# Complementary and Alternative Medicine (CAM) Use among Non-Hispanic White, Mexican American, and Vietnamese American Patients with Type 2 Diabetes

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## Abstract

**Purpose**—This study examines the use of complementary and alternative medicine (CAM) by ethnicity/race among patients with type 2 diabetes.

**Subjects and methods**—Four hundred and ten (410) patients with type 2 diabetes recruited from an academic-medical center completed a survey assessing CAM use, diabetes status, and sociodemographic characteristics.

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**Results**—Several significant ethnic/racial differences were observed in CAM use (both in the types of providers seen as well as in the herbs and dietary supplements used). Although White patients reported using CAM in addition to their diabetes medication (mean [SD] 4.9 [0.4] on a scale from 1=never to 5=always) more frequently than Mexican American patients (3.1 [1.6], p<. 05), Mexican American patients (1.4 [1.1]) used CAM instead of their diabetes medications more frequently than non-Hispanic White patients (1.0 [0.1], p<.05). More Mexican American (66.7%) and Vietnamese American patients (73.7%) than non-Hispanic Whites (11.8%, p=.002) described CAM practitioners as being closer to their cultural traditions than Western practitioners, whereas Vietnamese patients were more likely to describe use of herbs and supplements as closer to their cultural traditions (84.5% *versus* 15.3% for White and 30.9% for Mexican American patients, p <. 001).

**Conclusions**—Considering the variability and perceptions in CAM use, providers should discuss with their patients how their CAM use may influence diabetes management behaviors.

### Keywords

The last decade has seen a dramatic increase in efforts to improve the quality of diabetes care,[1,2] to increase diabetes self-management,[3] and to include patients' cultural preferences in an effort to improve diabetes care.[4] However, despite these efforts, national prevalence rates and rates of complications associated with diabetes have been increasing steadily over the last decade, particularly for some racial/ethnic groups.[5] The prevalence of diabetes among adults ages 50–64 is 18% for Latinos and 11% for Asians, compared with 8% for Whites. Furthermore, ethnic and racial minorities may be differentially at risk for suboptimal quality of diabetes care. Research suggests that some minorities, such as Mexican American and Vietnamese American patients, have more diabetes-related complications and report poorer quality of diabetes care than non-Hispanic Whites.[6,7] Studies further document that these minority groups are less likely to participate in their care, have poorer communication with their providers, and generally receive poorer interpersonal care than non-Hispanic Whites.[8,9]

One area of the doctor-patient relationship plagued by a lack of communication between the provider and patient is the patient's use of complementary and alternative medicine/therapies (CAM).[10] Complementary and alternative medicine/therapy is broadly defined as "a diverse group of medical and health care systems, practices, and products that are not generally considered part of traditional or conventional medicine."[11] [p.1] The reported reasons for CAM use can be for health maintenance,[12] non-diabetes conditions,[13,14] or diabetes management.[15] Studies have shown that patients, and in particular patients from minority racial or ethnic backgrounds, often do not tell their providers when they stop their prescribed medications or use folk medicine or CAM.[10,16–18] For example, in a national study of over 3,000 Chinese and Vietnamese patients, two-thirds reported that they used CAM while also receiving Western medical care, but less than 10% of patients reported that their doctors discussed CAM use with them.[19] Medical providers who understand patients' health beliefs and discuss them are more likely to have satisfied patients.[10,19]

A growing body of literature highlights the widespread use of CAM among individuals with diabetes.[13,15,20,21] Patients with chronic conditions, such as type 2 diabetes, are more likely to report using CAM than the general public. For example, the prevalence of CAM use in the general U.S. population has been estimated to be around 64% when prayer was included in the definition, and 36% when prayer was not included in the definition.[22] In contrast, several studies using large national samples of adults with diabetes in the U.S. have found that as many as 72.8% of patients reported using CAM in the past year,[13] whereas other studies have reported lower rates of CAM use, including prayer, of 57%[21] and only 20% to 47.6% when excluding prayer.[21,23] The variation in reported rates of CAM use can be explained, in large part, by differences in how CAM is defined across studies.[20,23]

