



## Use of complementary and alternative medicine in patients with chronic viral hepatitis in Turkey



Nevin Ince<sup>a,\*</sup>, Şafak Kaya<sup>b</sup>, İlknur Esen Yıldız<sup>c</sup>, Emine Parlak<sup>d</sup>, Belkıs Bayar<sup>e</sup>

<sup>a</sup> Department of Infectious Diseases and Clinical Microbiology, Duzce University Faculty of Medicine, Duzce, Turkey

<sup>b</sup> Health Sciences University, Gazi Yaşargil Health Application and Research Center, Department of Infectious Diseases and Clinical Microbiology, Diyarbakır, Turkey

<sup>c</sup> Recep Tayyip Erdoğan University Faculty of Medicine, Department of Infectious Diseases and Clinical Microbiology, Rize, Turkey

<sup>d</sup> Department of Infectious Diseases and Clinical Microbiology, Faculty of Medicine, Ataturk University, Erzurum, Turkey

<sup>e</sup> Duzce University Health Application and Research Hospital, Infectious Disease Nurse, Turkey

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### ABSTRACT

**Introduction:** The global use of complementary and alternative medicine (CAM) is growing. The purpose of this study was to determine the prevalence of CAM use in patients in Turkey with CVH, the types of therapy, and patients' sociodemographic characteristics.

**Methods:** The study was designed as a questionnaire-based, cross-sectional analysis. An infectious diseases outpatient follow-up questionnaire was administered to patients at face-to-face interviews. The data obtained were analyzed using SPSS 17 software.

**Results:** This study included 588 patients, of whom 27% used CAM. No differences in sociodemographic characteristics were determined between patients using CAM and those not using it. Herbal methods were used by 63.6% of patients and cupping techniques by 25.4%. Education level was significantly correlated with herbal methods ( $p = 0.043$ ). CAM use also increased in line with disease duration ( $p < 0.05$ ). No difference in CAM use was determined between CHB patients using oral antiviral therapy and those not using it ( $p = 0.162$ ).

**Conclusion:** CAM use, particularly herbal products, is prevalent among Turkish adults with CVH. In case of use of herbal products in chronic viral hepatitis patients, toxicity and liver failure may develop as a result of herbal product-drug interactions. Physicians in the field of hepatology should, therefore, be aware of potential toxicity of CAM, especially in patients with chronic hepatitis liver diseases.

### 1. Introduction

Complementary and alternative medicine (CAM) is the term used for all unconventional medical practices. Even though CAM is defined variously, the National Center for Complementary and Integrative Health defines it as “a group of diverse medical and health care systems, practices, and products that are not presently considered to be a part of the conventional medicine.” CAM includes herbal medicines or supplements; mind/body techniques, such as yoga, body-based procedures, and cupping.<sup>1</sup> An increase in the application of these methods have been reported lately in Turkey and worldwide.<sup>2–4</sup> Notably, individuals with chronic diseases may resort to CAM methods in the hope that these will complement their treatment or provide a complete cure. Based on a country's cultural characteristics, rates of use of CAM methods in the USA, the Far East, and Europe range between 9% and 80%.<sup>2,5,6</sup> Notably, the use of herbal medications are the most common methods.<sup>6,7</sup> Several

studies have examined the benefits of CAM in diabetes mellitus, hypertension, malignancy, and rheumatic diseases; however, only few have explored its use in chronic viral hepatitis (CVH).<sup>5,7,8</sup>

Viral hepatitis is a chronic disease wherein the efficacious treatment may be either extensive or limited. Notably, there are approximately 240 million patients with chronic hepatitis B (CHB) worldwide, and 170 million with chronic hepatitis C (CHC). Turkey lies in the moderately endemic region in terms of chronic viral hepatitis.<sup>9,10</sup> Nevertheless, physicians must be aware of CAM use in patients with hepatitis to determine the most widely used techniques and the potential hepatotoxicity of various herbal techniques.

