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Quality of Life and Social Support Levels in Leukemia Patients

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Article Info **ABSTRACT**

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Keywords:
Leukemia,
Quality of Life,
Social Support,
Nursing.

Purpose: This study aimed to determine the quality of life, level of social support, and its influencing factors in leukemia patients.
Method: This descriptive cross-sectional study included 117 leukemia patients who applied to the Hematology Outpatient Clinic of a Medical Faculty Hospital in Istanbul. Data were collected using the Patient Information Form, European Organization for the Research and Treatment of Cancer Quality of Life Questionnaire-Core 30 and Multidimensional Scale of Perceived Social Support. Normality analysis, descriptive statistics, difference analysis between pairs and multiple groups and correlation analysis were used in the analysis of the data.
Results: It was determined that the global quality of life, functioning and symptom of leukemia patients were affected by personal and disease-related characteristics such as age, gender, number of children, Body Mass Index, marital status, educational status, type of leukemia, adaptation to the disease, and diagnosis, duration of treatment ($p<0.05$). It was determined that social support was positively correlated with the global quality of life and functioning scores of the European Organization for the Research and Treatment of Cancer Quality of Life Questionnaire-Core 30 and negatively correlated with the symptoms of loss of appetite and financial difficulties ($p<0.05$).
Conclusion and Suggestions: Providing holistic care by nurses and taking into account the personal and disease-related characteristics of leukemia patients will improve their quality of life and social support level.

Lösemili Hastaların Yaşam Kalitesi ve Sosyal Destek Düzeylerinin Değerlendirilmesi

Makale Bilgileri **ÖZ**

Makale Geçmişi
Geliş: 05.02.2021
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Yayın: 25.12.2021

Anahtar Kelimeler:
Lösemi,
Yaşam Kalitesi,
Sosyal Destek,
Hemşirelik.

Amaç: Bu çalışma, lösemi hastaların yaşam kalitesi, sosyal destek düzeyleri ve etkileyen faktörleri belirlemek amacıyla planlandı.
Yöntem: Tanımlayıcı-kesitsel tipteki bu çalışmaya İstanbul ilinde bir Tıp Fakültesi Hastanesi Hematoloji Polikliniğine başvuran 117 lösemi hastası dahil edildi. Verilerin toplanması için Hasta Bilgi Formu, European Organization fort the Reseach and Treatment of Cancer Quality of Questionnaire – Core 30 (EORTC QLQ-C30) ve Çok Boyutlu Algılanan Sosyal Destek Düzeyi (ÇBASDD) ölçeğinden oluşan bir form kullanıldı. Verilerin analizinde normallik analizi, betimleyici istatistikler, ikili ve çoklu grupların arasındaki fark analizleri ve korelasyon analizi kullanıldı.
Bulgular: Bu çalışmada lösemili hastaların genel yaşam kalitesi, fonksiyonel ölçekler ve semptom ölçekleri yaş, cinsiyet, çocuk sayısı, BKİ, medeni durum, eğitim durumu, löseminin türü, hastalığa uyum sağlama durumu, hastalığın teşhis edilmesi ve tedavi süresi gibi kişisel ve hastalıkla ilgili özelliklerden etkilendiği belirlendi ($p<0,05$). ÇBASDD ölçeği toplam ve alt boyutları ile EORTC QLQ-C30 yaşam kalitesi ölçeğinin genel yaşam kalitesi ve fonksiyonel ölçekleri ile pozitif yönde ve iştahsızlık semptomu ve mali zorluk maddesiyle negatif yönde anlamlı bir ilişki olduğu belirlendi ($p<0,05$).
Sonuç ve Öneriler: Sonuç olarak hemşirelerin lösemi hastalarının yaşam kalitesini ve sosyal destek düzeylerini etkileyen kişisel ve hastalığa ilişkin özellikleri göz önüne alarak holistik bir bakım sunması hastaların yaşam kalitesi ve sosyal destek düzeylerini iyileştireceği düşünülmektedir.

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INTRODUCTION

Cancer is the second leading cause of death worldwide. It is thought to be responsible for an estimated 9.6 million deaths in 2018. Globally, 1 out of every 6 deaths is related to cancer (World Health Organization [WHO], 2018). Leukemias are among the top ten important types of cancer. 3%/4% (female/male) of cancer deaths in the United States of America occur due to leukemias. 3%/4% (female/male) of new cancer cases consist of leukemias (American Cancer Society, 2019). Leukemias constitute 34% of common blood cancers (Leukemia & Lymphoma Society, 2020). According to Turkey Compositional Database in 2016, the rate of lymphoid leukemia in men was 3.0/100.000 and myeloid leukemia was 2.7/100.000, while they were 1.9/100.000 and 2.3/100.000 in women, respectively (Ministry of Health General Directorate of Public Health, 2019).

