

Complementary and alternative medicine use among veterans with chronic noncancer pain

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Abstract—We describe prior use and willingness to try complementary and alternative medicine (CAM) among 401 veterans experiencing chronic noncancer pain and explore differences between CAM users and nonusers. Participants in a randomized controlled trial of a collaborative intervention for chronic pain from five Department of Veterans Affairs (VA) primary care clinics self-reported prior use and willingness to try chiropractic care, massage therapy, herbal medicines, and acupuncture. Prior CAM users were compared with nonusers on demographic characteristics, pain-related clinical characteristics, disease burden, and treatment satisfaction. A majority of veterans ($n = 327$, 82%) reported prior use of at least one CAM modality, and nearly all ($n = 399$, 99%) were willing to try CAM treatment for pain. Chiropractic care was the least preferred option, whereas massage therapy was the most preferred (75% and 96%, respectively). CAM users were less likely to have service-connection disabilities (54% vs 68%; chi square = 4.64, $p = 0.03$) and reported having spent a larger percentage of their lives in pain (26% vs 20%; $Z = 1.40$, $p = 0.04$) than nonusers. We detected few differences between veterans who had tried CAM and those who had not, suggesting that CAM may have broad appeal among veterans with chronic pain. Implications for VA policy and practice and for clinicians treating veterans with chronic pain are discussed.

Clinical Trial Registration: [ClinicalTrials.gov](http://www.clinicaltrials.gov). NCT00129480, “Improving the Treatment of Chronic Pain in Primary Care”; <http://www.clinicaltrials.gov>.

Key words: acupuncture, aged, alternative therapies, chiropractic, chronic pain, complementary therapies, delivery of healthcare, herbal medicine, massage therapy, veterans.

INTRODUCTION

The National Institute of Health’s National Center for Complementary and Alternative Medicine defines complementary and alternative medicine (CAM) as “a group of diverse medical and health care systems, practices, and products that are not generally considered part of conventional medicine” [1]. CAM practices are becoming more widespread [2–4] and are most commonly used to treat musculoskeletal problems, including back and neck pain, joint pain, and arthritis [2,5]. Approximately half of civilian primary care patients with chronic pain have used at least one type of CAM treatment [6].

An estimated 25 to 50 million Americans experience chronic pain, with an annual direct economic effect of \$24 billion [7–9], and veterans experience pain at rates exceeding those observed in the general public [10]. Approximately 50 percent of male veterans and up to 75 percent of female veterans treated in the Department

Abbreviations: CAM = complementary and alternative medicine, CPG = Chronic Pain Grade Questionnaire, RMDQ = Roland-Morris Disability Questionnaire, SD = standard deviation, SEACAP = Study of the Effectiveness of a Collaborative Approach to Pain, SHEP = Survey of Health Experiences of Patients, VA = Department of Veterans Affairs.

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of Veterans Affairs (VA) system may experience pain [11–12]. Because of the challenges providers encounter providing pain management and treatment, many patients do not get optimal relief or may go undertreated [13–14]. These treatment challenges may be why many patients with chronic pain use alternative treatment options. Among civilian patients with chronic pain, factors associated with CAM use are higher educational level, greater income, more severe or complex pain presentation, and lower quality of life [6,15–17]. Among the many veterans with chronic pain, however, less is known regarding factors associated with CAM use or the level of veteran interest in using CAM treatment options.

The VA healthcare system, the largest integrated care system in the United States [18], has moved toward making certain CAM approaches available as treatment options for chronic pain, including chiropractic care and acupuncture [19–22]. Unfortunately, research on veteran interest in using CAM is sparse and often treats CAM as a single entity without differentiating between various modalities. The few available studies of veteran patient samples have reported that between one quarter and one half had used CAM for any purpose in the prior 12 months; more years of education and greater income were associated with use [23–25]. Specific to pain care, a 2004 pilot study of 27 VA primary care patients found that 89 percent of those surveyed had used some sort of CAM therapy and that joint pain was the most common condition for which CAM was used [26]. In 2006, McEachrane-Gross et al.'s survey of veterans receiving treatment for chronic pain or cancer revealed that three-quarters of patients who were not using CAM would use CAM treatments if they were available at the VA [25], although particular treatment options were not specified. We identified no additional published studies that address interest in or use of CAM, specifically among veterans with chronic noncancer pain. As healthcare organizations such as VA move toward investing valuable resources to make CAM options available, more information is needed regarding the characteristics of veterans with chronic pain who use CAM and the particular treatment options these veterans are willing to try.

