Research Article

The Effect of Dietary Supplement Use on Quality of Life and Depression in Patients with Chronic Liver Disease: A Cross-Sectional Study

Kronik Karaciğer Hastalarında Diyet Desteği Kullanımının Yaşam Kalitesi ve Depresyon Üzerindeki Etkisi: Kesitsel Bir Çalışma

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ABSTRACT

Objectives: Individuals with chronic liver disease (CLD) often use dietary supplements (DS) to cope with conditions that negatively affect quality of life (QoL), such as depression and fatigue. This study aims to determine the effect of DS use on QoL and depression in patients with CLD.

Materials and Methods: The population of this descriptive study consisted of all patients (n=330) diagnosed with CLD who admitted to the gastroenterology outpatient clinic between April 1, and May 30, 2018, and patients aged 18 years or older, without cognitive problems and who agreed to participate in the study. Data were collected using Patient Information Form (17 item), which includes socio-demographic and DS usage characteristics, "Chronic Liver Disease Quality of Life Inventory 2.0" (LDSI 2.0) and Beck Depression Scale (BDI).

Results: 48.4% of patients have used DS in the past year. LDSI 2.0 was found to be statistically significant in patients using DS compared to those who did not use a total score. In the patients with better income (p=0.02), who did not drink alcohol (p=0.01), patients without additional chronic illness (p=0.001) and those with 6-10 years of illness (p=0.02) preferred DS more. There was no statistically significant difference between the use of DS and BDI scores (p>0.05). A statistically significant, positive, strong relationship between LDSI 2.0 and BDI scores was also found (r=0.536; p<0.0001**).

Conclusion: The QoL of those who did not use DS was low. Considering that almost half of the patients with CLD use DS, doctors and nurses should question the DS used by patients when taking anamnesis. Because DS can interact with the drugs used, health professionals should improve their knowledge of the subject with evidence-based information and guide patients properly.

ÖZ

Amaç: Kronik karaciğer hastaları (KKH) diyet takviyelerini (DD) en çok depresyon ve yorgunluk gibi yaşam kalitesini (YK) etkileyen durumlarla baş edebilmek için kullanmaktadırlar. Bu çalışmanın amacı KKH'de DD kullanımının YK ve depresyon üzerine etkisini belirlemektir.

Gereç ve Yöntemler: Araştırmanın örneklemini 01 Nisan-30 Mayıs 2018 tarihleri arasında gastroenteroloji polikliniğine başvuran KKH tanısı almış, 18 yaş ve üstü hastalar (n=330) oluşturmuştur. Veriler, sosyodemografik ve DD kullanım özelliklerini içeren Hasta Tanıtım Formu (17 soru), "Kronik Karaciğer Hastalığı Yaşam Kalitesi Ölçeği 2.0 (LDSI 2.0)" ve Beck Depresyon Ölçeği (BDÖ) ile toplanmıştır.

Bulgular: Yaş ortalaması 48,8±7,1 olan hastaların, %48,4'ü son bir yıldır DD kullanmaktadır. LDSI 2.0 ölçeği toplam puanının DD kullanan hastalarda, kullanmayanlara göre anlamlı düzeyde düşük olduğu, YK'nin anlamlı düzeyde yüksek olduğu (p=0,04) bulunmuştur. Maddi durumu iyi olanların (p=0,02), alkol kullanmayanların (p=0,01), ek bir kronik hastalığa sahip olanların (p=0,001) ve hastalık süresi 6-10 yıl olanların (p=0,02) istatistiksel olarak anlamlı düzeyde daha fazla DD tercih ettiği bulunmuştur. DD kullanan ve kullanmayanlar hastaların, BDÖ puanları arasında istatistiksel olarak anlamlı fark bulunmamıştır (p>0,05). LDSI 2.0 ile BDÖ ölçeği arasında istatistiksel olarak anlamlı, pozitif yönde güçlü bir ilişki saptanmıştır (r=0,536; p<0,0001**).

Sonuç: KKH olan bireylerin yaklaşık yarısı DD kullanmaktadır. DD kullanmayanların YK'si daha düşüktür. Bu nedenle hastaların tıbbi öyküsü alınırken, kullandıkları DD sorgulanmalıdır. Bilinçsiz kullanımı ve hepatotoksisiteyi önlemek için etkinliği kanıtlanmış DD, geleneksel tedavilerle entegre edilebilir.

