



Turkish Journal of Geriatrics
DOI: 10.31086/tjgeri.2022.273
2022; 25(1): 161-172

- Burcu BAYRAK KAHRAMAN¹ ID
- Ümit GÖRGÜLÜ² ID
- Ülkü POLAT³ ID
- Şükrü EKENLER⁴ ID
- Evre YILMAZ⁵ ID
- Burak ŞİRİN⁶ ID

CORRESPONDANCE

¹ Burcu BAYRAK KAHRAMAN

Bilecik Şeyh Edebali University, Faculty of
Health Sciences Department of Nursing,
Bilecik, Turkey

Phone: +905057542411
e-mail: burcu.bayrak@bilecik.edu.tr

Received: July 27, 2021
Accepted: Dec 28, 2021

¹ Bilecik Şeyh Edebali University, Faculty of
Health Sciences Department of Nursing,
Bilecik, Turkey

² Ministry of Health , Ankara City Hospital,
Ankara, Turkey

³ Gazi University, Faculty of Health Sciences
Department of Nursing, Ankara, Turkey

⁴ Mehmet Akif Ersoy University, Çavdır
Vocational High School Department of
Elderly Care, Burdur, Turkey

⁵ KTO Karatay University, Medical Services
and Techniques Department, Konya, Turkey

⁶ Tokat Gaziosmanpaşa University , Faculty
of Health Sciences Department of Nursing,
Tokat, Turkey

RESEARCH

THE RELATIONSHIP BETWEEN HEALTH LITERACY AND HEALTH PERCEPTION IN ELDERLY LIVING IN NURSING HOME IN TURKEY

ABSTRACT

Introduction: Changes seen by ageing can affect the level of health literacy and the perception of health. This study was carried out to examine the relationship between health literacy and health perception in the elderly.

Materials and Method: This study was designed as a descriptive study. The sample consisted of 238 elderly individuals living in two nursing homes in Turkey between July and October 2018. The Health Literacy Scale, the Perception of Health Scale and a questionnaire form were used to collect data.

Results: In this study, the mean score of Health Literacy Scale was found to be 47.08 ± 13.38 , and the Perception of Health Scale mean score was 52.64 ± 6.50 . A low positive correlation was found between Health Literacy Scale and Perception of Health Scale ($r = 0.341$, $p < 0.001$). A statistically significant difference was observed among educational status, occupation, economical status, chronic disease, regular check-ups, participation in nursing home activities on a permanent basis and the Health Literacy Scale mean scores ($p < 0.05$). A statistically significant difference was noted among educational status, occupation, chronic disease and the Perception of Health Scale mean scores ($p < 0.05$).

Conclusion: While health perception was found to be moderate in the elderly participants, health literacy was determined as low. This study showed a relationship between health literacy and health perception in the elderly. This results could be used as evidence for designing and providing training programs for health literacy and the perception of health.

Keywords: Aged; Health Literacy; Nursing Homes.

INTRODUCTION

Health literacy is an important topic as it contributes to the health and well-being of individuals and the community (1). Health literacy studies concerning elderly people in many countries have indicated that half of individuals aged 65 and over worldwide have below-average basic health literacy (2-4). Some studies conducted in Turkey on older age groups have found health literacy to be significantly lower in younger age groups (5,6). The literature indicates that age-related changes, in particular, influence health literacy. Cognitive and physical dysfunctions and psychological problems in the elderly may relate their ability to understand health knowledge (7).

Given the effects of health literacy on health status and utilization, health outcomes may be determined by disease knowledge, health behavior, and the use of preventive care (8). Disease can be defined as the recognition of factors threatening a person's health or the perception of the meaning and importance of a disease (9). Since the concept of disease has objective and subjective dimensions, persons suffering similar diseases may show different reactions. These reactions can be in different dimensions in the elderly. At this point, the concept of the perception of health comes to the fore. Health perception or perceived health status is an individual's opinion about his or her own health (10). The positive perception of the health status of an individual may positively relate the belief of controlling the future health status and healthy lifestyle behaviors (6). Since elderly people have the highest rates of chronic diseases, the management of health perception and increased health literacy in elderly people will facilitate more effective disease management. Given the increasing elderly population and chronic diseases, it is of great importance for elderly people to evaluate their health literacy and health perceptions. Enhancing health literacy may be an effective strategy to improve elderly people's health status (7). In addition, although the effect of

health literacy on health outcomes is an overemphasized issue, studies on elderly people related to this subject are few. Therefore the aim of this study was to investigate the relationship between the health literacy and health perception in elderly living in nursing home in Turkey. This study should increase healthcare professionals' awareness of this issue and will contribute to the related literature.

