A Profile of Military Veterans in the Southwestern United States Who Use Complementary and Alternative Medicine

Implications for Integrated Care

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Background: Complementary and alternative medicine (CAM) use and expenditures are on the rise in the United States. Although civilian users of CAM have been well described, little is known about military veteran users of CAM.

Objective: To describe military veteran CAM users in the southwestern United States.

Methods: The study population comprised 508 military veterans randomly selected from Southern Arizona Veterans Administration Health Care System (Tucson) primary care patient lists, who had agreed to participate in a telephone interview. The χ^2 test was used to analyze CAM use by demographic characteristics, military service, military-related health outcomes, and physician-diagnosed health complaints. Logistic regression was used to determine predictor variables.

Results: Of the 508 subjects, 252 (49.6%) reported CAM use. Military veteran CAM users were significantly more likely to be non-Hispanic white, earn more than $50 000 per year (both $P<.05$), and have greater than 12 years of education ($P<.01$). Current high daily stress, perceived negative impact of military life on physical or mental health, and physician-diagnosed chronic illnesses (eg, gastrointestinal problems, insomnia, and asthma) were statistically associated with CAM use. Regression analysis provided adjusted odds ratios and indicated that ethnicity (non-Hispanic white), higher education, greater current daily stress, and overseas military experience were significant predictors of CAM use by these veterans (each $P<.05$).

Conclusions: Ethnicity, education, income, and several chronic health complaints are consistent with civilian CAM use. Findings also suggest, however, that physicians providing conventional medical care need to be aware of experiences unique to CAM-using veterans.

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COMPLEMENTARY AND alternative medicine (CAM), also referred to as unconventional or unorthodox medicine in Western cultures, involves a number of treatment modalities in tandem with a variety of definitions. Eisenberg et al[1(p246)] defined unconventional therapies as "interventions not taught widely at US medical schools or generally available at US hospitals." Treatment modalities often used to describe and sometimes define CAM include body work (eg, massage therapy and Reiki), botanical and nutritional supplements (eg, valerian and glucosamine sulfate), Chinese medical practices (eg, *qi gong* and *tui na*), chiropractic, homeopathy, megavitamin therapy, naturopathy, reflexology, folk medicine (eg, *curanderismo* and Native American sweat lodges), therapeutic/healing touch, and spiritual healing practices.[2]

A substantial increase in CAM use and expenditures has been reported in the United States between the years 1990 and 1997.[3] Out-of-pocket spending for CAM exceeded all expenditures for hospitalizations in the United States, costs for CAM therapies were comparable with out-of-pocket expenditures for all physician services, and when extrapolating to the US population, CAM visits exceeded total visits to all primary care physicians between 1990 and 1997.[1,3] Viewed from a historical context, a recent study reported a trend of increased CAM use over the past 50 years that portends a continued demand for CAM that will influence health care delivery over the next 25 years.[4]

A number of CAM studies in the United States,[3,5-11] Canada,[12] Europe,[13-15] and Australia[16,17] have provided additional data on the prevalence and predictors of, and reasons for, CAM use. Studies have suggested that prevalence rates for some form

SUBJECTS AND METHODS

RECRUITMENT

Subjects were recruited from the Southern Arizona VA Health Care System (SAVAHCS), Tucson, primary care lists that are available on the hospital computer network. The database is set up in Microsoft Access (Microsoft Corp, Redmond, Wash) and is updated monthly with yearly summaries from the hospital's patient tracking system. All patient encounters for fiscal year 1999 were queried to include "snowbird" veterans, who lived in southern Arizona during the winter months and lived outside of Arizona during the summer. Veterans without telephone numbers were contacted by letter requesting that they call the research office if they were interested in participating in the study. Subject selection was accomplished using a computer-generated list of random numbers. A total of 1113 randomly selected subjects were contacted from a database of 20 465 military veterans seen over the 1-year period. Two random lists of subjects were selected approximately 3 months apart. The first 500 participants were organized on telephone contact lists according to primary care team, while the second set of 613 subjects was randomized prior to telephone contact using a set of computer-generated random numbers. All survey protocols were approved by the Human Subjects Institutional Review Board of the University of Arizona (Tucson) and SAVAHCS Research and Development Committee.