Depending on the type of leukemia, many hospitalization occurs as several cycles of consolidation treatment, induction therapy, and remission follow-up is needed. In addition to the risk of chemotherapy-related toxicity and mortality (Buckley et al., 2014; Tawfik et al., 2016), the quality of life (QOL) deteriorates associated with cancer-related symptoms such as fatigue (Schumacher et al., 2002; Alibhai et al., 2007). Also, patients face uncertainties about the side effects of future chemotherapeutic treatments, future implications of leukemia on family members, functioning status, and working condition (Molica, 2005; Shanafelt et al., 2009). Not only leukemia affects life expectancy, and QOL but also, it may affect the emotional, socio-economic, and functioning status (Cella et al., 2012).

The daily life activities of patients are negatively affected due to diagnosis with a life-threatening disease and chemotherapy treatment. This increases patients' need for social support (SS), which has a prominent role in facilitating coping strategies (Holmegaard Nørskov et al., 2019). SS especially accelerates the recovery process of individuals, increases their compliance with medical treatment and QOL, and extends their life span (Ayaz et al., 2008).

This study was planned to evaluate the QOL, and SS levels of patients who experience leukemia, determine influencing factors, and contribute to the literature in the context of Turkey's cultural, socio-economic, and health services.

This study sought answers to the following questions.

1. Is there a significant difference of socio-demographic and disease-related characteristics of patients with leukemia on their QOL?

2. Is there a significant difference of socio-demographic and disease-related characteristics of patients with leukemia on perceived SS levels?

3. Is there a significant relationship between gender, age, Body Mass Index (BMI) and number of children, QOL and perceived SS levels of patients with leukemia?

METHOD

This study was designed as descriptive-cross-sectional. This study aimed to determine the quality of life, level of social support, and its influencing factors in leukemia patients.

Research Sample

The participants consisted of patients who applied to the Hematology Policlinic of a Medical Faculty Hospital in Istanbul, between January to June 2008. The sample of the study consisted of 117 adult volunteers diagnosed with leukemia, not in the terminal period, and without any disability to communicate. Volunteers were selected by the non-probability sampling technique. In a study conducted with the EORTC QLQ-C30 scale, it was the role function (65.3±33.5) with the largest variance among the subscales consisting of more than one item for which reliability was calculated (Yun et al., 2004). When the sample size was calculated with this value, a minimum of n:102 individuals were needed to obtain a descriptive sample with a 95% confidence level and 10% error. Considering the risk of missing data, 117 patients were included in the study (Dziura et al. 2013; Straus et al. 2018). Post Hoc power analysis was performed with the G*Power 3.1.9.6 program. In this analysis, using the mean and standard deviation of the General Quality of Life score, it was found that the sample size of 117 patients was sufficient with a power of d=0.56, α=0.05, and power (1-β) =0.90 (Cohen, 1992; Faul, et al. 2007).

Research Instruments and Processes

To identify the personal and disease-related characteristics of patients with leukemia, the Patient Information Form was used. Also, the European Organization for the Research and Treatment of Cancer QOL Questionnaire-Core 30 (EORTC QLQ-C30) was used to assess the quality of life. Furthermore, the Multidimensional Scale of Perceived Social Support (MSPSS) scale was used to assess perceivd social support.

The Patient Information Form developed by researchers in line with the literature (Hensel et al., 2002; Herschbach et al., 2004; Aydın, Bektaş & Akdemir, 2006; Santos et al. 2006) consisted of a total of 23 questions including 11 questions about personal characteristics (age, gender, etc.) and 12 questions about disease characteristics (the clinical diagnosis, duration of diagnosis, treatment compliance, etc.).

***EORTC QLQ-C30 Quality of Life Scale*:** EORTC QLQ-C30 Version 3.0 (Bjordal, et al., 2000) scale developed by Aaronson et al. (1993) is a widely used QOL scale for patients with cancer. An adaptation, reliability and validity study of the EORTC QLQ-C30 scale for the Turkish population was carried out in patients with lung cancer by Guzelant et al. (2004). Beser and Öz (2003) conducted a content validity and reliability study for the lymphoma patient group.

The scale was made with 30 items in Sprangers's (1993) study. The scale consists of six sub-dimensions including physical, role, cognitive, emotional, social functioning, and global QOL. It has three questions for symptom scales including "nausea and vomiting", "pain", and "fatigue". Furthermore, it has six independent items including constipation, insomnia, loss of appetite, diarrhea, shortness of breath, and financial difficulty for assessing general quality of life (Sprangers, 1993). According to the study, a total score of 0 to 100 points can be obtained from the functioning score, symptom score, and global quality of life. High scores on functioning scales and global quality of life, and low scores on symptom scales indicate that the patients' QOL is high (Aaronson et al., 1993; Fayers, et al., 2001; Guzelant et al., 2004).