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Introduction

Although great advances in the management of liver diseases have been made in the last three decades, approximately 29 million people in European countries still suffer from chronic liver diseases (CLD) (1). According to the National Health and Nutrition Examination Surveys, the prevalence of CLD in the USA has become 14.78% between 2005 and 2008 while it was 11.7% between 1994 and 1998 (2). Every year, 170,000 people die in Europe because of liver cirrhosis (1). It is usually very hard for patients to tolerate the medical treatments used for the underlying etiologies of CLD, such as antiviral medications. In certain cases, the limited effectiveness of the medical treatments has driven individuals with CLD to seek complementary and alternative medicine (CAM) methods (3).

Even though these methods have been used since the dawn of humankind, their prevalence has increased after the 1990's (4). According to the health statistics report published in 2015 by the Center of Diseases Protection and Control, the rate of using any one CAM method among adults in the USA of age 18 and above in the last 12 months has been reported to be 33.2% (5). Individuals with CLD have been reported to use CAM methods to treat their disease and cope with their symptoms in differing rates 27.3%, 39%, 46% preferring dietary supplements (DS) most (3,6,7,8). CAM methods include natural products (such as herbal products, vitamins and minerals, and probiotics) and mind and body practices (such as yoga, chiropractic and osteopathic manipulation, meditation, acupuncture, relaxation techniques and breathing techniques). Natural products are widely marketed, readily available to consumers, and often sold as "DS". However, DS's are among the most widely used CAM methods in CLD (6,7,8).

Individuals with CLD, beside fighting the disease, have to cope with the psychological, economic, and social problems caused by the disease. Symptoms seen in CLD (acid, jaundice, insufficient nutrition, fatigue, itching, pain, hopelessness, loss of workforce, depression etc.) negatively affect the quality of life (QoL) of patients. As the severity of the symptoms increase, the patient becomes unable to perform daily life activities (DLA) alone and dependent on family members or professional care, and this can bring along depressive mood changes (9,10). Therefore, patients with CHD use DS to cope with both physical and mental symptoms and improve their QoL. Nevertheless, physicians must be aware of DS use in patients with CLD to determine the most widely used techniques and the potential hepatotoxicity of various herbal techniques. No studies examining the effect of DS use in individuals with CLD on QoL and depression could be found in Turkey. Therefore, this study was performed in order to examine the effect of DS use, which is performed widely in CLD, on QoL and depression.

Materials and Methods

Population and Sample of the Study

This descriptive and cross-sectional study was performed with patients presenting at the gastroenterology polyclinic of a university hospital who were diagnosed with CLD. An average of 8 patients with CLD present at a University Health and Application Center Gastroenterology Polyclinic daily. The population of this study consisted of all of the patients diagnosed with CLD who presented at the gastroenterology polyclinic between the dates of April 1st 2018 and May 30th 2018 (n=330), while the sample consisted of (n=256) patients who were 18 years of age or above, diagnosed with CLD, had without any communication problems, and willing to participate in the study.

The study was approved by the Zonguldak Bülent Ecevit University Clinical Research Board of Ethics (approval number: 2018-93-28/03, date: 28/03/2018). We ran the study according to the Helsinki Declaration (World Medical Association Declaration of Helsinki Ethical Principles For Medical Research Involving Human Subjects). Each patient was informed about the study and written consent was taken from the patients.

Data Collection

Data were collected using Patient Information Form (17 item), which includes socio-demographic and DS usage characteristics, "Chronic Liver Disease Quality of Life Inventory 2.0 (LDSI 2.0)" and Beck Depression Scale. The LDSI 2.0 is a disease specific scale developed by van der Plas et al. (11) in 2003 to measure the QoL of individuals diagnosed with CLD and its effects on DLA. The Turkish validity and reliability study of the scale was performed by Eraydın et al. (9). This scale measures different aspects of health related QoL such as symptom severity and the effect of symptoms on DLA. The scale consists of 2 sections and a total of 24 items. The first section consists of 18 items and the second section consists of 6 items. In section 1, where symptom related status is evaluated, 9 items were separated into two questions "a" and "b". While the nine questions titled "a" measure the severities of itching, joint pain, pain in the right upper abdomen, sleepiness during the day, worry about family situation, decreased appetite, depression, fear of complications and jaundice; the questions titled "b" measure the hindrance caused by these symptoms to DLA.

