# Investigation of the Relationship between Health Literacy and Quality of Life in Cancer Patients Treated in the Oncology Clinic *

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## ABSTRACT

*The research was carried out to examine the relationship between health literacy and quality of life in cancer patients treated in the oncology clinics of a university hospital in a city in Turkey. The cross-sectional study was conducted with 160 cancer patients treated between September 2020 and July 2021. In the collection of data, Information Form for Introducing Cancer Patients, Rotterdam Symptom Checklist (RSCL), and Turkey Health Literacy-32 (THL-32) Scale were used. The mean total score of the patients from the THL-32 Scale was 33.82±13.29, and the total mean RSCL score was 43.31±18.10. The scores obtained from the sub-dimensions of RSCL are as follows: Physical Symptom Discomfort (51.34±25.79), Psychological Symptom Discomfort (61.63±25.82), Activity Level (28.98±33.61), Quality of Life (78.43±16.11). It was found that there was a moderate positive correlation between the total mean score of RSCL and the mean score of THL-32 Scale (r=0.31, p<0.01). The health literacy level of cancer patients participating in the study was determined as problematic/limited. It was concluded that as the health literacy level of the patients increased, their quality of life was moderately positively affected. In addition, it was determined that the patients were negatively affected by the physical symptoms and psychological state changes caused by the treatment during the treatment process, they were not in good condition in daily living activities and their quality of life was low.*

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## INTRODUCTION

Cancer; It is one of the chronic diseases that continues to be important today due to its prevalence, mortality and disability, and high side effects and treatment costs (Donar, 2021; Gursu et al., 2012). It ranks second among the causes of death in Turkey and in the world, and one of 6 deaths in the world and one of 5 deaths in Turkey is due to cancer (WHO, 2021; TSI, 2017). In addition, cancer greatly affects the quality of life of patients in terms of physical, mental and social problems and disability caused by both the disease and the healing (Bakar, 2017).

World Health Organization defined quality of life as "the individual's feeling of self-life in a culture and value organization according to his/her own goals, hopes, standards and benefits" (WHO, 2003). When cancer is diagnosed early and treatment is started on time, it will prolong the survival of individuals and may positively affect their quality of life (Lemieux et al., 2011). It has been observed that individuals who value their health and want to improve their health exhibit positive lifestyle attitudes, are less likely to have cancer, and have a better quality of life (Kucukberber, Ozdıllı & Yorulmaz, 2011).

Diagnosing cancer and starting treatment upsets the physical, emotional, social and economic order of the person and the family, prevents them from being satisfied with life and reduces their quality of life (Bıkmaz & Unsar, 2021). Determining the level of impact on the quality of life of patients receiving chemotherapy is important in terms of helping patients in this regard (Arslan & Bolukbas, 2003). It is of great importance to turn to useful and reliable data from the right information sources in order to prevent or cure cancer. Reaching real and reliable information about healing in cancer increases compliance with the healing process (Deger & Zorluoglu, 2021).

Individuals need to be literate in adapting to survival, increasing their quality of life and maintaining their own participation in their lives. The fact that literacy skills are developed increases the individual's control over his own health and illness (Ersin, 2015). When the terms health and literacy, which are two important terms for people to control their own health, are combined, the concept of health literacy has emerged (Eadie, 2014). Health literacy; "it is related to literacy and it is about making decisions in people's daily lives regarding their health status, and it is the knowledge, compliance and competence to access, understand, evaluate and use the necessary health data for the purpose of further improving their health and preventing diseases in order to improve/maintain their quality of life" (Sørensen et al., 2012).

When health literacy is examined from an individual point of view, disease control is difficult, complications are high, quality of life is low, non-compliance with treatment and dissatisfaction with service are present in people with low health literacy (Al Sayah & Williams, 2012). Individuals are responsible for their own health and they need to exhibit appropriate attitudes and behaviors with sufficient knowledge and awareness in order to maintain their health status (Tozun & Sozmen, 2014).