The literature on CAM use and diabetes has generally focused on demographic backgrounds associated with CAM use and the types of CAM used among individuals with diabetes. Several studies have documented differences in the prevalence of CAM use by ethnicity, [13,20,23,24] types of CAM use by ethnicity,[24–26] and characteristics associated with CAM use by ethnicity.[27] However, low-income, foreign-born, and monolingual individuals with diabetes continue to be underrepresented in this body of research. Furthermore, how patients use CAM in relation to their other diabetes treatments is poorly understood. For example, patients with minority racial/ethnic backgrounds may use CAM differently from others— either instead of or in addition to conventional diabetes medicine. In this study, we address the following specific aims: 1) to examine the socio-demographic and diabetes-related factors of CAM users and non-users in a sample of non-Hispanic White, Mexican American, and Vietnamese American patients with type 2 diabetes; 2) to determine the types of CAM used within each ethnic group; 3) to examine the influence of CAM on adherence to diabetes medication; and 4) to assess the respondents' perceptions of CAM. Findings from this study may inform clinicians about how to discuss CAM use with their patients and to educate them about using CAM safely in conjunction with conventional diabetes care.

## Methods

### Study population

Participants were recruited from the Reducing Racial/Ethnic Disparities in Diabetes: The Coached Care (R2D2C2) Project, which included 1,484 patients with type 2 diabetes (75.3% consent rate).[7] Patients were recruited from seven primary care or endocrinology clinics affiliated with an academic medical center in Southern California from May 2006 through February 2009. Latinos constitute 31% of those living in Orange County, California, the majority being Mexican American, and Asian Americans constitute 14% of inhabitants in the county, the majority being Vietnamese. The following criteria were used to determine if patients were eligible for the study: 1) 18 years of age or older, and 2) spoke English, Spanish, or Vietnamese. Patients were given a questionnaire in English, Spanish, or Vietnamese (depending on individual preference) to be completed at home and returned in a stamped, addressed envelope. Additional information about the R2D2C2 study design is available elsewhere.[28,29] The analytic sample for this study was drawn from a randomly selected group of participants who were asked to complete a survey assessing their CAM use

(N=410). There were no gender or age differences between randomly selected respondents who completed the CAM survey and the general R2D2C2 study participants.

### Measures

Using a version of the California Health Interview Survey-CAM adapted for use for patients with type 2 diabetes,[30] a team of bilingual translators (fluent in both languages, i.e., English and Spanish or English and Vietnamese) translated the English survey into Spanish and Vietnamese and back-translated it into English. Translation and back-translation methods were used, following the steps outlined in Bullinger *et al.*[31] Any discrepancies in translation were discussed among a team of English-Spanish and English-Vietnamese speakers until a consensus was reached.

**CAM use**—In this study, CAM use was defined as 1) having seen a CAM provider in the past 12 months and/or 2) having used herbs and dietary supplements in the last month. To create our assessment of CAM use, we modified the California Health Interview Survey (CHIS) CAM survey,[30] which was previously tested among 9,187 adults representative of the California population. We conducted cognitive interviews with both patients (n= 7) and providers (n=3) to garner feedback assessing the face validity of our instrument. We then pilot-tested the survey with a small group of Vietnamese Americans, Mexican Americans, and non-Hispanic White patients with type 2 diabetes (n=11).

The use of CAM providers was determined by asking "In the past 12 months, have you seen any of the following: a) an acupuncturist; b) an herbalist or Eastern pharmacist; c) a *curandero*; d) a spiritual healer; e) an Ayurvedic practitioner; and f) a naturopath." An additional open-ended question asked whether or not respondents saw any other kind of practitioner in the last 12 months. Possible responses included yes and no for each of the CAM practitioners listed.

Participants then were asked how many times in the last month they had used 18 different types of herbs and supplements (e.g., green tea, glucosamine, soy). Ratings were made on a five-point scale (1=never, 5=daily). Respondents were identified as CAM users if they indicated that they had seen any CAM practitioner in the past year and/or used any herbs or supplements in the past month.

**Patient perceptions of CAM**—The respondents' perceptions of CAM providers were assessed by asking the following question: "Please think about the care that you get from these other people compared to the care that you get from your doctor, would you say that the care you get from these people is: 1) more affordable, 2) more natural, 3) safer, 4) has fewer side effects, and 5) is closer to your cultural tradition than the care you get from your doctor?" Respondents were also asked a parallel question about their perceptions of herbs and supplements: "Thinking about how these herbs and supplements compare to the medications prescribed by your doctor, would you say these herbs and supplements are: 1) more affordable, 2) more natural, 3) safer, 4) have fewer side effects, and 5) closer to your cultural tradition compared to the medications prescribed by your doctor?" Possible responses to both questions included: yes, a lot more; yes, a little more; no, not so much; and

no, not at all. Scores were dichotomized to indicate percent of patients who endorsed item (0 = no, not so much; no, not at all; 1 = yes, a lot more; yes, a little more).

