

## Military Report More Complementary and Alternative Medicine Use than Civilians

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### Abstract

**Objectives:** The study objective was to estimate complementary and alternative medicine (CAM) use among active duty military and compare data with civilian use.

**Design:** A global survey on CAM use in the 12 previous months was conducted. Final participants (16,146) were stratified by gender, service, region, and pay grade. Analysis included prevalence of CAM use, demographic and lifestyle characteristics.

**Results:** Approximately 45% of respondents reported using at least one type of CAM therapy. Most commonly used therapies were as follows: prayer for one's own health (24.4%), massage therapy (14.1%), and relaxation techniques (10.8%). After exclusion of prayer for one's own health, adjusting to the 2000 U.S. census, overall CAM use in the military (44.5%) was higher than that in comparable civilian surveys (36.0% and 38.3%).

**Conclusions:** Military personnel reported using three CAM stress-reduction therapies at 2.5–7 times the rate of civilians. Among the military, high utilization of CAM practices that reduce stress may serve as markers for practitioners assessing an individual's health and well-being.

### Introduction

MANY PEOPLE IN THE UNITED STATES (U.S.) use complementary and alternative medicine (CAM),<sup>1–7</sup> and its use is increasing.<sup>2</sup> The National Institutes of Health defines CAM as a group of diverse medical and health care systems, practices, and products that are not presently considered to be part of conventional medicine.<sup>8</sup> In 1990, a national survey estimated that 33.8% of U.S. adults used CAM in the previous year,<sup>7</sup> which increased to 42.1% in 1997<sup>3</sup> and 62% in the 2002 National Health Interview Survey (NHIS).<sup>1</sup> These surveys included spiritual healing and folk medicine in the CAM definition. Results from the 2007 NHIS used a different CAM taxonomy and excluded these practices.<sup>2,9</sup> When prayer specifically for health reasons was excluded, the 2002 and 2007 NHIS found 36% and 38.3% of U.S. adults, respectively, reported using some form of CAM practice in the last 12 months.<sup>1,2</sup> While these surveys include a large nationally representative sample, the data are difficult to compare di-

rectly across specific CAM practices and overall CAM use due to differences in definitions and practices included in the survey instruments.<sup>2,9</sup>

These national surveys only include civilian, noninstitutionalized individuals; they do not include the 1.3 million active-duty military personnel.<sup>10</sup> This important segment of the U.S. population receives health care from both military and civilian practitioners and is subject to similar health risks as civilians plus additional physical, emotional, and cognitive stress of deployment and combat.<sup>11,12</sup> It would not be unexpected for military personnel to seek to improve their health through complementary practitioners, potentially at a greater extent due to health and performance expectations,<sup>11</sup> and for the same reasons reported by civilians.<sup>1,2,12,13</sup>

The purpose of this study was to assess the reported prevalence of CAM use by a globally representative sample of active duty military personnel in the Army, Navy, Marine Corps, and Air Force and determine the demographic and lifestyle factors associated with CAM use. In addition,

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military use of CAM was compared with nationally representative civilian data.

## Materials and Methods

### Sample design and selection

Data were drawn from the 2005 Department of Defense Survey of Health Related Behaviors Among Active Duty Military Personnel.<sup>14</sup> The eligible population included all active-duty military personnel (1,011,852 individuals of the 1.3 million total at the time of the survey) except recruits, service academy students, individuals absent without official leave, incarcerated individuals, and persons whose station had been changed permanently when the data were collected. The first stage of sampling involved selecting 60 major military installations proportional to size and stratified by service (Army, Navy, Marine Corps, Air Force) and world region (continental United States or outside the continental United States, afloat status for Navy) from the frame of installations globally. Within the selected installations, the second stage of sampling involved selection of military personnel stratified by gender and military pay grade groups, including three enlisted pay grade groups (E1-E3, E4-E6, E7-E9) and three officer pay grade groups (W1-W5, O1-O3, O4-O10). Overall, 40,000 active-duty personnel were selected for the survey (36,000 asked to attend the group administration at the large installations and 4000 personnel in smaller installations or remote sites were mailed the questionnaire). A subset of personnel selected to participate in the survey were no longer eligible to take part at the time of data collection because they had separated from the military, were deceased, were absent without leave, had been transferred to another duty station, or had an unknown status. The adjusted sample size was 30,664 (Fig. 1). Officers and women were oversampled because of their smaller numbers.