SUBJECTS

Of the 1113 subjects contacted, 700 answered or returned phone or letter messages for a 62.9% response rate. Of the 700 respondents, 508 military veterans agreed to participate in a telephone interview for a 72.6% respondent rate. At the end of the telephone survey, subjects were asked if they would be willing to participate in an extended survey of CAM use. The data reported herein are from the telephone interview. All participants contacted were receiving conventional care at SAVAHCS and several of its satellite clinics at Fort Huachuca, Yuma, Safford, and Casa Grande, Ariz.

PROCEDURES

Data obtained via telephone included demographic information, military service (branch, combat history, and overseas duty assignments), self-reported military-related physical and mental health status, and physician-diagnosed health complaints (from a list read to the veteran). In addition, subjects were queried as to their CAM use (yes or no). Specifically, subjects were asked, "Do you currently use or have you ever used complementary and alternative medicine?" If a participant asked for clarification of CAM, the telephone interviewers were then told to follow up with the scripted statement, "such as acupuncture, aromatherapy, chiropractic, herbal remedies, or homeopathy." All telephone interviewers used the same script and the same examples to reduce the chance for eliciting biased responses to the CAM question. Although the CAM examples appear disparate, our intent was to provide the caller with a selection of treatment modalities from the following categories outlined by the National Institutes of Health National Center on Complementary and Alternative Medicine (NCCAM): (1) alternative medical systems (acupuncture and homeopathy), (2) mind-body interventions (aromatherapy), (3) biological-based therapies (herbal remedies), and (4) manipulative and body-based therapies (chiropractic).

ANALYSIS

Demographics, military service, military-related health outcomes, and health complaints were cross-tabulated using the dichotomous CAM use question as the dependent variable. SPSS for Windows statistical software (Version 10.0; SPSS Inc, Chicago, Ill) was used to perform χ^2 analyses. Unadjusted odds ratios (ORs) with 95% confidence intervals (CIs) were calculated when relevant. In some cases, categories were collapsed when the sample sizes were too small for separate analysis. To adjust for confounders, a backward elimination logistic regression was undertaken with CAM use as the dependent variable and statistically significant variables from the χ^2 analyses as independent variables. The procedure was stopped when there were no variables in the equation that satisfied the removal criteria of $P>.10$.

of CAM use in the United States range from 30% to 50% of the adult population.[18] Female sex, non-Hispanic white ethnicity, higher education and income, and young to middle-aged groups have been associated with, or cited as predictors of, CAM use.[5,6,9,10,19] Reasons for CAM use in other studies include chronic conditions not otherwise ameliorated or addressed by conventional medicine, including back or other chronic pain, allergies, fatigue, arthritis, depression, anxiety, and concerns regarding drug adverse effects.[3,5-7] In addition, some CAM users report seeking an emphasis on preventive medicine, as well as a holistic approach to health (ie, health care that aligns with their personal values and world view).[5,7,11]

At present, there is very little information available regarding the prevalence rates of CAM use and characteristics of CAM users in US military veterans. A survey study of CAM use was done at a family practice residency program at an army medical center in Washing-

ton State that provides access to no-cost care.[9] Clients included active and retired military personnel and their family members. Clients were asked if they ever sought or were current users of CAM, and examples of CAM given were acupuncture, chiropractic, and homeopathy. Results indicated that 50 (28.2%) of 177 military veterans and their dependents eligible for care at the clinic used some form of CAM, and typical users were more likely to be white, women, better educated, aged 30 to 49 years, and middle income. Back pain (56%), musculoskeletal pain (22%), and stress or psychosocial problems (20%) were primary reasons cited for CAM use in the present study. The Drivdahl and Miser[9] study, however, focused on a relatively small sample of military veterans and their family members with access to free conventional medical care.

