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Evaluation of Depression, Anxiety and Health-Related Quality of Life in Patients with Hepatitis B Virus-Infection

Hepatit B Virüsü ile İnfekte Hastalarda Depresyon, Anksiyete ve Sağlıkla İlişkili Yaşam Kalitesinin Değerlendirilmesi

Kazım KIRATLI[1](İD), Ömer DİKİCİ[2](İD), Şükran KÖSE[3](İD)

[1] Department of Infectious Diseases and Clinical Microbiology, Kâtip Çelebi University Atatürk Training and Research Hospital, İzmir, Türkiye

[2] Department of Physical Medicine and Rehabilitation, Kâtip Çelebi University Atatürk Training and Research Hospital, İzmir, Türkiye

[3] Department of Infectious Diseases and Clinical Microbiology, Health Sciences University Tepecik Training and Research Hospital, İzmir, Türkiye

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ABSTRACT

Introduction: *Chronic hepatitis B patients may experience many psychological and emotional symptoms. In our study, it was aimed to compare the anxiety, depression and quality of life scores of chronic hepatitis B patients and inactive HBV carriers and to examine the necessity of psychiatric evaluation and follow-up during the treatment of people with HBV infection.*

Materials and Methods: *Patients followed up due to hepatitis B infection and a similar number of healthy individuals (total= 178 individuals) were included in the study. Sociodemographic information form, "Hospital Anxiety and Depression Scale", "Short Form-36" and "Liver Disease Symptom Index 2.0" were filled in for all subjects included in the study.*

Results: *In terms of normal and abnormal anxiety scores, there was a difference between the three groups according to Hospital Anxiety and Depression Scale ($p< 0.001$). Physical function ($p< 0.001$), emotional role difficulty ($p= 0.006$), vitality ($p= 0.003$), mental health ($p= 0.001$) and general health ($p< 0.001$) scores was significantly lower in the chronic hepatitis B group compared to other groups. In carriers, according to the Liver Disease Symptom Index 2.0, all items except anxiety, depression and memory problems in the family were found below 50%. In the chronic hepatitis B group, except for jaundice, personality change, inadequacy in financial affairs, involuntary movements, change in time use and decrease in sexual interest, other items were found to be over 50%.*

Conclusion: *Informing patients about the disease process continuously will reduce their anxiety and contribute to their adherence to treatment. Evaluation of the effects of chronic liver disease on quality of life will help us in better management of the disease.*

Key Words: *Anxiety; Depression; Hepatitis B; Liver Disease; Quality of life*

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ÖZ

Hepatit B Virüsü ile İnfekte Hastalarda Depresyon, Anksiyete ve Sağlıkla İlişkili Yaşam Kalitesinin Değerlendirilmesi

Kazım KIRATLI[1], Ömer DİKİCİ[2], Şükran KÖSE[3]

[1] Kâtip Çelebi Üniversitesi Atatürk Eğitim ve Araştırma Hastanesi, İnfeksiyon Hastalıkları ve Klinik Mikrobiyoloji Anabilim Dalı, İzmir, Türkiye
[2] Kâtip Çelebi Üniversitesi Atatürk Eğitim ve Araştırma Hastanesi, Fiziksel Tıp ve Rehabilitasyon Anabilim Dalı, İzmir, Türkiye
[3] Sağlık Bilimleri Üniversitesi Tepecik Eğitim ve Araştırma Hastanesi, İnfeksiyon Hastalıkları ve Klinik Mikrobiyoloji Anabilim Dalı, İzmir, Türkiye

Giriş: *Kronik hepatit B hastaları birçok psikolojik ve duygusal semptom yaşayabilir. Çalışmamızda kronik hepatit B hastaları ile inaktif HBV taşıyıcılarının anksiyete, depresyon ve yaşam kalitesi puanlarının karşılaştırılması ve HBV infeksiyonu olan kişilerin tedavileri sırasında, psikiyatrik değerlendirme ve izlem gerekliliğinin incelenmesi amaçlanmıştır.*

Materyal ve Metod: *Hepatit B infeksiyonu nedeniyle takip edilen hastalar ve benzer sayıda sağlıklı kişiler (toplam= 178 kişi) çalışmaya dahil edildi. Çalışmaya alınan tüm olgular için sosyodemografik bilgi formu, "Hastane Anksiyete ve Depresyon Ölçeği", "Kısa Form-36" ve "Karaciğer Hastalığı Semptom İndeksi 2.0" dolduruldu.*