**Demographic and diabetes-related characteristics**—Demographic characteristics of patients were assessed, including age, gender (female, male), education (less than a high school education, at least a high school education), marital status (not currently married, currently married or in a marital-like relationship), born in the U.S. (yes/no), years of residency, English language proficiency (five-point scale ranging from 1 = not at all to 5 = extremely well), and health insurance status (insured/uninsured). Additional information about patients' diabetes were assessed, including how long the person had been diagnosed with diabetes (number of years), self-reported severity of diabetes (five-point rating scale: 1 = very mild, 5 = very severe), and self-perceived diabetes control in the past six months (five-point rating scale: 1 = not controlled at all, 5 = very well controlled). A seven-item scale assessed patients' worries or concerns about complications that may develop from diabetes. Sample items included: "How worried or concerned are you about: a) Losing your eyesight from diabetes, 2) Having other major health problems (such as heart disease or arthritis) made worse by diabetes?" Ratings were made on a five-point scale (1 = not at all worried, 5 = extremely worried). Responses were averaged to create a composite measure (Cronbach's alpha = 0.95). Patients' hemoglobin A1c (HbA1c) levels were measured using the D–10 Hemoglobin Testing System (Bio-Rad Laboratories, Hercules, CA). On the date the survey was completed, patients' most recent HbA1c level was abstracted from the medical record.

**Medication adherence**—Medication non-adherence due to cost was adapted from the Cost-related Medication Non-adherence scale.[32] This scale has been widely used among older patients with Medicare in several national studies, including the Medicare Current Beneficiary Survey.[32,33] Medication non-adherence due to cost was determined by asking all patients, "During the last 12 months, have you: a) skipped doses of a medicine to make the prescription last longer; b) taken a smaller dose so the prescription would last longer (e.g., by cutting pills in half); c) spent less on food, heat, or other basic needs so that you would have enough money for your medicine; d) decided not to fill a prescription because it was too expensive; and e) not take your medicine because you can't afford them?" Patients who answered "Yes" to any of these questions were considered to have underused medications because of cost constraints. Respondents who indicated that they had used herbs and supplements in the past month were asked the following two questions specific to the use of CAM and its potential influence on medication adherence: 1) "In the last 12 months, how often did you use the above products *in addition* to taking your regular diabetes medications?" and 2) "In the last 12 months, how often did you use the above products *instead of* taking your regular diabetes medications?" Possible responses to both questions were on a five-point scale (1=*never,* 5=*always*).

### Statistical analyses

The data analysis was conducted in four phases. First, we examined the demographic and health characteristics of the patients by race/ethnicity and by whether or not the patient reported using CAM. We conducted a three (non-Hispanic White, Mexican American,

Vietnamese American) by two (Non-CAM user, CAM user) analysis of variance (ANOVA) tests to compare differences across racial/ethnic groups by CAM use. Second, we evaluated and described the kinds of practitioners and herbs and supplements used by CAM users. Then we conducted multiple, one-way ANCOVAs to compare race/ethnicity differences in adherence to diabetes medication and perceptions of CAM use among CAM users only. Two tailed p values less than or equal to .05 were considered statistically significant. Finally, we evaluated and described respondents' perceptions of CAM use, separately for those who reported practitioner and/or herbs and supplement use.

## Results

Table 1 shows the socio-demographic and diabetes-related characteristics of CAM users compared to nonusers among non-Hispanic White, Mexican American, and Vietnamese American patients. Overall, the prevalence of CAM use varied across the three groups, with 57% Vietnamese Americans, 53% Mexican Americans, and 29% non-Hispanic Whites reporting using CAM in the last year. Mexican Americans were generally more worried about diabetes complications (p<.001) and reported higher levels of medication non-adherence due to cost (p<.001) than their non-Hispanic White and Vietnamese American counterparts. Similarly, Mexican Americans had higher HbA1c values than non-Hispanic Whites and Vietnamese Americans (p<.001).

