Characteristics and health perceptions of complementary and alternative medicine users in the United States

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Abstract

Background—Complementary and Alternative Medicine (CAM) use has been increasing and these unconventional therapies do have important adverse effects. We evaluated predictors of CAM use among U.S. adults.

Methods—We analyzed the 2007 Health Information National Trends Survey (n=7,503) and used logistic regression models to evaluate the association of demographic, lifestyle characteristics, and healthcare perceptions of respondents who used CAM within the previous 12 months (n=1,980) versus those who did not (n=5,523). We used survey weights in all analyses and performed variance estimations using Taylor series linearization to account for the complex survey design.

Results—Females (odds ratio (OR)=1.46; 95%CI: 1.15–1.86), college graduates OR=1.61; 95%CI: 1.24–2.08), and those who considered the quality of their healthcare to be poor (OR=2.16; 95%CI: 1.28–3.65) were more likely to use CAM whereas blacks (OR=0.58; 95%CI: 0.39–0.85) were less likely to use CAM.

Among CAM users, 47.6% did not inform their doctors. However, no factor predicted those who did not inform their doctors of their CAM use.

Conclusions—Many adults in the U.S. use CAM without informing their doctors. Care providers should inquire about CAM usage from their patients, document them and counsel their patients regarding their use of these less regulated therapies.

Keywords

Complementary medicine; alternative medicine; unconventional medicine; integrated medicine

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INTRODUCTION

The rate of the use of Complementary and Alternative Medicine (CAM) has been rising in recent years as patients have been seeking various ways to treat symptoms and illnesses.[1] It is noteworthy that majority of CAM treatments are categorized as dietary supplements, and as such, are not regulated by the Food and Drug Administration (FDA). These less regulated therapies are used along with (complementary) or instead of (alternative) conventional medicine. However, emerging data are suggesting that CAM use can be associated with important adverse effects and can cause drug-drug interactions.[2] As the number of patients turning to CAM for maintenance of health and treatment of illnesses increase, it has become imperative that healthcare providers be aware of the use of CAM by their patients. Anecdotal evidence suggests that primary care physicians do not often inquire about the use of over-the-counter medications and CAM from their patients and patients do not readily volunteer this information. In this study, we sought to determine the prevalence of CAM use among adults in the United States using a nationally representative survey data and characterize the profile of CAM users that are less likely to inform their doctors about their use of CAM.

METHODS

We obtained approval for this study from Institutional Review Board and downloaded the publicly available de-identified data of the National Cancer Institute's 2007 Health Information National Trends Surveys (HINTS). The detail of HINTS 2007 has been published.[3] In brief, HINTS was a survey containing questions about health-related information. The 2007 iteration was conducted between January 2008 and May 2008. Two modes of data collection were used: random digit dial, in which participants participated in a thirty minute phone survey; and mail survey in which surveys were mailed to random addresses on a list obtained from the United States Postal Service. A total of 4,092 respondents participated in the telephone survey, while 3,582 subjects responded to the mail survey for a total of 7,674 participants in the study. [3] In the survey, participants were asked "During the past 12 months, did you use any complementary, alternative, or unconventional therapies such as herbal supplements, acupuncture, chiropractic, homeopathy, meditation, yoga, or Tai Chi?" Those who answered "Yes" to the question were further asked "Did you discuss your use of unconventional therapies with any of your doctors?" For the present study, we excluded survey participants who did not respond to the CAM question above (n = 90) and those with missing information on age (n = 81). Our analytic sample size was 7,503 participants. Per the guidelines of use of this bimodal HINTS dataset, we evaluated the effect of the sampling method and survey mode in association with the CAM variables. There was no significant differences in CAM use based on the survey mode or sampling method used (p value > 0.05 for all comparisons), we therefore used the combined data for our analyses.