It is thought that having health information about the diagnosis of cancer patients after the diagnosis of cancer may be related to health literacy in the fulfillment of individual applications for knowing the stages of the treatment process. The quality of life of individuals with insufficient health literacy in important diseases such as cancer may be adversely affected due to the negative health outcomes and the burdens of medical treatment. Having accurate information about the causes of cancer disease, appropriate treatment options and complications can also increase compliance with treatment by making it easier to cope with the uncertainty and stress caused by the disease or its complications. The quality of life of individuals with cancer can be increased by having sufficient information about the disease, active participation in the treatment process and necessary lifestyle changes. In line with this information, this study was conducted to determine the relationship between health literacy and quality of life in cancer patients treated in the oncology clinic of the hospital.

## MATERIALS AND METHODS

### 2.1. Type, Population and Sample of the Study

The population of the cross-sectional study consists of all patients (300 patients) hospitalized in the oncology clinics of a university hospital in a province of Turkey between September 2020 and July 2021. The sample of the study consists of 160 cancer patients covering 53.3% of the population.

### 2.2. Data Collection Tools

"Cancer Patients Information Form", "Rotterdam Symptom Checklist (RSCL)" and "Turkey Health Literacy-32 (THL-32) Scale" were used to collect data.

***2.2.1. Information Form for Introducing Cancer Patients:*** There are 27 questions that include information about the patient's sociodemographic characteristics, medical characteristics of the disease, knowledge about chemotherapy, quality of life satisfaction, and medical concepts used in the hospital.

***2.2.2. Rotterdam Symptom Checklist (RSCL):*** It was used to evaluate the quality of life of the patients. The Turkish reliability and validity of the RSCL, which was developed by De Haes, Van Knippenberg, and Neijt (1990) to evaluate the symptoms expressed by cancer patients in clinical studies, was performed by Can, Durna, and Aydıner (2004). In the original study, the Cronbach Alpha value of the RSCL was found to be 0.88 (De Haes, Van Knippenberg & Neijt, 1990). In our study, the Cronbach Alpha value of the RSCL was found to be 0.88. Consisting of 39 questions, the scale has 4 sub-dimensions. These are the level of being affected by the physical symptoms caused by cancer and its treatment, the physical symptom discomfort sub-dimension (23 questions), the level of being affected by the psychological state changes, the psychological discomfort sub-dimension (7 questions), the level of being affected by the activity of daily living (ADL) sub-dimension (8 questions) and evaluates the overall quality of life in the last week with the quality of life sub-dimension (1 question). An increase in scores in the sub-dimensions of physical symptom discomfort, psychological discomfort and quality of life indicates that patients are adversely affected, and an increase in the level of activity indicates that patients are in good functional condition (Can, Durna & Aydıner, 2004).

***2.2.3. Turkey Health Literacy-32 (THL-32) Scale:*** HLS-EU Consortium; Sørensen et al. (2012) and Turkish reliability and validity of the health literacy scale were performed by Abacıgil, Harlak, and Okyay (2016). The Turkish Cronbach Alpha value of the scale was found to be 0.93 (Abacıgil, Harlak & Okyay, 2016). In our study, the Cronbach Alpha value was found to be 0.91. The THL-32 Scale, which has 32 questions, consists of two basic health-related dimensions (treatment and service, prevention of diseases/health promotion) and four components (accessing and understanding health-related information, evaluating, using/application). Health literacy level; It is evaluated in four categories as 0-25 points insufficient, 26-33 points problematic/limited, 34-42 points sufficient, 43-50 points excellent health literacy (Abacıgil, Harlak & Okyay, 2016).

### 2.3. Data Collection

It was collected through face-to-face interviews with patients. The time to apply the forms took 30-45 minutes for each patient.

### 2.4. Ethical Aspect of Research

Ethical approval of the study was obtained by applying to the Non-Interventional Research Ethics Committee of a foundation university in Gaziantep (Decision No: 2020/059; Decision Date: 28.08.2020). The study complied with the Declaration of Helsinki. Written permission was obtained from the hospital where the study was conducted. Written consent form was obtained from cancer patients who volunteered to participate in the study.

### 2.5. Analysis of Data

SPSS (Statistical Package for Social Sciences) 23.0 Windows package program was used for data analysis. Statistical significance level was taken as $p<0.05$. Parametric t test and analysis of variance, non-parametric Kruskal Wallis H and Mann Whitney U tests were used. Simple correlation analysis was used to compare the mean scores of the RSCL with the mean scores of the THL-32 Scale.

