be low in patients with chronic diseases. This difference may be due to the different sociodemographic characteristics of the places where the two studies were conducted. As a matter of fact, the related study was conducted on a more heterogeneous group (Cevik et al. 2024).

There is no significant relationship between the medication constantly used, the number of medications and the use of auxiliary equipment and SHSE. This may be related to the fact that the research group consists of relatively young, older adult and healthy people. Findings similar to ours were detected in Goktas and Cevik's study (Goktas and Cevik 2023).

There is no significant relationship between healthy lifestyle behaviours such as exercise, tobacco, alcohol use, sleep quality, BMI and SHSE. This difference shows that people's lifestyles do not affect social health. In parallel with these behaviours, there

TABLE 4 | SHSE score according to healthy lifestyle behaviours in the research group ($n = 600$).

Variables	*n*	*X* ± SD	Test value	*p*
Exercise				
Doesn't do	489	50.60 ± 8.95	$t = 0.664$	0.507
Doing	111	49.97 ± 9.10		
Perception of sleep quality				
Good[a]	90	50.04 ± 9.42	$F = 8.132$	< 0.001 a = b > c
Medium[b]	457	51.10 ± 8.79		
Bad[c]	53	45.94 ± 8.98		
Using tobacco				
Yes	425	50.16 ± 10.08	$t = -1.206$	0.228
No	175	51.54 ± 9.15		
Alcohol use				
Yes	26	50.19 ± 6.63	$t = 0.170$	0.822
No	574	50.50 ± 9.07		
Of interest hobby				
Yes	188	50.41 ± 9.58	$t = -1.36$	0.892
No	412	50.52 ± 8.70		
General health perception				
Good[a]	256	56.37 ± 6.42	$F = 222.400$	< 0.001 a > b > c
Medium[b]	275	45.04 ± 6.11		
Bad[c]	69	38.37 ± 10.07		
The doctor who constantly monitors				
There is	357	50.37 ± 8.36	$t = -0.364$	0.716
None	243	50.65 ± 9.83		
Usually applied institution				
Family physicians[a]	134	50.04 ± 8.43	$F = 6.008$	0.003 a = b > c
State hospital-emergency department[b]	264	51.84 ± 9.26		
State hospital-polyclinic[c]	202	49.00 ± 8.73		
Fall in the last 6 months				
Yes	160	48.70 ± 10.33	$t = -2.958$	0.003
No	440	51.13 ± 8.35		

Note: This table demonstrates SHSE scores based on behaviours such as exercise, sleep quality, smoking, alcohol use and general health perception. That in the perception of sleep quality variable, a = good, b = medium, c = bad; that in the general health perception variable, a = good, b = medium, c = bad; that in the usually applied institution variable, a = family physicians, b = state hospital-emergency department, c = state hospital-polyclinic.
Abbreviations: n, number; X, mean; SD, standard deviation; t, Student's t-test; F, ANOVA (posthoc: Tukey HSD).

is no significant relationship between HPBS and SHSE in our study. Although HPBS was a factor related to social health in the correlation, it lost its significance in the regression analysis. This may be because the research group's health protection behaviours are low in Turkish society and the older adult population shows similar health protection behaviours.

In this study, there is no significant relationship between the constantly monitoring physician and the usually referred physician and SHSE, in line with the literature (Goktas and Cevik 2023). This may be because the referral system is not implemented in the healthcare system in Turkey, individuals generally apply to hospitals, and family physicians provide mostly therapeutic and prescription services (Cevik et al. 2018).

In this study, there is no significant relationship between the number of falls in the last 6 months and SHSE. Although falling is one of the most common problems among the older adults,

TABLE 5 | Linear regression analysis of SHSE scores according to significant variables ($n = 600$).

