

# Validation and Reliability Study of the Turkish Version of the Social Health Scale for the Elderly

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## Abstract

**Objective:** To evaluate the psychometric properties of the Turkish version of the Social Health Scale for The Elderly (SHSE) scale.

**Materials and Methods:** This methodological study was conducted with aged  $\geq 60$  years living in two urban and semi-urban neighborhoods in Balikesir between September 2020 and November 2020 by holding face-to-face interviews. The data of the study were collected using the SHSE, multidimensional scale of perceived social support, EuroQoL-5D (EQ-5D) quality of life questionnaire, and WHO-5 Well-Being Index. In the analysis, in addition to descriptive findings, Cronbach's alpha value and confirmatory factor analysis were performed using SPSS 25.0, jasp 0.14, and lisrel 9.1.

**Results:** Cronbach's alpha values for the overall SHSE and its perceived environmental resource (PER), social adjustment (SA), and social support (SS) subdimensions were 0.89, 0.95, 0.63, and 0.54, respectively. The confirmatory factor analysis summary goodness of fit values of the scale were 0.067 for the root mean square error of approximation, 0.968 for the comparative fit index, and 0.087 for the standardized root mean square residual. The test-retest correlation coefficient of the scale was 0.99 for the overall SHSE and 1.00, 1.00, and 0.95 for its PER, SA, and SS subdimensions, respectively.

**Conclusion:** The SHSE used in this study is a valid and reliable scale for Turkish society. It contains psychometric features that can be used in the assessment of the social health of the elderly. The SHSE can be used not only to investigate the risks or protective factors of social health but also to comprehensively assess health status in conjunction with other health domains.

**Keywords:** Social health, quality of life, reliability, validity, elderly.

## Introduction

The elderly population, which forms an important part of society due to its increasing number, should be carefully followed up. The study predicts that the number of people aged 60 and over in the world is 900 million, which may increase to 2 billion by 2050, and that 80% of this elderly population will be in low/middle income countries (1). In Turkey, the elderly population is expected to comprise 10.2% in 2023 and is expected to be 12.9% in 2030, and 22.6% in 2060 (2). On the other hand, although the life expectancy of the elderly is prolonged, they are considered as weak and vulnerable, and in the at-risk group in terms of

health; thus, they should be followed up carefully, their risk factors should be clearly identified, and priority should be given to inclusive health and social services aimed at eliminating these risk factors (3-5). As defined by the World Health Organization (WHO), "health not only is the absence of a disease or disability but also is a state of complete physical, mental and social well-being" (6). On the other hand, in the elderly population, the concept of complete well-being differs. Many older adults with few chronic diseases can consider themselves healthy enough. However, under normal conditions, high cognitive and physical functionality means that the level of active social participation is high (7). Therefore, if the health status of the elderly is to

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be described comprehensively and accurately, measurements specific to their health status should be used. The concept of social health can be measured in terms of social support, social adjustment, and perceived environmental resources, which include the social health of the individual and society (8). These concepts are associated with loneliness in older adults (9) and their quality of life (10). In addition, the environment in which older adults live has the potential to affect their psychological and physical health (11). Another important aspect of the evaluation of social health is the necessity of obtaining data on the social health of society. In fact, a society will be healthy only if it can access the necessary services equally and fairly and if its health outcomes are positive. Due to the increase in the elderly population, there is a need for a valid and reliable measurement tool to assess the health and social health of older adults. Moreover, cultural adaptation of the Social Health Scale for The Elderly (SHSE) is important since no developed and adapted scale to assess the social health of the elderly in Turkey exists. This study aimed to evaluate the psychometric properties of the Turkish version of the SHSE scale.

## Materials and Methods

This methodological study was conducted by interviewing people aged sixty and over in the urban Gaziosmanpasa and semi-urban Sütluce neighborhoods in Balikesir city center between September 2020 and November 2020. Balikesir is a province whose socioeconomic development is above the average of Turkey and is dominated by the agricultural, livestock, and tourism sectors. Balikesir, which has a median age of 40.20 years, ranks sixth in Turkey in terms of the rate of its elderly population (16.1%) (12).

