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Complementary and Alternative Medicine Use in United States Adults With Liver Disease

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Abstract

Goals: To describe the complementary and alternative medicine (CAM) use in US adults with liver disease.

Background: The prevalence and patterns of CAM use among US adults with liver disease have not been well characterized. The 2012 National Health Interview Survey is considered the most current and comprehensive source of information on CAM use in US adults.

Study: Using the results of the 2012 National Health Interview Survey, the prevalence of CAM use, most common modalities used, reasons for CAM use, perceived benefits, perceived helpfulness and importance, and disclosure of CAM to health care providers were compared between adults with and without liver disease.

Results: Of the 647 adults with liver disease, 41% reported using CAM in the prior year, compared with 33% of adults without liver disease. The most common modality was herbs and supplements (23%), and 3% of respondents reported consumption of a potentially hepatotoxic substance in the previous 30 days. Only a small proportion of CAM therapies were used specifically for liver disease, with milk thistle being the most common. Among respondents with liver disease, CAM was used more commonly for anxiety or depression, fatigue, and substance use. The majority believed that these therapies improved health. Nearly one-third of therapies were not reported to health care providers, mostly due to failure of the provider to ask.

Conclusions: CAM use, particularly herbs and supplements, is prevalent among US adults with liver disease. Many do not disclose their CAM use to their providers, despite some using potentially hepatotoxic substances.

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The authors declare that they have nothing to disclose.

Keywords

complementary therapies; surveys and questionnaires; milk thistle; drug-induced liver injury; patient acceptance of health care

Complementary and alternative medicine (CAM) refers to practices or products developed outside of main-stream Western, or conventional, medicine and includes herbs and supplements, mind-body techniques such as yoga, chiropractic or osteopathic manipulation, homeopathy, and other modalities. CAM use among US adults has become increasingly prevalent, and since the 1990s, over one-third of the population has reported using at least 1 CAM modality in the past year, according to nationally representative surveys.¹⁻⁴

Prior studies have shown that CAM use is more common among individuals with chronic diseases, particularly when inadequately treated by conventional therapy.^{5,6} Many liver diseases are chronic conditions for which effective therapies may be limited. The prevalence and patterns of CAM use among individuals with liver disease, however, have not been well characterized. Understanding CAM use among this population is important, not only to recognize the most common modalities and the reasons for their use, but also because of the potential hepatotoxicity of many herbs and supplements. This is particularly critical to elucidate given prior data indicating that many patients do not inform their physicians regarding their CAM use.^{4,5,7,8}

The literature of CAM use among individuals with liver disease in the United States has been limited to single modality or single center studies with the exception of 2 multisite studies.⁹⁻¹³ The first multisite study surveyed patients with chronic liver disease at 6 hepatology clinics regarding their CAM use in the preceding month.¹⁰ Using a definition of CAM that included self-prayer and megavitamins, 39% of this population reported CAM use, similar to the prevalence in the general population at the time (42%). A concerning finding of this study was that many did not disclose their CAM use to their physicians, despite some taking potentially hepatotoxic herbs. The second study used a more limited definition of CAM and asked participants specifically about CAM use for chronic liver disease.⁹ They found that 27% of the patients in their referral-based population were currently using herbal medicine, dietary supplements, or homeopathy for their chronic liver disease.

Although these surveys provided valuable information about the prevalence of CAM use among US adults with liver disease, much remains unknown. No study has reported reasons for CAM use, perceived benefits, or reasons for nondisclosure to physicians in this population. Furthermore, no national study of CAM use in liver disease using data collected after 2001 has been conducted, despite changing patterns of use in the general population.¹

The National Health Interview Survey (NHIS) is a nationally representative survey conducted annually by the National Center for Health Statistics and the Centers for Disease Control and Prevention. It gathers information about the health of the US population through interviews and has previously been used to describe CAM use in a variety of diseases, including gastrointestinal conditions.^{8,14} According to the National Center for

Complementary and Integrative Health, the 2012 NHIS provides the most current and comprehensive information on CAM use among US adults.¹⁵

The objective of this study is to more fully characterize the use of CAM in the US adult population with liver disease using data from the NHIS of 2012. Primary objectives include determining the prevalence of CAM use among US adults with liver disease, the most common modalities used, reasons for CAM use, sources of information, payment practices, perceived benefits, perceived helpfulness and importance, and disclosure to health care providers.

