

## Relationship between Health Literacy and Quality of Life in the Elderly\*

### Yaşlılarda Sağlık Okuryazarlığı ve Yaşam Kalitesi İlişkisi

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#### Abstract

**Objective:** This study was planned to determine the relationship between health literacy and quality of life in the elderly.

**Methods:** The study population elderly aged 65 years and over admitted to the registered to family health centers affiliated to Erzurum Provincial Health Directorate center between May 2019 and June 2019. The sample of the study consisted of 253 elderly individuals. The study was completed with 204 individuals who admitted to the family health center at the specified dates and agreed to participate in the study. In the data collection, Quality of Life in Elderly Scale and Health Literacy Scale, and Sociodemographic Questionnaire, which was developed by the researcher, were used. Data were analyzed with arithmetic mean, standard deviation, independent groups t-test, ANOVA, Welch ANOVA, Bonferroni and the correlation tests.

**Results:** It was determined that 59.3% of the elderly who participated in the research were male, 61.3% were primary school graduates, 66.7% were individuals who did not read, and 54.9% described their health status as good. The mean Quality of Life in the Elderly Scale score was 20.73±9.51, and the Health Literacy Scale mean score was 46.90±9.21. In the correlation analysis between health literacy and quality of life scales in the elderly, a positive correlation was found.

**Conclusion:** The level of health literacy in the elderly was found to be moderate and the quality of life was below average, and it was concluded the increase of health literacy in the elderly can be effective on their quality of life.

**Keywords:** Elderly, health literacy, older individuals, quality of life

\* Geliş Tarihi: 07.04.2023 / Kabul Tarihi: 25.07.2023

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**Atıf;** Kılıç, D., Türkoğlu, N., & Ata, G. (2023). Relationship between health literacy and quality of life in the elderly. *Halk Sağlığı Hemşireliği Dergisi*, 5(2), 129-141. <https://doi.org/10.54061/jphn.1278825>



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**Öz**

**Amaç:** Bu araştırma, yaşlılarda sağlık okuryazarlığı ve yaşam kalitesi arasındaki ilişkiyi belirlemek amacıyla planlanmıştır.

**Yöntem:** Araştırma evrenini Mayıs 2019-Haziran 2019 tarihleri arasında Erzurum İl Sağlık Müdürlüğüne bağlı aile sağlığı merkezlerine kayıtlı olan 65 yaş ve üstü yaşlılar oluşturmaktadır. Örneklemi ise 253 yaşlı birey oluşturmuştur. Ancak ilgili tarihlerde aile sağlığı merkezine başvuran, çalışmaya katılmayı kabul eden 204 bireyle çalışma tamamlanmıştır. Veri toplamada, araştırmacı tarafından oluşturulan sosyodemografik soru formu, Yaşlılarda Yaşam Kalitesi Ölçeği ve Sağlık Okuryazarlığı Ölçeği kullanılmıştır. Veriler aritmetik ortalama, standart sapma, bağımsız gruplarda t-testi, ANOVA, Welch ANOVA, Bonferroni testleri ve korelasyon ile analiz edilmiştir.

**Bulgular:** Araştırmaya katılan yaşlıların %59.3'ünün erkek, %61.3'ünün ilköğretim mezunu, %66.7'si kitap okumayan bireyler olduğu ve %54.9'unun sağlık durumlarını iyi olarak nitelendirdiği belirlenmiştir. Yaşlılarda Sağlık Okuryazarlığı Ölçeği puan ortalaması  $46.90 \pm 9.21$ , Yaşam Kalitesi ölçeği puan ortalaması  $20.73 \pm 9.51$  olarak saptanmıştır. Sağlık Okuryazarlığı ve Yaşlılarda Yaşam Kalitesi ölçekleri arasında bakılan korelasyon analizinde pozitif yönde bir ilişki olduğu saptanmıştır.