As part of the Study of the Effectiveness of a Collaborative Approach to Pain (SEACAP), we surveyed veterans about their prior use of and their willingness to try four CAM treatment modalities previously supported by research for use with chronic pain [27–30]: massage therapy, chiropractic care, herbal medicines, and acupunc-

ture. Specifically, we were interested in whether veterans with chronic pain reported using CAM at levels previously observed in the general public and which treatment modalities were the most appealing to this population. We were also interested in whether demographic characteristics, VA treatment satisfaction, common pain-related characteristics (percentage of life in pain, pain intensity, disability, and depression), or overall disease burden distinguished CAM users from nonusers.

METHODS

This article presents a secondary analysis of baseline data from SEACAP. Study design, participant inclusion, and main results have been reported in detail elsewhere [31–32]. The study took place in three urban and two rural primary care clinics of a VA medical center in the Pacific Northwest. Patients were recruited between January 2006 and January 2007. We used two recruitment approaches: we posted flyers throughout the medical center and clinics and mailed letters describing the study to patients with upcoming primary care appointments. Both methods invited interested patients to contact the study office for eligibility screening.

All 42,000 patients enrolled at the five primary care clinics were potentially eligible. To be eligible for the baseline study interview, patients were required to have medical record documentation of a musculoskeletal pain diagnosis (back, arthritic, neck, or joint pain) for at least 12 weeks, Chronic Pain Grade Questionnaire (CPG) [33] intensity and interference item scores of at least 4 on a 0 to 10 scale (indicating moderate or greater severity), and reliable telephone access. Exclusion criteria included diagnoses of bipolar disorder, psychotic disorder, dementia, chronic fatigue syndrome, fibromyalgia, or somatization disorder. We also excluded patients with designated guardians, documented terminal illness, or medical record flags indicating prior drug-seeking or other dangerous behavior.

Of the 842 patients who responded to recruitment letters or flyers, 552 (66%) met criteria to be invited for the baseline study interview. Patients were offered US\$10 for time and travel to this interview. A total of 442 veterans completed the baseline study interview; 401 had Roland-Morris Disability Questionnaire (RMDQ) [34–35] scores >5 and were enrolled in SEACAP. All 401 SEACAP participants were included in the current study.

The local institutional review board approved the study, and all participants provided written informed consent.

Data Sources

Data extracted from VA administrative databases included age, sex, service-connection status (indicating the receipt of service-related disability benefits), and treatment at an urban versus rural VA site. We measured chronic disease burden using the RxRisk-V, a version of the Chronic Disease Score derived from VA pharmacy data [36]. Race/ethnicity, employment status, education, marital/domestic partnership status, and duration of chronic pain were self-reported as part of the SEACAP baseline interview. To provide a patient-level frame of reference for pain chronicity, we calculated percentage of life in pain (reported duration of pain/age).

CAM Treatment Use and Willingness

Participants completed four two-part items modeled after Haythornthwaite et al.'s pain treatment willingness scale [37] to assess previous use and willingness to try four CAM modalities: massage therapy, chiropractic treatment, herbal medicines, and acupuncture. We chose these modalities because they have been supported by prior research for use with chronic pain [27–30] but may not necessarily be offered as a treatment option in VA facilities. The CAM items were embedded in a 15-item measure that assessed various approaches to pain management. Patients were asked to indicate (yes or no) which treatment approaches they had tried before and which treatment approaches they would be willing to try now. This checklist-style method of assessing prior CAM use has been used in previous studies of CAM [17,25]. Although the directions did not specify use of these approaches for pain treatment, this measure was completed in the context of several pain-related functioning measures during the initial interview enrolling patients in a study of chronic pain treatment. In analyses comparing CAM users with nonusers, “CAM use” was defined as indicating prior use of one or more of the CAM treatment approaches. We did not treat “prior use of” and “willing to try” CAM as mutually exclusive categories, since prior use of a specific modality did not necessarily mean the patient would be willing to try that modality now.