MATERIALS AND METHODS

Data Source

The NHIS is a cross-sectional household interview survey of the civilian noninstitutionalized population of the United States. It uses a sampling design that incorporates stratification, clustering, and oversampling to obtain a representative sample. The annual core survey collects sociodemographic information, indicators of health status, and information about health care access and use. Every 5 years, the NHIS also includes a supplement to assess CAM use, most recently in 2012. The 2012 NHIS included 34,525 sample adults with a conditional response rate of 79.7%.¹⁴

Study Population

From the 34,525 sample adults in the 2012 NHIS, we identified 647 with liver disease. We defined adults with liver disease as any respondent who satisfied one of the following criteria: a response of “Yes” to “Has a doctor or other health professional ever told you that you had any kind of chronic, or long-term liver condition?”, a response of “Yes” to “During the past 12 months, have you been told by a doctor or other health professional that you had any kind of liver condition?”, or a response of “Liver problem” to the question “For what health problems, symptoms, or conditions did you [see a practitioner for/use this CAM modality]?”. The first 2 questions were asked of all sample adults; the last question was asked only of respondents who indicated that they used a CAM modality in the past 12 months for a particular health condition.

Use of CAM

As part of the Adult Complementary and Alternative Medicine supplement of the NHIS, sample adults were asked whether they had ever used or seen a practitioner of 17 different CAM modalities for their health, which are listed below. Those who reported ever using a CAM therapy were subsequently questioned regarding use in the last 12 months. For each modality used in the last 12 months, respondents were asked an additional series of questions, including reasons for which the therapy was used, sources of information, insurance coverage, perceived benefits, perceived helpfulness and importance, and disclosure to health care providers. Respondents who used >3 modalities were only asked these questions for the 3 that they considered most important.

For the purposes of this study, CAM use was defined as use of any one of the following modalities included in the NHIS: chiropractic or osteopathic manipulation, herbs and nonvitamin nonmineral supplements, massage, mind-body therapies (meditation, guided imagery, or progressive relaxation), mind-body exercise (yoga, tai chi, or qi gong), special diet (vegetarian or vegan, macrobiotic, Atkins, Pritikin, or Ornish), acupuncture, homeopathy, craniosacral therapy, hypnosis, biofeedback, movement or exercise techniques (Feldenkrais, Alexander technique, Pilates, or Trager psychosocial integration), energy healing therapy, naturopathy, Ayurveda, chelation therapy (outside of its approved indication for metal storage diseases), or traditional healers. Use of vitamins or minerals was excluded due to high prevalence.

Among the list of herbs and nonvitamin nonmineral supplements included in the survey, we identified 15 that were potentially hepatotoxic according to the NIH Liver-Tox database, including: green tea pills, saw palmetto, valerian, Jin Bu Huan, kava kava, aloe vera, black cohosh, noni, cascara sagrada, cascara senna (senna), ephedra, horse chestnut, androgenic steroids (androstenedione and dihydroepiandrosterone), and red yeast rice.¹⁶ This list was used to assess hepatotoxic herb use in the respondents with liver disease.

Health-related Factors

Other information analyzed included age, sex, race/ethnicity, region of residence, highest educational attainment, marital status, household income, insurance status, perceived health status, body mass index, smoking status, alcohol use, physical activity level, and comorbidities. Comorbidities were scored according to the method implemented in Dossett et al.,⁸ with 1 point given for heart disease (coronary heart disease, ever had a heart attack, other heart condition), hypertension, pulmonary disease (chronic obstructive pulmonary disease, emphysema, asthma, chronic bronchitis), mental health concern in last 12 months (depression, anxiety, other mental health concern), neurological problem (recurring headache, memory loss, stroke, other neurological problem), weak or failing kidneys, or ever diagnosed with cancer, diabetes, or arthritis.