The second section of the scale, consisting of 6 extra items added by the Nederlandse Leverpatiënten Vereniging (NLV) (Dutch liver patient association NLV as important aspects of health-related QoL of chronic liver patients based on frequent contact with other liver patients and their own experience as

chronic liver patients, evaluates memory problems due to liver disease, change of personality due to liver disease, hindrance in financial affairs due to liver disease, involuntary change in use of time, decreased sexual interest and decreased sexual activity. All items in the scale concern the last week, and the scale has a 5-way Likert type scoring system between "0" (not at all) and "4" (to a high extent). Higher scores from the scale indicate worse QoL. In our study the Cronbach alpha value of the LDSI 2.0 was found to be 0.84.

The BDI was developed by Beck et al. (12) and tested for validity and reliability in our country by Hisli (13). The BDI is a multiple choice 21 item scale used to determine the presence and severity of depression. The highest score that can be attained from the scale is 63. Higher total scores indicate higher depression severity. In our study, the Cronbach alpha value of the BDI was found to be 0.81. Data was evaluated in the SPSS 16.0 program using percentages, the t-test, chi-squared, ANOVA, and the Pearson correlation test.

Statistical Analysis

Data was evaluated using the SPSS 11.5 program and after the skewness and kurtosis values exhibited the conditions of normal distribution, data was evaluated using percentages, mean values, standard deviation, the t-test, ANOVA, regression analysis, and the Pearson correlation test.

Results

The mean age of the liver patients was 48.8±7.1, almost half of them were female (43.4%), and most were married (72.3%), housewives (27.0%), retired (25.0%), elementary school graduates (34.8%), and had a moderate level of income (61.3%), poor (9.8%) and good (28.9%). The mean diagnostic duration of the patients was 4.5±2.3 years. Most were diagnosed with liver steatosis (35.9%), and cirrhosis [22.3%, and hepatitis B (18.8%), and hepatitis C (9.4%), and liver cancer (12.1%), and other (1.6%)].

Almost half (43.4%) had an additional chronic illness. Most used tobacco (64.5%) and alcohol (52.5%). A majority of the patients (76.6%) were under treatment, and attended regular checkups (72.3%). 48.4% of the patients with CLD used DS for the last year (Table 1).

The relationship between the DS use of individuals with CLD and their socio-demographic and relevant medical characteristics was given in Table 2. Accordingly, patients with better economic status (p=0.02), patients who did not use alcohol (p=0.01), patients with no additional chronic illness (p=0.001), and those with CLD for 6-10 years patients (p=0.02) were found to prefer DS more. It was found that among socio-demographic characteristics and the medical characteristics questioned in our study, income level, alcohol use status, disease duration, and the presence of an additional chronic illness affected DS use. In the multiple regression analysis performed, additional chronic illness and alcohol use status were found to have a predictive value of 0.6% (R^2=0.061, p=0.003) (Table 3).

The DS used by the individuals with CLD were given in Table 4. Accordingly, the patients used nigella sativa (31.2%), green tea (29.3%), garlic (25.8%), cabbage (24.2%), willow leaves (21.5%), ginger (19.1%), apple vinegar (15.6%), artichoke (13.3%),

Table 1. The socio-demographic characteristics of the individuals with CLD as well as certain medical characteristics (n=256)		
Variables	**n**	**%**
Age (years) mean ± SD (range: 20-89)	**48.8±7.1**	
Gender		
Female	111	43.4
Male	145	56.6
Marital status		
Single	185	72.3
Married	71	27.7
Education		
Illiterate	16	6.2
Elementary	89	34.8
High school	84	32.8
University	67	26.2
Level of income		
Poor	25	9.8
Moderate	157	61.3
Good	74	28.9
Occupation		
Housewife	69	27.0
Laborer	37	14.5
State employed	47	18.4
Retired	64	25.0
Independent business	39	15.1
Duration of disease (year ± SD)	**4.5±2.3 years (range: 0-20)**	
1-5 years	191	74.6
6-10 years	50	19.5
11-15	12	4.7
16 years and above	3	1.2
Type of liver disease		
Cirrhosis	57	22.3
Hepatitis B	48	18.8
Hepatitis C	24	9.4
Liver cancer	31	12.1
Liver steatosis	92	35.9
Other	4	1.6
Presence of other chronic disease		
Yes	111	43.4
No	145	56.6
Smoking status		
Yes	165	64.5
No	91	35.5
Alcohol use status		
Yes	134	52.3
No	122	47.7
Social drinker	51	38.0