The measurement method for 28 questions constituting the functional and symptom subscales of the scale is 4-point Likert type scoring (none=1 point and very much=4 points). Scoring in the global quality of life scale is a 7-point Likert type with 1=very bad and 7=excellent. For calculating the scale scores, the scores are converted to 100 by using a formula. For 4-scale items, the range value is used as 6 in 3 and 7-scale items (Fayers et al., 2001). Aaronson et al. (1993) reported Cronbach's alpha values as 0.70 in their study, while the total scale of Cronbach's alpha value in this study was determined as 0.85.

Multidimensional Scale of Perceived Social Support (MSPSS): The Multidimensional Scale of Perceived Social Support was developed by Zimet et al. (1988). Its validity and reliability for Turkish society were carried out by Eker and Arkar (1995). Three sub-dimensions of the scale, each consisting of four items, were family (3, 4, 8, 11), a friend (6, 7, 9, 12), and a special person (1, 2, 5, 10). Each item of the scale is scored in a 7-point Likert type. The total score of the subscale was obtained by the sum of the item points within the subscales and the total score of the scale was obtained by the sum of the subscales. The obtained high score indicates a high level of perceived SS (Eker & Arkar, 1995; Eker, Arkar &

Yaldız, 2001). The Cronbach’s alpha value of the scale was determined as 0.89 in the study by Eker et al. (2001). In our study, Cronbach's alpha value of the scale was found to be 0.87.

Data Analysis

Statistica 7.0 (License number: 31N6YUCV38) package software was used for statistical analysis. Compliance of the data to normal distribution was tested with One-sample Kolmogorov-Smirnov test. Descriptive statistics were used to evaluate the data. Also, analytic tests such as; Mann-Whitney U and Kruskal-Wallis tests were used to analyze two and multiple variables. The Mann-Whitney U test with Bonferroni correction was used to determine the significance between groups in the Kruskal-Wallis test. Spearman’s correlation analysis was used to determine the relationship between variables. The statistical significance level was accepted as $p<0.05$.

Ethic

Permission was obtained from Trakya University Faculty of Medicine Ethics Committee (2007/151), and relevant institutions in the study. The patients were informed about the study and their consent was obtained. Volunteerism was taken as a basis for participation in the study.

RESULTS

Table 1 summarized the demographic data of the participants. Table 2 showed the mean scores of the patients' QOL and SS levels. The mean score of global QOL was 59.76 and it was found to be at a moderate level. Levels of fatigue and financial difficulties were found to be more than other symptoms. The mean score of the level of perceived SS of leukemia patients was 58.04±17.45.

Table 1. *Personal and Disease Characteristics of Patients (n=117)*

Parameters	n	%	Clinical Diagnosis	n	%
Gender			Acute Lymphoblastic Leukemia (ALL)	8	6.8
Female	44	**37.6**	Acute Myeloid Leukemia (AML)	10	8.5
Male	73	62.4	Chronic Lymphocytic Leukemia (CLL)	36	30.8
Marital status			Chronic Myeloid Leukemia (CML)	63	**53.9**
Married	94	**80.3**	**Adaptation status of disease (yes)**	108	**92.3**
Single	15	12.8	**Adaptation status of medication (yes)**	114	**97.4**
Widowed	8	6.9	**Disease perception status**		
Family type			A disease that requires long-term treatment	104	**88.9**
Nuclear families	89	**76.1**	**Thought about medication**		
Extended families	28	23.9	I believe you will cure	58	**49.6**
Education level			Will cure but has many side effects	45	38.6
Literate	21	17.9	**Identification of the disease time**		
Primary school	56	**47.9**	0-6 months	12	10.3
Secondary school	22	18.8	6 months- 1 year	16	13.7
Higher education	18	15.4	1-3 years	38	32.5
Job			3 years and upper	51	**43.5**
Housewives	31	26.5		**Mean±SD**	
Retired	40	**34.2**	Age	49.86 ± 14.85	
Working	39	33.3	Number of children	2.69 ± 1.95	
Unemployed	7	6.0	Body Mass Index (BMI) (kg/m^2)	27.25 ± 5.28	
			Treatment time (months)	38.18 ± 32.40	

Table 2. *Mean Scores of Patients' Quality of Life and Multidimensional Scale of Perceived Social Support (MSPSS) (n=117)*