### Ethics

Ethics Committee Approval, the study was approved by the Clinical Research Ethics Committee of Balikesir University Faculty of Medicine (approval number: 2020/154, date: 09.09.2020) and was conducted in accordance with the principles of the Declaration of Helsinki. Informed consent was obtained from all participants.

### Participants

The study population consists of 2528 people. We aimed to have a sample size equal to at least 5-10 times the number of items in the scale (13). Within this context, we reached 250 people aged 60 and over, who were able to answer all the questions and who volunteered to participate in the study, communicate in Turkish, and use the multi-stage sampling method.

### Assessment Tools

The data of the study were collected using the Multidimensional Scale of Perceived Social Support, EQ-5D Quality of Life

Questionnaire, WHO-5 Well-Being Index, SHSE, and Personal Information Form.

**Personal Information Form:** This form consists of 16 items that question the participants' sociodemographic characteristics and healthy lifestyle characteristics and was developed by the researchers (4,8,14,15).

**EQ-5D Quality of Life Questionnaire:** We preferred to use the EQ-5D quality of life questionnaire in our study because it is an internationally used and widely applied tool administered specifically to the age group evaluated in our study (8). The Turkish version of the scale, which was developed by the EuroQoL group in 1990 and translated into 171 languages, was used (16). The EQ-5D is a self-report scale consisting of five questions and five dimensions: mobility, self-care, usual activities of daily living, pain and discomfort, and anxiety and depression. Responses to the questions were rated on a three-point Likert scale. Scores on the five dimensions of the scale range from -0.59 to 1, where 0 indicates death, 1 indicates perfect health, negative values indicate loss of consciousness, being bedridden, etc. shows their status.

### Multidimensional Scale of Perceived Social Support

**(MSPSS):** Another tool we preferred was the multidimensional scale of perceived social support (MSPSS) because it is widely used internationally and administered specifically to the age group assessed in our study (17, 18). The MSPSS developed by Zimet et al. (19) in 1988 and adapted into Turkish by Eker and Arkar (20) in 1995 consists of 12 items and 3 subdimensions: family, friend, and a significant other. Each subdimension includes four items. Each item was rated on a 7-point scale. The total scale score is obtained by summing the scores for each item. The higher the score, the higher the level of perceived social support is (19, 20).

**WHO-5 Well-Being Index Scale (WHO-5):** We also preferred the WHO-5 because it is widely administered in many studies to assess the mental well-being of older adults, particularly the mental well-being of those in the age group evaluated in the present study (21, 22). The scale consisting of five items probing emotional well-being during the previous two weeks was adapted into a Turkish one by Eser et al. (21) Each item is scored between 1 and 5. The lowest score indicates the absence of well-being, whereas the highest score indicates the highest level of well-being.

**The Social Health Scale for the Elderly:** The SHSE, which was developed by Bao et al. (8) in 2018, is used to assess the social health of the elderly. This study consists of 25 items and the following 3 sub-dimensions: perceived environment, social adjustment and social support (8). To calculate the scale score, first, the raw values of the answers given to the scale items are converted to a value ranging between 0 and

4. Then, the normalized score calculation for the overall scale and its dimensions is performed using the following formula, as suggested in the original version. In this calculation, the scores obtained with a mean of 50 and a standard deviation of 10 according to T scoring were calculated using the formula below, considering the distribution's own values (mean and standard deviation values) ([Supplementary material 1](#), [Supplementary material 2](#)).

### Normalized Score Calculation

$$T_i = 50 + 10 \times (R_i - M_n) / SD_n$$

In the formula,  $T_i$  indicates the standard t score for the individual whose score is to be calculated,  $R_i$  indicates the raw calculated score for the individual,  $M_n$  indicates the mean of the calculated raw scores, and  $SD_n$  indicates the standard deviation of the calculated raw scores. The total score ranges from 25 to 125; a higher score indicates greater social health.