In general, there were very few significant differences in the characteristics of CAM users *versus* nonusers within each racial/ethnic group. The only exception was that, among Mexican American patients, CAM users were more likely to be foreign-born (87.2% *versus* 67.1%), to have a lower level of English language proficiency (23.1% *versus* 38.4%), to have been diagnosed with diabetes for fewer years (7.9 *versus* 11.9 years), to have self-reported that their diabetes was less severe (2.9 *versus* 3.2, ratings were made on a 5-point rating scale, ranging from 1=*very mild* to 5= *very severe*), and to have self-reported having better control of their diabetes (3.3 *versus* 2.9; all probability values <.05) compared with non-CAM users. There were no significant ethnic group differences between CAM users and non-CAM users in patients' average hemoglobin HbA1c levels; patients' HbA1c levels ranged from 6.6% to 8.4%.

Table 2 presents a description of the types of CAM practitioners and herbs and supplements used across the three ethnic groups for CAM users. The use of CAM practitioners was highest among Vietnamese American (47.1%), followed by non-Hispanic White (35%), and Mexican American (15.4%) patients. Mexican Americans reported the highest use of herbs and supplements (96.1%) closely followed by Vietnamese Americans (95.7%), whereas non-Hispanic Whites had the lowest use (85.0%). Among those respondents who indicated that they used CAM, Vietnamese Americans reported high use of both herbalists (52%) and acupuncturists (48%), whereas Mexican Americans mostly used herbalists (50%), and non-Hispanic Whites used mostly acupuncturists (50%). Among CAM users, green tea was the supplement most frequently used by non-Hispanic Whites and Vietnamese Americans, and was the second most used by Mexican Americans. Glucosamine/chondroitin and soy were also commonly used across the three groups. However, the use of garlic appeared to be

common among non-Hispanic Whites, bitter melon among Vietnamese Americans, and prickly pear among Mexican Americans.

Next, we conducted two-way ANCOVAs comparing racial/ethnic differences in medication adherence among CAM users only by patient race/ethnicity, adjusting for age, gender, marital status, education level, and percent of lifetime lived in the United States (Table 3). Results suggested that there were significant racial/ethnic differences in medication adherence across the three groups. White patients were more likely than Mexican American and Vietnamese American patients to use CAM *in addition* to diabetes medication (p<.001). However, Mexican Americans and Vietnamese Americans were more likely than Whites to use CAM *instead* of their diabetes medication (p=.02).

When asked about perceptions of CAM practitioners compared with perceptions of their doctors, both Vietnamese Americans and Mexican Americans were more likely than non-Hispanic White patients to report that CAM practitioners were closer to their cultural tradition (Table 4). Approximately 73% of Vietnamese Americans and 65.6% of Mexican Americans endorsed this item compared with 11.8% of non-Hispanic Whites (p=.002). When asked about the perceptions of herbs and supplements compared with the medications prescribed by their doctors, Vietnamese Americans were more likely than the other ethnic groups to report that herbs and supplements were closer to their cultural tradition. Approximately 84.5% of Vietnamese American respondents endorsed this item compared with 30.9% of Mexican American and 15.3% of White respondents (p<.001). There was a trend in differences in the three groups' perceptions of CAM practitioners as being more natural than the care they get from their doctors (88.3% non-Hispanic Whites, 100% Mexican Americans, and 62.6% Vietnamese Americans; p=.07). Similarly, patients perceived herbs and supplements as having fewer side effects compared with the medications prescribed by their doctors (72.2% non-Hispanic Whites, 45.2% Mexican Americans, and 57.4% Vietnamese Americans; p=.07).

## Discussion

Overall, we found differing rates of CAM use across the three groups, with Vietnamese Americans reporting the highest use, followed by Mexican Americans and non-Hispanic Whites. The literature has been mixed regarding the rates of CAM use by ethnicity among individuals with diabetes. For example, Egede and colleagues[20] found no significant differences in CAM use between Whites and Latinos, whereas Bell and colleagues[13] found that use of any CAM therapy was higher among Latinos (38.5%) than non-Hispanic Whites (33.2%). In another study, any CAM use was highest among Latino respondents (95.6%), followed by non-Hispanic White (94.2%) and Asian American respondents (88.8%).[34] The differing rates of CAM use across the three groups in our study may be due to the study's definition of CAM. Nonetheless, our study's findings are consistent with previous studies that indicate differences in the prevalence of CAM use by race/ethnicity. Another consideration is that Asian Americans and Latinos represent multiple ethnic groups with diverse cultures and experiences. Some studies group participants into one Hispanic or Asian American category, which may obscure the sociocultural factors associated with CAM use

that are unique to individual Latino or Asian respondents who have different national/ethnic origins.