The “F” value shown in the tables are the values obtained from the One-Way ANOVA analysis. The “t” value shown in the tables are values from the Independent Samples t test analysis. The “U” value shown in the tables are the values obtained from the Mann Whitney U analysis. The “$X^2$” value shown in the tables are the values obtained from the Kruskal Wallis H analysis. In the correlation analysis, the symbol of the correlation has indicated as a lowercase “r”.

## RESULTS

It was determined that there was a statistically significant difference between the descriptive characteristics of the patients and the total mean score of the THL-32 Scale in terms of age, gender, education, knowing the side effects of chemotherapy and being able to understand what the doctor said ($p<0.05$) (Table 1).

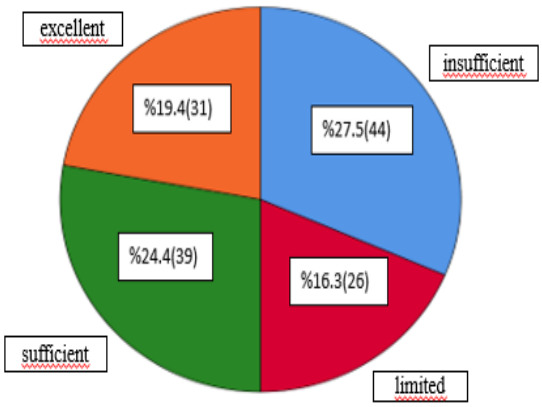
**Table 1.** Comparison of Some Characteristics of the Patients and the Total Mean Scores of the THL-32 Scale

| | n | THL-32 Scale Mean ± SD | Significance Values |
|---|---|---|---|
| **Age** | | | |
| 19-30 | 18 | 28.09±8.09 | F=7.21 |
| 31-50 | 36 | 28.58±15.96 | **p=0.001*** |
| 51-84 | 106 | 36.58±12.21 | |
| **Gender** | | | |
| Female | 68 | 38.27±12.62 | t=3.78 |
| Male | 92 | 30.54±12.87 | **p=0.001**** |
| **Working status** | | | |
| Yes | 14 | 28.86±11.92 | U=776.500 |
| No | 146 | 34.30±13.35 | p=0.130*** |
| **Education** | | | |
| Illiterate / Literate / Primary School Graduate | 73 | 41.74±10.22 | $X^2$=58.99 |
| Secondary School Graduate | 56 | 30.45±10.73 | **p=0.001**** |
| High School/University Graduate | 31 | 21.28±11.72 | |
| **Knowing The Side Effects of Chemotherapy** | | | |
| Knows | 146 | 33.03±13.04 | U=617.500 |
| Does not know | 14 | 42.15±13.42 | **p=0.010**** |
| **Evaluation of Quality of Life After Chemotherapy** | | | |
| Good | 24 | 33.07±16.31 | F=0.07 |
| Bad | 68 | 34.22±12.20 | p=0.920* |
| I donot know | 68 | 33.71±13.35 | |
| **Understanding What The Doctor is Saying** | | | F=23.15 |
| Yes | 41 | 24.56±12.65 | **p=0.001*** |
| No | 47 | 41.65±11.46 | |
| Sometimes | 72 | 33.99±11.40 | |

*One-Way ANOVA, **Independent Samples t test,***Mann Whitney U test, ****Kruskal Wallis H test

It was determined that 27.5% of the patients participating in the study had insufficient health literacy, 16.3% had limited/problematic, 24.4% had sufficient and 19.4% had excellent (Graphic 1).

**Graphic 1.** Distribution of the Total Mean Scores of the Patients from the THL-32 Scale



When some of the descriptive features of the patients participating in the study were compared with the RSCL total score averages; It is seen that there is a statistically significant difference between the working status of the total mean score of the RSCL and the ability to understand what the doctor says ($p<0.05$) (Table 2).

