

The Effect of Health Literacy on Self-Efficacy and Quality of Life among Turkish Cancer Patients

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Abstract

Objective: To assess the effect of health literacy on cancer patients' self-efficacy and quality of life.

Methods: The cross-sectional, descriptive study was conducted from June 15 to November 15, 2017, at the Private Unit Hospital in Eskisehir, Turkey, and comprised cancer patients aged 18 years or above who were treated in the Medical Oncology clinics and who had received less than four points on the Eastern Cooperative Oncology Group performance scale. Data were collected using the European Health Literacy Survey, the Self-Efficacy to Manage Chronic Disease Scale and the European Organisation for Research and Treatment of Cancer Quality of Life-C30 scale.

Results: Of the 111 patients, 83(74.8%) were females. The overall mean age was 55.62±12.75 years. With a mean score of 36.09±6.42, the sample had 'sufficient health literacy'. There was a positive and significant relationship between the European Health Literacy Survey score and the general health subscale score ($p=0.036$), and a negative and significant relationship with the symptom subscale score ($p<0.01$). A statistically significant positive relationship was found between the Self-Efficacy to Manage Chronic Disease Scale and the functional ($p<0.001$) and general health ($p<0.001$) subscales while a statistically significant negative relationship ($p<0.001$) was found between the Self-Efficacy to Manage Chronic Disease Scale and the symptom subscale.

Conclusion: Increased literacy levels were found in cancer patients and it helped in improving in their self-efficacy, general health and functional status.

Keywords: Health literacy, Self-efficacy, Quality of life, Cancer. (JPMA 69: 995; 2019)

Introduction

Cancer is one of the most important health problems in the world today and Turkey is no different.¹ Approximately 70% of cancers develop because of health-related behaviours. It is important for individuals to understand basic health knowledge and services in order to receive high-quality healthcare and make appropriate health-related decisions.^{2,3} Educating patients and caregivers and applying this knowledge to the level of care provided is valuable for preventing negative health results and managing the diagnosis in general.^{4,5}

Health literacy is defined as the cognitive and social skills that determine the abilities and motivation of individuals to access, understand and use information in a way to

protect and promote positive health.⁶⁻⁸ Studies show that health literacy in the general population of Europe, United States of America and Turkey is inadequate or limited with the rates of 47%, 36% and 24.5% respectively.⁸⁻¹⁰ Studies report that low levels of health literacy result in individuals having difficulty understanding health information, performing medical procedures and following instructions, and encountering problems accessing healthcare services, which leads to health impairment and an increase in hospitalisations and healthcare-related costs.^{8,11}

Health literacy is a determinant of health management, but the number of studies on cancer health literacy is limited.¹²⁻¹⁴ Cancer management, which is complex depending on the characteristics of the diagnosis, treatments applied and the disposition of patients, have negative physical, emotional, social and economic consequences for patients and their families, restrict them from feeling satisfied with their lives and reduce

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their quality of life. Quality of life, which is regarded as an outcome of patient-based care, is affected not only by the disease itself, but also by a patient's personal characteristics such as health literacy, self-efficacy and psychological factors.^{6,15,16} A study conducted among hypertension patients showed that quality of life of patients with low self-efficacy and health literacy levels was also low.⁶ Similarly, other studies with cancer patients¹³ and patients with heart failure¹⁷ reported that patients with adequate health literacy had a better quality of life. Based on this information, health literacy and self-efficacy lead to symptom management and an increase in quality of life. The current study was planned to assess the effect of health literacy on cancer patients' self-efficacy and quality of life. It was expected that health literacy in cancer patients may directly affect the sense of self-efficacy and quality of life.

Patients and Methods

The cross-sectional, descriptive study was conducted from June 15 to November 15, 2017, at the Private Unit Hospital in Eskisehir, Turkey. The sample included patients aged 18 years or more who were treated in the Medical Oncology clinics, who were literate, received less than four points on the Eastern Cooperative Oncology Group (ECOG) performance scale,¹⁸ and voluntarily agreed to participate. The sample was selected using non-probability consecutive sampling. Sample size was not calculated and the whole universe that met the inclusion criteria was approached. The study was approved by the institutional ethics committee and the hospital administration. Written consent was obtained from the patients. Data were collected using the personal description form, the European Health Literacy Survey (HLS-EU-Q47), the Self-Efficacy to Manage Chronic Disease (SEMCD) scale, and the European Organisation for Research and Treatment of Cancer Quality of Life-C30 (EORTC QLQ-C30) scale.