### Data Collection

The first interviews with the participants ( $n=250$ ) were conducted face-to-face. The second interview for the test-retest ( $n=50$ ) was conducted by phone to eliminate the possibility of being in the pandemic period and not being able to be at home. The second interview data were collected by making a phone call by randomly selecting people who shared their phone numbers in the first interview. The data was collected during the coronavirus disease-19 pandemic. For this reason, while interviewing the elderly, who are vulnerable groups during the pandemic, data were collected by following pandemic precautions, such as wearing masks, distance, and hygiene to prevent contamination. In the present study, the streets in the neighborhoods were accepted as clusters, and 25 people in each of the 10 randomly determined streets were reached, making up 250 people. To determine the reliability of the scale over time, it is recommended to apply the same test to the same sample group at 2-3 weeks intervals (23). Two weeks after data collection, SHSE was re-administered to 50 people randomly selected from the study group. The questionnaire was administered to the participants twice at a two-week interval. Of the participants who met the inclusion criteria (in line with the principles of anonymity, privacy, and general ethics) and participated in the first survey, they were asked whether they wanted to take part in the second survey to be administered two weeks later and to provide their telephone numbers.

**Scale Adaptation Steps:** The stages of adapting the scale to Turkish are as follows:

1. Translation of the scale from English to Turkish by two translators independent of each other,
2. Combining Turkish translations and creating a translated version agreed upon
3. The back-translation of the agreed translation into English by a native English speaker
4. Comparison of the back-translated scale with the original English version
5. Discussing and reaching consensus on problematic items in backward and forward translated texts,
6. The scale translated into Turkish and revised is sent to the author who developed the scale and accepted as the final version after his approval,
7. Administering the pre-test (cognitive inquiry),
8. Forming the final version of the scale (24).

### Statistical Analysis

The SPSS 25.0, Jasp 0.14.1, and Lisrel 9.1 programs were used to analyze the research data. The SPSS 25.0 program was used for descriptive statistics, and the Jasp 0.14.1 program was used for reliability analysis, criterion and known groups validity. Confirmatory factor analysis was performed using the Lisrel 9.1 and jasp 0.14.1 programs. The content validity of the scale was evaluated by obtaining expert opinion (Davis method). The scale was evaluated by 5 experts who work in the field of elderly health. Item analysis was performed on application data obtained from the Turkish version of the scale. Then, based on the confirmatory approach, reliability and validity analyses were performed according to the classical test theory. Raw distributions of the responses given by the participants to the scale items and the mean $\pm$ SD, median, minimum, and maximum values for the dimension scores, and the floor and ceiling effects are presented. In addition, the difficulty level of each item was presented.

In the reliability analysis, the Cronbach's alpha value, which is the internal consistency coefficient of the overall scale and its subdimensions, the alpha value obtained after the item was deleted from the overall scale and the relevant dimension, and the item-total correlation were given.

In the validity analysis, confirmatory factor analysis, convergent validity, and discriminant validity were examined. Because this study is a scale adaptation study, we only tested to what extent the existing structure produced a result that was compatible with the conceptual structure. Thus, maximum likelihood confirmatory factor analysis was performed. The three-dimensional structure and the items that constitute this structure were analyzed.

In the criterion validity test, social support, well-being, and quality of life scales and correlation coefficients were considered. For the validity of the known groups, the comparison of various sociodemographic characteristics and scale scores was performed using the t-test, and the mean differences and significance of the results were presented using effect sizes.

## Results

In the study, 250 people aged  $\geq 60$  years were included. The mean age of the participants was  $68.3 \pm 6.2$  years. Of these, 52.8% were women, 90.0% were married, 57.6% were primary school graduates, 8.0% were employed, and 26.4% had chronic diseases (Table 1).