MATERIALS AND METHOD

Population and Sample of the Study

This research was planned as a descriptive study between 1/7/2018 and 1/10/2018 in the two Nursing Home Elderly Care and Rehabilitation Centers in Ankara. There were 119 elderly people in the first center. Of these elderly, 102 elderly who met the criteria of the study participated in the study. In the second center, there were 203 elderly people. Among these elderly, 136 elderly people who met the study criteria participated in the study. The population of this study consisted of 238 elderly in two nursing home elderly care and rehabilitation centers. Elderly persons ≥ 65 years old who were literate and had no visual or hearing problems, mental or cognitive disorders, active terminal conditions, or any psychiatric disorders diagnosed by a physician were included in this study.

In the each facility, there are doctors, nurses and caregivers in the care of elderly individuals. At the same time, there is a dietitian who organizes the nutrition program of the elderly and a physiotherapist who monitors their physical performance. There is also a social worker in the team.

Data Collection Tools

Questionnaire

The questionnaire, which has 17 questions, was developed by the researchers after searching the literature. The questionnaire included questions about individuals' sociodemographic attributes and health/disease conditions (age, sex, education



status, marital status, number of children, occupation, level of income, health perception, social security, smoking status, chronic diseases, and the continuous use of drugs), as well as their status in terms of receiving information about their diseases, performing regular check-ups, and participating in nursing home activities).

Data Collection

The data were collected by the researchers using the face-to-face interview technique. According to the Turkish validity and reliability study of the "Health Perception Scale", the scale was applied by self-administered. However, since the elderly in our study did not want to write due to weakness muscle-joint functions, the data were obtained by reading the scale items one by one. However it was thought that answering this scale with researchers, not self administration, might lead to a high measurement of health perception. So during the reading, attention was paid not to be guided the elderly. Data collection was carried out by three researchers with a master's degree in nursing. A general briefing was given by the researcher, who has the title of associate professor in nursing, regarding the data collection process.

Health Literacy Scale

The Health Literacy Scale (HLS) was first developed by Sorensen with 47 items from the Health Literacy Survey in Europe; Toçi et al. then reduced the scale to 25 items, which were utilized to assess health literacy (11,12). The validity and reliability of this survey in Turkish Language were performed by Aras and Bayik Temel. The scale consisted of 4 subscales, including access (5–25), understanding (7–35), appraisal (8–40), and application (5–25) (13).

A minimum of 25 and a maximum of 125 points can be received from the scale. The internal consistency the Cronbach alpha coefficient, determined from the Health Literacy Scale and its subscales, differed between 0.90 and 0.94 points. The Cronbach alpha value of the scale was found to be

0.92, while the alpha values of the subscales varied between 0.62 and 0.79. The reliability coefficients between the subscale scores and the total scores were between 0.74 and 0.91. The health literacy level increased as the score obtained from the scale increased (13). In the present study, the Cronbach's alpha coefficient of the scale was found to be 0.886.

Perception of Health Scale (PHS)

The Perception of Health Scale (PHS) was developed by Diamond et al. (14) in 2007. Its validity and reliability study in the Turkish Language was administrated by Kadioglu and Yildiz. The scale was designed with 5-point Likert questions consisting of 15 items and 4 subfactors. A minimum of 15 and a maximum of 75 points can be received from the scale. The Cronbach alpha value of the scale is between 0.82 and 0.91. While a high score obtained from the scale refers to good health perception, a low scale score shows poor health perception (15).

In this study, the PHS's KMO value was 0.714, and the Bartlett's test value was 936,447, which was statistically significant ($p < 0.05$). In order for the sample size to be sufficient, the Kaiser-Meyer-Olkin (KMO) index value should be at least 0.60 (16). For this reason, it was seen that the sample size was sufficient and as a result of the exploratory factor analysis performed after KMO, the Health Perception Scale was collected in 4 dimensions and the rate of explaining the total variance was 55.305%. The internal consistency coefficient (Cronbach's Alpha) of the scale was found to be 0.663. For this study, the scale was found to be reliable because the Crohn's alpha value was between $0.6 \leq \alpha < 0.8$ (17).