We used logistic regression models to evaluate the association of the demographic (age, sex, marital status, place of birth, race-ethnicity, income and highest education achieved) and lifestyle characteristics (smoking status and body mass index) of respondents with CAM use. In addition, we evaluated the participants' perception of their health status (excellent,

good, poor), quality of healthcare they receive (excellent, good, poor), and their confidence in being able to take care of their health themselves (not confident, partially confident, confident) with CAM use. We also evaluated the characteristics of those who did not inform their doctors about their CAM use. HINTS data contained sample weights to obtain population-level estimates and a set of 50 replicate weights to obtain the correct standard errors. We used survey weights in all analyses and variance estimations were performed using Taylor series linearization to account for the complex survey design. We calculated odds ratios (OR) and 95% confidence intervals (CI). We used Stata ® statistical software version 11.2 (College Station, Texas) for all analyses and reported only weighted percentages.

RESULTS

The weighted total population estimate, N = 220,549,842. Overall, the mean age of the participants in this study was 45.7 years (95%CI: 45.6 – 45.8 years), 51.2% were females, 69.6% non-Hispanic whites, 11.3% non-Hispanic blacks, 12.8% Hispanics, 29.7% were obese, 21.5% were current smokers, 82.7% had health insurance and 14.1% were born outside the United States. Out of the 7,503 participants in this study, 1,980 (25.1%) respondents used CAM in the previous 12 months. When compared to those who did not use CAM, respondents who admitted to CAM use were more likely to be females, had college education, be former smokers, and had less favorable view of the quality of the healthcare they received in the previous 12 months (Table 1).

Among 1,767 CAM users who responded to the question of whether they informed their doctors, 47.6% did not inform their doctors. However, no factor characterized respondents who did not inform their doctors. We noted that females, married subjects, and obese respondents were less likely not to inform their doctors (Table 2).

DISCUSSION

In this study, we evaluated the demographics, lifestyle characteristics and health perceptions of nationally representative adults in the United States with respect to CAM use in the previous 12 months. Our study suggests that approximately a quarter of U.S. adults used CAM in the previous year, however, about one half of CAM users do not inform their doctors. It is very important for care providers to be aware of this and make direct inquiry about the use of CAM from their patients during every clinical encounter. This is imperative, given the fact that CAM use is becoming widespread and these less regulated therapies may lead to important drug-drug interactions. For instance, increased risk of bleeding occurs when a patient taking the anticoagulant, warfarin, is also taking ginkgo (Ginkgo biloba), garlic (Allium sativum), or dong quai (Angelica sinensis).[4] St John's wort intake has also been reported to decrease the bioavailability of digoxin, theophylline and cyclosporine. [4] Similarly, increased phenytoin clearance and frequent seizures have been reported when patients on phenytoin therapy are on concurrent therapy with shankhapushpi, an Ayurvedic syrup. [5]

About two decades ago, Eisenberg et al. [6] evaluated CAM usage among 1,539 adults. The authors reported that 34% of respondents to their telephone survey had used CAM in the previous year. CAM users were mainly non-black patients from the ages of 25 to 49 years, who had more education and higher incomes. In addition, the therapy was used for chronic, non-life threatening conditions. However, the authors only included English speaking subjects. Our study was larger and included more diverse populations and suggests that females, former smokers and subjects with higher formal education were more likely to use CAM as well as those who opined that they received poor quality healthcare. However, blacks and those with poorer health status were less likely to use CAM. It is noteworthy that majority of people pay for CAM as out-of-pocket expenses. Hence, it was not surprising that health insurance status was not associated with CAM use in our study. Eisenberg et al.[6] estimated that the expenditures associated with the use of unconventional therapy in 1990 was $13.7 billion of which an estimated $10.3 billion was paid out-of-pocket. The lack of association with place of birth we reported was an unexpected finding. We had hypothesized that foreign-born persons will be more likely to use CAM since most of these herbs and unconventional therapies originated outside the United States. The fact that both United States and foreign-born respondents patronize CAM underscores the general acceptance of these therapies among the population.