The purpose of the present study is to describe (1) prevalence rates, (2) demographics, (3) health behav-

Table 1. Demographics of the Studied Population*

	CAM User (n = 252)	Nonuser (n = 256)	OR (95% CI)
Sex			
Men	228 (90.5)	239 (93.4) ⌐	0.68 (0.35-1.29)
Women	24 (9.5)	11 (6.6) ⌐	
Mean ± SD age (range), y	61.9 ± 13.9 (22-90)	62.7 ± 13.6 (21-92)	. . .
Ethnicity			
Non-Hispanic white	206 (81.7)	187 (73.0) ⌐	1.65 (1.08-2.52)†
Other	46 (18.3)	69 (27.0) ⌐	
Education, y			
>12	157 (62.3)	128 (50.0) ⌐	1.65 (1.16-2.35)‡
≤12	95 (37.7)	128 (50.0) ⌐	
Marital status			
Married/cohabit (referent)	146 (58.2)	159 (62.1)	. . .
Separated/divorced	65 (65.9)	62 (24.2)	1.14 (0.76-1.73)
Widowed	14 (5.6)	23 (9.0)	0.66 (0.33-1.34)
Never married	26 (10.4)	12 (4.7)	2.36 (1.15-4.85)†
Employment			
Service/other (referent)	81 (32.1)	81 (32.0)	. . .
Trade	52 (20.6)	79 (30.9)	0.66 (0.41-1.05)§
Career military	36 (14.3)	38 (14.8)	0.95 (0.55-1.64)
Professional/clerical	73 (29.0)	55 (21.5)	1.46 (0.92-2.30)§
Annual income, $ (thousands)			
<10	43 (18.9)	48 (20.7)	0.95 (0.58-1.54)
10-30 (Referent)	110 (48.2)	116 (50.0)	. . .
31-50	43 (18.9)	51 (22.0)	0.89 (0.55-1.44)
>50	32 (14.0)	17 (7.3)	1.99 (1.04-3.78)†

*Data for complementary and alternative medicine (CAM) users and nonusers are number (percentage) of participants (N = 508) unless otherwise specified. Percentages are based on actual numbers of persons reporting data for each item. Odds ratios (ORs) are unadjusted. *P* values were derived from a 2-tailed Fisher exact test. CI indicates confidence interval.
†*P*<.05.
‡*P*<.01.
§*P*<.10.

iors and lifestyle, (4) military experience, and (5) physician-diagnosed health complaints obtained from telephone survey data on a randomly selected population of military veterans collected at one of the Veterans Integrated Service Network (VISN) 18 health care facilities and its satellite clinics. The VISN 18 of the Department of Veterans Affairs (VA) Health Care System provides health care to military veterans in the southwestern United States, especially Arizona.

RESULTS

PREVALENCE RATES AND DEMOGRAPHICS

Demographic data (**Table 1**) indicated that of the 508 military veterans surveyed, 252 (49.6%) reported that they are currently using or have used CAM. Participants who reported CAM use were significantly more likely to be non-Hispanic white (*P*<.05), have greater than 12 years of education (*P*<.01), and earned more than $50 000 per year (*P*<.05). Veterans using CAM were significantly more likely to have never been married compared with nonusers (10.4% vs 4.7%; *P*<.05). No differences were found between groups for married or cohabiting, separated or divorced, or widowed military veterans.

Borderline significant findings were seen for CAM use and occupation. Service (eg, cook or janitor) and "other" (eg, homemaker) categories were collapsed to pro-vide a larger sample size as the referent for occupation. Service and other occupational categories had relatively equal numbers of subjects among CAM users and nonusers. Owing to the small sample size, the clerical category (10 CAM users and 2 nonusers) was combined with the "professional" category for comparison with the referent. Analyses indicated a borderline significant trend for CAM-using veterans to be more likely employed in professional (eg, computer programmer) and clerical (predominantly bookkeeper and data entry) positions (29% vs 21.5%: *P*<.10) and less likely employed in trade (eg, carpenter, electrician, or mechanic) occupations (20.6% vs 30.9%; *P*<.10).

There were no significant differences for sex, mean ± SD age of CAM users (61.9 ± 13.9 years) and nonusers (62.7 ± 13.6 years), or age by group (younger than 30, 31-49, 50-69, and 70 years and older). There were no significant differences between CAM and non-CAM users for primary care team at SAVAHCS or the Fort Huachuca, Yuma, Safford, or Casa Grande clinics. Neither were there any distinctions between CAM and non-CAM users for provider type (physician or nurse practitioner).