**Table 2.** Comparison of Some Characteristics of the Patients and their RSCL Total Scores

*One-Way ANOVA, **Independent Samples t test,***Mann Whitney U test, ****Kruskal Wallis H test

| | n | RSCL Mean ± SD | Significance Values |
|---|---|---|---|
| **Age** | | | |
| 19-30 | 18 | 41.46±18.25 | |
| 31-50 | 36 | 40.37±16.76 | F=0.84 |
| 51-84 | 106 | 44.62±18.53 | p=0.430* |
| **Gender** | | | |
| Female | 68 | 42.81±17.90 | t=0.29 |
| Male | 92 | 43.68±18.33 | p=0.760** |
| **Working Status** | | | |
| Yes | 14 | 54.27±17.57 | U=687.00 |
| No | 146 | 42.26±17.86 | **p=0.040*** ** |
| **Education** | | | |
| Illiterate / Literate / Primary School Graduate | 73 | 44.45±19.12 | $X^2$=1.27 |
| Secondary School Graduate | 56 | 43.55±18.05 | p=0.520**** |
| High School/University Graduate | 31 | 40.17±15.76 | |
| **Evaluate your health** | | | |
| Better than a year ago | 21 | 40.64±19.15 | F=0.46 |
| almost the same | 15 | 39.45±19.76 | p=0.760* |
| Worse than a year ago | 77 | 43.43±18.17 | |
| Much worse than a year ago | 47 | 45.55±18.10 | |
| **Quality of life after chemotherapy evaluation** | | | |
| Good | 24 | 37.54±19.37 | |
| Bad | 68 | 45.54±17.44 | F=1.75 |
| I donot know | 68 | 43.11±18.10 | p=0.170* |
| **Understanding what the doctor is saying** | | | |
| Yes | 41 | 36.03±18.19 | |
| No | 47 | 45.14±16.08 | F=4.72 |
| Sometimes | 72 | 46.26±18.39 | **p=0.010*** |

The total mean score of the patients participating in the study from the THL-32 Scale was 33.82±13.29. The mean score of the patients in the first dimension of the THL-32 Scale, Treatment and Service, was 29.35±13.84. The mean score of the second dimension of the THL-32 Scale in Preventing Diseases/Promoting Health is 38.30±16.11. The mean RSCL total score of the patients was 43.31±18.10 (Table 3).

**Table 3.** Mean Total Scores of the Patients on the THL-32 Scale and RSCL and Total Scores of the Sub-Dimensions

| Dimensions of the THL-32 Scale | THL-32 Scale Mean±S.D |
|---|---|
| **1. Treatment and Service** | **29.35±13.84** |
| Access to health information | 29.92±15.32 |
| Understanding health-related information | 30.26±13.19 |
| Evaluating health-related information | 30.70±19.30 |
| Using/applying health-related knowledge | 26.53±14.20 |
| **2. Prevention of Diseases/Improvement of Health** | **38.30±16.11** |
| Access to health information | 36.76±16.07 |
| Understanding health-related information | 39.06±16.60 |
| Evaluating health-related information | 41.58±23.83 |
| Using/applying health-related knowledge | 32.78±20.22 |
| **THL-32 Scale total score average** | **33.82±13.29** |
| **RSCL sub-dimensions** | **RSCL Mean±S.D** |
| 1. Physical Symptom Discomfort | 51.34±25.79 |
| 2.Psychological Symptom Discomfort | 61.63±25.82 |
| 3. Activity Level | 28.98±33.61 |
| 4. Quality of Life | 78.43±16.11 |
| **RSCL total score average** | **43.31±18.10** |

It was found that there was a moderate positive correlation between the patients' THL-32 Scale total mean scores and their RSCL total mean scores (r=0.31, p<0.01). It was determined that there was a weak positive correlation between the total mean score of treatment and service in the THL-32 Scale sub-dimension and the mean total score of RSCL (r=0.26, p<0.01). It was determined that there was a weak positive correlation between the total score average of the THL-32 Scale sub-dimension prevention of diseases/health promotion and the total score of RSCL (r=0.29, p<0.01) (Table 4).