Treatment Satisfaction

We used two measures to assess treatment satisfaction. An eight-item global healthcare treatment satisfac-

tion scale developed as part of the Agency for Health Care Research and Quality-Funded Partners in Care [38] asked patients to rate specific aspects of their care, such as “communication with your doctors and other health professionals” and “your involvement in decisions about your care,” on a 5-point scale from “poor” to “excellent.” We averaged these items to create a mean rating of treatment satisfaction. A single item from the Survey of Health Experiences of Patients (SHEP) measured perceived effectiveness of VA pain treatment for those who reported having received treatment at the VA in the prior 6 months [39]. This item asked participants to rate the effectiveness of their pain treatment on a five-point scale from “poor” to “excellent.” SHEP is used for VA quality improvement and is based on measures developed by the Picker Institute (Camden, Maine), and was subsequently refined based on veteran focus groups [40]. We used these two measures independently in analyses as two different aspects of treatment satisfaction.

Pain-Related Clinical Characteristics

We used the three-item Pain Intensity subscale of CPG [33] to measure pain intensity, with scores ranging from 0 (no pain) to 100 (worst pain imaginable). One item asked about pain “right now” and the remaining two items were framed in reference to pain intensity during the past 3 months. The CPG is valid and reliable for use in a general population [41]. We used the 24-item RMDQ to measure pain-related disability, which includes items such as, “Because of my pain, I lie down to rest more often” [34–35]. The RMDQ has been used to evaluate patients with chronic pain and has shown internal consistency and validity [42–43]. Scores range from 0 to 24, with higher scores indicating more severe disability. We used the nine-item Patient Health Questionnaire, validated for use in patient populations, to measure depression [44–45]. Items ask patients to indicate whether they have been bothered by symptoms such as “Feeling down, depressed, or hopeless” on a 0 (not at all) to 3 (nearly every day) scale. Items were summed for an overall score of depression symptom severity.

Analyses

We used descriptive statistics to describe the sample and chi-square and *t*-tests to test for demographic, treatment satisfaction, and pain-related clinical differences between CAM users and nonusers. When assumptions of normality could not be met, we used nonparametric

methods (Kolmogorov-Smirnov Z test). We conducted all analyses using SPSS version 17 (SPSS Inc; Chicago, Illinois).

RESULTS

Demographically, the 401 participants in the final patient sample approximated local, regional, and national VA populations in terms of age (mean age 61.7 ± 11.8 standard deviation [SD]), race/ethnicity (89.0% white), and sex (91.8% male) (**Table 1**) [46–47]. Half had completed at least some college, and nearly 75 percent had not worked in the past year. Veterans in this sample reported spending, on average, a quarter of their lives in pain (mean = 24.6%) and were experiencing a number of chronic diseases/conditions (RxRisk-V score = 5.0 ± 3.0).

Table 2 presents the proportion of study participants who reported having used CAM in the past and the proportion of patients who would be willing to try each treatment modality now. A large proportion of the sample ($n = 327$, 81.5%) reported having previously used one or more of the four CAM treatments, most often chiropractic care ($n = 226$, 56.4%). Almost all patients reported willingness to try one or more of the CAM treatment options ($n = 399$, 99.5%), with massage therapy being the most preferred ($n = 387$, 96.8%).

Although a smaller proportion of prior CAM users received VA service-related disability benefits (53.8% vs 67.6%; $\chi^2 = 4.64$, $p = 0.03$), we detected no other demographic differences between CAM users and nonusers (**Table 1**). Clinically, the only variable distinguishing CAM users from nonusers was users having spent a larger percentage of their lives in pain compared with nonusers (25.7% vs 19.8%; $Z = 1.41$, $p = 0.04$). CAM users and nonusers were not differentially satisfied with VA healthcare generally or with pain treatment effectiveness specifically.

DISCUSSION

More than 80 percent of the veterans in this study reported previously trying CAM, and almost all reported a willingness to try one or more of the four CAM modalities about which we inquired. Veterans in the study who had already tried CAM treatments differed little from veterans who had not, suggesting that many veterans experiencing

chronic pain may be interested in CAM treatment options for chronic pain.

Although direct comparisons are difficult because of differing methodologies and definitions of CAM, a larger percentage of the veterans in this study reported previous CAM use and greater treatment willingness than in the few prior veteran studies [23,25]. Several reasons may explain these differences. As CAM is more accepted and used in the general public, an increase in CAM use among veterans over time may be expected. Alternatively, as CAM use is more commonly reported in the western United States than in some other U.S. regions [2], these results could be caused by geographic differences in acceptance and use of CAM. Furthermore, education level of the sample might have positively affected these patients' interest in CAM. The educational attainment of SEACAP participants distinguishes this sample from those of the previous studies of CAM use among veterans [23,25] but more closely approximates education levels of civilian CAM users [6,16–17] and of the national VA population [48].