Respondents anonymously completed self-administered questionnaires, which required approximately 50 minutes of

their time. Most respondents attended group sessions at the 60 installations where questionnaires were administered by civilian data collection teams. The original study was approved by The Surgeon General of the U.S. Army Human Subjects in Research Protection Office (Fort Detrick), and the Research Triangle Institute's Institutional Review Board. All participants were informed about the purpose of the research and assured that completion of the questionnaire was voluntary and anonymous. Use of the de-identified data, under data use agreement with TRICARE Management Activity, was approved by the Abt Associates Inc. Institutional Review Board.

There were 16,146 final military personnel survey participants (Army: 3639; Navy: 4627; Marine Corps: 3356; Air Force: 4524). The response rate was 51.8% of those eligible to participate at the time the survey was administered (Fig. 1). Response rates varied significantly with respect to gender (females higher than males), rank (officers higher than enlisted), and Service (Navy and Air Force higher than other branches). As a result, the respondent distribution was composed of more females, officers, and members of the Air Force and Navy compared to the original sample distribution. These differential response-rate patterns combined with differential answer patterns to the questionnaire represent a potential for nonresponse bias. To address this potential bias, the data were weighted for each survey to represent the population of eligible active-duty personnel. Further details of the calculation of sample design and weighting can be found in the study's final report.<sup>14</sup>

### Measures

The survey obtained data on individual demographic characteristics, substance use, military experiences, lifestyles, health behaviors, mental health, and selected *Healthy People 2010*<sup>15</sup> objectives, as well as use of 19 specific or other CAM therapies during the 12 months prior to the survey. The 19 therapies were grouped into five categories used by the National Center for Complementary and Alternative Medicine<sup>8</sup>: *alternative medical systems*: acupuncture, homeopathic treatment; *biologically based therapies*: folk remedies (e.g., Native American Healing, *curanderismo*), herbal medicine (e.g., St. John's Wort, *Gingko biloba*, *Echinacea*), lifestyle diet (e.g., vegetarian, diet without preservatives or additives, heart-healthy, diabetic), high-dose megavitamins; *manipulative and body-based methods*: chiropractic, massage therapy; *mind-body therapies*: biofeedback; guided imagery therapy (e.g., meditation, aromatherapy), relaxation techniques, hypnosis, exercise or movement therapy (e.g., *t'ai chi*, yoga), prayer for your own health, spiritual healing by others (e.g., healing ritual, sacrament), self-help groups, art/music therapy; and *energy therapies*: energy healing (e.g., Reiki, polarity therapy), hyperbaric oxygen therapy. Respondents could select more than one CAM approach or "other." For analysis, responses were combined to all 19 types into "use of any CAM."

The analysis included demographic and lifestyle characteristics previously reported as associated with use of CAM.<sup>1-3,12,13</sup> Respondents self-reported their height (in feet and inches) and weight (in pounds) without shoes. Each individual's body-mass index (BMI=weight in kilograms divided by squared height in meters) was calculated. While

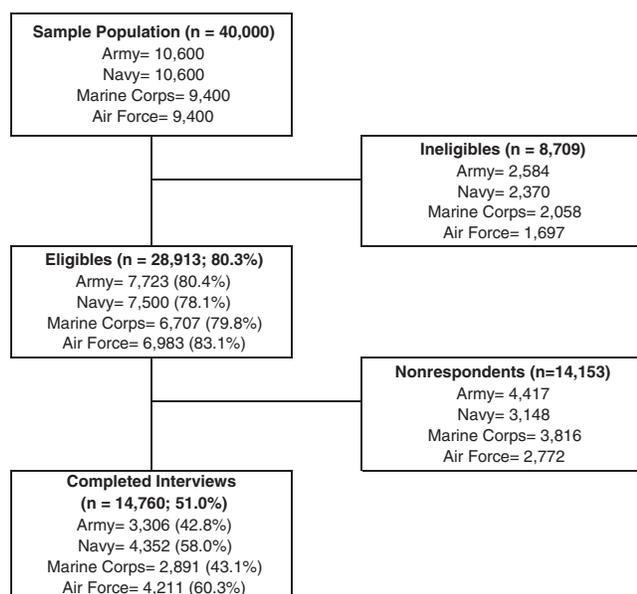


FIG. 1. Participant flow diagram.