Bulgular: *Hastane Anksiyete ve Depresyon Ölçeği'ne göre normal ve anormal anksiyete puanları açısından üç grup arasında fark vardı (p< 0.001). Fiziksel fonksiyon (p< 0.001), emosyonel rol güçlüğü (p= 0.006), canlılık (p= 0.003), ruh sağlığı (p= 0.001) ve genel sağlık (p< 0.001) puanları kronik hepatit B grubunda diğer gruplarla karşılaştırıldığında anlamlı olarak daha düşüktü. Taşıyıcılarda, Karaciğer Hastalığı Semptom İndeksi 2.0'a göre; ailede anksiyete, depresyon ve hafıza sorunları dışında kalan tüm maddeler %50'nin altında saptandı. Kronik hepatit B grubunda ise sarılık, kişilik değişikliği, mali işlerde yetersizlik, istem dışı hareketler, zaman kullanımında değişiklik ve cinsel ilgide azalma dışında diğer maddelerin %50'nin üzerinde olduğu görüldü.*

Sonuç: *Hastaları, hastalık süreci hakkında sürekli bilgilendirmek kaygılarını azaltacak ve tedaviye uyumlarına katkıda bulunacaktır. Kronik karaciğer hastalığının yaşam kalitesi üzerindeki etkilerinin değerlendirilmesi, hastalığın daha iyi yönetilmesinde bize yardımcı olacaktır.*

Anahtar Kelimeler: *Anksiyete; Depresyon; Hepatit B; Karaciğer hastalığı; Yaşam kalitesi*

INTRODUCTION

It is estimated that nearly 257 million individuals worldwide have chronic hepatitis B (CHB), and 71 million individuals have chronic hepatitis C. About 1.3 million people die annually due to viral hepatitis. Most of these deaths are due to hepatocellular carcinoma (HCC) and cirrhosis. While this number is close to tuberculosis-related deaths, it is higher than HIV-related deaths[1]. In this long-term disease process, CHB patients may experience psychological and emotional symptoms such as anxiety, depression, mood swings, dysfunction in addition to many somatic symptoms such as asthenia, fatigue, abdominal pain, myalgia, joint pain, anorexia, and insomnia. In the following periods, fatal complications such as cirrhosis, liver failure and related hepatic encephalopathy, variceal bleeding in the stomach and esophagus, ascites and HCC may develop. As a result, the quality of life of individuals is seriously impacted[2,3]

The state of being healthy is an essential component of a good quality of life. The concept of health-related quality of life (HRQoL) and its features emerged and gained prominence in the 1980s. Over the past few decades, as people have become more aware of the significance of quality of life, HRQoL has been used to assess and monitor various diseases, including chronic liver disease (CLD)[4]. As HRQoL can assess a person's social, psychological, and physical functions across a wide spectrum, healthcare professionals can better evaluate the outcome of each stage of their patients' follow-up, understand what they need, and provide them with a higher level of healthcare[5,6].

In recent years, the management of CHB has significantly improved with the introduction of new types of nucleos(t)ide analogues (NUC) for treatment. However, since NUC treatment is long-term, it can lead to various issues such as the development of drug resistance, non-compliance

with the treatment regimen, discontinuation of the drug, economic challenges, and psychological factors[7-9]. Some patients with CLD are worried about the possibility of disease progression in the future, which can lead to anxiety and depression. The physical, mental, and social wellbeing of patients is crucial in the follow-up of CLD. In fact, a good HRQoL stands out as an important outcome in CHB treatment[10]. Evaluation of HRQoL consists of two different stages, general and disease-specific. While general tools are used to compare different types of diseases, disease-specific tools enable a more detailed and specific assessment of a particular disease and are also more sensitive to modifications[11]. The Chronic Liver Disease Questionnaire, created by Younossi et al., is the first disease-specific tool to assess the HRQoL of chronic liver patients[12].

In our study, it was aimed to compare the quality of life, depression, and anxiety scores of CHB patients and inactive hepatitis B virus (HBV) carriers compared to the healthy control group, and to examine the necessity of psychiatric evaluation and follow-up during the treatment of people with HBV infection.