Variable	n	%
<b>Years mean (SD)</b>	68.32	6.23
60-69	164	65.6
70-79	72	28.8
80 and above	14	5.6
<b>Gender</b>		
Female	132	52.8
Male	118	47.2
<b>Marital status</b>		
Married	225	90.0
Spouse deceased	22	8.8
Lives separately	3	1.2
<b>Education</b>		
Primary school	144	57.6
Middle school	35	14.0
High school	44	17.6
University and above	27	10.8
<b>Job (preretirement / ongoing)</b>		
Housewife	107	42.8
Employee	51	20.4
Officer	56	22.4
Small business	11	4.4
Freelance	10	4.0
Farmer	15	6.0
<b>Income</b>		
Income is less than expenses	96	38.4
Income equals expenses	135	54.0
Income more than expenses	19	7.6
<b>Working</b>		
Yes	20	8.0
No	230	92.0
<b>Health insurance</b>		
General health insurance	225	90.0
Social security	25	10.0

Content validity was assessed using the Davis technique (1992). Content validity and concurrent face validity were evaluated by 5 academicians that were experts in the field of the elderly in Turkey. The content validity rates of the scale items ranged from 0.86 to 1.

The distribution of scores for the overall scale and its subdimensions and items are presented in Table 2. After the distribution range of each item was transformed to between 0

Variable	n	%
<b>Living alone</b>		
Yes	15	6.0
No	235	94.0
<b>Perception of sleep quality</b>		
Good	171	68.4
Middle	69	27.6
Bad	10	4.0
<b>Smoking</b>		
Yes	42	16.8
No	161	64.4
Left	47	18.8
<b>Alcohol use</b>		
Yes	5	2.0
No	218	87.2
Left	27	10.8
<b>Number of vegetables and fruits consumed daily (portion)</b>		
0	27	10.8
1	200	80.0
2 and above	23	9.2
<b>Bread type</b>		
Whole wheat / bran	220	88.0
White bread	30	12.0
<b>Oil type</b>		
Olive oil	88	35.2
Sunflower oil	162	64.8
<b>Chronic disease</b>		
Yes	66	26.4
No	234	93.6
Total	250	100.0

n: count, SD: Standard deviation

and 4, mean scores, deviations, and item difficulty values were presented. According to the obtained values, while items 22, 14, and 25 had the highest item difficulty at the level of 0.17, 0.22, and 0.29, respectively, items 20, 1, and 15 had the lowest item difficulty at the level of 0.89, 0.78, and 0.76, respectively. The maximum percentage of floor and ceiling effects for the overall scale and each dimension was 3.6%.

According to the analysis of the internal consistency coefficients, Cronbach's alpha values for the overall SHSE and its social support, social adjustment, and perceived environmental

resources subdimensions were 0.90, 0.95, 0.63, and 0.67, respectively.

When an item was deleted, alpha values were sufficient except for items 11 and 22. Except for items 14, 22 and 24 in the scale, the correlation coefficients between all other items and their dimensions were greater than 0.30. To check the stability of the scale over time, the SHSE was re-administered to 50 people, and the intraclass correlation coefficient was determined as  $\geq 0.95$ . The suitability of the data for factor analysis was performed using the KMO value and Bartlett's sphericity test. According to