many U.S. civilians might not readily know their height and weight, military personnel are expected to meet body composition standards. Thus, their height is measured annually, and military personnel closely monitor their own weight.<sup>16</sup>

### Statistical analyses

The data were analyzed using SUDAAN (SURvey DATA ANalysis) software release 9.0.<sup>17</sup> Multivariate statistics were used to estimate odds ratios (OR) and 95% confidence intervals (CI) to determine the degree of association between each characteristic and specific type of overall CAM use, controlling for demographic and lifestyle characteristics. SUDAAN's LOGISTIC procedure was used to estimate the effect of the demographic and lifestyle characteristics on (1) the eight CAM types that had at least a 5% prevalence of use by military personnel, (2) the combined remaining CAM types, and (3) any CAM use. Prevalence estimates were compared using the Wald  $\chi^2$  statistic.

To compare the prevalence of CAM use in military personnel with civilian use in the 2000 U.S. census-based 2002 and 2007 NHIS, the military data were adjusted to the 2000 U.S. census estimates for gender, age, and race/ethnicity. *T*-tests were used to assess where statistically significant differences existed among the adjusted prevalence of CAM use in the military and civilian populations. Statistically significant minimum results at the  $p < 0.05$  level are reported.

### Results

Approximately 45% of active duty military personnel reported using at least one CAM type in the previous 12 months (Table 1). When data on self-prayer were omitted, the prevalence of CAM use was approximately 36%. The eight most frequently reported categories of CAM included four *mind-body therapies* (prayer for your own health: 24.4%; relaxation techniques: 10.8%; art/music therapy: 7.7%; exercise/movement therapy: 6.8%), two *biologically based therapies* (herbal medicine: 8.9%; high-dose megavitamins: 8.4%), and two *manipulative and body-based methods* (massage therapy: 14.1%; chiropractic: 5.2%). Eleven (11) CAM types were used by <5.0% of respondents and six types were used by <1% of personnel.

Table 2 shows the weighted prevalence of eight CAM therapies used by at least 5% of military personnel with select demographic and lifestyle characteristics previously reported as associated with CAM use.<sup>1,3,12,13</sup> A significantly higher proportion of military women were likely to report CAM use than men, as were older military personnel ( $p < 0.001$ ). In addition, there was a higher prevalence of older personnel who reported using prayer for their own health ( $p < 0.001$ ), herbal medicine ( $p < 0.05$ ), and high-dose megavitamins ( $p < 0.05$ ), whereas the youngest personnel (<29 years) more frequently used art/music therapy ( $p < 0.001$ ). African Americans more frequently reported use of any CAM than white, non-Hispanic, and Hispanic personnel (48.9%, 45.1%, 43.9%, respectively;  $p < 0.001$ ). However, persons who identified themselves as other racial/ethnic designations reported a higher prevalence of CAM use than African Americans (50.5%). Persons with some college or further higher education had a higher prevalence of use of each of the CAM therapies and any CAM ( $p < 0.01$  or  $p < 0.001$ , respectively), with the exception of art/music

therapy, which was also reported as commonly used by high school graduates ( $p < 0.01$ ). Those who reported no leisure-time physical activity ( $p < 0.001$ ), those who were current smokers ( $p < 0.01$ ), and persons who were heaviest drinkers ( $p < 0.001$ ) used less CAM overall.

Table 3 shows the OR with 95% CI for nine logistic regression models used to assess the relationship between demographic/lifestyle characteristics and CAM use. Holding other characteristics constant, age 40 years and older compared with younger military was significantly associated with the use of herbal medicine, high-dose megavitamins, and chiropractic. Attainment of a 4-year college degree was associated with any CAM use, use of massage therapy, relaxation techniques, herbal medicine, exercise/movement therapy, and chiropractic. When other characteristics were held constant, in contrast to the prevalence data, women were no more likely to report using CAM than men, and persons who described their race/ethnicity as black/non-Hispanic were less likely to use any CAM and all of the specific CAM therapies than white/non-Hispanics and Hispanics. Leisure-time physical activity was negatively associated with most reported CAM therapies, while moderate alcohol consumption was negatively associated with prayer for one's own health and relaxation techniques, with moderate and heavier alcohol use being negatively associated with art/music therapy. No significant association was found of BMI and cigarette smoking with any CAM therapies studied.