Consistent with previous research, this study showed that although CAM use is common among ethnic groups, the modalities used tended to differ for each group.[35–37] These findings suggest possible differences in cultural beliefs and practices that influence the types of CAM used across the three ethnic groups in this study.[38] The high use of herbalist and acupuncturist among Vietnamese Americans reflects the influence of Chinese medicine in Vietnamese culture.[39–41] Many Vietnamese believe that a balance in bodily *am* (negative charge) and *duong* (positive charge), otherwise known as the hot and cold elements, is essential for health and wellness.[40,41] Some Vietnamese use herbs to treat various health conditions, with the belief that the herbs' cooling element would balance out excess bodily heat.[42] Others use acupuncture to alleviate somatic stress and pain. Among Vietnamese, bitter melon is thought to lower serum glucose levels and is commonly used to treat type 2 diabetes,[43] which could explain the frequent use of bitter melon among Vietnamese Americans in this study.

It is not surprising that this study found frequent use of herbalists and prickly pear among Mexican American patients. Research has found that the use of natural remedies (for example, the use of prickly pear, aloe vera, or starbien as herbal treatments) is a common health practice among Latinos.[44–47] In one study, Mexican Americans with diabetes frequently referred to *nopal* (prickly pear cactus) to treat diabetes,[47] possibly due to the belief that *nopal* was nutritious and healthy, or had medicinal properties that could lower blood sugar.[48]

A noteworthy finding is that while non-Hispanic Whites were more likely to use CAM in addition to diabetes medication, Mexican Americans and Vietnamese Americans tended to use CAM instead of their diabetes medication. Beliefs about CAM and conventional medication among Mexican and Vietnamese American patients may explain their lower medication adherence. For example, one study found that some Latino respondents with diabetes thought of herbal treatments as natural and more affordable than Western medication.[46] In another study, some Mexican American respondents believed that the additive effect of both herbs and conventional medication could lower the blood sugar excessively.[48]

With respect to poor medication adherence among Vietnamese American patients, research has shown that some Vietnamese patients with diabetes may stop taking their conventional medications due to fear that they may become dependent on the medications,[43] or when they do not see a difference in their health when taking the medications.[39] It may also be that some Vietnamese CAM users believe medication is "hot" and, in excess, can be bad for the body,[43] and therefore would lessen their use of diabetes medication when they use CAM.

Previous research suggests that some people use CAM because of its congruence with their beliefs and values about health and living.[49] Thus, another possible explanation for the substitute of diabetes medication with CAM among Vietnamese and Mexican American patients in this study may be their perception of CAM as being closer than conventional

treatment to their cultural traditions. This study found that many Vietnamese and Mexican American patients perceived CAM practitioners as being closer to their cultural tradition than their doctors. Similarly, many Vietnamese patients perceived herbs and supplements as being closer to their cultural tradition than the medications prescribed by their doctors.

Because many patients with diabetes use CAM either in addition to or as a substitute for their recommended medical regimens, providers should be encouraged to speak directly with their patients about CAM use. Understanding and discussing patients' health beliefs is likely to improve the overall quality of the doctor-patient relationship, the overall quality of care, and the likelihood that patients will follow recommended treatment guidelines.[16] Although the use of individual herbs and supplements for diabetes appears to be generally safe, there is still insufficient evidence to draw definitive conclusions about the efficacy of CAM use for diabetes management.[21] Furthermore, in some cases discouraging a patient from using herbal medicine concurrently with prescription medicine may prevent life-threatening medication interactions. Health care providers may need to receive more training to better understand and discuss patients' cultural beliefs, values, and behaviors. Providing culturally competent medical care is a worthwhile endeavor that ultimately will result in increased satisfaction for both patients and their providers.

### Limitations

There are several limitations in this study. First, the small samples of CAM users within each ethnic group limited our ability develop models to disentangle the complex relationship between race/ethnicity and socioeconomic status or acculturation level. Although analyses did include education as a covariate (a commonly used proxy measure for socioeconomic status), CAM differences reported between non-Hispanic White and Mexican American and Vietnamese American respondents could possibly be due to acculturation-related factors and differences in patients' access to and use of health care. Moreover, the study's findings are limited to the context of Southern California, where the study was conducted. Finally, we chose to focus our examination of CAM use for primarily diabetes-related reasons rather than CAM use for other health purposes. As a result, this study did not specifically evaluate other types of CAM (e.g., prayer/meditation, yoga, and aromatherapy) that have been identified in the literature,[50] and so may underestimate patients' use of complementary and alternative practices.