**Table 2. Item analysis and reliability results**

Item (I)	Mean±SD	Item difficulty	r	α del	α	ICC	Floor effect %	Ceiling effect %
<b>Social support</b>	<b>2.67±0.32</b>				<b>0.95</b>	<b>1.00</b>	<b>0.0</b>	<b>3.6</b>
I01	3.11±0.98	0.78	0.83	0.95				
I02	2.63±0.95	0.66	0.81	0.95				
I03	2.97±1.01	0.74	0.83	0.95				
I04	2.87±0.99	0.72	0.82	0.95				
I05	2.52±0.90	0.63	0.80	0.95				
I06	2.76±1.03	0.69	0.76	0.95				
I07	2.94±1.00	0.73	0.82	0.95				
I08	2.66±0.98	0.67	0.79	0.95				
I09	2.61±1.00	0.65	0.79	0.95				
I10	2.74±0.99	0.69	0.84	0.95				
I11	2.00±0.83	0.50	0.56	0.96				
I12	2.17±0.98	0.54	0.66	0.95				
<b>Social adjustment</b>	<b>1.86±0.84</b>				<b>0.63</b>	<b>0.98</b>	<b>0.0</b>	<b>0.0</b>
I13	1.40±1.22	0.35	0.28	0.63				
I14	0.89±0.94	0.22	0.27	0.62				
I15	3.04±0.84	0.76	0.25	0.62				
I16	2.59±1.00	0.65	0.45	0.55				
I17	2.02±1.14	0.51	0.53	0.51				
I18	1.24±0.88	0.31	0.41	0.57				
<b>Perceived environmental resources</b>	<b>1.85±0.91</b>				<b>0.67</b>	<b>0.95</b>	<b>0.0</b>	<b>0.0</b>
I19	1.73±1.17	0.43	0.59	0.56				
I20	3.54±0.76	0.89	0.28	0.66				
I21	2.21±1.34	0.55	0.32	0.66				
I22	0.68±1.16	0.17	0.15	0.70				
I23	1.73±0.83	0.43	0.70	0.56				
I24	1.14±0.97	0.29	0.19	0.68				
I25	1.93±0.90	0.48	0.60	0.58				
<b>SHSE Total</b>	<b>2.25±0.75</b>				<b>0.90</b>	<b>0.99</b>	<b>0.0</b>	<b>0.0</b>

SD: Standard deviation, r: item rest correlation, α del: Cronbach's α if item deleted, α: Cronbach's α, Avr.: Average inter-item correlation, ICC: Intraclass correlation coefficient (for the test-retest analysis), SHSE: Social health scale for the elderly



the KMO test, the Mokken scaling analysis values of the items varied between 0.41 and 0.96, which was considered suitable for factor analysis performed according to the results of the Bartlett test of sphericity ( $\chi^2=4036,453$ ,  $p<0.001$ ). To confirm the construct validity of the scale, a confirmatory factor analysis was performed. The analysis of the goodness-of-fit results demonstrated the following:  $\chi^2/df=2.11$ , CFI=0.968, TLI=0.965 and GFI=0.961. The error fit values, root mean square error of approximation (RMSEA) was 0.067 and standardized root mean square residual (SRMR) was 0.087. In the examination of the scale items, the items that caused inadequate fit in terms of factor loadings and error variance were items 13, 20, 21, and 23 (Figure 1).

Correlation analysis was performed between the scores obtained from the overall scale and its subdimensions and the scores for social support, well-being, and quality of life to establish the criterion validity of the scale. A significant correlation was observed between the scores for the overall scale and its subdimensions ( $p<0.01$ ).

The correlation coefficients between the total SHSE score and Social Support, WHO-5, EQ-5D QoL, and EQ-5D VAS scores were 0.54, 0.26, 0.36, and 0.28, respectively (Table 3).

According to the results of the known-groups validity analysis, there was a significant relationship between sex, education status, place of residence, health perception, presence of a chronic disease, and SHSE total score. The highest significant effect size was related to the presence of a chronic disease, whereas the lowest significant effect size was related to educational status. There was a significant relationship between social support and variables such as place of residence, health perception, and presence of chronic disease; social adjustment was associated with variables such as sex, income, place of

residence, health perception, and chronic disease; and perceived environmental resources were associated with variables such as education, income, health perception, and presence of a chronic disease (Table 4).