Data Analysis

χ^2 tests using SAS Studio (Version 3.4, SAS Institute, Cary, NC) and the SURVEYFREQ procedure were performed to compare the sociodemographic characteristics, overall CAM use, CAM use by modality, and number of modalities used between respondents with and without liver disease. For these analyses, population weights were incorporated to adjust the sample to Census controls for sex, age, and race/ethnicity to obtain representative percentages of the entire population. As recommended by the National Center for Health Statistics, population estimates with a relative SE > 30% were considered unreliable and were not reported.¹⁴ When assessing the prevalence of CAM modalities, the categories with relative SE > 30% were grouped into an “Other” category. χ^2 tests or Fisher exact tests without sample weights were conducted in the subset of CAM users to compare reasons for CAM use, sources of information, payment practices, perceived benefits, perceived helpfulness and importance, and disclosure to health care providers among the survey respondents with and without liver disease. All tests were performed based on 2-sided hypotheses at a 5% level of significance.

Logistic regression using the SURVEYLOGISTIC procedure was performed to identify independent predictors of CAM use. We first performed univariate comparisons of all sociodemographic and health variables (sex, age group, race/ethnicity, region, marital status, education, household income, insurance status, perceived health status, body mass index, smoking status, alcohol use, physical activity level, comorbidity score) with CAM use and retained all with $P < 0.05$. One model evaluated liver disease as a predictor of CAM use among the general population, and a second evaluated predictors of CAM use among the population with liver disease. The models were built using backward selection and multicollinearity was tested for among predictor variables.

RESULTS

Sociodemographic Characteristics

Of the 34,525 adults surveyed, 647 (1.7%) had liver disease. The population with liver disease differed significantly from the remaining population (Table 1). Individuals with liver disease were more likely to be older, white, divorced, have not completed high school, and have a household income $< \$35,000$ per year. They also had a poorer perceived health status, a greater number of comorbidities, and were more likely to be obese, a current or former smoker, a heavy or former alcohol user, and physically inactive.

CAM Use Among Adults With Liver Disease

Overall, 41% of the population with liver disease reported use of at least 1 CAM modality in the last year, with the most common being herbs and nonvitamin nonmineral supplements, which were used by 23% (Table 2). This prevalence of CAM use was significantly higher than in the rest of the population (33%). After controlling for sociodemographic and health variables, the presence of liver disease was independently associated with CAM use (odds ratio, 1.32; 95% confidence interval, 1.04–1.68). Among the population with liver disease, education beyond high school was an independent predictor of CAM use (odds ratio, 2.10; 95% confidence interval, 1.22–3.63). Although individuals with liver disease were more likely to use CAM, the number of modalities used was similar between the 2 groups: nearly 60% used only 1 CAM modality and fewer than 10% used > 3 modalities.

Among respondents with liver disease, fish oil, milk thistle, and glucosamine were the 3 most commonly used herbs and supplements (Table 3). In all, 3% of individuals with liver disease reported use of a potentially hepatotoxic substance in the last 30 days, including 17% of those who consumed herbs and supplements.

Reasons for CAM Use

There were differences in reasons for CAM use between the 2 groups of respondents, with individuals with liver disease being more likely to use CAM to improve immune function (37% vs. 30%, $P = 0.001$) and because it focuses on the whole person (49% vs. 44%, $P = 0.047$), and less likely to use it to improve athletic performance (17% vs. 22%, $P = 0.007$; Fig. 1). Respondents with liver disease were also significantly more likely to use a CAM modality for a specific medical condition or symptom (56.0% vs. 40.9%, $P < 0.001$). Among this group, 12% of CAM therapies were used for their liver disease, of which 50% were milk

thistle, 21% were other herbs and supplements, and 29% were other modalities. Individuals with liver disease used CAM more commonly for fatigue, anxiety or depression, substance use, infectious disease conditions, and immune system conditions, compared with those without liver disease (Table 4).