### Conclusion

The widespread use of CAM among individuals with diabetes requires that clinicians initiate conversations with their patients about CAM use, including reasons for use, what and how CAM is used, and its impact on adherence to conventional treatment. This study's findings that Mexican American and Vietnamese American patients use of CAM instead of their diabetes medications should impart caution to health care providers that some ethnic minority patients may use CAM differently from White patients, and may substitute conventional diabetes medications with CAM. Thus, clinicians should advise patients to make informed decisions about CAM use in relation to their diabetes management. Further, clinicians should discuss the diverse health beliefs and practices of their patients when communicating about CAM use and diabetes care. Such discussions may result in improved

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diabetes management and long-term health outcomes for racial/ethnic minority group members.

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**Table 1**

SOCIO-DEMOGRAPHIC AND HEALTH CHARACTERISTICS OF SAMPLE

| | Non-Hispanic White (N=139) | | Mexican American (N=148) | | Vietnamese American (N=123) | |
|---|---|---|---|---|---|---|
| | Non-Cam User (71%) | Cam User (29%) | Non-Cam User (47%) | Cam User (53%) | Non-Cam User (43%) | Cam User (57%) |
| Socio-demographic characteristics | | | | | | |
| Age, years | 60.9 | 60.6 | 55.8 | 54.6 | 64.0 | 66.1 |
| Gender, % female | 47.5 | 57.5 | 60.0 | 61.5 | 67.9 | 70.0 |
| Education, % college or more | 68.8 | 82.1 | 20.3 | 10.5 | 24.5 | 14.3 |
| Marital status, % married | 58.6 | 62.5 | 61.4 | 65.4 | 69.2 | 64.3 |
| Born in the US, % | 75.5 | 72.5 | 32.9 | 12.8[*] | 0 1.4 | |
| Years of residence, years[a] | 45.6 | 41.1 | 29.3 | 29.4 | 23.9 | 21.2 |
| English-language proficiency[b] | 89.3 | 89.1 | 38.4 | 23.1[*] | 25.5 | 20.8 |
| No health insurance, % | 4.0 | 2.5 | 11.4 | 35.9 | 0 | 0 |
| Diabetes outcomes: | | | | | | |
| Medication non-adherence due to cost, % | 26.5 | 27.5 | 50.0 | 54.5 | 28.0 | 33.9 |
| Years with diabetes, years | 7.6 | 9.2 | 11.9 | 7.9[*] | 7.8 | 7.0 |
| Self-reported severity of diabetes[c] | 2.7 | 2.6 | 3.2 | 2.9[*] | 2.8 | 2.7 |
| Self-reported diabetes control[d] | 3.5 | 3.4 | 2.9 | 3.3[*] | 3.5 | 3.4 |
| Concerns about complications[e] | 2.9 | 3.1 | 3.9 | 3.7 | 2.7 | 2.8 |
| Diabetes control (HbA1c), % | 7.1 | 6.8 | 8.4 | 7.9 | 6.7 | 6.6 |

[*] Indicates significant difference between CAM and non-CAM user within ethnic/racial group (p<.05).

[a] This question was only asked of respondents who indicated they were foreign born.

[b] Respondents were asked how well they spoke, read, and wrote English. Ratings were made on a 5-point scale, ranging from 1=not at all to 5=extremely well, and transformed to a 100-point scale.

[c] Ratings were made on a 5-point rating scale, ranging from 1=very mild to 5= very severe.

[d] Ratings were made on a 5-point rating scale, ranging from 1= not controlled at all to 5= very well controlled.

[e] Ratings were made on a 5-point scale, ranging from 1= not at all worried to 5= extremely worried.