In this sample, we detected few meaningful differences between veterans who had tried CAM and those who had not, suggesting the CAM modalities studied here may have broad appeal among veterans with chronic pain. Our finding that fewer CAM users received service-connected disability benefits, as compared with nonusers, is not surprising; veterans with disability benefits, which enhance access to VA healthcare, may be more inclined to use VA care than to seek treatment from a non-VA CAM provider. While veterans who previously used CAM had spent a larger proportion of their lives in pain, CAM users and nonusers did not differ on other clinical factors, such as depression, pain intensity, disability, and chronic disease burden. This lack of distinction, in light of the high proportion of veterans with chronic pain using CAM evidenced here, warrants attention by clinicians. Prior work has indicated that few patients report CAM use to their allopathic providers [17]; clinicians treating veterans with chronic pain should assess patient use of these modalities to ensure compatibility with concurrent treatment.

Additionally, we did not detect differences in treatment satisfaction or pain treatment effectiveness ratings between the two groups. This is in contrast to our expectations that among veterans with chronic pain, use of CAM would be driven by dissatisfaction with, or a perceived lack of effectiveness of, available treatment options for

Table 1.

Selected participant characteristics comparing complimentary and alternative medicine (CAM) users versus nonusers.

Characteristic	All Participants (N = 401)	CAM (n = 327)	No CAM (n = 74)	p-Value
Demographic Characteristic				
Age (yr, Mean ± SD)	61.7 ± 11.8	61.6 ± 11.3	61.8 ± 14.1	0.92
Sex				0.67
Male	368 (91.8)	301 (92.0)	67 (90.5)	—
Female	33 (8.2)	26 (8.0)	7 (9.5)	—
Race/Ethnicity*				0.99
White/Caucasian	357 (89.0)	290 (88.7)	67 (90.5)	—
Black/African American	7 (1.8)	6 (1.8)	1 (1.4)	—
American Indian/Alaska Native	13 (3.8)	11 (3.4)	2 (2.7)	—
Hispanic/Latino	6 (1.5)	5 (1.5)	1 (1.4)	—
Asian	1 (0.3)	1 (0.3)	0	—
Other Pacific Islander	1 (0.3)	1 (0.3)	0	—
Other	15 (3.0)	12 (3.7)	3 (4.1)	—
Education				0.30
Less than HS Diploma	20 (5.0)	18 (5.5)	2 (2.7)	—
HS Diploma	80 (20.0)	58 (17.7)	22 (29.7)	—
Some College	198 (49.4)	165 (50.5)	33 (44.6)	—
College Graduate	66 (16.5)	55 (16.8)	11 (14.9)	—
Postgraduate	37 (9.2)	31 (9.5)	6 (8.1)	—
Employment (last 12 mo)				0.35
Did Not Work	298 (74.3)	241 (73.7)	57 (77.0)	—
Full-Time	70 (17.5)	56 (17.1)	14 (18.9)	—
Part-Time	33 (8.2)	30 (9.2)	3 (4.1)	—
Married/Living with Domestic Partner	278 (69.3)	227 (69.4)	51 (68.9)	0.93
Service-Connected Disability†	226 (56.4)	176 (53.8)	50 (67.6)	0.03
Urban Clinic‡	355 (88.5)	290 (88.7)	65 (87.8)	0.84
Clinical Characteristic				
Percentage of Life in Pain§ (Mean ± SD [Median (range)])	24.6 ± 20.2 18.2 (0.4–94.1)	25.7 ± 20.5 18.9 (0.4–94.1)	19.8 ± 17.9 14.7 (0.4–70.9)	0.04 —
Pain Intensity¶ (Mean ± SD)	67.0 ± 13.2	67.4 ± 12.9	65.1 ± 14.0	0.17
Depression Severity** (Mean ± SD)	8.3 ± 5.8	8.3 ± 5.9	8.2 ± 5.7	0.95
Pain-Related Disability†† (Mean ± SD)	14.7 ± 4.4	14.8 ± 4.3	14.4 ± 4.9	0.59
Chronic Disease Burden‡‡ (Mean ± SD)	5.0 ± 3.0	5.17 ± 2.9	5.11 ± 3.3	0.89
Treatment Satisfaction Variables				
Treatment Satisfaction§§ (Mean ± SD)	2.9 ± 0.9	2.9 ± 0.9	2.9 ± 0.9	0.85
Pain Treatment Effectiveness¶¶ (Mean ± SD)	2.3 ± 1.1	2.4 ± 1.1	2.3 ± 1.2	0.63

Note: Results are presented as n (%) unless otherwise stated.