When used for a medical condition, CAM was often used in addition to medical therapy: 44% also received prescription medications, and 33% also used over-the-counter medications for the same condition. Of respondents who also received medical therapy, those with liver disease were significantly more likely to indicate that their use of CAM was because medical treatments do not work (33% vs. 24%, $P = 0.019$), and some (27%) attributed their use to side effects from medications (Fig. 1). Few (13%) cited the expense of medical treatment as a reason for using CAM, and 66% of CAM users with liver disease reported paying out-of-pocket for CAM therapies, either for practitioner visits, self-help materials, or, in the case of herbs or supplements, the CAM modality itself.

For CAM users with liver disease, the primary sources of information were friends (32%), family (29%), physicians (27%), print material (books, magazines, and newspapers; 24%), and the Internet (22%). Less common sources included scientific articles (16%), health food stores (15%), and TV or radio (13%).

Perceived Benefits of CAM

Overall, survey respondents with liver disease regarded their CAM therapies as helpful and important: 44% of CAM modalities were considered very important in maintaining health and well-being, and 53% helped a great deal for the medical conditions for which they were used (Fig. 2). Only 5% of CAM therapies were considered not at all important, and just 8% did not help at all.

The perceived benefits from CAM use are illustrated in Figure 3. Individuals with liver disease reported improved health as an outcome from CAM use less often (63% vs. 70%, $P = 0.002$), but they were more likely to find that CAM use made it easier to cope with their health problems (49% vs. 37%, $P < 0.001$) and increased their job or school attendance (27% vs. 18%, $P < 0.001$).

Disclosure of CAM Use to Health Care Providers

Respondents with liver disease disclosed 70% of CAM therapies to their health care providers. The most common reasons for not informing their provider were “they didn’t ask” (51%) and “didn’t think they needed to know” (40%). Few admitted to nondisclosure because of risk of a negative reaction (5%), discouragement from use of a modality (7%), or prior discouragement from use of a modality (3%).

DISCUSSION

The results of the 2012 NHIS indicate that CAM use is prevalent among US adults with liver disease (41%) and more common than in the population without liver disease. Differing definitions of CAM precludes direct comparison of this rate to previous reports. However, our analysis may reflect a higher prevalence of CAM use: it is similar to a rate of 39% from

the previously mentioned multisite study with a broader definition of CAM that included self-prayer and megavitamins, which were 2 of the 4 most common modalities.¹⁰ Among the population with liver disease, education beyond high school was an independent predictor of CAM use, consistent with prior studies of the general population and of individuals with liver disease.^{4,7,9–12,17,18} Higher educational attainment likely reflects increased knowledge of CAM therapies. In contrast to prior reports of individuals with liver disease, we found no independent associations between CAM use and sex, race/ethnicity, region of residence, or income.^{9,10}

As in previous studies, herbs and supplements was the most commonly used CAM modality among adults with liver disease, and milk thistle consumption was particularly prevalent.^{10,11,17,18} Milk thistle, or silymarin, has been perhaps the most promising herbal medication for the treatment of liver disease, demonstrating hepatoprotective effects in vitro and in animal models, including antiviral activity against hepatitis C.^{19,20} In fact, in some countries outside of the United States, it is a prescription medication for the treatment of liver disease and would not be considered complementary or alternative therapy. Yet, clinical studies have produced inconsistent results, and a recent randomized clinical trial in patients with chronic hepatitis C demonstrated no clinical benefit of high-dose oral silymarin.^{19–23} Therefore, milk thistle is not currently an approved therapy for liver disease in the United States.

Among individuals with liver disease, CAM was used more commonly to promote general health and wellness (68%) than for a specific medical condition or symptom (56%), which is consistent with prior literature in the general population.⁴ Respondents generally found CAM successful for both of these purposes, with over three-fourths of therapies classified as at least somewhat important or helpful. Individuals with liver disease were less likely to report improved health from their CAM use, but many experienced other benefits, including decreased stress, increased sense of control over health, improved coping with health problems, feeling better emotionally, and better sleep.

When CAM was used for a medical condition, it typically served in a complementary role rather than as an alternative. Many used medications for the same condition, and one of the most common reasons reported for CAM use was “thought combination with medical therapy would be helpful.” This finding has previously been reported in individuals with liver disease as well as in the general population.^{7,10,24,25} Some respondents with liver disease did use CAM due to medication side effects or ineffectiveness of medical treatment. Given the often high symptom burden of liver disease, incomplete effectiveness of many treatments, and intolerability of some liver-related medications, this is not surprising.