**Table 4.** Evaluation of the Relationship between the THL-32 Scale and its Sub-Dimensions and RSCL of the Patients

| **Dimensions of the THL-32 Scale** | **RSCL r and p** |
|---|---|
| **1. Treatment and Service** | **r=0.26 p=0.001** |
| Access to health information | r=0.15 p=0.001 |
| Understanding health-related information | r=0.30 p=0.001 |
| Evaluating health-related information | r=0.22 p=0.001 |
| Using/applying health-related knowledge | r=0.29 p=0.001 |
| **2. Prevention of Diseases/Improvement of Health** | **r=0.29 p=0.001** |
| Access to health information | r=0.27 p=0.001 |
| Understanding health-related information | r=0.31 p=0.001 |
| Evaluating health-related information | r=0.14 p=0.001 |
| Using/applying health-related knowledge | r=0.27 p=0.001 |
| **THL total score average** | **r=0.31 p=0.001** |

Table 5 presents the relationship between patients' RSCL sub-dimensions and the THL-32 Scale. Except for the activity level, a positive moderate/weak correlation was found between the THL-32 Scale in other sub-dimensions (p<0.01).

**Table 5.** Evaluation of the Relationship between the RSCL and Sub-dimensions of the Patients and the THL-32 Scale

| **RSCL sub-dimensions** | **THL-32 Scale r and p** |
|---|---|
| 1. Physical Symptom Discomfort | r=0.37 p=0.001 |
| 2.Psychological Symptom Discomfort | r=0.37 p=0.001 |
| 3. Activity Level | r= -0.28 p=0.001 |
| 4. Quality of life | r=0.19 p=0.001 |
| **RSCL total score average** | **r=0.31 p=0.001** |

## DISCUSSION

In our study, it was determined that the mean total score of the THL-32 Scale of the patients aged 51-84 was significantly higher than those in the younger age group (p<0.05) (Table 1). In another study, unlike our results, it was observed that as the age of the patients increased, the level of health literacy decreased (Abacıgil, Harlak & Okyay, 2016). In a similar study, it was determined that the level of health literacy was low because there may be regressions in the mental functions of elderly individuals within a year (Sequeira et al., 2013). This may be due to the characteristics of the hospital and patients where the research was conducted. In our study, we see that the education level of the patients is low. It is a positive situation that the health literacy level of the older age group is high.

It was found that the mean total score of the THL-32 Scale of female patients was higher than that of males (p<0.05) (Table 1). In a study conducted in Taiwan, it was determined that the health literacy level of men was higher than that of women (Van Duong et al., 2017). Emre et al. found similar result that we found in our study (Emre et al., 2021). According to the THL-32 scale in the Turkish Health Literacy Level survey conducted in our country; It has been determined that women have lower health literacy than men (Turkish Health Literacy Level and Related Factors Survey, 2018). It is thought that this may be due to the fact that women receive education about their disease after being diagnosed with cancer or try to have information.

It was found that the total mean score of the THL-32 Scale of the patients with high school or university education was significantly lower than those who were illiterate, literate, or primary and secondary school graduates (p<0.05) (Table 1). Studies have shown that as the level of education increases, the level of health literacy also increases (Emre et al., 2021; Ozturk, Kırac & Kavuncu, 2018). In a similar study, it was determined that higher education level is

not the only criterion for adequate health literacy (Shah, West, Bremmeyr & Savoy-Moore, 2010). It is seen that the finding of our study is different from the literature. We think that higher education level is not the only criterion for adequate health literacy in our study.

It was determined that the total mean score of the THL-32 Scale of those who did not know about the side effects of chemotherapy was significantly higher than those who knew ($p<0.05$) (Table 1). In a similar study, it was determined that 73.6% of the patients who received treatment were informed about chemotherapy and 19.2% of the patients considered the information they received insufficient (Ozturk & Senyuva 2021). In our study, it is seen as a positive situation that the health literacy levels of those who do not have knowledge of the side effects of chemotherapy treatment are high, and we think that it is important to inform all patients about the treatment.

The total score averages of the THL-32 Scale were found to be significantly lower in those who stated that they could understand what the doctor said, compared to those who stated that they did not understand what the doctor said and that they sometimes understood ($p<0.05$) (Table 1). In another study, patients with low health literacy levels were found to have poor communication strategies (Schwartzberg, Cowett, VanGeest & Wolf, 2007). In our study, the health literacy of the patients who did not understand what the doctor said was found to be high. Accordingly, we think that the patients themselves are in the way of learning about their disease.