**Sonuç:** Yaşlıların sağlık okuryazarlığı düzeylerinin orta düzeyde, yaşam kalitesi düzeylerinin de orta seviyenin altında olduğu ve yaşlılarda sağlık okuryazarlığının artmasının yaşam kaliteleri üzerinde etkili olabileceği saptanmıştır.

**Anahtar kelimeler:** Sağlık okuryazarlığı, yaşam kalitesi, yaşlı, yaşlılık

## INTRODUCTION

According to the World Health Organization (WHO) data, the population of older individuals will reach up to 2 billion worldwide in the year 2050, and it is predicted that 80% of these individuals will live in countries with low and medium income. Like in the world, the proportion of older individuals is increasing every day in our country as well. According to the Turkish Statistical Institute data, the proportion of older individuals in our country was 8.8% in the year 2018 (Altay et al., 2016; TSI, 2019; WHO, 2022).

Old age is a physiological process, and maintaining a healthy life in the old age period, when many psychological and sociocultural changes are experienced, is the fundamental right of individuals and is among the main topics of many national and international institutions primarily the WHO. The WHO defines healthy aging as the process of the improvement and maintenance of functional ability that enhances welfare in the old age period (Liu et al., 2015; WHO, 2019). In this process, older individuals' taking responsibility for their own health, understanding the information they gain, and making health decisions for themselves and others are important factors. Individuals' health literacy skills are the underlying factor (Yılmazel & Çetinkaya, 2016). Most sources define health literacy as "the level of individuals' obtaining and having the ability to understand and practice fundamental health knowledge and services in order to maintain healthy and taking appropriate decisions about their health" (Hayran & Özer, 2018; Liu et al., 2015; WHO, 2019; Yılmazel & Çetinkaya, 2016).

Health literacy is known to affect many health-related issues including the use of protective health services, participation in screening programs, control of chronic cases, and mortality (Hayran & Özer, 2018; Liu et al., 2015; WHO, 2019; Yılmazel & Çetinkaya, 2016). Inadequate health literacy of particularly older individuals is associated with various health outcomes such as increased hospitalization, increased use of emergency care, inappropriate medicine use, and poorer health levels (Song et al., 2017). Improvement of health literacy has positive effects on older individuals' knowledge and attitudes about health, self-efficacy, motivation, and problem-solving skills. Besides, older individuals with high self-efficacy are reported to have higher ratios of developing healthy lifestyles, have better health conditions, and benefit from health services effectively (Ölmez & Barkan, 2015). Beyond all these, health literacy is one of the most important factors in increasing quality of life in the process of the old age period (Hayran & Özer, 2018; Ölmez & Barkan, 2015; Song et al., 2017; Wang et al., 2015; Yılmazel & Çetinkaya, 2016). The concept of quality of life, which includes a subjective, multidimensional assessment of an individual's life from various aspects, does not have a single definition (Rocha et al., 2017) yet it generally refers to being happy, enjoying life, and overall "well-being" (Altay et al., 2016; Song et al., 2017; Türkođlu & Adıbelli, 2014).

Studies show that the quality of life is important at all age periods, but generally, it is discussed more in the old age period because old age, with the emergence of many problems, is a period with the highest decrease in the quality of life. Quality of life is significantly affected by problems happening with aging such as cognitive destruction, limitations and decreases in daily life activities, chronic degenerative diseases, physical inadequacies, pain, social isolation, and decrease in life satisfaction (Boylu & Paçacıođlu, 2016; Song et al., 2017). In addition to these, important variables affecting the quality of life include the availability and accessibility of health services, socio-economic condition, marital status, family and home-related issues, income level after retirement, and the role and status changes (Altay et al., 2016; Türkođlu & Adıbelli, 2014). When the literature is examined, it is seen that studies evaluating the relationship between health literacy and quality of life in the elderly were conducted after the dates of this study, and there are limited numbers in our country (Çiftci et al., 2023; Kozak & Akyıl, 2021), in foreign literature (Aryankhesal et al., 2019; Hu et al., 2019; Lee & Oh, 2020; Mehralian et al., 2023; Panagiotti et al., 2018; Sirisuwan et al.,

2021; Wei & Xu, 2022) it has been determined that health literacy is generally low and there is a positive relationship between health literacy and quality of life. The relationship between health literacy and quality of life was also proven in a meta-analysis study (Zheng et al., 2018).