EORTC QLQ-C30	**Mean ±SD**	**Min-Max**
Global quality of life (QOL)	59.76 ± 24.01	0.00- 100.00
Functioning scale (FS)‡		
Physical Function (PF)	71.34 ± 21.00	13.33- 100.00
Role Function (RF)	82.19 ± 24.54	0.00- 100.00
Cognitive Function (CF)	74.22 ± 25.29	0.00- 100.00
Emotional Function (EF)	70.23 ± 27.41	0.00-100.00
Social Function (SF)	77.21 ± 28.42	0.00- 100.00
Symptom scale and/or items§		
Fatigue (FA)	41.12 ± 27.42	0.00- 100.00
Nausea and vomiting (NV)	14.39 ± 24.26	0.00- 100.00
Pain (PA)	24.50 ± 27.47	0.00- 100.00
Dyspnoea (DY)	21.37 ± 28.52	0.00- 100.00
Sleep disturbance (SL)	35.33 ± 37.47	0.00- 100.00
Appetite (AP)	14.81 ± 25.31	0.00- 100.00
Constipation (CO)	19.37 ± 28.45	0.00- 100.00
Diarrhoea (DI)	10.54 ± 19.89	0.00- 100.00
Financial impact (FI)	46.44 ± 39.62	0.00- 100.00
MSPSS		
Family	24.03 ± 5.35	4.00- 28.00
Friends	17.85 ± 8.29	4.00- 28.00
Significant other	16.16 ± 8.74	4.00- 28.00
Sum	58.04 ± 17.45	23.00- 84.00

‡ Scores range from 0.00-100.00, with a high score indicating a high level of quality of life.
§ Scores range from 0.00-100.00, with a high score indicating the high frequency of symptoms.

In this study, it was found that the mean scores of physical functioning (p=0.038) and emotional functioning (p=0.006) of male patients were higher than women, and the mean score for fatigue symptom (p=0.008) was found to be lower than that of women. It was determined that the mean score of the global QOL of males was higher than females (p=0.002). It was found that MSPSS mean scores were not affected by gender (p>0.05) (Table 3).

Table 3. *Comparison of Quality of Life Scale and MSPSS by Gender*

Scales	**Male (n=73)**	**Female (n=44)**			
EORTC QLQ-C30	**Ort.±SD**	**Ort.±SD**	**U**	**z**	**p***
Global quality of life (QOL)	64.62 ± 23.11	51.71 ± 23.54	1058.50	-3.107	**0.002**
Functioning scale					
Physical Function (PF)	73.79 ± 22.12	67.27 ± 18.51	1239.50	-2.073	**0.038**
Role Function (RF)	84.25 ± 22.72	78.79 ± 27.22	1452.50	-0.953	0.340
Cognitive Function (CF)	75.80 ± 24.34	60.99 ± 29.90	1122.00	-2.747	**0.006**
Emotional Function (EF)	76.26 ± 26.05	70.83 ± 23.88	1347.50	-1.498	0.134
Social Function (SF)	79.00 ± 27.50	74.24 ± 29.96	1443.00	-0.977	0.328
Symptom scale and/or items					
Fatigue (FA)	36.38 ± 27.73	48.99 ± 25.28	1137.50	-2.661	**0.008**
Nausea and vomiting (NV)	11.19 ± 20.80	19.70 ± 28.59	1322.00	-1.844	0.065
Pain (PA)	21.46 ± 26.42	29.55 ± 28.73	1356.50	-1.463	0.144
Dyspnoea (DY)	22.37 ± 31.45	19.70 ± 23.10	1585.00	-0.132	0.895
Sleep disturbance (SL)	33.80 ± 38.29	37.88 ± 36.37	1479.00	-0.755	0.450
Appetite (AP)	14.16 ± 22.85	15.91 ± 29.20	1580.00	-0.179	0.858
Constipation (CO)	18.27 ± 27.24	21.21 ± 30.58	1545.00	-0.394	0.694
Diarrhoea (DI)	9.13 ± 17.80	12.88 ± 22.98	1498.00	-0.798	0.425
Financial impact (FI)	46.12 ± 40.69	46.97 ± 38.26	1583.00	-0.134	0.893
MSPSS					
Family	23.74 ± 5.19	24.50 ± 5.64	1374.50	-1.358	0.175
Friends	19.00 ± 7.63	15.96 ± 9.05	1298.50	-1.739	0.082
Significant other	16.63 ± 8.67	15.39 ± 8.91	1458.50	-0.834	0.404
Sum	59.37 ± 16.93	55.84 ± 18.27	1407.00	- 1.121	0.262

U= Mann Whitney U *p<0.05

In terms of marital status, it was found that the mean score of insomnia symptoms of married patients was statistically lower than the others ($X^2(2)$=11.436, p=0.003). Widowed patients had significantly higher mean scores in the special person sub-dimension of MSPSS compared to married patients ($X^2(2)$=6.653, p=0.036) (Not shown as a table).

Study analysis showed that literate patients had lower mean scores of physical functioning than the others (p=0.009). Also, it was determined that those with higher education levels had lower main scores of pain symptoms (p=0.012) and financial difficulty compared to primary school graduates (p=0.011). Furthhermore, it was found that literate patients had higher mean scores in the family sub-dimension than the others (p=0.036). Regarding the symptom, it was found taht the mean score of fatigue symptom of the patients with nuclear families was lower than the others ($X^2(2)$=6.078, p=0.048). The mean score of pain symptoms was higher in patients with extended families than the others ($X^2(2)$=8.743, p=0.013). It was determined that the mean score of the MSPSS family sub-dimension was higher in patients with extended family than the others ($X^2(2)$=9.039, p=0.011) (Not shown as a table).