HEALTH BEHAVIORS

Health behaviors and lifestyle characteristics of military veterans who do and do not use CAM are displayed in

Table 2. Health Behaviors and Lifestyle Characteristics of the Studied Population*

Behavior	CAM User (n = 252)	Nonuser (n = 256)	OR (95% CI)
Alcohol use, drinks per day			
>2	8 (3.2)	24 (9.4)	0.32 (0.14-0.72)†
≤2	244 (96.8)	232 (90.6)	
Smoking status			
Current	46 (18.3)	66 (25.8)	0.56 (0.33-0.96)‡
Past	143 (56.7)	139 (54.3)	0.83 (0.54-1.29)
Never (referent)	63 (25.0)	51 (19.1)	. . .
Caffeine use, servings per day			
>2	111 (44.0)	138 (53.9)	0.67 (0.48-0.96)‡
≤2	141 (56.0)	118 (46.1)	
Exercise, times per week			
≥4	97 (38.5)	84 (32.8)	1.28 (0.89-1.84)
<4	155 (61.5)	172 (76.2)	
Current stress levels			
Moderate to extreme	118 (46.8)	87 (34.1)	1.70 (1.19-2.43)†
Somewhat to none	134 (53.2)	168 (65.9)	
Decisions about CAM			
Help	119 (47.2)	8 (3.1)	27.74 (13.2-58.5)§
No help	133 (52.8)	248 (96.9)	
Religious/spiritual preference			
Protestant (referent)	132 (52.4)	131 (51.2)	. . .
Agnostic/atheist	5 (3.2)	4 (0.8)	0.99 (0.28-3.51)
Buddhist	6 (2.3)	1 (0.4)	5.95 (0.71-50.15)
Catholic	46 (18.3)	74 (28.9)	0.62 (0.40-0.96)‡
Jewish	6 (2.4)	3 (1.2)	1.99 (0.49-8.10)
Other	38 (15.1)	33 (12.9)	1.14 (0.68-1.93)
Political preference			
Democrat	76 (30.2)	100 (39.1)	0.77 (0.50-1.19)
Republican	84 (33.3)	74 (28.9)	1.15 (0.74-1.79)
Others (Independent, Libertarian, no preference, all others) (referent)	78 (30.9)	79 (30.8)	. . .

*Data for complementary and alternative medicine (CAM) users and nonusers are number (percentage) of participants (N = 508). Percentages are based on actual numbers of persons reporting data for each item. Odds ratios (ORs) are unadjusted. *P* values were derived from a 2-tailed Fisher exact test. CI indicates confidence interval.

†*P*<.01.

‡*P*<.05.

§*P*<.001.

Table 2. Military veterans who endorsed current or past CAM use were significantly less likely to drink more than 2 alcoholic beverages per day (3.2% vs 9.4%; *P*<.01) or consume more than 2 servings of caffeine (eg, cola, tea, coffee, chocolate, or caffeine pills) on a daily basis (44% vs 53.9%; *P*<.05) compared with non-CAM users. Military veterans using CAM were also significantly less likely to be current smokers (18.3% vs 25.8%; *P*<.05). More CAM users reported engaging in 20 minutes of daily exercise 4 or more times per week (OR, 1.28); however, this finding was not significant.

LIFESTYLE

Military veterans using CAM were significantly more likely to report high levels of stress in their daily lives compared with nonusers (46.8% vs 34.1%; *P*<.01). Veterans using CAM were also more likely to have requested help in making decisions about CAM use (47.2%) compared with non-CAM users (3.1%) (*P*<.001).

When analyzing spiritual or religious preference, both users and nonusers of CAM were proportionally represented in the Protestant category, which was used as the referent for comparison with other religious or spiritual preferences. Users of CAM were significantly less likely to be Catholic compared with nonusers (18.3% vs 28.9%; *P*<.05). Other religious or spiritual preferences were reported infrequently, but of those reporting Buddhist or Jewish preferences, there were higher numbers of CAM users. There were no significant differences in CAM use for any other religious or spiritual preferences. Of the respondents, 28 (11.1%) declined to report their spiritual or religious preference.