Statistical Analysis

The data analysis was performed using the Statistical Package for Social Science (SPSS) version 15.0. The suitability of the data for normal distribution has been assessed with *Kolmogorov-Smirnov* test. A Mann-Whitney U test, a non-parametric test, was utilized to compare the scores of non-normally distributed two-group variables, and a Kruskal Wal-

lis test was administrated to compare the scores of three or more group variables. An independent samples T-test, a parametric test, was utilized to compare the scores of normally distributed two-group variables, and a one-way analysis of variance (ANOVA) test was administrated to weigh the scores of three or more group variables. A Pearson's correlation analysis was used to establish the correlations between HLS and PHS scales; and Tukey's Honestly Significant Difference (HSD) Test for normally distributed variables and Bonferroni (Dunn) Test for abnormally distributed variables were used for further analysis. A multiple regression analysis was utilized to determine the variables related the HLS mean score. The construct validity of the PHS was examined by exploratory factor analysis.

Ethical Considerations

To collect the data, necessary approval was obtained from the Ethics Committee for Non-Medical and Medical Research of KTO Karatay University Faculty of Medicine (approval number and date: 41901325-0.50.99/ 03.05.2018/2018-008), and written permission was received from the Ministry of Family and Social Policies. Consent was received from the elderly who agreed to participate in this study to protect their rights; they were informed of the purpose of the study and were reminded that they had the right to refuse to participate or to withdraw from the study at any time.

RESULTS

The mean age of the elderly persons included in the study was 71.59 ± 8.41 . The distribution of each age range was as follows: 150 (63.0%) participants were 65-74 years of age, 68 (28.6%) were 75-84 years of age and 20 (8.4%) were aged 85 or older.

Of these 238 participants, 71.8% had been diagnosed with chronic diseases ($n=171$). Of the participants, 79% stated that they went for regular check-ups, and 82.4% were continuously using drugs. Of all the participants, 73.5% had worked previously,

42% were found to permanently attend nursing home activities (Table 1).

In our study, the mean score of the HLS was found to be 47.08 ± 13.38 , and the PHS mean score was determined as 52.64 ± 6.50 . A low positive correlation was found between HLS and PHS ($r = 0.341$, $p < 0.001$) (Table 2).

The PHS mean score was higher in female (53.70 ± 5.91) than in male participants (51.86 ± 6.81). A statistically significant difference was observed among educational status, working status, chronic disease, and PHS mean scores ($p < 0.05$) (Table 3). According to the Post Hoc analysis, the mean score of the literate respondents (46.72 ± 5.07) was statistically significantly lower compared to the primary school (51.76 ± 5.67), the secondary school (52.87 ± 6.36), the high school (53.75 ± 5.66) and university graduate (53.98 ± 7.38) ($p < 0.05$).

In our study, It was found a statistically significant difference between HLS mean scores according to educational status. According to the Post Hoc analysis, the mean score of the literate respondents (38.20 ± 14.99) was statistically significantly lower compared to the primary school (44.18 ± 11.46), the secondary school (45.79 ± 10.46), the high school (48.12 ± 13.72) and university graduate (52.08 ± 12.88) ($p < 0.05$). Also, a significant difference was noted between the HLS mean score of the participants and their working status ($p < 0.05$), and the HLS mean score of those who had never worked (51.54 ± 15.83) was significantly higher than the scores of those who had worked previously (45.47 ± 12.03). The HLS mean score of individuals with a poor economical status was significantly lower than those with moderate or good economical status. The HLS mean score of respondents without chronic disease (48.30 ± 13.63) was statistically significantly higher than those with chronic disease ($p < 0.05$). In addition, the HLS mean score of those going for regular check-ups (50.62 ± 12.76) was statistically higher compared to those not going for regular check-ups ($p < 0.05$). Post hoc analysis was found that the



Table 1. Descriptive features of the participants (Ankara, Konya-Turkey 2018)

Age Mean $\pm$ SD, Median (Min-Max)	71.59 $\pm$ 8.41	72 (52 -92)
65-74	150	63.0
75-84	68	28.6
85+	20	8.4
Sex	Number	%
Female	101	42.4
Male	137	57.6
Education Status		
Literate	57	23.9
Primary school graduate	83	34.9
Secondary school graduate	39	16.4
High school graduate	34	14.3
University graduate	25	10.5
Marital Status		
Single	109	83.6
Married	39	16.4
Having Children		
Yes	190	79.8
No	48	20.2
Number of Children (n=190) Mean $\pm$ SD, Median (Min-Max)	3.39 $\pm$ 1.77,	3 (1-10)
1-2	74	38.9
3-4	66	34.7
>5	50	26.3
Working status		
Had not worked previously	63	26.5
Had worked previously	175	73.5
Economical Status		
Good	81	34.0