The challenge associated with CAM use is not limited to the United States. In a national survey of Youth Health Care (YHC) physicians the Netherlands, Jong et al. [7] reported that 62% of YHC physicians seldom asked parents of their clients about CAM use and approximately half of the respondents had little knowledge of CAM therapies. In Australia 32% of rehabilitation medicine physicians routinely enquired about CAM use [8] whereas in Germany, only 51% of physicians in a national survey have favorable opinions of CAM. [9] These underscore the need for a broad understanding of CAM by care providers in order to enhance patient-provider conversations on the risks and benefits of CAM.

Almost half of CAM users did not inform their doctors in our study. Although our study suggests that females, married subjects, and patients with health insurance were less likely not to tell their doctors about CAM use, no factor actually defined those who would not inform their doctors. Therefore, in order to optimally and correctly treat patients, doctors should ask their patients about their CAM usage. There is a great need to emphasize this to medical trainees. We should counsel our patients about the use of these supplements and educate them with respect to the side effects of the supplements, potential for interaction with medications or other supplements, and the possibility that the supplements may contain harmful ingredients which may not be listed on the label since these therapies are not well regulated for quality, efficacy, and safety.

Although the use of CAM continues to increase, Zhang et al. [10] reported that CAM modalities most used by the patients may not be those modalities that their care providers best understand. However, the awareness of CAM use can be improved among healthcare providers as demonstrated by Wahner-Roedler and colleagues.[11] In their study, the authors compared the results of their 2004 survey prior to the educational efforts undertaken by their Complementary and Integrative Medicine Program with a repeat survey in 2012. They used the same survey instrument to assess interval changes in attitudes and participation in CAM

use by the physicians in their institution. A higher percentage of physicians initiated CAM discussions in 2012 (41% versus 26%, P = 0.01) with more favorable opinions about CAM including that the incorporation of CAM therapies would improve patient satisfaction (77% versus 57%, P <0.001) and would attract more patients (60% versus 48%, P <0.001). Of note, the intervention involved the creation of a monthly seminar series, biennial continuing professional development courses, and Departmental Grand Rounds presentations. Furthermore, alternative medicine practitioners' services were integrated into the healthcare delivery system and these practitioners can be consulted and the outcomes of patients' visits were documented in the same electronic medical record as other conventional services or consultations.

There are many notable strengths of our study. Our study was based on data from a nationally representative sample of U.S. adults, we had a large sample size and we were able to assess the effects of many factors. However, our study was limited by the fact that it was based on self reports.

CONCLUSIONS

Approximately, a quarter of U.S. adults engage in CAM use and approximately half of CAM users do not discuss their use with their doctors making it imperative that care providers should endeavor to constantly inquire about the use of these unconventional therapies directly from their patients.

Acknowledgments

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Table 1

Factors associated with use of Complementary and Alternative Medicine (CAM)[1]

Characteristics	No CAM use, n	Weighted %	Used CAM, n	Weighted %	Univariate OR (95%CI)	Multivariate OR (95%CI)
Age, years						
18–34	814	23.5	287	7.4	Reference	Reference
35–49	1,285	21.7	533	8.0	1.17 (0.87–1.57)	1.20 (0.87–1.64)
50–64	1,711	16.5	711	6.5	1.25 (0.98–1.60)	1.17 (0.86–1.59)
65–74	891	6.6	277	1.8	0.84 (0.65–1.09)	0.95 (0.69–1.31)
75	822	6.6	179	1.4	0.67 (0.50–0.89)	0.73 (0.51–1.04)
Sex						
Male	2,247	38.2	669	10.6	Reference	Reference
Female	3,276	36.7	1,311	14.5	1.41(1.21–1.66)	1.46 (1.15–1.86)
Marital Status						
Unmarried	2194	33.1	727	10.1	Reference	Reference
Married	3,078	41.6	1,199	15.3	1.20 (1.03–1.40)	0.95 (0.77– 1.17)
Place of birth						
United States	4690	63.6	1746	22.4	Reference	Reference
Foreign-born	585	11.1	180	3.0	0.76 (0.55–1.04)	0.94 (0.57–1.54)
Race-ethnicity						
White	3,843	50.2	1,536	19.4	Reference	Reference
Black	553	9.3	115	2.1	0.57 (0.41– 0.81)	0.58 (0.39–0.85)
Hispanic	487	10.4	123	2.4	0.59 (0.43– 0.82)	0.82 (0.52–1.29)
Others	294	4.8	121	1.6	0.85 (0.58–1.24)	1.05 (0.68–1.62)
Household income, $						
< 20,000	887	15.9	230	3.8	Reference	Reference
20,000–34,999	815	13.2	231	3.5	1.13 (0.84–1.52)	1.01 (0.67–1.53)
35,000–49,999	611	9.7	251	4.3	1.89 (1.35–2.63)	1.60 (1.07–2.40)
50,000–74,999	865	14.3	326	4.8	1.44 (1.07–1.93)	1.19 (0.86–1.64)
75,000	1,354	21.0	672	9.6	1.94 (1.51–2.49)	1.32 (0.92–1.91)