It was determined that 27.5% of the patients participating in the study had insufficient health literacy, 16.3% had limited/problematic, 24.4% had sufficient and 19.4% had excellent (Graphic 1). In a similar study, it was determined that the health literacy levels of 38.6% of the patients who received treatment were insufficient, 33.6% were problematic-limited, and 6.1% were excellent (Ozturk & Senyuva 2021). In another study, 17.1% (n=36) of the participants were inadequate, 28.9% (n=61) problematic-limited, 28.4% (n=60) sufficient, 25.6% (n=56) was determined to have an excellent level of health literacy (Emre et al., 2021). In another study, it was found that 7.8% of patients with hypertension were inadequate, 55% had limited and 37.2% had adequate health literacy (Naimi, Naderiravesh, Bayat, Shakeri & Matbouei 2017). According to the THL-32 scale in the Turkish Health Literacy Level survey conducted in our country; It was determined that 30.9% of the participants in the study were inadequate, 38.0% problematic-limited, 23.4% sufficient and 7.7% excellent (Turkish Health Literacy Level and Related Factors Survey, 2018). The research finding shows similarities and differences compared to the findings in the literature. Each individual is responsible for their own health, and each individual needs to exhibit adequate knowledge, awareness and correct behavior for the continuity of their health status (Tozun & Sozmen 2014). Adequate literacy skills of individuals make it easier for them to cope with illness and health (Ersin, 2015). In this context, we suggest that it is important to repeat the information so that the information given to the patients is understandable, and it is important to measure how much they can understand by observing them, their behaviors or by asking questions and getting feedback.

It was determined that the mean RSCL total score of the working patients (54.27±17.57) was significantly higher than the RSCL total score average of the non-working patients (42.26±17.86) ($p<0.05$) (Table 2). In a similar study, it was determined that the quality of life of working individuals is high when they work (Pınar, Alger, Colak & Ayhan 2008). In another study, it was found that working status had no effect on quality of life (Caliskan, Duran, Karadas, Ergin & Tekir 2015). In a study, it was determined that the quality of life increases as the income level of individuals increases (Bostancı, 2019). In our study, we see that there may be an increase in the income status of the working patients and accordingly, it causes an increase in their quality of life. On the other hand, patients who do not work in any job may have a low quality of life due to the side effects of chemotherapy and the severe course of the disease processes, as well as the economic hardship.

The mean RSCL total score of the patients who stated that they could understand what the doctor said (36.03±18.19) was found to be statistically significantly lower than the patients who stated that they could not understand what the doctor said (45.14±16.08) and sometimes understood (46.26±18.39) ($p<0.05$) (Table 2). In our study, it was found that they were lower the health literacy levels of the patients who stated that they could understand what the doctor said. Similarly, we see that they also has decreased the quality of life of the patients who stated that they could understand what the doctor said. We think that this is due to the fact that patients do not feel comfortable in terms of both health and social aspects.

The mean score of the patients participating in the study from the THL-32 Scale was found to be 33.82±13.29 (Table 3). According to this result, the health literacy level of cancer patients participating in the study was determined as problematic/limited. In a similar study, the level of health literacy was found to be problematic/limited (Abacıgil, Harlak & Okyay 2016). Understanding the necessary messages correctly enables individuals to make the right decision about their health. Compared to individuals with better health literacy levels, people with insufficient and limited health literacy levels do not

fulfill their personal care needs to protect their health, they do not have useful habits such as physical activity and healthy nutrition, they do not know about preventive health services, and they have insufficient information about the causes of disease and prevention methods, it has been revealed by studies that the rates of applying to the appropriate health institution are low, they cannot meet their health needs or medical care at the appropriate time, there are communication problems with health workers, and the rate of misuse of drugs is higher (Ennis, Hawthorne & Frownfelter 2012; Nutbeam, McGill & Premkumar 2018) . We think that having health information about the diagnosis of cancer patients after the diagnosis of cancer is related to the level of health literacy in the patient's fulfillment of individual practices for knowing the stages of the treatment process.