Table 1. Continued

Variables	n	%
Alcohol use status		
A few times a month	35	26.0
A few times a week	28	21.0
Almost every day	20	15.0
Under treatment		
Yes	196	76.6
No	60	23.4
Attendance to regular check ups		
Yes	185	72.3
No	71	27.7
Dietary supplement use in the last year		
Yes	124	48.4
No	132	51.6
CLD: Chronic liver disease, SD: Standard devition		

Table 2. The factors related to the DS use of liver patients according to socio-demographic characteristics as well as certain medical characteristics (n=256)

Variables	Dietary supplement not used (n=132)	Dietary supplement used (n=124)	p
Age (years)			
20-39	30 (44.8)	38 (55.2)	0.18
40 and above	102 (54.3)	86 (45.7)	
Gender			
Female	54 (48.6)	58 (51.4)	0.38
Male	78 (54.2)	66 (45.8)	
Marital status			
Single	34 (48.6)	36 (51.4)	0.53
Married	98 (53.0)	88 (47.0)	
Education			
Illiterate	7 (43.8)	9 (56.2)	
Elementary	52 (58.4)	37 (41.6)	0.28
High school	37 (44.6)	47 (55.4)	
University	36 (53.7)	31 (46.3)	
Level of income			
Good	8 (32.0)	17 (68.0)	
Moderate	91 (57.7)	67 (42.3)	0.02†*
Poor	34 (45.9)	40 (54.1)	
Occupation			
Housewife	36 (52.2)	33 (47.8)	
Laborer	21 (56.8)	16 (43.2)	
State employed	28 (60.9)	18 (39.1)	0.27
Retired	26 (40.6)	38 (59.4)	
Independent business	21 (53.8)	19 (46.2)	

Table 2. Continued

Variables	Dietary supplement not used (n=132)	Dietary supplement used (n=124)	p
Duration of disease (year ± SD)			
1-5 years	104 (54.7)	86 (45.3)	
6-10 years	19 (38.0)	32 (62.0)	
11-15 years	6 (50)	6 (50.0)	0.04†*
16 years and above	3 (100)	0 (0.0)	
Presence of other chronic disease			
Yes	44 (39.6)	67 (60.4)	0.001†**
No	88 (60.7)	57 (39.3)	
Smoking status			
Yes	88 (53.3)	77 (46.7)	0.44
No	44 (48.4)	47 (51.6)	
Alcohol use status			
Yes	72 (59.0)	50 (41.0)	0.01†*
No	60 (44.8)	74 (55.2)	
Under treatment			
Yes	97 (49.2)	101 (50.8)	0.13
No	35 (60.3)	23 (39.7)	
Attendance to regular checkups			
Yes	91 (49.2)	94 (50.8)	0.22
No	41 (57.7)	30 (42.3)	
*P<0.05, **p<0.001, †chi-square test. DS: Dietary supplements, SD: Standard deviation			

Table 3. The examination of dietary supplement use according to socio-demographic and certain medical characteristics through regression analysis

Dietary supplement use

	B	Beta	t	p
Constant	1.379	-	6.878	0.000
Disease duration	0.000	-0.006	-0.085	0.933
Presence of other chronic disease	0.199	0.198	2.993	**0.003**
Alcohol use	-0.127	-0.127	-2.055	**0.041**
Income	0.011	0.013	0.212	0.832
R: Regression co-efficient. R=0.248, R²=0.061, F=4.081, p=0.003				

turmeric (12.1%), vitamin E (12.1%), milk thistle (11.7%), and lavender (10.5%) most.

The relationship of DS use to depression and QoL in individuals with CLD was given in Table 5. The mean LDSI 2.0 symptom severity (p=0.04) and effect on DLA scores of the patients who used DS were found to be lower, and thus QoL among those patients was found to be higher on a statistically significant level (p=0.04). The mean scores from the extra NLV items in section 2 were also found to be lower in those who used DS, and thus QoL among those patients was found to be higher on a statistically significant level (p=0.04). The LDSI 2.0 QoL

scale total scores of the CLD patients who used DS were also found to be lower, showing that QoL among those patients was higher than those who did not use DS on a statistically significant level (p=0.04).