MATERIALS and METHODS

Patients and Follow-up

Patients followed up due to HBV infection in infectious diseases and clinical microbiology outpatient clinic and a similar number of healthy individuals (178 individuals) were included in the research. A sociodemographic information form (containing details such as age, gender, income, and education) was filled in for all individuals included in the study. The Hospital Anxiety and Depression (HAD) Scale consisting of 14 items to objectively measure the degree of depression and anxiety, the "Short Form-36" (SF-36) consisting of 36 items to evaluate the life quality, and the "Chronic Liver Disease Quality of Life Scale 2.0" consisting of 15 items (only for patients) was applied. All applied scales were filled in with face-to-face interview technique in a quiet room without any intervention or interruption. Hepatitis B patients were grouped as CHB (receiving treatment) and inactive HBV carriers. For this study, individuals under 18 years old, patients with CHB who had previously received interferon treatment, those with cirrhosis, pregnant women, and individuals with a chronic disease other than CHB such as anemia, diabetes, thyroid disease, chronic kidney disease, coronary artery disease and heart failure, malignancy, endocrine diseases, neurological diseases, autoimmune diseases, rheumatological diseases, among others, were not included. Written informed consent was obtained from each person who agreed to take part in the study before completing the questionnaires.

Questionnaries

HAD Scale

The HAD scale was developed in 1983 by Zigmond et al.[13]. This scale is a self-assessment tool created to first determine the risk of depression-anxiety in patients who apply to a primary health care institution and feel physically unwell, and then measure the change in its level and severity. It has anxiety and depression subscales and consists of 14 questions in total. Based on research conducted in Türkiye, the cut-off score for the anxiety subpart was 10/11, and for the depression subpart was 7/8. Individuals who score above these points are considered to be at risk. Patients can score a maximum of 21 points and a minimum of 0 points on both subscales. The HAD Scale is preferred because it does not contain items related to somatic symptoms[14]. The Turkish translation of the HAD Scale was validated by Aydemir et al.[15].

SF-36: Quality of Life Scale

The SF-36 scale was designed by Rand Corporation in 1992. It contains eight subscales and 36 questions in total on emotional role limitation, physical function, physical role limitation, mental health, vitality, social function, body pain, and general health. Safety studies of this scale have been conducted in different disease groups, and it has been found to be acceptable and valid in the healthy population[16]. The Turkish validity study of SF-36 was done by Kocyigit et al.[17].

Liver Disease Symptom Index 2.0 (LDSI 2.0)

LDSI 2.0 was developed in 2004 by Van der Plas et al.[18]. This scale has undergone psychometric testing and was developed to assess the psychological and clinical impact of CLD on daily activities at different stages[18]. LDSI 2.0 is an assessment tool consisting of 24 items. The first part contains 18 items. Nine items assess right upper quadrant pain, pruritus, joint pain, daytime sleepiness, anxiety for family, fear of complications, decreased appetite, depression, and jaundice. The other nine items measure the impact of these symptoms on activities of daily life. The second part contains six items including changes in personality, memory problems, finances, time use, decreased libido, and decreased sexual activity[19]. The Turkish translation of the LDSI 2.0 was validated by Eraydin et al.[19].

Statistical Analysis

Statistical analysis of our study was performed using SPSS 21.0 program. The compatibility of the variables with normal distribution was evaluated with Kolmogorov-Smirnov and Shapiro-Wilk tests. In crosscheck between groups, ANOVA test-post hoc Bonferroni correction was performed for normally distributed continuous variables, and Kruskal-Wallis method was performed for non-normally distributed continuous variables. Non-continuous variables with normal dispersion were interpreted using the Chi-square test, and non-continuous variables without normal dispersion were interpreted by Fisher's exact probability test. The level below 0.05 was considered for statistical significance.

Ethics Committee Approval

Study numbered 2019-GOKAE-1028 was reviewed and approved by İzmir Kâtip Çelebi University Non-Interventional Clinical Research Ethics Committee on 30.05.2019.

RESULTS

A total of 60 of the subjects included in the investigation were inactive HBV carriers, 58 were CHB, and 60 were healthy individuals. The sociodemographic data of our research, which included a total of 178 participants, are given in Table 1.

According to HAD Scale, there was a statistically significant difference between the CHB group, carrier group and control group in terms of normal and abnormal anxiety scores ($p< 0.001$), and there was no difference between the groups with borderline scores ($p> 0.05$). There was no statistically significant difference between the control group and carrier group in terms of anxiety risk ($p> 0.05$). A significant difference was found between carrier and control groups with CHB group in terms of normal and borderline depression scores ($p< 0.001$), there was no difference between any group with abnormal scores ($p> 0.05$). There was no difference between the control group and the carrier group in terms of depression risk ($p> 0.05$). The comparison of the risks of anxiety and depression between the groups is given in Table 2 and Table 3.