In the research group, after the suitability of the psychometric properties, the SHSE mean score is  $50.76\pm 9.94$ , the mean social support subscale mean score is  $50.67\pm 9.85$ , the mean Social Adjustment subdimension mean score is  $50.34\pm 10.25$ ,

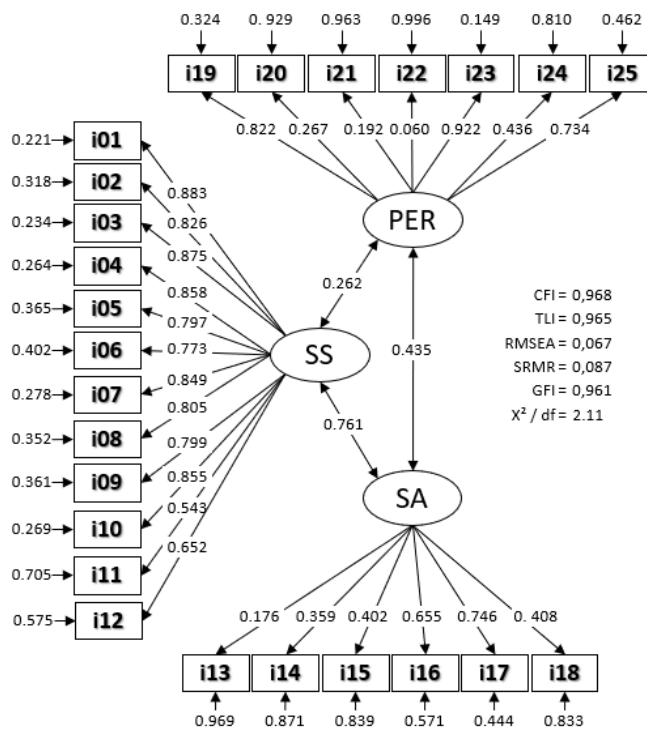


Figure 1. Confirmatory factor analysis

Variables	Social support	Social adjustment	Perceived environmental resources	SHSE
1. Social support	-			
2. Social adjustment	0.56***	-		
3. Perceived environmental resources	0.17**	0.33***	-	
4. SHSE	0.91***	0.74***	0.50***	-
5. MSPS significant other	0.52***	0.44***	0.24***	0.57***
6. MSPS family	0.19**	0.16*	-0.04	0.17**
7. MSPS friend	0.34***	0.36***	0.14*	0.37***
8. MSPS total	0.50**	0.44***	0.23***	0.54***
9. WHO-5	0.17**	0.28***	0.29***	0.26***
10. EQ-5D QoL	0.32***	0.26***	0.23***	0.36***
11. EQ-5D VAS (0-100)	0.19**	0.29***	0.26***	0.28***

\*p< 0.05, \*\*p< 0.01, \*\*\*p< 0.001,  
SHSE: Social Health scale for the Elderly, MSPS: Multidimensional Scale of Perceived Social Support, WHO-5: Well-Being Index

**Table 4. Known-groups validity, effect size**

Variables	Social support		Social adjustment		Perceived environmental resources		SHSE	
	Loc.	d	Loc.	d	Loc.	d	Loc.	d
Sex (Male-female)	-1.88	0.19	-8.09	0.88 <sup>***</sup>	0.48	0.04	-3.35	0.34 <sup>**</sup>
Age (60 to 74-over 75)	1.70	0.17	3.13	0.31	0.97	0.08	2.28	0.23
Education status (Below primary-above secondary)	-0.86	0.09	-2.00	0.2	-6.63	0.59 <sup>***</sup>	-2.89	0.29 <sup>*</sup>
Income (insufficient-sufficient)	0.88	0.09	-2.55	0.26 <sup>*</sup>	-6.04	0.53 <sup>***</sup>	-1.67	0.17
The district lived in (urban-semi-urban)	-5.06	0.52 <sup>***</sup>	-3.62	0.37 <sup>***</sup>	-0.51	0.04	-4.65	0.48 <sup>***</sup>
Perception of health status (bad-well)	-5.71	0.59 <sup>***</sup>	-3.60	0.36 <sup>*</sup>	-5.18	0.45 <sup>***</sup>	-6.35	0.66 <sup>***</sup>
The presence of chronic disease (yes-no)	-7.75	0.82 <sup>***</sup>	-6.18	0.64 <sup>***</sup>	-6.16	0.54 <sup>***</sup>	-8.72	0.94 <sup>***</sup>