**Table 2**

AMONG CAM USERS (N=188): USE OF PRACTITIONERS AND HERBS AND SUPPLEMENTS[a,b]

| Non-Hispanic White (n=40 CAM users) | Mexican American (n=78 CAM users) | Vietnamese American (n=70 CAM users) |
|---|---|---|
| *Practitioners* | | |
| 35.0% report any use: | 15.4% report any use: | 47.1% report any use: |
| • Acupuncturist (50%) | • Herbalist (50%) | • Herbalist (52%) |
| • Chiropractor (29%) | • Acupuncturist (8%) | • Acupuncturist (48%) |
| • Massage therapist (21%) | • Chiropractor (8%) | • Naturopath (35%) |
| • Spiritual healer (21%) | • Curandero (8%) | • Curandero (4%) |
| • Herbalist (7%) | • Spiritual healer (8%) | • Spiritual healer (4%) |
| • Naturopath(7%) | • Naturopath (8%) | • Chiropractor (4%) |
| *Herbs and Supplements* | | |
| 85.0% report any use: | 96.1% report any use: | 95.7% report any use: |
| • Green tea (52.9%) | • Prickly pear/nopal (32%) | • Green tea (47.8%) |
| • Glucosamine/chondroitin (26.5%) | • Green tea (17.3%) | • Soy (29.9%) |
| • Chromium (23.5%) | • Soy (16.0%) | • Bitter melon (23.9%) |
| • Soy (23.5%) | • Sabila/aloe vera (12.0%) | • Sabila/aloe vera (10.4%) |
| • Garlic (11.8%) | • Glucosamine/chondroitin (12.0%) | • Glucosamine/chondroitin (7.5%) |

[a]Percentages do not sum because respondents may have 1) used both practitioners and herbs/supplements and/or 2) seen more than one practitioner or may be taking more than one herb/supplement.

[b]The percentages noted for each of the specific kinds of practitioners and herbs/supplements are computed using the sample of respondents who indicated that they used this CAM type as the denominator.

**Table 3**

ADHERENCE TO DIABETES MEDICATION AMONG CAM USERS, BY RACE/ETHNICITY

| | Non-Hispanic White (mean [SD]) N=34 | Mexican American (mean [SD]) N=74 | Vietnamese American (mean [SD]) N=66 | Adjusted mean difference[a] (95% CI) | |
|---|---|---|---|---|---|
| | | | | NHW – Mexican | NHW – Vietnamese |
| Used CAM *in addition* to diabetes medication[b] | 4.9 [0.4] | 3.1 [1.6] | 3.4 [1.1] | 1.3 (0.4, 2.2) * | 0.6 (−0.7, 1.8) |
| Used CAM *instead of* your diabetes medication[b] | 1.0 [0.1] | 1.4 [1.1] | 1.2 [0.6] | −0.6 (1.1, −0.1) * | −0.5 (−1.2, 0.3) |

*
p<.05

[a] Adjusted mean differences were computed using ANCOVA models adjusted for respondents' age, gender, marital status, education level, and percent of lifetime lived in the United States.

[b] Ratings were made on a 5-point scale, ranging from 1=never, 5=always.

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**Table 4**

PERCEPTIONS TOWARD CAM USE AMONG CAM USERS [*]

| | Non-Hispanic White | Mexican American | Vietnamese American | F | p-value |
|---|---|---|---|---|---|
| Perceptions toward CAM use: Practitioners, % who endorsed item | | | | | |
| | N=14 | N=12 | N=32 | | |
| More affordable | 16.7 | 28.5 | 11.1 | 0.6 | 0.57 |
| More natural | 92.3 | 85.7 | 65.0 | 2.9 | 0.07 |
| Safer | 61.5 | 19.7 | 36.8 | 1.3 | 0.29 |
| Fewer side effects | 84.6 | 33.9 | 52.6 | 2.5 | 0.09 |
| Closer to cultural tradition | 15.4[a] | 66.7[b] | 73.7[b] | 7.9 | 0.002 |
| Perceptions toward CAM use: Herbs and Supplements, % who endorsed item | | | | | |
| | N=34 | N=74 | N=66 | | |
| More affordable | 39.0 | 55.0 | 20.4 | 1.8 | 0.17 |
| More natural | 67.0 | 72.4 | 78.0 | 0.3 | 0.77 |
| Safer | 63.4 | 49.6 | 53.9 | 0.6 | 0.57 |
| Fewer side effects | 72.2 | 45.2 | 57.4 | 2.7 | 0.07 |
| Closer to cultural tradition | 15.3[a] | 30.9[a] | 84.5[b] | 13.9 | <.001 |

[*]
Superscripts that differ in the same row (a, b) indicate values are significantly different from one another (p<.05)