Emotional role difficulty, physical function, vitality, physical role difficulty, social function, mental health, general health, and body pain scores were obtained according to the answers given to the questions in the SF-36 form of CHB, inactive HBV carriers and healthy control groups. Physical function ($p< 0.001$), emotional role difficulty ($p= 0.006$), vitality ($p= 0.003$), mental health ($p= 0.001$) and general health ($p< 0.001$) scores were significantly lower in the CHB group than in the carrier and healthy groups. While there was a significant difference between CHB and carrier group in terms of physical role difficulty ($p= 0.008$), there was no significant difference between the healthy group and the other groups. While there was a significant difference between the carrier and healthy groups in terms of social function ($p= 0.037$), there was no significant difference between the CHB group and the other groups. No statistical difference was observed for pain scores between the groups ($p> 0.05$). Table 4 shows the comparison between the SF-36 scores of the groups.

Table 1. Sociodemographic characteristics

Features		Hepatitis B carriers n (%)	CHB n (%)	Healthy individuals n (%)
Age		39.05 ± 15.62	40.76 ± 16.21	40.35 ± 8.01
Gender	Woman	21 (35.0)	25 (43.1)	30 (50.0)
	Man	39 (65.0)	33 (56.9)	30 (50.0)
Marital status	Married	35 (58.3)	31 (53.4)	45 (75.0)
	Single	21 (35.0)	21 (36.2)	11 (18.3)
	Divorced	4 (6.7)	6 (10.3)	4 (6.7)
Child	Yes	35 (58.3)	34 (58.6)	43 (71.7)
	No	25 (41.7)	24 (41.4)	17 (28.3)
Number of children		1.03 ± 1.07	1.12 ± 1.19	1.17 ± 0.89
Educational level	Primary school	16 (26.7)	14 (24.1)	-
	High school	19 (31.7)	17 (29.3)	15 (25.0)
	University	23 (38.3)	16 (27.6)	37 (61.7)
	Other	2 (3.3)	9 (18.9)	8 (13.3)
Profession	Self-employment	11 (18.3)	8 (13.8)	2 (3.3)
	Civil servant	11 (18.3)	10 (17.2)	36 (60.0)
	Employee	11 (18.3)	9 (15.5)	13 (21.7)
	Housewife	12 (20.0)	14 (24.1)	1 (1.7)
	Other	15 (25.0)	15 (29.3)	8 (13.3)
Family income	2000 TL* or less	8 (13.3)	6 (10.3)	1 (1.7)
	2001-4000 TL	16 (26.7)	21 (36.2)	8 (13.3)
	4001-6000 TL	19 (31.7)	20 (34.5)	16 (26.7)
	More than 6000 TL	17 (28.3)	11 (19.0)	35 (58.3)
Working status	I am not working	14 (23.3)	23 (39.7)	4 (6.6)
	I am retired	7 (11.7)	9 (15.5)	1 (1.7)
	Part time	3 (5.0)	2 (3.4)	3 (5.0)
	Full time	36 (60.0)	24 (41.4)	52 (86.7)
Smoking	Yes	28 (46.7)	20 (37.9)	23 (38.3)
	No	32 (53.3)	36 (62.1)	37 (61.7)
Daily package		0.44 ± 0.52	0.33 ± 0.47	0.38 ± 0.57
Alcohol	I do not drink	-	-	1 (1.7)
	Social drinker	38 (63.3)	45 (79.3)	22 (36.7)
	1-2 times a month	9 (15.0)	8 (13.8)	19 (31.7)
	1-2 times a week	12 (20.0)	4 (6.9)	12 (20.0)
	About every day	1 (1.7)	-	6 (10.0)

*TL: Turkish Lira.

Table 2. HAD scale anxiety results

Anxiety score	Hepatitis B carriers n (%)	CHB n (%)	Healthy individuals n (%)	p
Normal	38[a] (63.3)*	16[b] (27.6)	40[a] (66.7)	<0.001
Borderline	13[a] (21.7)	8[a] (13.8)	13[a] (21.7)	>0.05
Abnormal	9[a] (15.0)	34[b] (58.6)	7[a] (11.7)	<0.001

*: Different letters represent significant differences.