<sup>\*</sup>p <0.05, <sup>\*\*</sup>p <0.01, <sup>\*\*\*</sup>p <0.001,  
 Loc.: Location parameters (mean differences), d: Cohen's d (0.2 small, 0.5 medium, 0.8 large) effect size, SHSE: Social Health scale for the Elderly

and the mean perceived environment subscale mean score is 50.63±9.96.

**Discussion**

This study evaluated the psychometric properties of the Turkish version of the long form of the SHSE developed by Bao et al. (8) which contains 25 items. In the literature, Bao et al. (8) conducted a study in China with people aged 60 years and over (n=2415) to develop the SHSE. However, the SHSE has not yet been adapted to other languages other than the present study; therefore, in the discussion section, only the results of Bao et al.'s (8) study and those of the present study are discussed and compared. Validity and reliability analyses were performed using a confirmatory approach. According to the results obtained from the study, the scale has a psychometric performance so that it can be administered to the Turkish elderly population. For the overall SHSE and each dimension, the percentage of floor and ceiling effect was maximum 3.6%. Accordingly, no ceiling or floor effect (expected to be less than 15%) was observed for any dimension score (25). According to the internal consistency coefficients of the scale subdimensions, the Cronbach's alpha values of the overall SHSE and its social support, social adjustment, and perceived environmental resources subdimensions were 0.90, 0.95, 0.63, and 0.67, respectively (23). Although Cronbach's alpha was slightly below the generally accepted value of 0.7 for the social adjustment and perceived environmental resources subdimensions, it was at an acceptable level for the overall SHSE and its Social Support subdimension. In Bao et al.'s (8) study, the standardized Cronbach's alpha coefficient was 0.79 for the overall SHSE

and 0.85, 0.61, and 0.65 for the perceived environmental resource, social adjustment, and social support subdimensions, respectively. Bao et al. (8) conducted a study on the short version of the SHSE in 2018 by interviewing people aged 60 years and over in China and found that the test-retest variability of the scale was 0.77, the internal consistency reliability was 0.79, the concurrent validity was 0.64, and the goodness of fit was 0.97 (8). This value should not exceed the alpha value of each item. The Cronbach's alpha values of the items, except for the items 11 and 22, whose alpha values exceeded the expected value, adequately contributed to the dimension. Bao et al. (8) conducted a study on the short version of the SHSE-long form in 2018 by interviewing people aged 60 years and over in China, and they determined that test-retest variability of the scale was 0.77, its internal consistency reliability was 0.79, its co-validity was 0.64, and its goodness of fit was 0.97 (8). In Iran, Fahimian et al. (26) In the SHSE adaptation study, which was conducted by interviewing 160 elderly people, the internal consistency of the scale was found to be high, similar to our study. In a cross-sectional study conducted in Iran using the SHSE scale, the total SHSE score and subscale scores were found to be between 0.70 and 0.91, respectively, at an acceptable level, similar to our study (27).

The results of the confirmatory factor analysis of the goodness of fit performed in the construct validity of the scale demonstrated the following:  $\chi^2/df=2.11$ , CFI=0.968, TLI=0.965 and GFI=0.961. The error fit values, RMSEA was 0.067 and SRMR was 0.087. It was determined that the scale produced acceptable results in terms of both fit and error, which was consistent with the results obtained in Bao et al. (8) study.