In this regard, the determination of the characteristics of older individuals in our country about the quality of life as well as health literacy, one of the most important factors affecting the quality of life, and a scientific investigation of the interaction between them is highly important. Therefore, this study aims to determine the relationship between health literacy and quality of life in the elderly.

## METHODS

**Study Design:** The study adopted a descriptive and cross-sectional design.

**Variables of the Study:** The independent variables were the sociodemographic characteristics of the elderly. The dependent variable was the The Health Literacy Scale score.

**Settings of the Study:** The sample of the study was determined by the two-stage cluster sampling method. Three regions were selected by random sampling from 22 family health centers (FHC) in the city center.

**Population of the Study:** The sample of the study was determined by the two-stage cluster sampling method. Three regions were selected by random sampling from 22 family health centers (FHC) in the city center. Each FHC was considered as a cluster. Three FHC, one from each central district of the relevant province, are the FHCs with the highest number of registered individuals. The study group consisted of all elderly individuals who accepted to participate in the study and who did not have communication restrictions, among those who applied to the FHCs of the regions during the study. The data were collected during the daytime, every weekday, in line with the working hours of the family health centers. The selection of the participants was random and was made from among the elderly who volunteered and met the inclusion criteria after the purpose of the study was explained and informed consent was obtained. Sample size is 5% margin of error and confidence interval in each FHC region it was accepted as 95% and calculated as 68. Since the cluster sampling method was used, the pattern effect was taken as 3, and it was determined as 204 people in total. In the study “G. Posthoc power analysis was performed using the Power-3.1.9.7” program with a medium effect size and 0.05 margin of error. In the study, correlation analysis was used to determine the relationship between the Health Literacy Scale and The Quality of Life in Older Adults Scale mean scores of elderly individuals. Accordingly, the effect size of the study was 0.5; The alpha value was determined to be 0.05 and the power to be 0.99.

**Data Collection:** The sample of the study was determined by the two-stage cluster sampling method. Three regions were selected by random sampling from 22 family health centers (FHC) in the city center.

### Data Collection Tools

**The Socio-demographic Form:** The 18-item Socio-demographic Form used in the study included questions about gender, age, family type, presence of social security, education level, marital status, income level, working or not, reading books, and health condition.

**The Health Literacy Scale (HLS-14):** The Health Literacy Scale was developed in 2010 by Suka et al. (2013) to measure adult individuals' health literacy levels in Japan (Suka et al., 2013). Turkish validity and reliability of the scale were performed by Türkoğlu and Kılıç (Türkoğlu & Kılıç, 2021). The 14-item scale is composed of three sub-scales including Functional Health Literacy, Interactive Health Literacy, and Critical Health Literacy. Scores to be obtained from the scale range between 14 and 70, and higher total scores indicate higher literacy levels (Türkoğlu & Kılıç, 2021). In the validity and reliability study of the scale, the Cronbach's alpha value was 0.85, and in this study, the Cronbach's alpha value was 0.74.

**The Quality of Life in Older Adults Scale (CASP-19):** The Quality of Life in Older Adults Scale was developed by Hyde et al. (2003) to measure older individuals' quality of life (Hyde et al., 2003). Reliability and validity of the Turkish version of the scale were performed by Türkođlu and Adıbelli (2014) (Türkođlu & Adıbelli, 2014). Each item in the scale is responded on a 4-point Likert scale ranging from "never" (0 points) to "always" (3 points). The items in the 13-item scale are scored between 0 and 3. Items 1, 2, and 4 are scored reversely. Items 3, 5, 6, 7, 8, 9, 10, 11, 12, and 13 with positive statements constitute the Independence and Perceived Satisfaction sub-scale, and items 1, 2, and 4 with statements with negative meaning constitute the Barrier Perceptions sub-scale. Scores to be obtained from the scale range between 0 and 39. Higher scores indicate an increased quality of life. CASP-13 was used in the study, taking into account the number of items and the inclusion of understandable questions, so that the elderly individuals would not be bored during the data collection process and could give sincere answers to the questions. Being an up-to-date scale is another reason for preference. In the validity and reliability study of the scale, the Cronbach's alpha value was 0.91, and in this study, the Cronbach's alpha value was 0.90.