Of the military veterans who indicated political preference, 34.6% endorsed Democrat, 31.1% endorsed Republican, and 27.5% endorsed Independent, Libertarian, no preference, or "other." Owing to small sample sizes for each of the CAM and non-CAM use cells, the Independent, Libertarian, no preference, and "other" political preference categories were collapsed and used as the referent. In separate analyses, there were no significant differences noted for Independent, Libertarian, no preference, or "other" categories. Although CAM users were more likely to endorse Republican (OR, 1.15) and less likely to endorse Democrat (OR, 0.77), these findings were not significant. Seventeen participants (6.8%) declined reporting their political preference. No significant differences were noted for degree of political preference (ie,

Table 3. Associations Between CAM Use and Military Service*

Military Service†	CAM User, %	Nonuser, %	OR (95% CI)
Stationed overseas (n = 398)	10.0	2.0	5.39 (1.81-16.07)‡
Perceived physical health negatively affected by military service (n = 489)	60.7	50.6	1.50 (1.05-2.15)§
Perceived mental health negatively affected by military service (n = 488)	28.9	20.5	1.58 (1.04-2.39)§
Combat experience (n = 508)	49.6	55.5	0.79 (0.56-1.12)

*CAM indicates complementary and alternative medicine. Odds ratios (ORs) are unadjusted. *P* values were derived from a 2-tailed Fisher exact test. CI indicates confidence interval.
†Numbers in parentheses reflect the number of subjects who responded to the particular survey question.
‡*P*<.01.
§*P*<.05.

conservative, moderate, or liberal) between military veterans who do and do not use CAM.

MILITARY EXPERIENCE

Data for military experience are described in **Table 3**. Military veterans who use CAM were significantly more likely to indicate the perceptions that their military service negatively affected both their physical (60.7%) and mental health (28.9%) compared with veterans who do not use CAM (50.6% and 20.5%, respectively; each *P*<.05). Military veterans using CAM also indicated that their overseas military experiences influenced their use of CAM compared with nonusers (10% vs 2%; *P*<.01). There were no significant differences, however, by branch of military service (Air Force, Army, Marines, Navy, Coast Guard, or National Guard), or by overseas assignments (eg, Europe or Asia). Nearly 53% of this military veteran sample reported being in combat during their military career; however, there were no significant differences for CAM use between veterans who reported combat experience.

PHYSICIAN-DIAGNOSED HEALTH COMPLAINTS

Physician-diagnosed health problems associated with veterans' CAM use are outlined in **Table 4**. Veterans using CAM were significantly more likely to have been diagnosed by a medical physician for back pain (50.2%; *P*<.01), medication allergies (38.6%; *P*<.01), depression (34.9%; *P*<.05), gastrointestinal disorders (34.3%; *P*<.05), generalized pain (26.5%; *P*<.05), anxiety (23%; *P*<.01), problems with sleep onset (18.4%) and sleep maintenance (16.5%) (each *P*<.05), asthma (16.1%; *P*<.05), posttraumatic stress disorder (15.9%; *P*<.05), liver problems (11.5%; *P*<.05), and chronic fatigue syndrome (4.7%; *P*<.05). Borderline significant findings were also noted for hay fever (43.1%; *P*=.07) and any hernia (36.9%; *P*=.06). There were no significant differences noted between groups for other chronic health complaints, including arthritis, any type of cancer, diabetes, chronic obstructive pulmonary disease, headaches, heart disease, hypertension, kidney, prostate or urinary problems, seizures, skin problems (eg, eczema), or substance abuse.

LOGISTIC REGRESSION FINDINGS

Results of the backward elimination logistic regression with adjusted ORs and 95% CIs revealed 4 significant predictors and 4 borderline significant predictors of CAM use in this veteran sample. Significant predictors of CAM use included non-Hispanic white ethnicity (OR, 2.24; 95% CI, 1.29-3.92; *P*=.004), higher education (OR, 1.67; 95% CI, 1.06-2.63; *P*=.03), higher current daily stress levels (OR, 1.64; 95% CI, 1.03-2.61; *P*=.04) and overseas military experience (OR, 4.21; 95% CI, 1.37-12.93; *P*=.01). Of borderline significance as predictors of CAM use were physician-diagnosed gastrointestinal complaints (OR, 1.62; 95% CI, 0.98-2.69; *P*=0.06), asthma (OR, 1.91; 95% CI, 0.93-3.93; *P*=0.08), and chronic fatigue syndrome (OR, 6.95; 95% CI, 0.77-63.00; *P*=.09). The consumption of more than 2 alcoholic beverages per day was inversely related to CAM use (OR, 0.41; 95% CI, 0.16-1.04; *P*=.06), a borderline significant finding.