The BDI mean score of the patients who used DS was 20.11±6.03, indicating a moderate level of depressive mood. There was no statistically significant difference between the use of DS

and BDI scores (p>0.05). A statistically significant, positive, strong relationship between LDSI 2.0 and BDI scores was also found (r=0.536; p<0.0001**).

Discussion

Although studies on CAM use in individuals with CLD have been found in the literature (3,7,8,14) no studies directly examining DS use or exhibiting the relationship between DS use and QoL and depression could be found. For this reason, our findings could guide future studies in this aspect. In this study, we found that approximately half of the patients (48.4%) used DS within the last year. Patients with better economic status, patients who did not use alcohol, patients with no additional chronic illness, and those with CLD for 6-10 years patients, were found to prefer DS more on a statistically significant level. In the regression analysis performed, the presence of an additional chronic disease and alcohol use status were found to be determining factors for DS use. In a study by Richmond et al. (8), patients with chronic hepatitis C were found to use multivitamins (56%) and herbal products (25%) on rates similar to ours. In the same study, patients with higher income levels and additional chronic diseases were found to use CAM methods more in a similar manner to our study (8). In a study conducted by Ferrucci et al. (3) with CLD patients, vitamins (39.6%) and herbal products (16.2%) were found to be used most widely, and in a manner parallel to our study, patients with higher income levels were found to use CAM methods more.

In this study, DS use was found not to be affected by gender Ferrucci et al. (3) and education level (7,8) in a manner contrary to the other three studies. This finding may be caused by sample, regional differences, or our study directly questioning DS use. We also found that patients who did not use alcohol consumed significantly more DS. Patients who did not use alcohol may

Table 4. The dietary supplements used by the individuals with CLD (n=124)

Dietary supplements used*	n	%
Nigella	80	31.2
Green tea	75	29.3
Garlic	66	25.8
Cabbage	62	24.2
Willow leaves	55	21.5
Ginger	49	19.1
Apple vinegar	40	15.6
Artichoke	34	13.3
Turmeric	31	12.1
Vitamin E	31	12.1
Milk thistle	30	11.7
Lavender	27	10.5
Dandelion	27	10.5
Celery	27	10.5
Omega 3-6-9	24	9.4
Licorice	17	6.6
Ginseng	12	4.7
Asia seeds	5	2.0

*More than one option was selected. CLD: Chronic liver disease

Table 5. The relationship of DS use to depression and QoL in individuals with CLD (n=256)

Scales	Dietary supplement not used (n=132)	Dietary supplement used (n=124)	h; χ^2; p
Symptom severity mean score (mean ± SD)	15.28±6.43	13.46±6.23	t: -1.917; 0.04[h*]
Symptom effect on DLA mean score (mean ± SD)	12.35±6.20	10.42±6.79	t: -1.926; 0.04[h*]
Extra NLV (additional items) (mean ± SD)	7.17±3.50	5.88±4.39	t: -1.886; 0.04[h*]
LSDI 2.0 mean (mean ± SD)	34.81±8.9	29.59±6.72	t: -2.045; 0.04[h*]
Mean BDI score (mean ± SD)	19.84±7.15	20.11±6.03	t=0.181; 0.85[h]
BDI			
Depression no (0-9 points)	25 (46.3)	31 (53.7)	
Mild (10-16 points)	27 (57.4)	20 (42.6)	χ^2:1.811; 0.61[Ŧ]
Moderate (17-29 points)	54 (55.1)	46 (44.9)	
Severe (30-63 points)	26 (49.1)	27 (50.9)	
LDSI 2.0 (BDI)	r=0.536; p<0.0001**		

r: Correlation coefficient. *p<0.05, **p<0.001, Ŧchi-square test, ħ: t-test, DS: Dietary supplements, QoL: Quality of life, CLD: Chronic liver disease, SD: Standard deviation, DLA: Daily life activities, NLV: Nederlandse Leverpatiënten Vereniging, LSDI: The Liver Disease Symptom Index, BDI: Beck Depression Scale