**Ethics Considerations:** Ethics Committee approval of the Faculty of Medicine was obtained for the study (Tarih:30.05.2019- B.30.2.ATA.0.01.00/381) and written permission was obtained from the institutions where the study was conducted. After explaining the purpose and duration of the study to the elderly individuals who will participate in the study, their written informed consent was obtained. The principles of the Declaration of Helsinki were complied with at all stages of the study.

**Data Analysis:** Data analysis included the use of arithmetic means, standard deviations, t-test in independent groups, one-way analysis of variance (ANOVA), and Welch ANOVA in cases when the group variances are not homogenous, and Bonferroni tests for Post Hoc analyses. Statistical significance was accepted  $p < .05$ . In this study, whether the groups distributed normally was determined. Skewness and Kurtosis values were analyzed for normality tests. The relationship between the Health Literacy Scale and The Quality of Life in Older Adults Scale was evaluated with the correlation coefficient ( $r$ ). If  $r < 0.3$  was defined as weak correlation,  $0.3 < r < 0.7$  as medium level, and  $0.7 < r < 1$  as strong correlation (Tabachnick ve Fidell, 2013).

## RESULTS

When the participating older individuals' descriptive characteristics were analyzed, it was found that 75.5% were aged between 65 and 74, the majority of them were males (59.3%), 61.3% graduated from primary school, and 92.2% were married. Besides, 63.7% had a nuclear family, 58.8% had income equal to expenses, 91.2% did not work, 93.6% had children, and 66.7% did not read books. When the participants' characteristics about reading books and health were analyzed, it was found that 66.7% did not read books, 51.5% had poor levels of reading books, 57.4% considered their health as good, 84.8% had a chronic disease, 67.6% used medicine regularly, 45.6% could never read medicine prospectus, 81.9% received information from health personnel, 48.5% sought treatment in a health institution once within the past one month. Participating individuals' Health Literacy Scale Functional Health Literacy sub-scale mean score was found  $17.19 \pm 6.71$ , Interactive Health Literacy sub-scale mean score was found  $16.64 \pm 4.75$ , Critical Health Literacy sub-scale mean score was found  $13.06 \pm 4.55$ , and the total Health Literacy Scale mean score was found  $46.90 \pm 9.21$ . The participants' Quality of Life Scale Independence and Perceived Satisfaction sub-scale mean score was found  $17.22 \pm 8.23$ , Barrier Perceptions sub-scale mean score was found  $3.50 \pm 2.61$ , and the total mean score was found  $20.73 \pm 9.51$  (Table 1).

**Table 1.** Distribution of the participants' HLS-14 and CASP-19

Scales		Number of Items	Min-Max	X±SS	Cronbach Alpha
HLS-14*	Functional Health Literacy	5	5-25	17.19±6.71	0.91
	Interactive Health Literacy	5	5-25	16.64±4.75	0.83
	Critical Health Literacy	4	4-20	13.06±4.55	0.90
	Total	14	18-67	46.90±9.21	0.74
CASP-19**	Independence and Perceived Satisfaction	10	0-30	17.22±8.23	0.91
	Barrier Perceptions	3	0-9	3.50±2.61	0.72
	Total	13	0-39	20.73±9.51	0.90

\*Health Literacy Scale \*\* The Quality of Life in Older Adults Scale

Correlation analysis indicated that there was a strong positive and significant relationship between the Health Literacy Scale total score and its sub-dimensions, Functional Health Literacy, Interactive Health Literacy and Critical Health Literacy scores, and the Quality-of-Life Scale (Table 2).