Most individuals with liver disease did not use their CAM specifically for their liver disease, and, among those who did, the most common therapy was milk thistle. However, they were more likely to use CAM for conditions potentially related to their liver disease, including fatigue and anxiety or depression. It is well established that fatigue, anxiety, and depression are highly prevalent among individuals with liver disease and often adversely impact quality of life.^{26–33} Therefore, use of CAM for these conditions may reflect use for sequelae of their liver disease. In addition, respondents with liver disease were more likely to use CAM for substance use, which included excessive use of alcohol. Because chronic, excessive use of

alcohol is a known and common cause of cirrhosis, these individuals may have been targeting the etiology of their liver disease with their CAM therapy.

Yet, regardless of the reasons for CAM use, health care providers of individuals with liver disease need to be aware of their patients' CAM therapies, particularly herbs and supplements, given their potential for hepatotoxicity. Our findings that 3% of survey respondents with liver disease had taken a potentially hepatotoxic herb in the last month and that 30% of CAM therapies were not disclosed to providers highlights this need. Importantly, the reasons for nondisclosure were predominantly related to failure of the provider to ask about CAM; few respondents specified fear of disapproval as a reason. In addition, a high percentage believed that their provider did not need to know about their CAM use. These findings emphasize the importance of health care providers initiating the discussion about CAM with their patients, as many may not believe that it is relevant or important otherwise.

The major strength of this study is the use of a large, nationally representative sample that is considered the most current and comprehensive source of information about CAM use in US adults. The sampling technique of the NHIS allowed for increased minority representation, and it also captured individuals with liver disease who may be missed in referral-based clinics, which were weaknesses of some prior studies. One limitation is the accuracy of the data, which is subject to recall bias, and may be highlighted by the surprising finding that only 1.7% of the population reported the presence of liver disease. In addition to reflecting the self-report nature of the data, this finding may also underscore the prevalence of undiagnosed liver disease in the United States. Other limitations are that the NHIS only explored the top 3 CAM therapies in detail, although <10% of individuals with liver disease used >3 modalities, and that, as a survey of a broad range of health behaviors and not one specific to liver disease, the NHIS did not capture the etiologies or severity of liver disease, which would allow a more detailed assessment of their impact on CAM use.

In conclusion, according to 2012 NHIS, many US adults with liver disease use CAM, most commonly herbs and supplements. Unfortunately, nearly one-third of CAM therapies were not disclosed to health care providers, despite some using potentially hepatotoxic herbs and supplements. This highlights the necessity of discussing CAM use with patients with liver disease and specifically asking about herb and supplement use. Health care providers should be educated about various CAM modalities, especially the hepatotoxicity of herbs and supplements, to impart this knowledge to patients as they make decisions to incorporate these therapies into their medical care.

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FIGURE 1.

Reasons for CAM use in survey respondents with and without liver disease. Respondents were asked to indicate every applicable reason for use of each CAM therapy. Shown is the total proportion of top 3 CAM therapies. CAM indicates complementary and alternative medicine. * $P < 0.05$; ** $P < 0.01$.

FIGURE 2.

Importance and perceived helpfulness of CAM therapies in survey respondents with liver disease. Respondents were asked to indicate the importance of each CAM therapy in maintaining their health and well-being, as well as the helpfulness of each for the most important medical condition for which it was used. Shown is the total proportion of top 3 CAM therapies. CAM indicates complementary and alternative medicine.

FIGURE 3.

Perceived benefits of CAM use in survey respondents with and without liver disease.

Respondents were asked to indicate all applicable outcomes from using each CAM therapy.

Shown is the total proportion of top 3 CAM therapies. CAM indicates complementary and alternative medicine. ** $P < 0.01$; *** $P < 0.001$.

TABLE 1.