It was found that in Acute Lymphoblastic Leukemia (ALL) and Acute Myeloid Leukemia (AML) patients, the EORTC QLQ-C30 scale and its sub-dimension scores were not affected (p>0.05). It was found that Chronic Lymphocytic Leukemia (CLL) patients had less nausea and vomiting symptoms compared to Chronic Myeloid Leukemia (CML) patients (U=884.00, z=-2.104, p=0.035) and experienced more insomnia (U=846.00, z=-2.207, p=0.027). It was found that patients with chronic leukemia (CL) experienced more fatigue than those with acute leukemia (AL) (U=607.50, z=-2.162, p=0.031) (Not shown as a table).

Those who adapted to the disease were found to have higher scores in role, emotional, cognitive, and social functioning sub-dimensions than the others (p<0.05). The mean scores of nausea and vomiting, loss of appetite, constipation symptoms, and financial difficulties were higher in those who could not adapt to the disease (p<0.05). MSPSS family sub-dimension mean score was higher in those who adapted to the disease than those who could not (p=0.035) (Not shown as a table).

It was found that patients with a diagnosis of the disease less than 6 months experienced less fatigue ($X^2(3)$=13.280, p=0.004). Those who perceived leukemia as a disease requiring long-term treatment had a lower mean score of emotional functioning (U=309.00, z=-2.881, p=0.004) and a higher mean score of fatigue symptoms (U=385.00, z=-2.187, p=0.029). It was determined that the general health status, social functioning, fatigue and pain symptoms of the patients who believed that “drugs will cure but have many side effects" were significantly different from the others (p=0.004, p=0.011, p=0.048, p=0.001, respectively) (Not shown as a table).

When the relationship of EORTC QLQ-C30 scale and sub-dimension scores with some variables are examined; there was a weak negative correlation of age with nausea and vomiting symptoms (p=0.007), and between BMI and loss of appetite (p=0.008). There was a weak positive correlation (p=0.017) between the number of children and pain symptoms (p=0.002) and between duration of diagnosis and loss of appetite symptom, and a weak negative correlation between duration of diagnosis and constipation symptom (p=0.043). There was a weak negative correlation (p=0.045) between the duration of treatment and the cognitive functioning score, and a weak positive correlation with loss of appetite (p=0.015). A weak positive correlation was found between BMI and the number of children with MSPSS family sub-dimension (p=0.008, p=0.047, respectively). Table 4 shows the relationship between some variables of the patients and their QOL and level of SS.

Table 4. *Comparison of the Relationship of EORTC QLQ-C30 Quality of Life Scale with Multidimensional Scale of Perceived Social Support and Some Variables****

	EORTC QLQ-C30	Age	BMI	Number of children	Diagnosis time	Treatment time	MSPSS Sum	Family	Friends	Significant other
Functioning Scale	**Global quality of life (QOL)**	-0.018	-0.062	-0.142	-0.105	-0.107	**0.370****	**0.228***	**0.279****	**0.347****
		0.849	0.506	0.128	0.261	0.261	**<0.001**	**0.014**	**0.002**	**<0.001**
	Physical Function (PF)	-0.131	-0.026	-0.141	-0.093	-0.139	0.178	0.071	**0.183***	0.147
		0.159	0.781	0.128	0.317	0.135	0.055	0.444	**0.048**	0.114
	Role Function (RF)	-0.018	-0.093	-0.140	0.003	-0.002	0.109	0.155	0.040	0.080
		0.847	0.319	0.132	0.975	0.983	0.244	0.095	0.671	0.393
	Cognitive Function (CF)	0.121	-0.050	-0.008	-0.035	-0.069	**0.250****	**0.260****	**0.237****	0.146
		0.193	0.594	0.931	0.707	0.457	**0.007**	**0.005**	**0.010**	0.115
	Emotional Function (EF)	r0.037	-0.069	-0.102	-0.148	**-0.186***	**0.206***	**0.207***	**0.198***	0.076
		0.689	0.459	0.273	0.111	**0.045**	**0.026**	**0.025**	**0.032**	0.417
	Social Function (SF)	0.110	0.032	-0.055	0.060	0.009	**0.239****	**0.316****	0.161	0.165
		0.237	0.732	0.556	0.523	0.927	**0.010**	**0.001**	0.082	0.075
Symptom scale and/or items	**Fatigue** (FA)	-0.048	0.053	0.038	0.104	0.136	-0.176	-0.118	-0.157	-0.148
		0.609	0.574	0.685	0.264	0.142	0.058	0.204	0.091	0.110
	Nausea and vomiting (NV)	**-0.249****	-0.017	0.028	-0.038	-0.008	-0.113	-0.104	-0.036	-0.144
		0.007	0.858	0.765	0.684	0.931	0.225	0.265	0.703	0.122
	Pain (PA)	0.010	0.125	**0.289****	0.081	0.116	-0.068	-0.051	-0.095	-0.046
		0.919	0.181	**0.002**	0.386	0.212	0.468	0.581	0.309	0.624
	Dyspnoea (DY)	0.012	0.154	0.079	0.106	0.095	-0.176	-0.098	-0.170	-0.139
		0.899	0.098	0.396	0.257	0.310	0.057	0.294	0.067	0.136
	Sleep disturbance (SL)	-0.081	-0.011	-0.125	0.099	0.155	0.040	-0.110	-0.004	0.127
		0.387	0.905	0.180	0.288	0.095	0.665	0.236	0.963	0.172
	Appetite (AP)	-0.142	**-0.246****	-0.016	**0.221***	**0.224***	**-0.203***	-0.138	-0.167	**-0.200***
		0.128	**0.008**	0.861	**0.017**	**0.015**	**0.028**	0.139	0.073	**0.030**
	Constipation (CO)	0.095	-0.133	0.057	**-0.187***	-0.118	-0.036	-0.105	0.030	-0.046
		0.306	0.152	0.545	**0.043**	0.206	0.704	0.260	0.746	0.623
	Diarrhoea (DI)	-0.073	-0.040	0.029	0.001	0.021	-0.081	-0.176	-0.015	-0.073
		0.431	0.665	0.755	0.995	0.825	0.386	0.058	0.874	0.434
	Financial impact (FI)	-0.027	0.034	0.172	-0.059	-0.005	**-0.255****	**-0.321****	-0.156	-0.172
		0.771	0.719	0.063	0.529	0.960	**0.006**	**<0.001**	0.092	0.063