**Table 2.** Relationship between participants' HLS-14 and its sub-dimensions, and CASP-19

SCALES	Independence and Perceived Satisfaction	Barrier Perceptions	CASP-19**
Functional Health Literacy	r=0.681 <b>p=.000</b>	r= 0.655 <b>p=.000</b>	r= 0.740 <b>p=.000</b>
Interactive Health Literacy	r=0.645 <b>p=.000</b>	r= 0.798 <b>p=.001</b>	r= 0.412 <b>p=.000</b>
Critical Health Literacy	r= 0.536 <b>p=.001</b>	r= 0.107 <b>p=.126</b>	r= 0.734 <b>p=.001</b>
<b>HLS-14*</b>	r= 0.542 <b>p=.043</b>	r= 0.155 <b>p=.126</b>	r= 0.784 <b>p=.001</b>

\*Health Literacy Scale \*\* The Quality of Life in Older Adults Scale

Table 3 demonstrates the distribution of the participants' Health Literacy and Quality of Life in Older Adults Scale mean scores. The Health Literacy Scale total mean score was found to have no statistically significant difference by marital status, family type, working or not, and income level ( $p > .05$ ). The Quality of Life in Older Adults Scale total mean score indicated no statistically significant differences by marital status, family type, working or not, or having children ( $p > .05$ ). The Health Literacy Scale total mean score was found to be significantly lower in individuals who were aged 85 and over, who were males, who were literate, and who did not have children ( $p < .05$ ). The Quality of Life in Older Adults Scale total mean score was found to be significantly lower in those who were 85 and over, who were females, who were literate, and who had income less than expenses ( $p < .05$ ).

**Table 3.** Distribution of older individuals' descriptive characteristics according to the HLS-14 and CASP-19

	n	%	HLS-14*	Test and p	CASP-19**	Test and p
<b>Age Groups</b>						
65-74 age <sup>1</sup>	154	75.5	47.34±9.23	KW=7.050 <b>p=.029</b> <b>1,2&gt;3</b>	21.04±9.12	KW=11.778 <b>p=.003</b> <b>1,2&gt;3</b>
75-84 age <sup>2</sup>	38	18.6	47.23±8.27		22.28±9.81	
85 age and above <sup>3</sup>	12	5.9	40.25±9.88		11.25±9.00	
<b>Gender</b>						
Women	83	40.9	48.73±45.65	t=2.374	18.67±22.14	t=2.591
Men	121	59.3	45.65±9.90	<b>p=.019</b>	22.14±9.26	<b>p=.010</b>
<b>Education</b>						
Literate <sup>1</sup>	48	23.5	46.77±9.08	F=6.287 <b>p=.007</b> <b>3&gt;1</b>	19.70±10.25	F=4.287 <b>p=.015</b> <b>3&gt;1</b>
Primary education <sup>2</sup>	125	61.3	48.66±7.25		20.00±9.10	
High school and above <sup>3</sup>	31	15.2	50.70±11.87		25.25±8.97	
<b>Marital status</b>						
Married	188	92.2	47.09±9.23	U=1239.50	20.92±9.49	U=1176.000
Unmarried	16	7.8	44.75±8.96	p=.243	18.43±9.74	p=.148
<b>Family Type</b>						
Nuclear type	175	85.7	48.32±10.25	U=1024.50	19.85±7.47	U=1320.000
Extended family	29	14.3	47.62±9.87	p=.356	18.74±8.16	p=.157
<b>Working status</b>						
Yes	14	6.9	46.14±8.47	t=1.247	19.14±10.11	t=1.354
No	190	93.1	45.42±9.52	p=.245	20.25±8.69	p=.314
<b>Income</b>						
Low <sup>1</sup>	71	34.8	47.16±8.48	F=1.016 <b>p=.364</b>	17.64±9.79	F=5.997 <b>p=.003</b> <b>2,3&gt;1</b>
Adequate <sup>2</sup>	120	58.8	47.13±9.32		22.40±8.82	
Much <sup>3</sup>	13	6.4	43.38±11.74		22.15±10.71	
<b>Having a Child</b>						
Yes	191	93.6	47.43±9.07	t=3.241	20.95±9.36	t=1.282
No	13	6.4	39.07±7.83	<b>p=.001</b>	17.46±11.48	p=.201