COMMENT

To our knowledge, there has been no systematic assessment of CAM use among military veterans using the services of the VA Health Care System's VISN. This study provides a profile of CAM users in a military veteran population enrolled in a VISN 18 health care facility and several satellite clinics located throughout southern Arizona.

Prevalence rates for CAM use among US military veterans in this telephone survey (49.6%) are consistent with findings in civilian populations in the United States.[3,5,6,10,18] Non-Hispanic white ethnicity,[3,5,9] education,[1,3,5,6,9] and greater representation in higher income brackets[3,6] are also consistent with civilian CAM users and the CAM-using veterans in the present study. Findings from the logistic regression indicate that ethnicity (non-Hispanic white) and higher education are significant demographic predictor variables of CAM use in this military population. Based on the results of the logistic regression, education appears to play a greater role than income in CAM-using veterans' choice of health care. Notably, education beyond high school has been the most consistent finding associated with CAM use.[1,3,5,6,9] Indeed, consistent with our sample of military veterans, education was the leading sociodemographic predictor of CAM use in a national survey.[5] Prior studies have suggested that higher education is associated with healthier lifestyles,[20] and persons with higher education may view CAM as an adjunct to more healthful behaviors. Several chronic health conditions were also shared between vet-

Table 4. Physician-Diagnosed Health Complaints and CAM Use*

Health Complaint†	CAM User, %	Nonuser, %	OR (95% CI)	P Value
Back pain (n = 492)	50.2	38.2	1.63 (1.14-2.33)	<.01
Medication allergies (n = 505)	38.6	25.4	1.84 (1.26-2.70)	<.01
Depression (n = 480)	34.9	25.6	1.56 (1.05-2.30)	<.05
Gastrointestinal problems (n = 490)	34.3	25.3	1.54 (1.04-2.28)	<.05
Generalized pain (n = 501)	26.5	19.0	1.53 (1.01-2.34)	<.05
Anxiety (n = 490)	23.0	13.4	1.92 (1.20-3.09)	<.01
Sleep onset problems (n = 475)	18.4	11.9	1.68 (1.00-2.80)	<.05
Sleep maintenance problems (n = 476)	16.5	10.0	1.77 (1.02-3.04)	<.05
Asthma (n = 503)	16.1	9.1	1.92 (1.11-3.32)	<.05
Posttraumatic stress disorder (n = 478)	15.9	9.3	1.81 (1.04-3.14)	<.05
Liver problems (n = 507)	11.5	5.9	2.08 (1.09-3.98)	<.05
Chronic fatigue syndrome (n = 479)	4.7	0.8	5.99 (1.31-27.34)	<.05
Hay fever (n = 446)	43.1	34.6	1.43 (0.98-2.10)	<.10
Hernia (n = 504)	36.9	29.4	1.41 (0.97-2.04)	<.10

*CAM indicates complementary and alternative medicine. Odds ratios (ORs) are unadjusted. P values were derived from a 2-tailed Fisher exact test. CI indicates confidence interval.

†Numbers in parentheses reflect the number of subjects who responded to the particular survey question.

eran and civilian CAM users, including back pain, generalized pain, gastrointestinal complaints, anxiety, insomnia, fatigue, allergies, and depression.[3,5,6,8-10]

In the 1997 study by Eisenberg et al,[3] national rates for CAM use ranged from 32% to 54%. Elder et al[10] reported a 50% (57 of 113 subjects) prevalence rate for past or current CAM use, one of the highest reported in the literature, in 4 civilian family practice clinics located in Oregon. An early study of CAM use in cancer care reported a 54% prevalence rate.[21] The nearly 50% prevalence rate for CAM use in our study of military veterans is notable compared with the 28% prevalence rate for CAM use among active duty personnel, retired veterans, and their dependents receiving care at an army family practice clinic.[9] The higher self-reported rate of CAM use in our study is also noteworthy in that the sample comprises older military veterans (mean age, 62 years), who traditionally are thought of as very conservative.