* Significant correlation at 0.05 level, ** Significant correlation at 0.01 level, *** Correlation between scales: Spearmans' rho

DISCUSSION

Depending on the disease and the treatment process, changes are expected in the life quality of patients with leukemia. Quality of life and SS opportunities should be determined in order to plan care within the frame of the patient's needs. In this study, it was aimed to determine the QOL and SS levels of patients with leukemia and the effects of socio-demographic, economic, and disease-related variables affecting these variables. It was determined that the global QOL of the patients participating in the study was moderate. When the literature on global QOL is examined; the mean global QOL was 49.30 points at diagnosis in the AML patient group (Efficace et al. 2019), 76.9 points in early-stage breast cancer cases, and 57.6 points in metastatic breast cancer cases (Mierzynska et al., 2020). In a study conducted with a blood cancer patient group in Pakistan, the mean global QOL was 25.95 (Malik et al. 2021). AlFayyad et al. (2020) found poor health-related quality of life (HRQoL) mean scores using the Functional Assessment of Cancer Therapy-Leukemia (FACT-Leu) scale in the adult leukemia patient group. The level of global QOL varies depending on factors such as the type of cancer, the chemotherapy protocol used, and hospitalization status.

Study analysis showed that the patients had the highest score for role functioning and the lowest score for emotional functioning. In the study of Mierzynska et al. (2020), it is reported that it is physical and social functioning for early-stage breast cancer cases and cognitive functioning for metastatic breast cancer cases. Malik et al. (2021) reported that the highest mean score in the blood cancer group was physical function. Efficace et al. (2019) reported that the highest mean score in the AML patient group at diagnosis was cognitive functioning.

This study showed that, while financial difficulty had the highest average score among symptom scales, three symptoms were higher than the others; fatigue, insomnia, pain. Malik et al. (2021) reported that the symptoms with the highest scores were insomnia, dyspnea, and diarrhea in the blood cancer patients group. AlFayyad et al. (2020) reported that anorexia is a statistically significant predictor of clinically significant fatigue. Altmore et al. (2018) reported that the symptoms with the highest score in the polycythemia vera patient group were fatigue, insomnia, and pain. Efficace et al. (2019) reported that the symptoms with the highest score in the AML patient group at diagnosis were fatigue, dyspnea, and insomnia. Lepretre et al. (2019) reported that those with the minimal residual disease had higher dyspnea, insomnia, and loss of appetite scores than those without in the ALL patient group. Mierzynska et al. (2020) reported insomnia, fatigue and pain in the early-stage breast cancer group, and fatigue, insomnia, pain and dyspnea (mean pain and dyspnea scores are the same) for the metastatic breast cancer group. The costs of certain adverse events (AEs) (infusion reaction, neutropenia, infection, anemia, thrombocytopenia, and febrile neutropenia) are associated with a significant economic burden in CLL (Waweru et al. 2019). It can be said that the low emotional functioning scores of leukemia patients are due to future anxiety associated with being diagnosed with leukemia, the long treatment process and the perception of the poor expectation for the life expectancy. The patients may experience more intense symptoms of fatigue, insomnia, and pain, depending on the severity of the disease and treatment-related symptoms. The financial difficulties of the patients are because most of the costs are covered by the patients because of the inability to fully cover the treatment costs by their social security or the length of the necessary bureaucratic process (preparation of drug reports, etc.) and due to a decrease in the level of income because of the patients' inability to work during the treatment process. In the current study, the total mean score of the patients in MSPSS was determined as 58.04±17.45. It was found that the patients received the highest support from the family and the lowest support from the special person. Bakan and Guraksin (2017) reported that the level of SS mean score was 59.19±17.15 points with the highest level of support from family and the lowest from friends. Han and Choi (2018) reported a moderate level of family support in the hematological cancer group. Efficace et al. (2011) stated that low social support reduces adherence to long-term treatment in CML patients receiving Imatinib. Holmegaard Nørskov et al. (2019) reported in a qualitative study with a group of acute leukemia patients that social support from family, friends, and other patients is invaluable in managing a new social identity as a cancer patient and re-establishing a sense of normalcy in daily life. Borregaard Myrhøja et al. (2020) stated that with the role of peer support of treated acute leukemia patients, it provides hope to newly diagnosed acute leukemia patients and facilitates post-cancer recovery through self-confidence. In our study, the general SS levels of leukemia patients were found to be good. Receiving the highest support from the family may be associated with the traditional Turkish family structure.