Table 3 demonstrates the distribution of the participants' Health Literacy and Quality of Life in Older Adults Scale mean scores according to reading books and health-related characteristics. No significant differences were detected between the Health Literacy Scale total mean score and reading books, reading levels, health evaluation level, presence of a chronic disease, and obtaining information from the health personnel ( $p>.05$ ). No significant differences were detected between the Quality of Life in Older Adults Scale total mean score and chronic disease and seeking treatment in a hospital within the past one month ( $p>.05$ ). The Health Literacy total mean score was found to be significantly higher in those who used medicine regularly, who could always read medicine prospectus, and who sought treatment in three or more hospitals within the past one month ( $p<.05$ ). The Quality of Life in Older Adults Scale total mean score was found to be significantly higher in those who read books, who had a very good reading level, who perceived their health as good, who used medicine regularly, who could always read medicine prospectus, and who received information from health personnel ( $p<.05$ ).

Table 3. (continued)

	n	%	HLS-14*	Test and p	CASP-19**	Test and p
<b>Reading status</b>						
Yes	68	33.3	48.17±9.23	t=1.363	25.50±9.60	t=5.401
No	136	66.7	46.28±9.17	p=.175	18.34±8.55	<b>p=.000</b>
<b>Reading Level</b>						
Very good <sup>1</sup>	30	14.7	48.86±8.56	F=0.967	27.00±8.83	F=14.829
Good <sup>2</sup>	69	33.8	47.07±8.85	p=.382	22.57±9.35	<b>p=.000</b>
Worse <sup>3</sup>	105	51.5	46.23±9.61		17.72±8.66	<b>1&gt;3</b>
<b>Health assessment</b>						
Good <sup>1</sup>	117	57.4	46.23±10.29	F=0.801	24.50±8.03	F=30.031
Worse <sup>2</sup>	66	34.4	48.01±7.93	p=.450	16.74±8.85	<b>p=.000</b>
Very bad <sup>3</sup>	21	10.2	47.19±5.93		12.23±8.84	<b>1&gt;2,3</b> <b>2&gt;3</b>
<b>Chronic disease</b>						
Yes	173	84.8	47.32±8.97	t=1.532	20.30±9.93	t=1.508
No	31	15.2	44.58±10.27	p=.127	23.09±6.34	p=.133
<b>Medicine regularly Using</b>						
Yes	138	67.6	48.14±8.05	t=2.264	22.68±9.58	t=3.188
No	66	32.4	44.90±10.38	<b>p=.025</b>	17.90±9.58	<b>p=.002</b>
<b>Read medicine prospectus</b>						
Always <sup>1</sup>	42	20.6	48.64±8.65		27.14±9.11	
Sometimes <sup>2</sup>	33	16.2	43.84±10.62	F=5.635	22.00±7.98	F=11.144
Rarely <sup>3</sup>	36	17.6	45.05±9.26	<b>p=.041</b>	19.75±7.95	<b>p=.000</b>
Never <sup>4</sup>	93	45.6	41.92±8.64	<b>1&gt;4</b>	17.76±9.38	<b>1&gt;4</b>
<b>Receiving information from health personnel</b>						
Yes	167	81.9	46.70±9.42	t=0.679	21.47±9.21	t=2.415
No	37	18.1	47.83±8.21	p=.498	17.35±10.24	<b>p=.017</b>
<b>Number of hospital admissions</b>						
One <sup>1</sup>	99	48.5	45.17±9.85	F=3.751	21.39±9.53	F=2.683
Two <sup>2</sup>	51	25.0	47.90±8.52	<b>p=.025</b>	21.00±9.45	p=.071
Three and above <sup>3</sup>	54	24.5	49.14±8.06	<b>3&gt;1</b>	18.25±9.23	