According to the analysis of the scale items, the items causing insufficient fit in terms of factor loading and error variance were items 13, 20, 21, and 23. According to the analysis of these questions, the frequency of doing housework, access to public transportation, transportation to a sports area/social facility, and low level of compliance with recreational services in the living environment may be due to the limited environmental regulations specific to older adults, low perception of old age in Turkish society, limited services for older adults, and limited environmental regulations specific to older adults by local governments; in other words, social and institutional consciousness has not yet been established. The other items had factor loadings and error variances that were compatible with the whole. According to the analysis of these questions, the frequency of doing housework, access to public transportation, transportation to a sports area/social facility, and low level of compliance with recreational services in the living environment may be due to the limited environmental regulations specific to older adults, low perception of old age in Turkish society, limited services for older adults, and limited environmental regulations specific to older adults by local governments; in other words, social and institutional consciousness has not yet been established. Our review of various studies demonstrated that there was not an ideal model in this regard in Turkey (3) and that older adults faced various inequalities (4). According to the correlation analysis between the scores obtained from the overall SHSE and its subdimensions and the scores for the criterion validity and social support, well-being, and quality of life, there was a significant correlation between the overall SHSE score and the subdimension scores (0.50-0.91). Consistent with our study, in Bao et al.'s (8) study, the correlation between the subdimension scores and the overall SHSE score ranged between 0.61 and 0.81. In the present study, the correlation coefficients between the total SHSE score and social support, WHO-5, EQ-5D QoL, and EQ-5D VAS scores were 0.54, 0.26, 0.36, and 0.28, respectively; in other words, the criterion validity was moderately strongly correlated. In Bao et al.'s (8) study, a moderate relationship between social support and the two scales on which the SHSE score was evaluated.

According to the results of the known-groups validity analysis, there was a significant relationship between the SHSE total score and variables such as sex, education status, place of residence, health perception, and presence of chronic disease. The SHSE is sensitive to many sociodemographic characteristics. In the study in which the SHSE was developed by Bao et al. (8), the SHSE score was higher in women aged 60-69 years, those living in urban areas, high school/university graduates, married ones, those not living alone, non-smokers, those who had no disability in doing movements and performing self-care, and those with high educational status. The two studies are similar

in terms of discrimination, and the groups that can be defined as disadvantaged have low social health in both studies. Lu et al. (28) conducted a study to investigate the relationship between quality of life and the SHSE in people aged 60 years and over in China. They stated that the SHSE is distinctive and can be used in the assessment of social health (28). In a cross-sectional study conducted in Iran, the distinctiveness of the scale was demonstrated, and it was found that there were significant differences in marital status, participation in recreational activities, educational status, income, employment status, and participation in exhibitions (27).

### Study Limitations

The limitation of the study is that some of the characteristics of the participants related to the SHSE, well-being, quality of life, and social support were questioned based on their self-report. Another limitation is that there is limited research on the social health of the elderly, and horizontal discussions were often conducted in the discussion section.

### Conclusion

The Turkish version of the SHSE is valid and reliable. The psychometric properties of the scale are distinctive and compatible. The scale can be used to determine the social well-being of elderly people. We recommend that cultural differences in the scale be investigated and compared in detail. The SHSE can be used not only to investigate the risks or protective factors of social health but also to comprehensively assess health status in conjunction with other health domains.

### Ethics

**Ethics Committee Approval:** Ethics Committee Approval, the study was approved by the Clinical Research Ethics Committee of Balikesir University Faculty of Medicine (approval number: 2020/154, date: 09.09.2020) and was conducted in accordance with the principles of the Declaration of Helsinki.

**Informed Consent:** Informed consent was obtained from all participants.

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### Footnotes

#### Authorship Contributions

Surgical and Medical Practices: C.C., Concept: C.C., H.B., R.O., S.S., Design: C.C., H.B., R.O., Data Collection or Processing: C.C., S.S., Analysis or Interpretation: H.B., Literature Search: C.C., H.B., R.O., S.S., Writing: C.C., H.B., R.O., S.S.



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