Moderate	140	58.8
Poor	17	7.1
Diagnosed Chronic Disease		
Yes	171	71.8
No	67	28.2
Getting Knowledge About Disease (n=171)		
Yes	171	100.0
No	0	0.00
Source of Knowledge		
Nurse	27	15.8
Physician	138	80.7
Other (friend. Another patient etc.)	6	3.5
Attending to Regular Checks		
Yes	188	79.0
No	50	21.0
Continuous Use of Drugs		
Yes	196	82.4
No	42	17.6
Engagement in Nursing Home Activities		
Always	100	42.0
Sometimes	51	36.6
Never	87	21.4

Table 2. Mean scores received from hls and phs scales of the participants (Ankara, Konya-Turkey, 2018)

SCALE	Mean±SD	Median(Q1-Q3)	Min	Max	r	p
HLS	47.08±13.38	46.00(37.75-55.25)	25	99	0.341	<0.001
PHS	52.64 ±6.5	51.00(48.00-56.00)	28	69		

^aPearson correlation analysis was used



HLS mean score participants permanently participating in nursing home activities (52.61 ± 14.68) was statistically higher than the scores of individuals who never (48.23 ± 12.4) or sometimes (43.25 ± 12.42) participated in these activities ($p < 0.05$) (Table 3).

In the regression analysis conducted within the scope of this study, the model established by utilizing the variables that predict health perception was significant ($F = 13.368$; $p < 0.001$). Chronic disease and health literacy score were found to relate the total health perception score. Durbin-Watson test was used to test whether there were autocorrelation and multicollinearity problems in the research data and Variance Inflation Factor (VIF) values were used. Durbin-Watson coefficients, which are expected to be between 1.5 and 2.5, were found to be 2.082 in this study. In addition, it is stated that VIF values should be less than 10 so that there is no multicollinearity problem. In this study, VIF values were found below 10 (1.060-2.259). Thus, it was concluded that there is no autocorrelation and multicollinearity problem in the data set. This result indicates that the model was well established.

In Table 4 the variables of education status, sex, economical status, working status, chronic disease and health literacy score were transferred to the multivariable linear regression model. Overall, these variables predicted 23.8% of the change in health perception score was explained by the above-mentioned variables ($r = 0.258$, $r^2 = 0.238$). The study found two variables (chronic disease and health literacy score) that relate perception of health statistically significant.

DISCUSSION

In our study, when the HLS total mean score of the elderly persons was evaluated, health literacy levels were found to be low. Previous studies in the literature have also found that elderly people have low or insufficient health literacy levels (2-5). The literature suggests that lower education level was among

the strongest predictors associated with insufficient health literacy. Our study revealed that as the educational level of elderly increased, the HLS mean scores also significantly increased, and university graduates had the highest scores. This result is consistent with many studies in the literature (18,19). This result may stem from the fact that education is a functional process that regulates different disciplines in human life and causes behavioral changes.

When the health literacy level of the participants was evaluated according to their occupations, housewives were found to have higher levels of health literacy. This finding is consistent with the study conducted by Cimen and Bayık Temel. However, Özdemir et al. (20) reported that housewives had low health literacy scores in their research. Another study conducted by Ansari et al. (21) reported that the health literacy level of older adults was not significantly related to occupation. In contrast, Liu et al. (19) reported a significant difference in health literacy scores among different factors related to occupation. The reason for the different levels of health literacy for occupational groups in different studies may originate from the socio-cultural differences of elderly people.

Economic status is another factor related the health literacy status of elderly. In our study, the elderly participants assessing their economic status as good had higher health literacy levels. This result is consistent with the results of the previous studies (19-21). It is an expected result that an individual with a good economical status would give more importance to their health and have a high level of health literacy.