Characteristics	No CAM use, n	Weighted %	Used CAM, n	Weighted %	Univariate OR (95%CI)	Multivariate OR (95%CI)
Education						
High School	1,982	33.1	456	7.2	Reference	Reference
Some College	1,532	24.6	625	10.3	1.93 (1.51–2.47)	1.42 (1.09–1.85)
College	1,758	16.9	849	7.9	2.16 (1.75–2.66)	1.61 (1.24–2.08)
Has health insurance						
No	656	13.5	208	3.8	Reference	Reference
Yes	4,812	61.2	1,755	21.4	1.25 (0.95–1.64)	0.76 (0.52–1.12)
Smoking status						
Never	2,788	40.3	996	12.8	Reference	Reference
Former	1,557	17.9	649	7.5	1.31(1.11–1.56)	1.32 (1.07–1.62)
Current	953	16.5	283	5.0	0.96 (0.76–1.21)	1.04 (0.77–1.41)
Body mass index, kg/m^2						
< 25	1,878	26.8	749	9.9	Reference	Reference
25–29	1,839	24.8	663	8.8	0.96 (0.77–1.19)	0.90 (0.67–1.21)
30	1,614	23.2	524	6.5	0.75 (0.61–0.93)	0.82 (0.61–1.11)
Health status perception						
Excellent	2,459	33.7	1,065	13.6	Reference	Reference
Good	1,917	28.0	614	8.4	0.74 (0.62–0.89)	0.79 (0.64–0.97)
Poor	903	13.0	246	3.2	0.61 (0.49–0.76)	0.56 (0.40–0.78)
Quality of healthcare received						
Excellent	3,683	53.3	1,288	17.4	Reference	Reference
Good	827	14.2	366	6.1	1.31 (1.07–1.61)	1.40 (1.07–1.84)
Poor	293	6.0	146	9.0	1.52 (1.04–2.21)	2.16 (1.28–3.65)
Confidence in taking care of own health						
Not confident	291	4.6	67	1.3	Reference	Reference
Partially confident	1,293	18.9	477	6.6	1.28 (0.8–2.04)	1.01 (0.59–1.72)
Confident	3,865	51.4	1,412	17.2	1.23 (0.79–1.91)	0.94 (0.57–1.54)

[1] Survey weights used for all analyses. The weighted total population estimate N = 144,952,715. All variables in the multivariate model.

Table 2

Factors associated with not informing doctor of use of Complementary and Alternative Medicine