HLS-EU-Q47 is a scale consisting of 47 questions and is used to assess health literacy. The level of health literacy was assessed in four categories according to the index values obtained in order to compare it with the European study: 0-25: inadequate health literacy; 25-33: problematic-limited health literacy; 33-42: sufficient health literacy; and 42-50: excellent health literacy. The reliability study conducted in Turkey indicated that the scale is reliable with the Cronbach's alpha value higher

than 0.80.⁸

SEMCD 10-point Likert-type scale, consisting of six items, was developed to assess self-efficacy perceptions in chronic disease management. High scores on the scale indicate the increasing self-efficacy levels of individuals in managing a chronic disease. The validity and reliability study of the scale in Turkish produced Cronbach's alpha value of 0.90.¹⁹

EORTC QLQ-C30 has 30 items and three subscales: general wellness, functional difficulties, and symptom control. High scores obtained on the scale indicate high level of quality of life while low scores represent low quality of life. The Cronbach's alpha coefficient was 0.90.²⁰

Categorical data were expressed as frequency and percentage. Descriptive statistics for continuous variables were expressed as median and quarter values. Mann-Whitney-U and Kruskal-Wallis tests were used to compare socio-demographic variables and disease characteristics with scores on the scales used. Spearman correlation analysis was used to assess the relationship among these scores.

Results

Of the 111 patients, 83(74.8%) were females. The overall mean age was 55.62 ± 12.75 years, and 63(56.8%) were primary school graduates. The mean HLS-EU-Q47 score was 36.09 ± 6.42 , while the mean SEMCD score was 6.07 ± 1.80 . The mean scores on EORTC QLQ-C30 subscales of functional, symptom and general health were 77.23 ± 17.52 , 23.60 ± 17.56 , and 67.56 ± 17.38 . The HLS-EU-Q47 and the SEMCD scores did not differ in terms of socio-demographic characteristics and cancer diagnoses ($p > 0.05$), but they showed statistically significant difference according to their stages of disease ($p < 0.05$). Mean HLS-EU-Q47 score of patients in the first stage of disease was significantly higher than that of patients in the third stage of disease ($p = 0.046$). SEMCD scores of patients who did not know the stage of their disease were higher than those who knew the stage of their disease ($p < 0.05$), while the mean SEMCD score of patients in stage III was significantly lower than those who did not know the stage of their disease ($p = 0.030$). There were no significant difference between symptom and general health subscale scores of patients according to their socio-demographic characteristics and disease diagnoses ($p > 0.05$), while their functional subscale mean

score was significantly different according to income level ($p < 0.05$) (Table 1).

Besides, there was a positive and significant relationship between the HLS-EU-Q47 score and the general health

subscale score of the EORTC QLQ-C30 scale ($p = 0.036$), and a negative and significant relationship with the symptom subscale score ($p < 0.01$). Patients whose health literacy score was low on general health and functional

Table-1: Distribution of European Health Literacy Survey (HLS-EU-Q47), Self-Efficacy to Manage Chronic Disease Scale (SEMCD) and European Organisation for Research and Treatment of Cancer Quality of Life-C30 (EORTC) scores according to socio-demographic and disease characteristics.