No clear statistical data exists concerning CAM use in patients with CVH in Turkey. Previous studies of CAM use in CHV were restricted to subgroups of patients, such as children.<sup>11</sup> The prevalence and predictors of individual CAM modalities in patients with adult CHB and CHC have not been well characterized. The purpose of this study was to contribute

\* Corresponding author.

E-mail addresses: [drnevince@gmail.com](mailto:drnevince@gmail.com) (N. Ince), [ksafak76@gmail.com](mailto:ksafak76@gmail.com) (Ş. Kaya), [iesenyildiz61@gmail.com](mailto:iesenyildiz61@gmail.com) (İ. Esen Yıldız), [eparlak1@yahoo.com](mailto:eparlak1@yahoo.com) (E. Parlak), [belkisdil@hotmail.com](mailto:belkisdil@hotmail.com) (B. Bayar).

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to the existing literature by determining the prevalence of CAM use, types of therapy, and sociodemographic characteristics among 588 adult patients, undergoing follow-up for CVH in four different regions of Turkey.

## 2. Methods

### 2.1. Study population

This questionnaire-based, cross-sectional study was carried out between December 2018 and March 2019. Face-to-face interviews were conducted with willing patients with CHB and CHC, receiving out-patient follow-up at the infectious diseases departments of tertiary hospitals in four different regions of Turkey (Duzce, Rize, Erzurum, and Diyarbakir). Patients aged 18 or over and under follow-up for CHB and CHC were included. Patients with accompanying diseases, HIV coinfections, or liver decompensation; migrants from other countries; and pregnant women were excluded.

### 2.2. Ethical approval

The study was approved by the Local Ethical Committee of the Duzce University Medicine Faculty (No. 2019/68).

### 2.3. Questionnaire

Various epidemiological, social, and medical data were collected, including age, sex, occupation, educational status, residence, and types of medications used. At the interview, patients were given descriptions of various CAM methods and were queried regarding their use of them. The questionnaire contained questions related to CAM methods used by patients, the costs, their sources of information, and source of purchase. (questionnaire link: <https://docs.google.com/forms/d/e/1FAIpQLSc3UpfAJXiyR5ESUJW-s4KeAXAO5gK2EUUp814j4u7sVxyPVqA/viewform?vc=0&c=0&w=1>).

### 2.4. Statistics

SPSS 17 software was used for statistical analysis. Based on the responses to our questionnaire regarding CAM use, patients were divided into two groups: CAM users and non-CAM users. Categorical data were summarized as frequency and percentage values. Relationship between categorical data and CAM use were analyzed using the chi-square test (post-hoc Bonferroni). Values of  $p < 0.05$  were considered statistically significant.

## 3. Results

This study enrolled 588 patients with CVH—566 CHB and 22 CHC—who were under follow-up by the infectious diseases clinic and agreed to complete the questionnaire. CAM use was present in 27% of patients ( $n = 157$ ). No intergroup differences were observed regarding sex, educational status, occupation, residential area, or marital status ( $p > 0.05$ ). However, significantly higher educational levels, up to university, were observed among patients using herbal products in the CAM users group compared with the other patients ( $p = 0.043$ ). No intergroup difference was observed when patients' CAM use status was compared with their age ( $p = 0.121$ ). Relationship between CAM use and patients' sociodemographic characteristics are shown in Table 1.

When asked about the CAM methods they employed, 63.6% ( $n = 100$ ) of patients reported using herbal therapies (lavender tea, artichoke, garlic, parsley, apple vinegar, etc.), 25.4% ( $n = 40$ ) employed cupping, 6.3% ( $n = 10$ ) leeches, 5% ( $n = 8$ ) prayer, and 1.9% ( $n = 3$ ) acupuncture. Nine patients reported using cupping together with herbal products, and one reported using all these methods. The most common source of herbal products was health food stores (47%),