Characteristics	Did not inform doctor, n	Weighted %	Informed doctor, n	Weighted %	Univariate OR (95%CI)	Multivariate OR (95%CI)
Age, years						
18–34	113	10.7	132	17.8	Reference	Reference
35–49	273	18.5	208	13.9	0.45 (0.30–0.69)	0.54 (0.34–0.86)
50–64	371	15.7	261	10.6	0.40 (0.24–0.68)	0.59 (0.34–1.05)
65–74	162	4.3	91	2.9	0.41 (0.27–0.63)	0.61 (0.35–1.05)
75	91	3.2	65	2.4	0.45 (0.26–0.78)	0.62 (0.28–1.39)
Sex						
Male	295	19.4	269	20.5	Reference	Reference
Female	715	33.0	488	27.1	0.78 (0.55–1.09)	0.68 (0.47–1.00)
Marital Status						
Single	356	17.6	284	22.5	Reference	Reference
Married	633	34.8	444	25.1	0.56 (0.42–0.76)	0.66 (0.46– 0.94)
Place of birth						
United States	917	47.7	649	41.0	Reference	Reference
Foreign-born	72	4.6	81	6.8	1.73(0.92–3.25)	1.40(0.75–2.60)
Race-ethnicity						
White	823	42.5	563	34.4	Reference	Reference
Black	53	3.8	49	3.9	1.27 (0.63– 2.60)	1.03 (0.41–2.52)
Hispanic	51	4.1	53	5.1	1.51 (0.77–2.96)	1.03 (0.42–2.48)
Others	50	2.0	53	4.2	2.61 (1.33– 5.14)	1.74 (0.84–3.64)
Household income, $						
< 20,000	94	5.4	93	8.0	Reference	Reference
20,000–34,999	119	7.6	81	5.0	0.44 (0.22–0.88)	0.49 (0.26–0.96)
35,000–49,999	128	9.7	94	6.7	0.47 (0.27– 0.82)	0.52 (0.28–0.99)
50,000–74,999	176	9.7	126	9.9	0.69 (0.43– 1.11)	1.10 (0.63–1.91)
75,000	362	20.6	255	17.5	0.57 (0.36–0.91)	0.89 (0.47–1.70)
Education						

Characteristics	Did not inform doctor, n	Weighted %	Informed doctor, n	Weighted %	Univariate OR (95%CI)	Multivariate OR (95%CI)
High School	214	14.3	185	13.7	Reference	Reference
Some College	308	20.5	228	19.1	0.98 (0.66–1.45)	1.01 (0.60–1.68)
College	468	17.5	318	15.0	0.89 (0.64–1.24)	1.06 (0.63–1.78)
Has health insurance						
No	60	3.9	81	7.6	Reference	Reference
Yes	944	48.4	669	40.1	0.42 (0.25–0.71)	0.44 (0.23–0.84)
Smoking status						
Never	498	25.3	395	25.7	Reference	Reference
Former	369	17.7	222	12.2	0.68(0.49–0.95)	0.75 (0.52–1.09)
Current	121	9.0	116	10.1	1.11(0.65–1.88)	0.89 (0.53–1.47)
Body mass index, kg/m^2						
<25	358	18.6	313	21.3	Reference	Reference
25–29	350	18.9	235	15.5	0.72 (0.52– 1.00)	0.70(0.48–1.04)
30	284	14.8	187	10.9	0.65 (0.45–0.93)	0.59 (0.38–0.93)
Health status perception						
Excellent	540	28.3	398	24.6	Reference	Reference
Good	327	18.5	238	16.3	1.00 (0.73–1.40)	1.03 (0.71–1.50)
Poor	120	5.5	95	6.8	1.44 (0.90–2.28)	1.27 (0.69–2.33)
Quality of healthcare						
Excellent	760	37.4	495	28.2	Reference	Reference
Good	187	10.1	173	13.1	1.72 (1.28– 2.33)	1.26 (0.87–1.82)
Poor	56	4.6	83	6.7	1.93 (0.93– 4.02)	1.29 (0.60–2.75)
Confidence in taking care of own health						
Not confident	28	2.1	28	2.8	Reference	Reference
Partially confident	220	11.9	199	14.0	0.86 (0.32–2.35)	1.04 (0.35– 3.13)
Confident	755	38.3	519	30.9	0.59 (0.24–1.48)	0.94 (0.34–2.59)

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Survey weights used for all analyses. The weighted total population estimate N = 39,566,527. All variables in the multivariate model.