There are several potential explanations for the higher rates of CAM use in our sample of military veterans. Of note, both bivariate and multivariate analyses indicated that overseas military experience was a significant predictor of CAM use. Thus, higher rates of CAM use may be related to exposure to CAM from overseas experiences, developing relationships with persons from other cultures, or both. Furthermore, military bases in southern Arizona reportedly sell common herbal remedies (eg, *Echinacea, Gingko biloba*, and stinging nettles) and nutritional supplements (eg, chondroitin sulfate, glucosamine, and melatonin) at a substantial discount. Providers of CAM and specific treatment modalities of alternative care are well advertised and promoted on radio and television and in health food stores and fit-

ness centers in southern Arizona. A number of military veterans also reported knowledge of the Program in Integrative Medicine at the University of Arizona. Use of CAM has also been found to be more common in the western United States (50.1%) than elsewhere in the United States (42.1%).[3]

Most CAM-using veterans in this study indicated that they sought help with their decisions. As this was a dichotomized question, resources for decision making were not available. A number of veterans who completed this telephone interview (381 of 508), however, agreed to complete a more extensive CAM survey that included resources for making decisions regarding CAM use. Interestingly, friends, family, newspaper articles, and medical references were cited as the leading resources for CAM information.[22]

There were no differences noted by age group (young, middle, older age) between CAM users and nonusers in this sample of military veterans. This finding parallels some,[5,10] but not all, studies.[3,6,9] One possible reason for the heterogeneity of CAM use by age could be related to differences in exposure to CAM. Of military veterans using CAM, 1 in 10 reported being influenced by their overseas experiences. Other factors could include reasons for use, beliefs regarding efficacy, insurance coverage relevant to military veterans,[23] and other issues that should receive future scrutiny using indepth measures and multivariate methods of analysis to determine predictor variables.

Some,[3,9] but not all, studies[5,10] have also indicated that women report more CAM use. The mean age for the veterans sample in this study was 62 years. Thus, most of our population served when the military was primarily recruiting men (ie, World War II, Korea, Vietnam), which could account for the small number of randomly selected women participants recruited for this study. Future studies of CAM use by military veterans should oversample women who served from the time of the Persian Gulf War to the present to determine if sex plays a significant role in CAM use on the part of women veterans.

Military veterans using CAM in this study shared a number of physician-diagnosed health complaints with civilians, including chronic back and generalized pain, gastrointestinal complaints, depression and anxiety, asthma, insomnia, and fatigue.[3,5,6,8-10] Specifically, regression analysis indicated that gastrointestinal problems, asthma, and chronic fatigue syndrome were of borderline significance and may be predictors of CAM use in this veteran population. These complaints are consistent with reasons for CAM use in civilian populations.

Two additional health conditions noted in our study of military veterans that have not been documented in civilian studies include posttraumatic stress disorder and medication allergies. Although over half of the military veterans reported combat experience, which was not related to CAM use, the CAM-using military veterans were significantly more likely to report physician-diagnosed posttraumatic stress disorder. It has been reported elsewhere that military veterans have poorer physical and mental health status scores on quality-of-life measures as well as greater numbers of comorbid conditions compared with nonveterans.[23] Future studies of military veterans should assess more fully their combat experience in relation to

potential combat-related health problems, such as post-traumatic stress disorder, in conjunction with CAM modalities that the veteran may be using. This is of particular relevance given that veterans who believed that their military service negatively affected their physical and mental health were more likely to report CAM use.

Military veterans who said they used CAM also reported more medication allergies, such as untoward adverse effects and/or sensitivities to narcotic analgesics, antibiotics, or multiple drug regimens. A study of California Medicare recipients, primarily aged between 65 and 85 years, found that CAM was used by these elderly recipients owing, in part, to fear of drug adverse effects.[6] Interestingly, in a qualitative focus group study of military veterans and their significant others, drug adverse effects, prescription drug monitoring, and distrust of the pharmaceutical industry were leading reasons for active duty and retired veterans, and their dependents to turn to CAM.[24] Given that military veterans in the present study are older, they are also more likely to be receiving several medications for multiple health problems. Future studies that incorporate older veterans will need to distinguish further between "medication allergies" and concerns regarding drug adverse effects.