Characteristics	n (%)	HLS-EU-Q47		SEMCD		Functional score		EORTC QLQ-C30 subscales		General health score	
		Median (Q1-Q3)	p	Median (Q1-Q3)	p	Median (Q1-Q3)	p	Symptom score Median (Q1-Q3)	p	Median (Q1-Q3)	p
Gender											
Female	83 (74.8)	35.81 (32.97-39.71)	0.483	6.16(4.83-7.50)	0.950	84.44(68.88-91.11)	0.253	15.38(10.25-30.76)	0.081	66.66(58.33-75)	0.378
Male	28 (25.2)	34.57 (32.53-37.14)		6.41(5.04-7.16)		71.11(62.22-92.77)		20.51(13.46-42.94)		66.66(54.16-75)	
Education status											
Literacy	8 (5.4)	33.68(28.01-35.99)	0.616	6.08(5.08-6.16)	0.139	83.33(62.22-91.11)	0.932	24.35(16.02-37.17)	0.851	66.66(64.58-75)	0.850
Primary school	63 (56.8)	35.46(32.97-39)		6.16(4.66-7.16)		80(64.44-91.11)		20.51(10.25-30.76)		66.66(58.33-75)	
Secondary school	4 (3.6)	36.34(32.89-38.47)		7.16(5.91-8.75)		88.88(73.88-88.88)		21.79(12.82-34.61)		66.66(50-87.5)	
High school	20 (18.0)	35.28(33.06-40.07)		6.33(4.83-7.58)		84.44(68.88-92.77)		23.07(8.97-37.82)		66.66(66.66-79.16)	
University	16 (4.4)	37.05(34.13-43.79)		6.66(5.08-7.66)		83.33(73.33-92.77)		12.82(8.33-20.51)		70.83(66.66-79.16)	
Income status,											
Income does not meet the expenditure	22 (19.8)	35.28(31.73-36.17)	0.190	6.58(6.08-7.54)	0.318	91.11(80.00-93.33)a	0.011	15.38(10.25-21.15)	0.246	66.66(58.33-75)	0.129
Income is equal to the expenditure	86 (77.5)	35.63(32.97-41.22)		6.16(4.79-7.33)		78.88(64.44-91.11)b		20.51(12.17-35.89)		66.66(58.33-75)	
Income metes the expenditure	3 (2.7)	33.68(32.97-38.47)		6.16(5.66-7.08)		93.33(61.11-93.33)c		17.94(12.82-35.89)		83.33(79.16-87.5)	
Disease;											
Breast	68 (61.3)	35.81(33.33-40.60)	0.425	6.33(4.87-7.50)	0.866	86.66(73.33-91.11)	0.120	15.38(8.33-28.20)	0.228	66.66(66.66-75)	0.355
Ovarian, cervix	6 (5.4)	33.33(30.40-42.19)		5(3.33-8.12)		76.66(68.33-91.66)		19.23(13.46-32.05)		66.66(25-83.33)	
Prostate, testicular	3 (2.7)	33.68(31.38-34.21)		7.50(5.16-7.75)		93.33(81.11-93.33)		15.38(11.53-34.61)		50(37.5-70.83)	
Gastrointestinal	14 (12.6)	34.75(30.49-41.31)		5.91(4.95-7.12)		74.44(55-90)		23.07(15.38-36.53)		62.5(41.66-75)	
Haematologic	15 (13.5)	35.46(32.97-41.13)		6.16(4.50-7.16)		73.33(55.55-91.11)		28.20(10.25-41.02)		66.66(62.5-79.16)	
Lung, trachea, bronchial	5 (4.5)	34.39(25-34.75)		5.83(5-6.66)		66.66(33.33-66.66)		28.20(19.23-48.71)		66.66(41.66-75)	
Stage;											
I	21 (18.9)	37.58(34.75-43.08)k	0.049	6.16(3.83-7.16)p	0.035	84.44(65.55-93.33)a	0.027	15,38(5-5.50)t	0.006	66.66(66.66-75)f	0.009
II	60 (54.1)	35.46(33.33-41.93)l		6.25(5.20-7.50 q		85.55(70-93.33)b		15,38(10.25-26.92)u		66.66(66.66-83.33)g	
III	22 (19.8)	33.86(31.73-36.08)m		6.58(4.45-7.28)r		77.77(55.55-88.88)c		25.64(10.25-28.20) x		66.66(58.33-75)h	
IV	2 (1.8)	31.73(21.98-38.20)n		6.25(4.83-7.16)s		62.22(33.33-91.11)d		28.20(10.25-46.15) y		62.5(41.66-83.33)?	
Don't know	6 (5.4)	31.73(28.90-38.20)o k-m($p = 0.046$)		4.50(2.81-5.33)w r-w($p = 0.030$)		66.66(51.11-73.33)e a-e($p = 0.021$); e-b($p = 0.007$); b-c($p = 0.032$)		43.58(35.25-61.53) z u-z($p = 0.007$); t-z($p = 0.017$)		37.5(25-58.33)j f-j($p = 0.012$); g-j($p = 0.004$)	

Table-2: Correlation between age, duration of disease, European Health Literacy Survey (HLS-EU-Q47), Self-Efficacy to Manage Chronic Disease Scale (SEMCD), and European Organisation for Research and Treatment of Cancer Quality of Life-C30 (EORTC QLQ-C30) subscales.

Characteristics	1	2	3	4	5	6	7	
1. Age	r							
	p							
2. Duration of disease	r	0.135						
	p	0.157						
3. The frequency of going to the hospital	r	0.062	0.012					
	p	0.517	0.901					
4. HLS-EU-Q47	r	-0.107	-0.130	-0.0184				
	p	0.265	0.175	0.054				
5. SEMCD	r	0.050	0.075	-0.0184	0.032			
	p	0.603	0.434	0.053	0.741			
6. Functional subscale score	r	0.007	-0.131	-0.093	0.107	0.531		
	p	0.844	0.170	0.332	0.262	<0.001		
7. Symptom subscale score	r	-0.080	0.077	0.066	-0.334	-0.382	-0.667	
	p	0.406	0.421	0.492	<0.001	<0.001	<0.001	
8. General health subscale score	r	-0.019	0.016	-0.084	0.199	0.411	0.264	-0.409
	p	0.845	0.879	0.383	0.036	<0.001	0.005	<0.001

subscales, had higher score on the symptom subscale ($p < 0.05$). A significant positive relationship was found between the SEMCD and the functional ($p < 0.001$) and general health ($p < 0.001$) subscales of the EORTC QLQ-C30 scale, while a significant negative relationship ($p < 0.001$) was found between the SEMCD and the symptom subscale of the EORTC QLQ-C30 scale. There was no significant relationship between the patients' age, duration of disease, the frequency of going to the hospital and their scores on the HLS-EU-Q47 and SEMCD scales and the subscales of EORTC QLQ-C30 scale ($p > 0.05$) (Table 2).