Table 3. HAD scale depression results

Depression score	Hepatitis B carriers n (%)	CHB n (%)	Healthy individuals n (%)	p
Normal	46[a] (76.7)*	26[b] (44.8)	49[a] (81.7)	<0.001
Borderline	9[a] (15.0)	22[b] (37.9)	7[a] (11.7)	<0.001
Abnormal	5[a] (8.3)	10[a] (17.2)	4[a] (6.7)	>0.05

*: Different letters represent significant differences.

Table 4. SF-36 scale results

Quality of life scale subdimensions	Hepatitis B carriers	CHB	Healthy individuals	p
Physical functionality	85.08 ± 16.74[a]*	70.95 ± 27.79[b]	88.75 ± 16.01[a]	<0.001
Physical role difficulty	78.17 ± 30.25[ab]	56.58 ± 39.77[c]	67.50 ± 40.47[bc]	0.008
Emotional role difficulty	77.78 ± 33.43[a]	57.27 ± 39.83[b]	73.88 ± 35.84[a]	0.006
Energy vitality	62.08 ± 22.33[a]	48.98 ± 23.71[b]	60.92 ± 21.78[a]	0.003
Mental health	69.90 ± 21.55[a]	57.34 ± 23.88[b]	70.47 ± 18.40[a]	0.001
Social functionality	81.03 ± 25.76[a]	71.42 ± 27.00[ab]	69.38 ± 26.08[b]	0.037
Pain	70.50 ± 29.55[a]	65.91 ± 26.51[a]	74.33 ± 25.52[a]	0.246
General health	64.92 ± 20.16[a]	49.48 ± 26.19[b]	68.58 ± 20.77[a]	<0.001

*: Different letters represent significant differences.

When we analyzed the results of the LDSI 2.0 for the CHB and carrier groups, it was observed that all other items except anxiety, depression, and memory problems related to the family were below 50% for carriers, whereas for the CHB group, all items were above 50% except for jaundice, personality change, involuntary changes in time use, decreased sexual interest, and disability in financial affairs. More than half of patients with symptoms in both groups stated that the symptoms affected their daily activities. In Table 5, the results of LDSI 2.0 are given in detail.

DISCUSSION

In our study, it was observed that anxiety and depression scores were lower especially in patients with CHB. Patients with CHB had lower scores in almost all categories in the SF-36 scale. Similarly, in comparisons with the LDSI 2.0, chronic patients were found to be much more symptomatic and more affected by these symptoms during the day.

Psychiatric symptoms are frequently encountered during the monitoring and treatment of CHB. In CHB patients and inactive HBV carriers, the presence of infection in other people in the family, the duration of the infection, the history of additional disease, the history of psychiatric disease in the family and the problems related to the disease in daily life affect the emotional state and quality of life of the cases[20].

HRQoL is the degree to which a person's life is evaluated from the physical, psychological, and social aspects[21]. Mortality in chronic diseases is not an immediate problem, and a person's physical health and happiness can be evaluated holistically with HRQoL[7]. The use of HRQoL in the follow-up of chronic diseases is now considered a standard procedure by clinicians, pharmaceutical companies, funders, patient rights groups, Food and Drug Administration and the clinical researchers[22]. Evaluation of HRQoL is accepted as an increasingly valuable tool to determine the follow-ups and results related to the disease, and to make decisions for new interventions to be made. CLD is a solemn public health issue that affects the quality of life of patients[23]. Complications of CLDs, regardless of etiology, can lead to deterioration

Table 5. Results of the LDSI 2.0

LDSI items	Hepatitis B carriers symptomatic, n (%)	Hepatitis B carriers with symptom hindrance among symptomatic (%)	CHB symptomatic, n (%)	CHB with symptom hindrance among symptomatic (%)
Itch	24 (40.0)	50.0 (daily activity) 58.3 (sleep)	41 (70.7)	53.7 (daily activity) 61.0 (sleep)
Joint pain	29 (48.3)	65.5	46 (79.3)	71.7
Pain in right upper abdomen	21 (35.0)	90.5	39 (67.2)	71.8
Sleepiness during day	26 (43.3)	100.0	48 (82.8)	85.4
Worry about family situation	31 (51.7)	54.8	48 (82.8)	75.0
Decreased appetite	23 (38.3)	70.0	29 (50.0)	96.6
Depression	32 (53.3)	59.4	40 (69.0)	100.0
Fear of complications	20 (33.3)	-	35 (60.3)	-
Jaundice	15 (25.0)	53.3	20 (34.5)	70.0
Extra NLV items				
Memory problems	34 (56.7)	-	40 (69.0)	-
Change of personality	12 (20.0)	-	28 (48.3)	-
Hindrance in financial affairs	4 (6.7)	-	16 (27.6)	-
Involuntary change in use of time use of time	14 (23.3)	-	25 (43.1)	
Decreased sexual interest	15 (25.0)	-	28 (48.3)	-
Decreased sexual activity	18 (30.0)	-	30 (51.7)	-