The mean RSCL total score of the patients participating in the study was determined as 43.31±18.10. The scores obtained from the sub-dimensions are as follows; Physical Symptom Discomfort (51.34±25.79), Psychological Symptom Discomfort (61.63±25.82), Activity Level (28.98±33.61), Quality of Life (78.43±16.11) (Table 3). In another study, it was determined that the functional status and general well-being of the patients were high, and therefore their quality of life was high (Ozkan & Akın 2017). In another study, it was found that the quality of life of cancer patients was moderate, and social support from their families affected the quality of life positively (Caliskan, Duran, Karadas, Ergin & Tekir 2015). In the work of Ozgun, Turker & Kaya; It was concluded that the depression and anxiety levels of cancer patients who are in the treatment process negatively affect their quality of life (Ozgun, Turker & Kaya, 2020). According to the findings obtained from the research; We have determined that the patients participating in the study were adversely affected by the physical symptoms and psychological status changes caused by the treatment during the treatment process, they were not in good condition in daily life activities and their quality of life was low. We think that family support is also important in order to improve the psychological discomfort of cancer patients participating in the study.

It was found that there was a moderate positive correlation between the THL-32 Scale total score average and the RSCL total score average (r=0.31, p<0.01). It was determined that there was a weak positive correlation between the total mean score of treatment and service in the THL-32 Scale sub-dimension and the mean total score of RSCL (r=0.26, p<0.01). It was determined that there was a weak positive correlation between the total score average of the THL-32 Scale sub-dimension prevention of diseases/health promotion and the total score of RSCL (r=0.29, p<0.01) (Table 4). In a study, it was determined that individuals with low health literacy levels exhibit behaviors that may negatively affect their quality of life (Berkman, Davis & McCormack 2010). In another study, it was determined that there is a positive relationship between health literacy and quality of life (Naimi, Naderiravesh, Bayat, Shakeri & Matbouei 2017). Literacy comes to the fore in people's adaptation to life, maintaining active participation in their lives, and developing skills to increase their quality of life (Ersin, 2015). According to our research results, we see that individuals with cancer who participated in our research increase their quality of life moderately as their health literacy level increases.

It was found that there was a moderate positive correlation between RSCL sub-dimension physical symptom discomfort and psychological symptom disorder total score mean and THL-32 scale total score mean (r=0.37, p<0.01). It was found that there was a weak negative correlation between the RSCL sub-dimension activity level average total score and the THL-32 scale total score average (r=-0.28, p<0.01). It was determined that there was a weak positive correlation between the RSCL sub-dimension quality of life total score and the THL-32 scale total score (r=0.19, p<0.01) (Table 5). In the study, we see that cancer patients with increased physical and psychological symptoms also moderately increased their health literacy. We see that as the activity level of the patients increases, their health literacy also decreases at a low level. In addition, we have found that as the quality of life of the patients increases, their health literacy also increases at a weak level.

### 4.1. Limitations of the study

The generalizability of the study consists of patients hospitalized in the oncology clinics of the university hospital where the study was conducted between September 2020 and July 2021. During the Covid-19 epidemic, the number of patients in hospital clinics was halved and there were 24-hour shifts every other day, making the data collection process difficult.

## CONCLUSION AND RECOMMENDATIONS

Health literacy of elderly patients was higher than younger patients, and female patients were higher than male patients. Patients with higher education levels had lower health literacy. Patients who did not know the side effects of chemotherapy and did not understand what the doctor said had higher health literacy. The health literacy level of the patients was determined as problematic/limited. It was determined that working patients had higher quality of life than non-working patients. It was found that the quality of life of the patients who stated that they could understand what the doctor said was lower. According

to the findings in the sub-dimensions of RSCL; It was concluded that the patients were adversely affected by the physical symptoms and psychological state changes caused by the treatment, they were not functionally well in their daily living activities and their quality of life was low. It was concluded that as health literacy increases, quality of life is moderately positively affected.

We suggest that health professionals, especially nurses who have more contact with the patient in the field, aim to increase the health literacy level of individuals by providing the highest quality education to the patients and observing that the education they give turns into behavior. We recommend increasing the adaptation process to the treatment of patients whose quality of life is affected and providing the most appropriate quality treatment, and providing material and moral assistance that will facilitate the comfortable life of the patients during and after this period.

**Conflict of Interest:**

The authors declare that they have no conflict of interest.

**Ethical Approval :**

Ethical approval of the study was obtained by applying to the Non-Interventional Research Ethics Committee of a foundation university in Gaziantep (Decision No: 2020/059; Decision Date: 28.08.2020). The study complied with the Declaration of Helsinki.

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