\*Health Literacy Scale \*\* The Quality of Life in Older Adults Scale

## DISCUSSION

The participants' Health Literacy Scale Functional Health Literacy sub-scale mean score was 17.19±6.71, Interactive Health Literacy sub-scale mean score was 16.64±4.75, Critical Health Literacy sub-scale mean score was 13.06±4.55, and the total mean score was 46.90±9.21, indicating a moderate-level health literacy. These findings of the study are in line with the literature. Kozak and Akyıl (2021) reported that older individuals' Health Literacy Scale mean score was 25.53±11.18, and 75.6% of them had problematic/limited health literacy level (Kozak & Akyıl, 2021). A study conducted with older individuals in nursing homes reported relatively lower health literacy levels (Liu et al., 2015). Park et al. (2018) reported that 76% of older individuals had poor health literacy, 32.5% had limited health literacy, and only 23.8% had adequate health literacy (Park et al., 2018). Van Hoa et al. (2020) also reported that older individuals had low health literacy scores (Van Hoa et al., 2020). In a similar vein, many studies in the literature report that the majority of older individuals had inadequate or low health literacy (Borji et al., 2017). Hence, the health literacy of older individuals is a topic that should be given importance at an international level.

This study found that the Independence and Perceived Satisfaction sub-scale mean score of the Quality of Life in Older Adults Scale was 17.22±8.23, Barrier Perception sub-scale mean score was 3.50±2.61, and the total mean score was 20.73±9.51. Kozak and Akyıl (2021) and Arpacı et al.



(2015) reported older individuals' general quality of life mean score as moderate. Altay et al. (2016) also reported that older individuals' quality of life scale total mean score was  $75.74 \pm 9.99$ . Another study similarly reported high quality of life in 42.09% of older individuals (Sirisuwan et al., 2021). Hence, it is considered that older individuals' quality of life is not at the desired level, there is a need for interventions to increase their quality of life, and they should be provided with support on this issue.

The relationship between the Health Literacy Scale and The Quality of Life in Older Adults Scale was evaluated with the correlation coefficient ( $r$ ). If  $r < 0.3$  was defined as weak correlation,  $0.3 < r < 0.7$  as medium level, and  $0.7 < r < 1$  as strong correlation (Tabachnick & Fidell, 2013). The correlation analyses conducted in the study reported a strong positive and significant relationship between older individuals' health literacy and the quality-of-life scale. Studies in the literature seem to support this finding of the study. Kozak and Akyıl (2021) also detected a positive relationship between health literacy and quality of life. Increased health literacy was found to improve quality of life (González-Chica et al., 2016). Panagioti et al. (2018) associated poor health literacy with lower quality of life. Other studies in the literature also reported a positive and significant relationship between health literacy and quality of life in older individuals (Çiftci et al., 2023; González-Chica et al., 2016; Mehralian et al., 2023; Park et al., 2018; Sirisuwan et al., 2021; Wei & Xu, 2022). Hence, it can be concluded that older individuals' health literacy and quality of life are closely associated with each other, and interventions that have positive effects on health literacy increase quality of life as well.

This study found that the health literacy mean score was significantly lower in individuals who were 85 and over, who were males, who were literate, and who did not have children. The literature also reports similar findings. Kozak and Akyıl (2021) reported lower health literacy in older individuals at an advanced age and indicated that health literacy scores demonstrated changes according to the education level. Tiller et al. (2015) also found that health literacy was positively associated with education level, income level, and self-perceived social position. The literature also reported that health literacy demonstrated a significant relationship with age, education level, and income, and the health literacy level was found to be lower in individuals who were at an advanced age and who had low education and income level (Sabooteh et al., 2019; Suksatan et al., 2021). The higher education level of older individuals increased their health literacy scores. Similarly, health literacy scores were found to be significantly higher in older women compared to men. Average health literacy and all sub-scales scores of retired older individuals were significantly higher than working older individuals, and in working older individuals compared to non-working older individuals (Lee & Oh, 2020; Mahmoodi et al., 2021) found that health literacy decreased with the increase in age, increased with the increase in the education and income level, and working individuals had higher health literacy levels compared to non-working individuals. In this regard, the health literacy of older individuals was found to decrease with the increase in age and the decrease in the education levels; women and individuals who have children could be considered to be more advantageous in terms of health literacy.