**Table 1**  
Patients' demographic characteristics and complementary and alternative medicines (CAM) use [n(%)].

Characteristics	CAM usage n(%)		Total	p value
	Users	Nonusers		
<b>Gender</b>				
Female	80 (27)	216 (73)	296 (100)	0.857
Male	77 (26)	215 (74)	292 (100)	
<b>Age groups in years</b>				
18-25	13(19)	54(81)		0.121
26-40	65(28)	169(72)		
41-65	77(29)	189(71)		
66+	2(9)	19(91)		
<b>Marital status</b>				
Married	133 (28)	339 (72)	472 (100)	
Single	21 (22)	74 (78)	95 (100)	0.237
Widowed	3 (14)	18 (86)	21 (100)	
<b>Education levels</b>				
Illiterate	15 (44)	19 (56)	34 (100)	
Literate	2 (15)	11 (85)	13 (100)	
Elementary school	42 (22)	146 (78)	188 (100)	
Middle school	26 (31)	59 (69)	85 (100)	0.083
High school	55 (29)	134 (71)	189 (100)	
University**	17 (22)	61 (78)	78 (100)	
<b>Occupation</b>				
Housewife	64 (29)	160 (71)	224 (100)	
Private sector	27 (28)	71 (72)	98 (100)	
Civil servant	19 (22)	69 (78)	88 (100)	
Self-employed	18 (27)	49 (73)	67 (100)	0.952
Unemployed	11 (25)	33 (75)	44 (100)	
Farmer	12 (30)	28 (70)	40 (100)	
Retired	4 (21)	15 (79)	19 (100)	
Student	2 (25)	6 (75)	8 (100)	
<b>Area of Residence</b>				
Rural	69 (29)	166 (71)	235 (100)	0.234
Urban	88 (25)	265 (75)	353 (100)	

\*\* When education levels were compared with herbal product use, university graduates employed significantly more such products ( $p = 0.043$ ).

and the most common source of information regarding CAM methods relatives and friends (50.9%). Subjects who paid for CAM invested an average of 365 Turkish lira (TL) (0–6000 TL). No post-application side effects were experienced by 79.6% of patients ( $n = 125$ ); 4.4% ( $n = 7$ ) reported side effects, such as listlessness, abdominal pain, and allergic reactions; and 15.9% ( $n = 25$ ) were unsure whether any side effects had developed. Data regarding the CAM methods employed are shown in Table 2.

Among patients with CHB ( $n = 566$ ) using oral antivirals (OAV), 59.3% did not use medication, whereas 40.6% did use drugs. No statistically significant relationship was determined between OAV use and CAM use ( $p = 0.162$ ) (Table 3).

Investigation regarding the relationship between disease duration in patients with CVH (< 5 years, 5–10 years, and > 10 years) and CAM use revealed significantly lower CAM use in the CHB group followed-up for less than five years and the group followed-up for five years or more ( $p < 0.05$ ). Despite no statistically significant difference, the rate of CAM use was higher in patients with CHB who had disease durations exceeding 10 years. A similar relationship was observed between disease duration and CAM use rates among CHC patients. The findings are shown in Table 4.

## 4. Discussion

Several studies have investigated CAM use in individuals with chronic disease in Turkey.<sup>7</sup> Simsek et al. evaluated the CAM use status of 5882 patients with chronic illnesses in all geographical regions of Turkey.<sup>12</sup> However, despite citing CAM rates for all regions of Turkey, this study did not contain any CVH patients. We believe that the present study that assesses CAM use among CVH patients in four different

**Table 2**  
Characteristics of CAM methods employed.

	n (%)
<b>CAM method used</b>	
Herbal	100(63.6)
Cupping	40(25.4)
Leeches	10(6.3)
Prayer/blessing	8(5)
Acupuncture	3(1.9)
Herbal + cupping	9(5.7)
All	1(0.6)
<b>Who recommended CAM?</b>	
Family/friends	80(50.9)
TV, radio, or internet	31(19.7)
Written sources	6(3.8)
Health worker	3(1.3)
Religious official etc.	1(0.6)
<b>How much do you spend on CAM? mean*</b>	
No fee paid	365 (0-6000)
5-99 TL	66(40.6)
100-999 TL	24(16)
> 1000 TL	47(30)
20(12)	
<b>Side-effects</b>	
Yes	7(4.4)
No	125(79.6)
Not sure	25(15.9)
<b>Source of herbal products</b>	
Health food stores	47(47)
Prepared by the patient in person	28(28)
Prepared by others	12(12)
Chemist	4(4)
From the internet	3(3)
From overseas	1(1)

\* TL, Turkish lira.