Variables	β	SE	Standardised β	p	95% CI.	
					Lower	Upper
Age	−0.133	0.060	−0.091	**0.028**	−0.25	−0.04
Area	−0.520	0.734	−0.026	0.479	−1.96	0.92
Education status	−3.337	0.979	−0.132	**0.001**	−5.26	−1.41
Working status	0.150	0.947	0.006	0.874	−1.71	2.01
Having children	−1.251	1.158	−0.039	0.281	−3.52	1.02
Living place	−5.857	2.203	−0.095	**0.008**	−10.18	−1.52
Living person	−3.678	1.036	−0.153	**0.001**	−5.71	−1.64
Sleep quality	−0.512	0.696	−0.028	0.462	−1.87	0.85
General health perception	2333	0.634	0.135	**0.001**	1.10	3.57
Usually applied institution	0.550	0.797	0.026	0.491	−1.01	2.11
Fall in the last 6 months	−0.595	0.731	−0.029	0.416	−2.03	0.84
THLS-SF	−0.080	0.038	−0.091	**0.035**	−0.15	−0.006
HPBS	0.034	0.019	0.077	0.078	−0.004	0.07
WHOQOL BREF	0.219	0.024	0.374	**0.001**	0.17	0.26

Note: This table includes the results of the regression analysis for factors significantly affecting social health scores. R^2: 0.327, Adjusted R^2: 0.310, F: 18.914, $p < 0.001$, Durbin Watson: 1.530. Variables included in the model: Age: (continuous), region: (semi-urban: 0 urban: 1), education status: (primary education: 0, illiterate: 1, high school and above: 2), employment status: (not working: 1, working: 0), having children: (yes: 0, no: 1), place of residence: (in own home: 0, nursing home/belonging to others: 1, with children: 2), a person living: (not alone: 0, alone: 1), sleep quality: (medium: 0, good: bad: 2), general health perception: (fair: 0, bad: 1, good: 2), the institution usually applied to: (public hospital-emergency: 0, family physician: 1, state hospital-polyclinic: 2), in the last 6 months drop: (no: 0, yes: 1), THLS-SF: (continuous), HPBS: (continuous), WHOQOL BREF: (continuous).

Abbreviations: CI, confidence interval; HPBS, Health Protective Behavior Scale; SE, standard error; THLS-SF: Turkish Health Literacy Scale—Short Form; WHOQOL BREF, World Health Organization Quality of Life Scale-Short Form.

the fact that it was not associated with social health in our study may be related to the fact that the people who fell did not experience serious falls that increased addiction.

4.1 | Limitations of the Study

The strengths of the study include the fact that the study was conducted on a community-based basis and that social health status was one of the first studies to comprehensively address social health status in the older adult. The fact that the causality relationship is low compared to prospective studies due to its cross-sectional type is a limitation. In addition, horizontal discussion is also a limitation due to the lack of studies conducted on this subject.

5 | Conclusion

In the research, the SHSE score is at a medium level. In this context, steps should be taken to increase social harmony and social support for the older adult; the perceived environment should be improved, and environments that facilitate the lives of the older adult should be created. Strengthening social support systems for the older adult in society can make older individuals feel more connected and improve their social health levels. To encourage older adult individuals to participate in social activities, social interaction opportunities such as events for the older adult, clubs or community centres can be provided. Environmental factors such as walking paths, green areas and public transportation can have a positive impact on the social health level of the older adult. In addition, against the phenomenon of ageing, health and social systems should be structured with a focus on the social health of the older adult. In the study, SHSE is significantly lower in those with high school education or higher, those living with their children, those living alone and those with poor general health perception. As age increases, the SHSE score decreases significantly as the THLS-SF score increases and the WHOQOL-BREF decreases.

In this context, it is recommended to provide an appropriate environment for awareness at all levels of education and age regarding social health, to improve the social health of the older adult living with their children, to support the older adult living alone, to improve their health perception and to increase their quality of life. Since the majority of the studies in the literature were conducted in China, there may be cultural differences. Therefore, it is recommended that studies on social health be conducted in different populations.

Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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Supporting Information

Additional supporting information can be found online in the Supporting Information section.