in quality of life[24]. CHB can impose psychiatric additional burdens on patients such as depression and anxiety, resulting in worsened HRQoL. It was observed in a study that HBV carriers had significantly lower social functions than healthy individuals[25]. Many factors associated with low HRQoL and depression in individuals with CHB are not fully understood, and it is thought that the disease may cause cognitive dysfunction by affecting the central nervous system[26,27]. However, behavioral disorders that cause low HRQoL in patients with CHB have been shown to be associated with the severity of the disease, age, gender, alcohol consumption, HBeAg positivity, non-adherence to treatment, and lack of knowledge about CHB[7,28,29].

In our study, it was determined that there was an anxiety risk in 58.6% of the patient group, 15% of the carrier group, and 7% of the control group according to the HAD scale anxiety scores. Anxiety risk was found to be significantly higher in the CHB patient group compared to the other two groups ($p< 0.001$). This was associated with the fear of progression risk because the patients in the CHB group had a chronic disease despite treatment. No difference was found between the control group and the HBsAg carrier group in terms of anxiety risk.

According to the HAD Scale depression scores, 17.2% of the patient group, 8.3% of the carrier group, and 6.7% of the control group were found to have a risk of depression. However, no significant difference was observed in the risk of depression between the CHB group and the other two groups. Borderline depression scores were significantly higher in the CHB patient group compared to the other two groups ($p< 0.001$). The high probability of depression in the CHB group was associated with the lack of knowledge about the disease in the patients, the fear of being excluded by the

society or their acquaintances, the risk of long-term complications of the disease, and mood disorders related to the economic burden.

In yet another study, patients with CHB reported that their physical health deteriorated, with some accompanying depressive symptoms[24]. In a recent study conducted in Türkiye in which demographic characteristics were compared with the quality of life of CHB patients using antiviral therapy, all SF-36 subscale scores were found to be higher in males. Single individuals had higher mean subscale scores. Physical functionality, social functionality, and physical role limitation score distributions differed among housewives and office workers. A significant difference was found between physical functionality, social role limitation, and energy/fatigue subscale scores among those living in urban areas and those coming from distant towns or villages[30]. In two studies, the HRQoL of individuals with CHB was found to be significantly lower than in healthy individuals[31,32]. In the study conducted by Alay et al. with chronic hepatitis (B and C) patients receiving treatment, it was found that providing counseling services regarding side effects before starting the drugs increased the compliance of the patients to the treatment and increased their quality of life[33]. In the first visit with patients, in addition to informing them about CHB disease and its treatment, their mental health should also be evaluated, psychological problems addressed, and professional support provided in the initial phase if necessary. Short training sessions at the beginning can significantly improve the patient's HRQoL in the following days[34].

In our study, when quality of life scores were compared using the SF-36 quality of life form assessing eight different parameters, in the CHB group; physical function ($p< 0.001$), emotional role difficulty ($p= 0.006$), vitality ($p= 0.003$), mental health ($p= 0.001$) and general health ($p< 0.001$) scores were found to be significantly lower than the other groups. While there was a significant difference between CHB and carrier groups in terms of physical role difficulty ($p= 0.008$), there was a significant difference between carrier and healthy groups in terms of social function ($p= 0.037$). General health, physical role difficulty, and decreased vitality scores were associated with nonspecific findings such as weakness, fatigue, right upper quadrant pain, nausea, muscle and joint pain in some patients. The lower general health status of patients receiving treatment for CHB compared to carriers was associated with drug side effects and lower recovery expectations.