have given their disease more importance, wanted more control and responsibility over their own treatment, and thus sought DS (15,16). Since no studies in the literature could be found on alcohol use status and DS preferences, this result needs to be supported by further studies. In this study, those with CLD for 6-10 years were found to use DS more. No studies in the literature examining he relationship between DS use and disease duration among the studies related to CAM method and DS use in CLD could be found. In studies performed with different disease groups, disease duration was found to be affected by CAM use in patients with rheumatoid arthritis (17) while no such relationship could be found in patients with inflammatory bowel disease (18). In our study, it was found that those with disease durations of 6 to 10 years used more DS compared to the first 5 years. The reason behind this may be patients using medical drug treatments such as retroviral treatments for the first 5 years, being questionably satisfied with their treatment, and preferring DS later on. Similarly, the patients may have feared the hepatotoxic effects of DS for the first five years and not used them. Those with disease durations of 6 years and above, on the other hand, may have sought DS thinking they had no other choice. In studies performed on CAM use with different sample groups, the patients have been reported to use those methods mostly because of being unsatisfied with their treatments and having no other choice (15,16,19). Almost half of the individuals with CLD were found to use DS. The most commonly used DS were respectively nigella, green tea, garlic, cabbage, willow leaves, ginger, apple vinegar, artichoke, turmeric, vitamin E, milk thistle and lavender. In the studies by Richmond et al. (8), Coughlan et al. (14), and White et al. (7), the herbal product most widely used by patients with hepatitis C was milk thistle. Although the patients consumed milk thistle with a similar rate in our study, they used other DS even more. In the study by White et al. (7), patients were found to consume dandelion, licorice, and garlic in rates similar to our results (7,14).

In individuals with CLD, beside symptoms such as acid, pain, jaundice, fatigue, and itching, complications related to the disease such as peritonitis, varicosity, and encephalopathy and psychological issues such as anxiety and depression all affect QoL negatively (9,20). In this study, the LDSI 2.0 QoL scale total scores of the CLD patients who used DS were found to be lower, showing that QoL among those patients was higher than those who did not use DS on a statistically significant level. In the study by White et al. (7), CAM methods were reported to be used by patients with hepatitis C mostly to decrease fatigue, strengthen the immune system, and to improve gastrointestinal function. The patients reported no side effects, and the researchers found that the presence of the headache symptom was the determining factor in herbal product use (7). In the literature, only two studies evaluating the relationship between DS use in CLD and QoL could be found (8,14). In the study conducted by Richmond et al. (8) with patients with chronic hepatitis C, no significant difference in the QoL levels of those who did and did not use CAM methods could be found. These findings contradict our study. This difference may be caused by our use of a CLD specific QoL scale or our questioning of solely DS. In the study by Coughlan et al. (14) patients with worse QoL levels were found to resort to CAM

applications more. In our study, the, the symptom severity score and the effect of symptoms on DLA were higher in those who did not use DS and their QoL levels were lower. Patients with CLD also used DS to cope with their symptoms.

Individuals with CLD are under greater risk of depression because of disrupted QoL and disease related complications (10,21). In our study, although the patients who used DS had moderate depressive mood levels, no significant difference between those who did and did not use DS could be found. However, the positive strong relationship we found between the LDSI 2.0 and the BDI support the studies by Fábregas et al. (21) and Dan et al. (22).

Study Limitations

The results are based on cross-sectional data, therefore the conclusion of a causal relationship between variables cannot be derived. Therefore, longitudinally research is needed to reveal the relationship between variables in the future.

Conclusion

Approximately half of the patients with CLD were found to use DS in this study, with those with higher income levels, those who did not use alcohol, those with CLD for 6-10 years, and those with an additional chronic illness preferring DS more. The most commonly used DS were found to be respectively nigella (31.2%), green tea (29.3%), garlic (25.8%), cabbage (24.2%), willow leaves (21.5%), ginger (19.1%), apple vinegar (15.6%), artichoke (13.3%), turmeric (12.1%), vitamin E (12.1%), milk thistle (11.7%), and lavender (10.5%). Additionally, those who did not use DS were found to have lower QoL levels, and DS use was found not to be affected by depression status.

As it can be seen, the number of studies exhibiting the relationship between DS use and QoL and depression is insufficient. For this reason, randomized controlled studies with large samples are required to examine the relationship between DS use, QoL, and depression. Additionally, when it is considered that almost half of the CLD patients used DS, in order to prevent drug interactions and hepatotoxicity, the DS used by patients should be questioned while taking anamnesis and the QoL levels of patients should be evaluated using disease specific scales. Thus, health personnel are expected to follow scientific studies on the subject with high levels of evidence, utilize the results of those studies, and guide the healthy/ill individual correctly.

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