\*Leech therapy: Medical leeches have three jaws with very small rows of teeth. They pierce the subject's skin, and anticoagulants are injected through their saliva. The leeches are then allowed to extract blood, for 20–45 min in a single session. This equates to a relatively small amount of blood, up to 15 milliliters per leech.

\*\*Prayer/blessing: Performed by a spiritual figure of some kind.

\*\*\*Cupping: In Turkey this is known by the word "hacamat," derived from the Arabic word.

"hacm," meaning 'to absorb' in other words, 'bloodletting'. An individual engaged in this practice is known as a "haccâm," and the equipment used during the procedure is known as.

"mihcem." The blood extracted is not arterial blood, but dark, coagulated blood from beneath the skin.

**Table 3**  
Relations between CAM antiviral use in HBV patients (n/%).

		CAM use		Total	p value
		Yes	No		
<b>Antiviral use</b>	<b>Yes</b>	70(31)	159(69)	229(100)	0.162
	<b>No</b>	85(25)	252(75)	337(100)	

regions will contribute to the existing literature and serve as a guide for further extensive research.

The CAM use rate among CVH patients in our study was 27%. The reported CAM use rate in Egypt, with a higher prevalence of CHC, is 63.9%.<sup>13</sup> A study of viral hepatitis patients in Saudi Arabia cited a CAM

**Table 4**  
The relationship between CAM usage and disease duration (n/%).

		< 5 years		5-10 years		> 10 years		p value
		CAM users	Non-CAM users	CAM users	Non-CAM users	CAM users	Non-CAM users	
<b>HBV</b>		17 (16%)	90 (84%)	51 (26%)	145 (74%)	87 (33%)	173 (67%)	<b>0.003</b>
<b>HCV</b>		1 (17%)	5 (83%)	–	9 (100%)	1 (14%)	6 (86%)	0.494

use rate of 55.6%.<sup>14</sup> The higher prevalence rates observed in these studies when compared with other regional and international studies were probably because of the cultural, social, and religious differences between these countries and the rest of the world.

Our findings revealed no significant differences in CAM use between male and female patients with CVH. However, some studies have reported higher use of CAM in men than women.<sup>13,15</sup> In contrast, Liem et al<sup>16</sup> reported that CAM use was higher in women with CHB. A study from Turkey<sup>4</sup> reported that married subjects used herbal products extensively among the different CAM methods. In our study, we determined no significant relationship between residential area or marital status and CAM use.

A study comprising 927 individuals in Konya, Turkey, reported that the use of herbal medicines increased in line with educational levels.<sup>4</sup> Similarly, Richmand et al.<sup>17</sup> determined that a higher educational level was a determining factor in CAM use in patients with CHC. Even though our study found no significant relationship between CAM use and educational level, the use of the herbal product was noted to increase in line with the educational level upon querying the herbal product users separately ( $p = 0.043$ ).