*One participant was missing data for race/ethnicity (n = 400 for all participants, n = 326 for CAM).

†Service-connected disability = receives Department of Veterans Affairs (VA) benefits in conjunction with military service-related disability.

‡Urban clinic = patient was enrolled in urban clinic versus rural community-based outpatient clinic.

§Percentage of life in pain = duration of pain to age (in years); results presented from nonparametric (Kolmogorov-Smirnov Z) test; parametric (t-test) results: t = -2.51, p = 0.01.

¶Pain intensity subscale of Chronic Pain Grade Questionnaire, possible range of 0 to 100.

**Patient Health Questionnaire depression scale, possible range 0 to 27.

††Roland-Morris Disability Questionnaire, possible range 0 to 24.

‡‡RxRisk-V score, possible range 0 to 45.

§§Global Care Satisfaction among those reporting any VA healthcare in prior 6 months and completed care satisfaction items (n = 364); scores range 0 to 4.

¶¶Rating of prior VA pain treatment effectiveness among those reporting VA pain care in prior 6 months (n = 222); possible range 0 to 4.

HS = high school, SD = standard deviation.

Table 2.

Percentage of veterans with prior CAM use and percentage willing to try CAM ($N = 401$).

Treatment	Prior Use <i>n</i> (%)	Willing to Try Now* <i>n</i> (%)
Acupuncture	85 (21.2)	355 (88.8)
Herbal Medicines	149 (37.2)	361 (90.0)
Massage Therapy	202 (50.4)	387 (96.8)
Chiropractic Care	226 (56.4)	300 (75.0)

*Data missing for one participant for each category of willingness to try acupuncture, massage therapy, and chiropractic care ($n = 400$).

CAM = complementary and alternative medicine.

pain [49]. These results suggest that veteran patients with chronic pain may use CAM, not as a reaction to perceived inadequacies of conventional care, but rather as an additional tool in pain management.

Overall, these results lend evidence to support the VA's increasing movement toward offering CAM modalities as treatment options for pain. Additional research would help determine pain treatment effectiveness and cost-effectiveness of specific CAM modalities. Given the proportion of veterans with chronic pain already using CAM and the even greater proportion willing to try the CAM modalities studied here, one might be concerned about the effect on cost and use should CAM become more available within the VA. However, since CAM treatments typically do not use expensive medical equipment or invasive procedures, the cost is typically lower for CAM treatments than for traditional treatments [50]; Lafferty et al. found that median cost of visits to CAM providers was \$39.00 versus the median cost of \$74.40 for visits to allopathic providers [51]. Importantly, since each of the CAM options studied here has demonstrated effectiveness for chronic pain [27–30], patient outcomes might be expected to improve as a result of their use. Indeed, one systematic review found evidence to support the cost-effectiveness of CAM modalities, especially for use with migraine and neck pain [52]. Finally, evidence from one study of insurance claims in Washington state suggests that offering CAM treatment options does not result in gross overuse or abuse of these services [51].

A number of limitations should be considered in the interpretation of our results. It is possible that not all participants similarly interpreted or understood the treatment options surveyed. However, a research assistant was available to answer questions during survey completion. Further, participants may have wanted to appear open to a

variety of treatment options, because the survey was administered during an enrollment interview for a pain treatment clinical trial. Alternatively, individuals willing to participate in a randomized trial may be more open to try unconventional treatment options or to have tried more treatment modalities in the past, CAM or otherwise. Future studies might include items to distinguish between current and past users, and they also might assess the extent of and satisfaction with CAM modalities tried, for the purposes of gaining a more detailed understanding of the veteran experience with CAM. Restriction of range may have attenuated some associations (e.g., 91.8% of our sample is male, and nearly all had tried at least one CAM modality), though substantial variability existed for specific modalities and other demographic and clinical variables. Finally, our results may have limited generalizability to other regions of the United States.

CONCLUSIONS

To our knowledge, this is the first study to survey specific CAM modality use and interest among a large sample of veterans who have chronic noncancer pain. Our results support the efforts of the VA to increase access to CAM treatment options for veterans and suggest that the addition of massage therapy as a treatment option would be popular among veterans with chronic pain. Finally, clinicians should recognize that their veteran patients seeking treatment for pain may also be pursuing other modalities and should inquire about CAM to ensure compatibility with concurrent treatments.

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Author Contributions:

Study concept and design: L. M. Denneson.

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