In a study conducted in Türkiye, the HRQoL of CHB patients has been shown to be weaker than the healthy population[35]. In a study by Daryani et al.[36] in which they examined inactive HBV carriers, the rate of depression was found to be 30%. In another study, the SF-36 quality of life scores of CHB and HBV carriers were significantly lower than the healthy control group[20]. In a multicenter study conducted by Karacaer et al.[37] in the Turkish population in 4257 patients with CHB, there were three groups (inactive carriers, CHB patients receiving treatment, CHB patients not yet receiving treatment); it was observed that inactive HBV carriers had the highest quality of life score. It has been predicted that the quality of life may be negatively affected as the disease progresses, but a higher HRQoL can be achieved with appropriate treatment. In a study of Singaporean patients, it was shown that HRQoL was close to each other in HBV carriers and healthy individuals, but significantly decreased in CHB patients and even worsened with disease progression[7]. In a study conducted in Korea, CHB patients had lower scores on the scales compared to the general population. The tiredness and fatigue caused by the disease in daily life activities can negatively affect their mental health. At the same time, factors such as occupation, education and income level can also potentially affect HRQoL. The desire to hide the disease and a possible social exclusion if it is learned by other people are strong markers that negatively influence the mental health of the patients[38]. It is critical for the clinician to have information about the stage of the disease of the CHB patient and how this condition affects HRQoL. Since HBV can progress silently and insidiously without showing many symptoms, patients should be told to come for control at regular intervals on a routine basis[39].

Unfortunately, social stigma comes to the fore in some societies for this disease, which can lead to deterioration of mental health, anxiety, and depression[40].

In the study where LDSI 2.0 was created, more than 50% of the patients experienced sleepiness (71%), joint pain (58%) during the day, memory problems (56%), decreased sexual activity (51%) and worry about the family (51%). Other symptoms were less common, and more than half of the patients were restricted in their daily activities due to the symptoms they experienced[18].

In the Turkish validity and reliability study of the LDSI 2.0, more than 50% of the patients reported depression, worry, itch, sleepiness, and joint pain. In addition, 53.6% reported memory problems and 50.0% reported decreased sexual activity, other symptoms were less than 50%. More than half of their patients who experienced various symptoms stated that their daily activities were hampered by these symptoms like the original investigation. Sleepiness, depression, and anxiety were weakly to moderately correlated with almost all the SF-36 sub-items. The SF-36, which is a tool that evaluates diseases in many dimensions, including physical, mental, and social aspects, shows once again how deeply the symptoms caused by chronic disorders affect people's daily activities with these correlations[19].

In our study, like these two studies, it was observed that more than 50% of chronic patients were affected by the disease symptomatically, and at the same time, the symptoms had a negative impact on the daily lives of most of them.

CONCLUSION

Correlations between disease-specific scales and general scales show that any chronic disease can affect a person's social life through daily activities and family life. CLD patients have urges to isolate themselves for many reasons (such as other intervening infections, complications, fear of infecting others, hospitalization, fatigue and weakness, and hopelessness). The need for social isolation and concerns about complications caused by the disease also cause psychiatric symptoms. Training for families and patients, printed materials (such as brochures or booklets) to be provided can be beneficial in increasing awareness and quality of life. Psychological aspects of the disease should also be probed during interviews with the patients. Evaluation of the effects of CLD on HRQoL will assist us in the management of the disease. The hospital and the doctor that the patient applies to should be as consistent as possible, and keeping patients informed about the disease process will reduce their anxiety and improve their compliance with treatment. The increase in treatment options in recent years and the absence of resistance to newly found antivirals are encouraging developments. Therefore, it is important to ensure that such patients receive psychiatric support to increase their HRQoL.

ETHICS COMMITTEE APPROVAL

This study was approved by İzmir Katip Çelebi University Non-Interventional Clinical Research Ethics Committee (Decision no: 253, Date: 30.05.2019).

CONFLICT of INTEREST

We declare that we have no financial, commercial, or other relationships that could potentially cause a conflict of interest.

AUTHORSHIP CONTRIBUTIONS

Concept and Design: KK, ŞK

Analysis/Interpretation: KK, ŞK

Data Collection or Processing: All of authors

Writing: KK

Review and Correction: All of authors

Final Approval: KK, ÖD

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Address for Correspondence/Yazışma Adresi

Dr. Kazım KIRATLI

Department of Infectious Diseases and Clinical Microbiology, Katip Çelebi University Atatürk Training and Research Hospital, İzmir-Türkiye

E-posta: drkazimkiratli@gmail.com