There are several limitations to this study. The telephone interview included only 1 dichotomized question regarding current and/or past use of CAM and did not associate health complaints with specific CAM modalities. To reduce subject burden during the telephone interview and simultaneously determine whether participants were familiar with or used CAM, we limited CAM items to 2 questions regarding the (1) use of CAM and (2) if there was any help in decision making regarding CAM use. Other studies have used a similar dichotomized question to describe differences between CAM users and nonusers with results similar to our study.[9,10] To further reduce subject burden, we did not query participants as to whether they told their primary care provider about their CAM use, nor were they asked about their level of satisfaction regarding their conventional and/or CAM care. The intent was to provide a description of CAM use among a large sample of veterans in the Southwest, and questions focused on CAM use, military service, and service-related health complaints. Nevertheless, future, more expansive studies regarding military veterans' use of CAM should address which specific CAM modalities are used for specific health complaints to make additional comparisons with civilian CAM users. Future studies should also determine whether veterans inform their providers of their CAM use, as well as veterans' satisfaction with their conventional and/or CAM care. This kind of information could assist in enhancing patient-provider communication, thereby improving health care delivery.

There was also potential for methodological drift in the implementation of this study. The first 500 participants were organized on telephone contact lists according to primary care team, while the second set of 613 subjects was randomized prior to telephone contact using a set of computer-generated random numbers. There were no significant differences, however, in the numbers of CAM users and nonusers recruited from the SAVAHCS primary care teams or the satellite clinics, which suggests that there was no resultant bias in subject recruitment.

Studies in the United States and Europe have recently assessed associations between CAM use and religious or spiritual and political preferences.[7,14] While our study did address these preferences, we did not investigate the role that religion, spirituality, or politics may play in CAM use, access to CAM, or health care. These issues are of relevance to CAM and should be assessed more appropriately in future studies of CAM use by veterans. Finally, the cross-sectional nature of this study cannot imply a cause-and-effect relationship between the dependent and independent variables. The present descriptive survey, however, is a precursor to a larger empirical CAM study that will examine the relationship between a number of predictor variables, such as quality of life, mood, and experiences with conventional care to use of specific CAM modalities.

CONCLUSIONS

Separate from any limitations inherent in the present study, the findings provide a number of contributions to our understanding of CAM use by US military veterans in the Southwest. Prevalence rates for use of CAM in this sample of military veterans are at the high end of use reported in civilian studies. Demographics and health complaints between these CAM-using military veterans and civilian users of CAM are also similar. However, given their military experiences, this sample of military veterans comes with an additional set of health issues. Veterans' benefits, including health coverage, are dependent on their years of military service, combat action, and other criteria.[23] Hence, some military veterans may receive partial or full health care at the VA, while other military veterans may receive conventional care outside the VA system. Health complaints voiced by military veterans and mirrored in civilian samples are long-term and have been difficult for conventional medicine to treat.[8] This could be a motivating factor for military veterans in the present study to endorse seeking alternative care, as reported in civilian samples.[1,3,5,6,8]

Despite, or because of, CAM-using military veterans' perceived poorer physical and mental health incurred by military service, as well their reported higher daily stress levels, CAM users were noted to be more likely to engage in health-promoting behaviors compared with their non-CAM–using cohorts. Military veterans who endorsed CAM use were less likely to smoke or use alcohol or caffeine. Notably, logistic regression modeling showed higher daily stress to be a significant predictor of CAM use, yet these CAM-using veterans appear less likely to report turning to alcohol in dealing with stress, a borderline significant finding.

These health-promoting behaviors can be utilized to benefit further CAM-using military veterans by integrating these behaviors into their medical regimen in the conventional medical setting. A recent national survey indicated that patients who combine both conventional and CAM approaches are less concerned with physician disapproval of CAM use and more concerned with the physician's inability to understand or incorporate CAM

within the context of health care.[25] It is important for physicians to become aware of military veterans' CAM use as a potential adjunct to conventional care, whether they are seen in or outside of the VA health care system. It is equally important to recognize and understand the unique circumstances and experiences that CAM-using military veterans bring into the physician's office, in view of the fact that military veterans may be seeking conventional care for the very reasons that they are using CAM.

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