Quality of life in Older Adults Scale mean score was found to be significantly lower in those who were aged 85 and over, who were females, who were literate, and who had income less than expenses. Kozak and Akyıl (2021) similarly found that quality of life increased with the increase in the education level. Advanced age, low education level, and disadvantaged socioeconomic status were reported to have negative effects on older individuals' quality of life (González-Chica et al., 2016). Health-related quality of life was also reported to be affected by education, monthly income, and employment status (Park et al., 2018). Hence, advanced age, being female, and low education and income level were found to affect older individuals' quality of life negatively, and it is considered that there is a need for interventions to increase the quality of life of individuals with these characteristics.

The Health Literacy Scale total mean score was found to be significantly higher in individuals who used medicine regularly, who could always read medicine prospectus, and who sought treatment in three or more hospitals within the past three months. The “Perceived Overall Health” variable was found to explain around 18% of older individuals’ health literacy levels (Hazer & Ateşođlu, 2019). Mahdizadeh & Solhi (2018) detected a significant relationship between older individuals’ health-seeking behaviors and various self-care behaviors and health literacy scores. Hence, it can be concluded that older individuals should be supported in terms of the issues such as using their medicine regularly, reading medicine prospectus, and having their health check-ups regularly so that their health literacy can be improved.

Quality of life in Older Adults Scale total mean score was found to be significantly higher in those who read books, who had a very good reading level, who perceived their health as good, who used medicine regularly, who could always read medicine prospectus, and who received information from health personnel. A significant relationship was reported between older individuals’ health perceptions and quality of life, and the quality of life was detected to be higher in older individuals who perceived their health as very good (Altay et al., 2016). Quality of life was also found to be affected by subjective health conditions, the number of medicines, and drug compliance (Park et al., 2018). Hence, the quality of life of individuals was affected by positive health perception and interaction with health personnel, and it is important and necessary to encourage older individuals to increase reading books/reading levels, use their medicine regularly, and gain prospectus reading behaviors to improve their quality of life.

## CONCLUSION

According to the results of the study, it can be concluded that the majority of the elderly individuals do not read a book, about half of them have never read the drug prospectus, the vast majority of them receive information from health personnel, and almost half of them have applied to a health institution in the last month. Elderly individuals have moderate health literacy and quality of life. Health literacy and quality of life are two important parameters related to each other in old age. As the level of health literacy increases in elderly individuals, the quality of life also increases.

Important steps can be taken to improve health literacy skills through regular and effective education interventions between nurses and other health professionals and older individuals. Similarly, it is important to consider health literacy levels in this population while designing interventions and care plans to improve the quality-of-life outcomes of older individuals.

**Acknowledgments:** This study was presented as an oral presentation at the 1. International Congress of Innovative Approaches in Nursing.

**Funding:** The author(s) received no financial support for the research.

**Conflict of interest:** The author(s) declare that they have no conflict of interest.

**Ethics Committee Approval:** Ethics Committee approval of the Faculty of Medicine was obtained for the study (Tarih:30.05.2019- B.30.2.ATA.0.01.00/381) and written permission was obtained from the institutions where the study was conducted.

**Peer-review:** Externally peer-review.

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Analysis of data for the study: NT, GA

Interpretation of data for the study: NT, GA

Drafting the manuscript: DK, NT, GA

Revising it critically for important intellectual content: DK, NT, GA

Final approval of the version to be published: DK, NT, GA

**Data Availability Statement:** The datasets used and analyzed during the current study are available from corresponding author upon request.

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