Discussion

The current study showed that cancer patients comprising the sample fell in the category of 'sufficient health literacy'. Among these patients, the health literacy scores of stage I cancer patients were higher than those of stage III patients. Besides, it found a positive relationship between the health literacy levels of patients and their functional situation and general health status, and a negative and weak relationship with the symptom subscale. This result supports the hypothesis of the current study. Along with the findings above, it was attained that the self-efficacy levels of the participants were moderate, and having sufficient levels of health literacy did not affect self-efficacy. The functional and general health subscale scores of patients were high, and their symptom subscale scores were low, indicating that the quality of life of the participants was high. This may be because a great majority of the patients (73%) were in the first and second stages of cancer and the results can be associated with income status.

On the contrary, a study using the same assessment tool in Turkey found the health literacy score of health individuals to fall under the category of 'inadequate'.⁸ Studies related to the same topic showed that about half of the population (53%) had health literacy at the moderate level⁹ and 18% of the cancer patients had limited health literacy.³ In the present study, the result of 'sufficient' health literacy may be due to the sample group consisting of patients treated in a private hospital, as well as the close relationship of cancer patients with the concepts of health and disease. A study reported that the health behaviours of approximately half of the individuals obtaining information about health online are affected, but the web-based health education materials

cannot be understood because of health literacy at low levels.²¹ Therefore, the health literacy levels of individuals should be determined first, and then the educational content should be defined according to the specified levels to enable educational tools such as web-based services, written and visual sources, video and animation which are prepared to improve the health and disease knowledge of society to be understandable and convenient to use. Low levels of health literacy may cause individuals to use protective healthcare services inadequately.^{7,8,11} In the current study, the finding that the health literacy scores of stage I cancer patients were higher than the scores of stage III cancer patients supports the literature, considering that patients with high levels of health literacy may have used protective health services more effectively, and their diseases may have been diagnosed at an early stage. Focussing only on disease and treatment may not be adequate for managing cancer. Similar to the findings in our study, a study revealed that individual factors, such as health literacy and self-efficacy, have a great effect on improving the quality of life of patients.⁶ In addition, a study found a significant positive relationship between the health literacy levels of patients with cancer and the all subscales of quality of life;¹³ while another study reported that the mental health level of patients with prostate cancer who had high health literacy levels were better.¹⁴ A study found that the self-efficacy levels of individuals whose educational levels were low and who had a chronic disease were moderate, and the self-efficacy programme given by the nurses to the patients increased their self-efficacy levels.²² Another study emphasised that direct guidance given for improving the self-efficacy of individuals in the first stage of disease has a positive effect on managing disease and treatment.⁶ Other studies found a strong and positive relationship between health literacy and self-efficacy.^{6,15,23} As pointed out above, the result of the current study is not similar to the literature in terms of the relationship between self-efficacy and health literacy. This can be caused by the difference of sample groups and assessment tools used as well as the low number of samples in the studies. Moreover, the symptom load of patients may have affected this situation; as the symptom scores of patients increase, the patients' self-efficacy levels decrease. Therefore, regardless of the health literacy levels of patients, the frequency and severity of symptoms negatively affect their self-efficacy. Studies have also

emphasised that individuals with high levels of self-efficacy reported fewer symptoms^{24,25} and their quality of life was higher.^{6,26} For these reasons, it is suggested that nurses should plan self-efficacy programmes in order to improve the self-efficacy of patients with cancer. In doing so, they will enable patients to acquire practical skills and competence. In contrast to the present study, literature reports that as the age of patients increases and their educational levels decrease, their quality of life levels decrease.^{6,14}

In terms of limitations, the study only included cancer patients who received less than four points on the ECOG scale and were treated at a single private facility. Also, the reliance on self-reporting scales represent a limitation of the study.

Conclusion

Health literacy levels of cancer patients increased, so did their functional and general health status, and their symptoms decreased. Their self-efficacy levels were not affected.

Disclaimer: None.

Conflict of Interest: None.

Source of Funding: None.

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