Moreover, the health literacy levels of the participants without any chronic disease were higher in our study compared to those with chronic diseases. Similarly Liu et al. (22) reported that the prevalence of chronic diseases was significantly lower among a group with adequate health literacy. This result may be related to health-protective activities of the elderly without chronic diseases. In this study, the

Table 3. Mean PHS and HLS scores according to various descriptive characteristics of the participants (Ankara, Konya-Turkey, 2018)

Descriptive feature	PHS Mean±SD	HLS Mean±SD
Age (Mean±SD) Median (Min-Max) 71.59±8.41 72 (52 -92)		
65-74 75-84 85+	52.06±6.37 51.78±6.73 52.85±6.73 $\chi^2=1.937$ p:0.380	45.92±13.57 49.28±12.86 48.25±13.31 $\chi^2=4.168$ 0.124
Sex		
Female	53.7±5.91	48.69±14.78
Male	51.86±6.81	45.88±12.16
	Z=-2.130 p=.033*	t=1.560 p=.120
Education Status		
University graduate	53.98±7.38 ^a	52.05±12.88 ^a
High School	53.75±5.66 ^b	48.12±13.72 ^b
Secondary School	52.87±6.36 ^c	45.79±10.46 ^c
Primary School	51.76±5.67 ^d	44.18±11.46 ^d
Literate	46.72±5.07 ^e	38.2±14.99 ^e
	F=7.267 p<0.001**	$\chi^2=27.091$ p<0.001**
Marital Status		
Married	52.61±7.46	51.87±17.48
Single	52.64±6.31	46.14±12.26
	Z=-.247 p=.805	t=1.957 p=.057
Having Children		
Yes	52.51±6.36	47.5±13.46
No	53.14±7.05	45.4±13.07
	Z=-.473 p=.636	Z=-.735 p=.463
Workind status		
Had not worked previously Had worked previously	50.17±5.80 52.72± 6.59 Z:-2.868 p:0.004*	51.54±15.83 45.47±12.03 t:-2.708 p:0,007*
Economical Status		
Poor	51.51±7.02	42.21±12.61
Moderate	53.03±6.16	48.59±12.93



Good	54.76±6.09	57.76±11.91
	$\chi^2=2.400$ $p=.093$	$\chi^2=26.211$ $p<0.001^*$
Diagnosed Chronic Disease		
No	53.39±6.31	48.3±13.63
Yes	50.71±6.6	43.94±12.26
	$Z=-2.676$ $p=.007^*$	$t=2.282$ $p=.023^*$
Attending to Regular Checks		
No	52.32±6.56	46.13±13.41
Yes	53.82±6.17	50.62±12.76
	$t=-1.444$ $p=.150$	$Z=-2.424$ $.015^*$
Continuous Use of Drugs		
No	52.77±6.31	47.67±13.37
Yes	52.02±7.36	44.29±13.25
	$Z=-.432$ $p=.666$	$Z=-1.647$ $p=.100$
Engagement in Nursing Home Activities		
Sometimes	51.99±6.36	43.25±12.42 ^a
Never	52.96±6.1	48.23±12.4 ^b
Always	53.39±7.36	52.61±14.68 ^c
	$\chi^2=1.862$ $p=.394$	$\chi^2=17.384$ $p<0.001^{**}$

*The Mann-Whitney U test was used

**The Kruskal-Wallis test was used

a>b>c>d>e According to education level, underlined groups that cause significant differences between groups.

a<b<c According to engagement in nursing home activities, underlined groups that cause significant differences between groups.

Table 4. Variables related to the health perception of the participants (Ankara, Konya-Turkey, 2018)

Variables	B	β	T	p	CI (95%)
Education status	0,277	0,055	0.851	0.396	-0.365-0.920
Sex	2.065	0.158	1.958	0.051	-0.013-4.143
Economical status	0.262	0.024	0.385	0.701	-1.079-1.603
Chronic disease	2.891	0.201	3.443	0.001	1.237-4.546
Working status	-0.681	-0.046	-0.545	0.586	-3.143-1.781
Health Literacy score	-0.190	-0.393	-6.309	<0.001	-0.250-(-0.131)

^aMultivariate regression analysis was used.

health literacy of elderly people regularly going for check-ups was higher than the ones who did not. Similarly Yoshida et al. (23) reported that individuals with limited health literacy had a low rate of regular medical check-ups. This is an expected result because going for regular check-ups enables an individual to get more information about health and to communicate more with healthcare professionals. Our study also concluded that the health literacy of the elderly respondents continuously participating in nursing home activities was higher compared to those who sometimes or never participated in these activities. This results from exchanges of more information in such social environments.