Characteristics of US Adults With and Without Liver Disease

Characteristics	n (%)		P
	No Liver Disease (N = 33,878)	Liver Disease (N = 647)	
Sex			0.215
Male	14,979 (48.2)	294 (45.2)	
Female	18,889 (51.8)	353 (54.8)	
Age (y)			< 0.001
18–29	6374 (21.9)	46 (8.6)	
30–44	8759 (25.8)	111 (16.9)	
45–64	11,513 (34.6)	340 (52.2)	
65	7232 (17.7)	150 (22.2)	
Race/ethnicity			0.015
White	20,429 (67.1)	413 (72.1)	
Black	5205 (11.9)	77 (7.9)	
Hispanic	5754 (14.9)	105 (14.1)	
Asian	2128 (5.3)	40 (4.4)	
Other	362 (0.8)	*	
Region			0.378
Northeast	5666 (18.2)	108 (18.2)	
Midwest	7072 (22.8)	121 (20.9)	
South	12,315 (36.5)	221 (34.5)	
West	8825 (22.6)	197 (26.4)	
Marital status			< 0.001
Married or living with partner	16,771 (60.4)	282 (52.7)	
Widowed	3226 (6.0)	59 (8.4)	
Divorced	5660 (11.1)	179 (21.7)	
Never married	8145 (22.4)	125 (17.0)	
Education			0.006
Less than high school	5352 (13.9)	135 (19.0)	
High school or equivalent	8753 (26.2)	185 (26.7)	
More than high school	19,621 (59.5)	326 (54.2)	
Household income			< 0.001
< \$35,000	14,728 (33.2)	376 (45.9)	
\$35,000–\$74,999	10,358 (32.0)	165 (30.3)	
\$75,000–\$99,999	3431 (12.4)	43 (8.2)	
\$100,000	5361 (22.3)	63 (15.7)	
Insurance status			< 0.001
Private	19,334 (61.7)	271 (46.2)	
Medicare	4477 (10.5)	146 (19.9)	
Medicaid	2325 (6.0)	80 (11.4)	
Uninsured	6054 (16.9)	102 (15.5)	

Characteristics	n (%)		P
	No Liver Disease (N = 33,878)	Liver Disease (N = 647)	
Other	1577 (4.4)	47 (7.0)	
Perceived health status			<i>< 0.001</i>
Excellent	8805 (28.5)	53 (9.9)	
Very good	10,650 (32.4)	94 (16.4)	
Good	9434 (26.7)	202 (28.4)	
Fair	3824 (9.5)	175 (26.5)	
Poor	1148 (2.9)	122 (18.4)	
Body mass index			<i>< 0.001</i>
Not overweight (<25)	11,928 (35.4)	192 (29.0)	
Overweight (25–30)	11,275 (33.4)	202 (32.3)	
Obese (> 30)	9335 (27.1)	238 (37.2)	
Smoking status			<i>< 0.001</i>
Never	19,954 (59.5)	282 (47.4)	
Former	7405 (21.9)	179 (27.5)	
Current	6264 (17.8)	183 (24.9)	
Alcohol use			<i>< 0.001</i>
Never	7322 (20.6)	129 (22.4)	
Former	5211 (14.0)	189 (25.7)	
Light	14066 (43.3)	201 (31.4)	
Moderate	4853 (15.2)	63 (11.3)	
Heavy	1706 (4.8)	53 (7.9)	
Physical activity			<i>< 0.001</i>
Inactive	11,599 (31.9)	306 (49.4)	
Some activity	7775 (24.0)	140 (20.7)	
Regular activity	14,151 (42.9)	196 (29.6)	
Comorbidities			<i>< 0.001</i>
0	12,683 (39.7)	69 (10.2)	
1	8577 (25.9)	99 (16.3)	
2	5604 (16.0)	114 (16.6)	
3	3482 (9.5)	120 (18.9)	
4 or more	3532 (8.9)	245 (38.1)	

* Estimate suppressed due to relative SE > 30%; other categories with relative SE > 30% not shown.

Values in italics are statistically significant $P < 0.05$.

n indicates number of survey respondents; %, weighted percent estimate of the US population.

TABLE 2.