Herbal products are the most popular form of CAM in Turkey and worldwide. Use of leeches, cupping techniques, and cultural characteristics are also widespread. Another reason for the high cupping rate could be owing to its easy access because the procedure was legalized after a legislative amendment in 2014.<sup>18</sup> Prayers and blessings (by a spiritual figure) are also included in Traditional and Complementary Medicine (T&CM) in Turkey, in contrast to the general global definition of T&CM.<sup>19</sup> This case can be explained by the fact that praying has an important place in Turkish culture, and that Turkish society attaches importance to religious values. Concordant with other studies, no use of practices such as hypnosis or meditation was observed in any of our patients. This observation may be related to cultural differences. In a study published in 2019, Liem et al. investigated ethnic and cultural variations in CAM methods in patients with CHB and reported that herbal products were the most frequently employed method in all ethnic groups, but that mind-body medicine (body-based therapies) was more widely applied in South Asia and among black patients.<sup>16</sup> Nonetheless, the herbal products used by patients with CVH vary widely. The most commonly employed herbal products in our study were artichokes, lavender tea, parsley, olive oil, and apple vinegar, whereas some studies have described milk-thistle as the most commonly used product.<sup>17,20</sup> Notably, milk-thistle has been proven to affect the liver; however, it was only used by four of our patients.

Spouses, friends, and acquaintances representing the sources of information concerning CAM in our study indicated a lack of specialist counseling on the subject. No patient in this study was noted to seek information regarding CAM from health workers. Notably, other studies have also reported spouses and acquaintances as the primary source of information concerning CAM—concordant with our study findings.<sup>5</sup> Considering that herbal products were the most common CAM method, care must be taken regarding its potential hepatotoxicity in patients with CVH. Family, friends, health food stores, and the internet being reported as sources of information for CAM use suggests that participants were self-medicating.

During interviews with patients with CVH, we learned that CAM was typically employed with the hope that their hepatitis would resolve entirely or would complement their prescription medications. Among

individuals with liver disease, CAM was typically used more to promote general health and wellness (68%) among subjects with liver disease than for a specific medical condition or symptom (56%), which is consistent with the prior studies in the literature concerning general population.<sup>21</sup> One previous study determined high rates of CAM use by previously treated CHC patients.<sup>17</sup>

Yildirim et al.<sup>8</sup> described the prolonged duration of disease to be a significant factor for increasing CAM use. In the present study, patients' CAM use rates increased in a statistically significant manner with the increase in the duration of CHB-positivity (> 10 years) ( $p = 0.003$ ). The reason for no relationship noted between duration of disease and CAM use in patients with CHC could be associated with the low number of patients.

In our study, 40.4% (n:229) of the 566 CHB patients were using oral antiviral (OAV) therapy. Similarly, Liem et al.<sup>16</sup> determined no relationship between OAV and CAM method use ( $p = 0.162$ ) and reported that 30.5% of patients receiving OAV were also concurrently using CAM. This finding shows one out of every three patients is seeking a method to support their existing treatment. = 0.162) and reported that 30.5% of patients receiving OAV were also concurrently using CAM. This finding shows one out of every three patients is seeking a method to support their existing treatment<sup>22</sup> reported that 27% of patients received CAM therapy in addition to their prescription hepatitis medicines, but told their physicians nothing about this. The fact that 40.6% of our CVH patients paid nothing for the CAM methods they employed suggests that access is a facilitating factor. This observation also suggests the need for prudence regarding OAV-alternative product interaction besides the hepatotoxic effects of the products used by patients.

Nonetheless, this study had limitations. First, no comparison with CHB was possible because of the low number of patients with CHC, and the patient data were not collected in such a manner that it represented all regions of Turkey. Another limitation was that no specific timeframe was adopted in the analysis of the CAM methods used by our patients and the costs incurred, and we merely investigated concerning any period of their lives.

## 5. Conclusion

The present study identified a 27% rate of CAM use (27%) among patients with CVH. Variables such as age, educational level, marital status, employment status, and place of residence did not significantly correlate with CAM use. The most common types of CAM were herbal medicines and cupping techniques. Educational levels among subjects using CAM methods were high, and the use of CAM increased with the duration of disease. The most common sources of information regarding CAM were patients' relatives and acquaintances. Physicians in the field of hepatology should, therefore, be aware of the benefits of CAM and its potential toxicity, especially in patients with liver diseases.

## Source of support

None.

## Conflict of interest

None to declare.

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