Perceived health status is often used in the evaluation of the health status of societies (24). In addition, an individual's health perception directly relates his or her healthy lifestyle behaviors (25). In our study, elderly health perception was at a moderate level. Also, a statistically significant difference was noted in our study among the health perception status of elderly and sex, education level, occupation, and the presence of chronic disease. Similarly, Çimen and Bayık Temel (6) reported that one-third of the elderly perceived their health at a moderate level in their study. However, Altay et al. (26) reported in their study that the elderly perceived their health as good and that age, family type, and chronic diseases related their perceptions of health. The reason for the different levels of health perception and the diversity of factors related it in different studies may originate from sociocultural differences in elderly people.

Health literacy and health perception are important health criteria that influence each other. In a study conducted in Turkey, the authors found that

as the perceived health level of older individuals increased, their health literacy levels increased (6). Also, Say Şahin et al. (27) reported that health literacy subdimensions are important determinants of the health perception dimensions. Some studies in the literature have also found a similar relationship between health literacy and health perceptions (28,29).

CONCLUSION

In this study, while the health perception of elderly participants was at a moderate level, their health literacy was low. Variables of sex, education status, occupation, and the presence of diagnosed chronic disease were found to relate the health perception of elderly. In addition, the education status, occupation, economic status, the presence of diagnosed disease, regular check-ups and participation in nursing home activities were found to relate the health literacy level.

In line with these results, carrying out society-based awareness studies is recommended as a way to increase the health perception and health literacy of elderly people.

Acknowledgements

We thank all the elderly people who participated in this study.

Declaration of Conflicting Interests

The authors declare no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

No funding is reported for this submission.



REFERENCES

1. Wit L, Karnaki P, Dalma A, et al. Health literacy in the everyday lives of older adults in Greece, Hungary, and the Netherlands. *Journal of Environmental and Public Health* 2020; 17 (2411): 1-16. (PMID: 32252281)
2. Hochhauser M, Brusovansky M, Sirotin M, Bronfman K. Health literacy in an Israeli elderly population. *Israel Journal Of Health Policy Research* 2019; 8(1): 1-9. (PMID: 31291986)
3. Liu YB, Liu L, Li YF, Chen YL. Relationship between health literacy, health-related behaviors and health status: A survey of elderly Chinese. *International Journal Of Environmental Research And Public Health* 2015; 12(8): 9714-9725. (PMID: 26295246)
4. Sorensen K, Van den Broucke S, Fullam J et al. Health literacy and public health: a systematic review and integration of definitions and models. *BMC Public Health*. 2012; 12(80): 1-13. (PMID: 22276600)
5. Reliability and Validity Study of Health Literacy Scales in Turkey. Republic of Turkey Ministry of Health [e-book]. Publication; 2016. [Internet]. Available from: <https://sbu.saglik.gov.tr/Ekutuphane/kitaplar/Sa%C4%9Fl%C4%B1k%20Okur%20Yazar%C4%B1%C4%9F%C4%B1.pdf>. Accessed: 19.11.2020.
6. Çimen Z, Bayık Temel A. Investigation of Health Literacy, Perception of Health and Related Factors in Elderly Patients with Chronic Illness. *Journal of Ege University Nursing Faculty* 2017; 33 (Suppl 3): 105-25. (in Turkish)
7. Chesser AK, Keene Woods N, Smothers K, Rogers N. Health literacy and older adults: a systematic review. *Gerontology and Geriatric Medicine* 2016; 2: 1-13. (PMID: 28138488)
8. Cho YI, Lee SY, Arozullah AM, Crittenden KS. Effects of health literacy on health status and health service utilization amongst the elderly. *Social Science and Medicine* 2008; 66(8): 1809-1816. (PMID: 18295949)
9. Cherrington CC, Lawson TN, Clark KB. Illness representation of patients with systolic heart failure. *Progress in Cardiovascular Nursing* 2006; 21(4): 190-195. (PMID: 17170594)
10. Karaoglu N, Karaoğlu KB, Yardımcı H. Comparison of Health Perception and Health Anxiety Levels of Sociology and Medical Students. *Ankara Medical Journal* 2020; (3): 615-628. (in Turkish) (DOI:10.5505/amj.2020.43660).
11. Sørensen K, Van den Broucke S, Pelikan JM, et al. Measuring health literacy in populations: illuminating the design and development process of the European Health Literacy Survey Questionnaire (HLS-EU-Q). *BMC Public Health* 2013; 13:948 (PMID: 24112855)
12. Toçi E, Burazeri G, Sorensen K, et al. Health Literacy and Socioeconomic Characteristics among Older People in Transitional Kosovo. *Journal of Advances in Medicine and Medical Research* 2013;3(4):1646-1658. (PMID: 24604915)
13. Aras Z, Temel AB. Evaluation of Validity and Reliability of The Turkish Version of Health Literacy Scale. *Florence Nightingale Journal of Nursing* 2017; 25(Suppl 2): 85-94. (in Turkish) (DOI:10.17672/fnhd.94626).
14. Diamond JJ, Becker JA, Arenson CA, Chambers CV, Rosenthal MP. Development of a scale to measure adults' perceptions of health: Preliminary findings. *Journal of Community Psychology* 2007; 35(5): 557-561. (DOI:10.1002/jcop.20164).
15. Kadioğlu H, Yıldız A. Validity and Reliability of Turkish Version of Perception of Health Scale. *Türkiye Klinikleri Journal of Medical Sciences* 2012; 32(1): 47-53. (in Turkish) (DOI:10.5336/medsci.2010-21761).
16. Karagöz Y, Kösterelioğlu İ. Developing Evaluation Scale of Communication Skills with Factor Analysis. *Dumlupınar University, Journal of Social Sciences* 2008;21:82-97. (in Turkish)
17. Kılıç S. Cronbach's alpha reliability coefficient. *Journal of Mood Disorders* 2016;6(1):47-48. (DOI: 10.5455/jmood.20160307122823) (in Turkish)
18. Javadzade SH, Sharifirad G, Radjati F, Mostafavi F, Reisi M, Hasanzade A. Relationship between health literacy, health status, and healthy behaviors among older adults in Isfahan, Iran. *Journal of Education and Health Promotion* 2012; 1: 1-7. (PMID: 23555134)
19. Liu Y, Wang Y, Liang F et al. The health literacy status and influencing factors of older population in Xinjiang. *Iran J Public Health* 2015; 44(7): 913-919. (PMID: 26576369)
20. Özdemir H, Alper Z, Uncu Y, Bilgel N. Health literacy among adults: a study from Turkey. *Health Education Research* 2010; 25(3): 464-477. (PMID: 20080808)
21. Ansari H, Almasi Z, Ansari-Moghaddam A, et al. Health literacy in older adults and its related factors: a cross-sectional study in Southeast Iran. *Health Scope* 2016; 5(4): e37453. (DOI:10.17795/jhealthscope-37453)