In the study, it was determined that male patients had better QOL, physical and emotional functioning, and fatigue levels compared to female patients. In this study, although not statistically significant, social support level scores of females were lower than males. According to Sacha et al. (2017), males with CML had a better QOL than females. Pashos et al. (2013) stated that in the CLL patient group, males had a better FACT-Leu total score than females. Malik et al. (2021) highlighted relatively better HRQoL among female blood cancer patients. Pashos et al. (2013) reported worse physical scores and fatigue scores in females than males in the CLL patient group. Waweru et al. (2019) reported higher fatigue scores in females compared to males in CLL patients. According to AlFayyad et al. (2020), gender was not a predictor of clinically significant fatigue. Pashos et al. (2013) stated that females had better social/family scores than males in the CLL patient group. Females have worse QOL and lower SS scores which are thought to be associated with the prevalence of patriarchal mentality in the Turkish culture, women's responsibilities related to gender roles, and their lack of sufficient social networks to support them since most of them are housewives.

This study showed that, the mean MSPSS special person sub-dimension mean score was higher in widowed patients than married patients. In the study of Bakan and Guraksin (2017), the perceived family SS scores of the married patients were higher than the others. The lower mean score of the general health status of the married patients compared to the others may be related to the existence of responsibilities for the children and family and concerns for the future.

In the study, the physical functioning of the literate patients was worse than the others. It was found that patients with a higher education level experienced less pain than others and less financial difficulties than primary school graduates. Liao et al. (2014) reports the years of education, and fatigue were factors related to the change of physical and role functioning. In this study, it was found that literate patients had higher mean scores in the MSPSS family sub-dimension than the others. In the study of Savcı (2006), it is reported that high school/college graduates have a higher score of total perceived SS and perceived SS from friends and those who graduated from secondary school have higher scores of perceived SS from family than the others. In the study Çalışkan et al. (2015), it is reported in cancer patients who graduated from secondary school had a higher level of SS scores than illiterate patients. The relationship between the increase in the QOL and the increase in education level is thought to be related to the complex features of leukemia treatment, good financial means with increased education level, and increased SS.

In the current study, it was found that being diagnosed with AL or CL did not make a significant difference in terms of QOL and SS level. It was found CLL patients had less nausea and vomiting symptoms compared to CML patients and experienced more insomnia. It was found that patients with CL experienced more fatigue than those with AL. According to Bosshard et al. (2018), patients with AML had a lower HRQoL than other cancer patients or the general population. Similarly, patients who received intensive and non-intensive chemotherapy reported high psychological distress (El-Jawahri et al. 2018). It was determined that CML patients experienced more nausea and vomiting and less insomnia than CLL patients. In the study of Pamuk et al. (2008), Hodgkin's Lymphoma (HL) patients' EORTC QLQ-C30 physical functioning score was higher than AML, Multiple Myeloma (MM), and Non-Hodgkin Lymphoma (NHL) patients, and the social functioning score of AML and MM patients was lower than in HL and CLL patients. Tinsley et al. (2017) reported that high-risk Myelodysplastic Syndrome (MDS) and AML patients who received intensive treatment had a significant increase in their QOL associated with a decrease in disease-related symptoms compared to those who did not receive treatment. Zimmermann et al. (2013) reported that among patients with AL, those with loss of energy, sleeping difficulty, and pain were more likely to report intense anxiety/sadness. Cella et al. (2012) reported that there is no significant difference between AL and CL patient groups in terms of QOL and sub-dimension scores, except for social well-being scores. In a study, they compared CLL patients with the general population of similar age group, Holtzer-Goor et al. (2015) reported that the symptoms of fatigue, dyspnea, insomnia, loss of appetite, and financial difficulties were significantly worse as well as the EORTC QLQ-C30 and all functioning scales. Waweru et al. (2019) reported that CLL patients had significantly worse fatigue, anxiety, physical functioning, social functioning, depression, sleep disturbance, and pain interactions than the general population. The higher rate of nausea and vomiting symptoms in CML patients is thought to be due to the treatment used and its side effects. The fact that CLL patients had more symptoms of insomnia in our study is thought to be related to advanced age.