CAM Use by US Adults With and Without Liver Disease

Modality	n (%)		<i>P</i>
	No Liver Disease (N = 33,878)	Liver Disease (N = 647)	
Any CAM	11,256 (33.4)	260 (40.5)	<i>0.006</i>
Herbs and supplements *	5828 (17.2)	146 (22.7)	<i>0.005</i>
Massage	2892 (8.5)	59 (10.5)	0.192
Chiropractic/osteopathic manipulation	2930 (8.8)	63 (9.6)	0.556
Mind-body therapies	1554 (4.5)	61 (8.0)	<i>0.001</i>
Mind-body exercise	3152 (9.5)	53 (7.6)	0.186
Special diet	1003 (2.9)	24 (3.4)	0.562
Homeopathy	699 (2.1)	19 (3.2)	0.145
Acupuncture	584 (1.5)	20 (2.9)	<i>0.022</i>
Other †	1330 (3.8)	28 (3.7)	0.954

* Does not include vitamin or mineral supplements.

† Includes: energy healing therapy, naturopathy, movement therapy, hypnosis, biofeedback, Ayurveda, chelation therapy, traditional healers, and craniosacral therapy.

Values in italics are statistically significant $P < 0.05$.

CAM indicates complementary and alternative medicine; n, number of survey respondents; %, weighted percent estimate of the US population.

TABLE 3.

Use of Herbs and Supplements in the Last 12 Months by Survey Respondents With Liver Disease

Herbs and Supplements	Liver Disease (N = 647) [n (%)]
Fish oil	89 (13.8)
Other herbs or supplements	35 (5.4)
Glucosamine	34 (5.3)
Milk thistle (silymarin)	34 (5.3)
Probiotics or prebiotics	27 (4.2)
Melatonin	26 (4.0)
Cranberry	24 (3.7)
Chondroitin	22 (3.4)
Ginseng	22 (3.4)
Digestive enzymes (lactaid)	18 (2.8)
CoQ10	17 (2.6)
Echinacea	16 (2.5)
Combination herb pill	12 (1.9)
Garlic	12 (1.9)
Green tea	12 (1.9)
Bee pollen	11 (1.7)
Saw palmetto	11 (1.7)
Acai	10 (1.6)
Valerian	10 (1.6)
Ginkgo	9 (1.4)
MSM (methylsulfonylmethane)	8 (1.2)
SAM-e	4 (0.6)

n indicates number of survey respondents; %, percent of survey respondents with liver disease.

TABLE 4.

Use of CAM for Medical Conditions by Survey Respondents With and Without Liver Disease

Conditions	n (%)		P
	No Liver Disease (N = 6686)	Liver Disease (N = 225)	
Musculoskeletal condition	4108 (58.9)	101 (44.9)	<i>< 0.001</i>
Cardiovascular condition	760 (11.4)	35 (15.6)	0.052
Anxiety or depression	616 (9.2)	32 (14.2)	<i>0.012</i>
Other medical condition	952 (14.2)	32 (14.2)	0.997
Liver condition	0	28 (12.4)	<i>< 0.001</i>
Gastrointestinal condition	418 (6.2)	19 (8.4)	0.190
Genitourinary condition	254 (3.8)	18 (8.0)	<i>0.001</i>
Neurological condition	415 (6.2)	18 (8.0)	0.283
Respiratory condition	305 (4.6)	18 (8.0)	<i>0.016</i>
Immune system condition	217 (3.2)	17 (7.6)	<i>< 0.001</i>
Fatigue	158 (2.4)	16 (7.1)	<i>< 0.001</i>
Other mental health condition	165 (2.5)	9 (4.0)	0.149
Diabetes	117 (1.7)	6 (2.7)	0.297
Infectious disease condition	54 (0.8)	6 (2.7)	<i>0.013</i>
Cancer	50 (0.7)	4 (1.8)	0.098
Substance use	23 (0.3)	4 (1.8)	<i>0.011</i>

Values in italics are statistically significant $P < 0.05$.

CAM indicates complementary and alternative medicine; n, number of therapies used for condition; %, percent of total number of therapies used for any medical condition.