22. Liu L, Qian X, Chen Z, He T. Health literacy and its effect on chronic disease prevention: evidence from China's data. BMC Public Health 2020; 20(690): 1-14. (PMID: 32410604)
23. Yoshida Y, Iwasa H, Kumagai S et al. Limited functional health literacy, health information sources, and health behavior among community-dwelling older adults in Japan. ISRN Geriatrics 2014; 2014: 1-6. (DOI:10.1155/2014/952908)
24. Eser E, Eser S, Özyurt BC et al. Perception of quality of life by a sample of Turkish older adults: WHO-QOL-OLD project Turkish focus group results. Turkish Journal of Geriatrics 2005; 8 (4): 169-183.
25. Kulakçı H, Kuzlu Ayyıldız T, Emiroğlu ON et al. Evaluation of The Self-Efficacy Perceptions and Healthy Lifestyle Behaviors of Elderly People Living in Nursing Home. E-Journal of Dokuz Eylül University Nursing Faculty 2012; 5 (2): 53-64. (in Turkish)
26. Altay B, Çavuşoğlu F, Çal A. The Factors Affecting the Perception of Elderly Patients Towards Health, Quality of Life and Health-Related Quality of Life. TAF Preventive Medicine Bulletin 2016;15(3):181-189. (In Turkish). (DOI:10.5455/pmb.1-1438765038).
27. Say Şahin D, Özer Ö, Songur C. Effect of health literacy on health perception: an application in individuals at age 65 and older. Social Work in Public Health 2018; 33(2): 85-95. (PMID: 29257934)
28. Toci E, Burazeri G, Jerliu N et al. Health literacy, self-perceived health and self-reported chronic morbidity among older people in Kosovo. Health promotion international 2015; 30(3): 667-674.(PMID: 24604915)
29. Kim SH, Lee E. The influence of functional literacy on perceived health status in Korean older adults. Journal of Korean Academy of Nursing 2008; 38 (2): 195-203. (PMID: 18458516)