In the study; there was a weak negative correlation of age with nausea and vomiting symptoms and between BMI and loss of appetite; a weak positive correlation between the number of children and pain symptoms and between duration of diagnosis and loss of appetite symptom, and a weak negative correlation between duration of diagnosis and constipation symptom; a weak negative correlation between the duration of treatment and the cognitive functioning score, and a weak positive correlation with loss of appetite. According to Shaulov et al. (2019), severe pain was associated with younger age, lower performance status, being diagnosed with ALL, and the time elapsed from the start of chemotherapy. Savcı (2006) determined that there is a weak negative relationship between age and perception of health, and as the duration of diagnosis and treatment increase, the overall score of the general QOL and SS level decreases. Levin et al. (2007) reported that age has significant effects on QOL in patients with CLL, the physical QOL of the patients diagnosed for more than six years, and the social and emotional QOL in newly diagnosed patients are worse than the others. There is a positive correlation between age and general health scores (Pamuk et al., 2008). Kurt and Unsar (2008) reported that post-treatment symptoms, age and BMI do not affect the QOL. Among the reasons for the decrease in nausea and vomiting symptoms with the increase of age may be due to the increase in the duration of the treatment and the experience of the patients regarding symptom management. It can be said that increased family support, economic support, feeling less stress, and better eating habits can have a positive effect on BMI. As the diagnosis and treatment time increases, the increase in loss of appetite is thought to be related to increased nausea and vomiting due to the effects of chemotherapy treatment on the gastrointestinal tract.

In the current study, it was found that with the increase of EORTC QLQ-C30 score, family, friend, special person, and general SS increased. It was determined that the MSPSS scale score was positively correlated with global QOL and functioning scales except for physical and role functioning, and negatively correlated with financial difficulty and loss of appetite symptom. Similar to MSPSS, family sub-dimension score was found to be positively correlated with global QOL, functioning scales excluding physical and role functioning, and negatively related to financial difficulty. It was determined that as the MSPSS friend sub-dimension score increased, the global QOL, emotional, physical, and cognitive functioning scores also increased. It was found that the global QOL score increased and the score of loss of appetite symptom decreased with increasing special person support. Santos et al. (2006) reported that as the level of SS increases, pain and insomnia symptoms decrease in patients with hematologic malignancy. Oh et al. (2020) reported that breast cancer patients with medium-high SS levels experience less severe chemotherapy-related physical and emotional distress. Henriques et al. (2020) report that elderly individuals with socioeconomically disadvantaged economic levels have a lower QOL, and SS of family, friends, and other important people reduces social inequality in the QOL later in life, regardless of age and gender. In the study of Craveiro (2017) with individuals aged 50 and over living in Europe; characteristics related to the structure and quality of social connections are associated with better health status. Ng et al. (2015) reported that MSPSS and general QOL are positively correlated in breast cancer cases while MSPSS is negatively correlated with anxiety and depression. Zeng et al. (2021) reported that higher health utility scores were significantly associated with a higher level of social support in the leukemia patient group. Albercht and Bryant (2019) emphasizes that adult patients undergoing leukemia treatment support the effectiveness of psychosocial interventions to reduce psychological well-being and distress. According to Wang et al. (2021), a family participatory dignity therapy program in the hematological cancer group increased patients' hope, mental well-being, and family harmony. Liao et al. (2014), reported that personalised supportive care, information provision, symptom management, self-efficacy skill training, and counselling, was critical for improving the QOL in cancer patients, but psychosocial health assessment and counseling still required development.

CONCLUSION AND SUGGESTIONS

In conclusion, this study found that various personal, disease- and treatment-related characteristics influence the QOL, symptoms, and SS level of the patients. An increase in the SS level that patients receive from family, friends, and special persons, improves their QOL, physical, emotional, cognitive, and social functioning. As the SS level of patients decreases, loss of appetite and financial problems increase.

As a result, providing holistic care by nurses considering the personal (age, gender, etc.) and disease-related characteristics (duration of treatment and diagnose, etc.) that affect the QOL and SS levels of leukemia patients, regular evaluations with valid and reliable scales to determine the QOL and SS levels of patients, defining and strengthening the social networks of patients, improving the adaptation process to the disease by establishing effective communication between the patient and the caregivers are recommended.

Limitations: Since the study was limited to the opinions of patients who were treated in the Hematology outpatient clinic of a university hospital, the obtained results cannot be generalized to society.

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