Table 4 presents a comparison of the adjusted prevalence of CAM use by representative samples of the civilian, noninstitutionalized population in the United States in 2002<sup>1</sup> and 2007<sup>2</sup> standardized to the 2000 U.S. census, with CAM use by the active duty military adjusted to the 2000 U.S. census for gender, age, and race/ethnicity. Due to differences in the inclusion of CAM therapies in the two NHIS survey instruments,<sup>2</sup> comparisons were not possible among some categories of CAM. Based on adjusted figures, civilians reported a significantly higher use of any CAM in the last 12 months than military (62.1% versus 55.4%,  $p < 0.001$ ). However, when prayer for one's own health was excluded, the estimated CAM use by military personnel was significantly higher than that of the general population (44.5% versus 36.0% and 38.3% in the two NHIS surveys respectively,  $p < 0.001$ ). In this adjusted comparison, where the definitions of a particular CAM therapy were comparable, significantly fewer military personnel reported use of herbal medicine, chiropractic and diet therapy/lifestyle diet than the civilian population for both years of the NHIS survey ( $p < 0.001$ ), and less prayer for one's own health than the 2002 NHIS survey ( $p < 0.001$ ). Significantly more military personnel reported use of energy healing, guided imagery therapy, massage therapy, hypnosis, and relaxation techniques than civilians in both NHIS surveys ( $p < 0.001$ ), with more reported use of folk remedies, high-dose megavitamins, and spiritual healing by others than the 2002 NHIS survey ( $p < 0.001$ ) and more frequent use of biofeedback than the 2002 NHIS and 2007 NHIS surveys ( $p < 0.001$  and  $p < 0.01$ , respectively). There were no statistical differences in reported use of acupuncture and homeopathy.

### Discussion

These are the first data on CAM use in a large, carefully structured, representative survey of the U.S. active duty

TABLE 1. DISTRIBUTION OF RESPONDENTS BY CHARACTERISTICS: 2005 DEPARTMENT OF DEFENSE SURVEY OF HEALTH-RELATED BEHAVIORS AMONG MILITARY PERSONNEL (PERCENT  $\pm$  SEM)

Characteristic	Army	Navy	Marine Corps	Air Force	Total DoD
Total sample (N)	3639	4627	3356	4524	16,146 <sup>a</sup>
Weighted N	-321,576	-270,908	-128,589	-290,779	-1,011,852
Gender					
Men	85.7 $\pm$ 1.98	85.7 $\pm$ 1.04	93.9 $\pm$ 0.60	80.4 $\pm$ 1.17	85.2 $\pm$ 0.94
Women	14.3 $\pm$ 1.98	14.3 $\pm$ 1.04	6.1 $\pm$ 0.60	19.6 $\pm$ 1.17	14.8 $\pm$ 0.94
Age (years)					
17-20	17.6 $\pm$ 2.13	12.8 $\pm$ 1.25	21.8 $\pm$ 1.82	7.9 $\pm$ 0.98	14.1 $\pm$ 0.64
21-30	51.9 $\pm$ 3.65	50.2 $\pm$ 0.60	60.6 $\pm$ 2.75	47.3 $\pm$ 2.58	51.2 $\pm$ 1.86
31-39	20.4 $\pm$ 3.05	25.4 $\pm$ 1.25	14.2 $\pm$ 2.06	30.6 $\pm$ 1.51	23.9 $\pm$ 1.14
40+	10.1 $\pm$ 2.66	11.6 $\pm$ 0.95	3.3 $\pm$ 0.42	14.3 $\pm$ 2.03	10.8 $\pm$ 1.26
Educational level					
High School or less	37.0 $\pm$ 3.42	38.1 $\pm$ 1.93	51.1 $\pm$ 1.71	19.1 $\pm$ 2.45	33.9 $\pm$ 1.12
Some college	40.7 $\pm$ 1.45	43.0 $\pm$ 1.13	36.9 $\pm$ 2.18	51.9 $\pm$ 3.76	44.1 $\pm$ 1.05
College degree or more	22.3 $\pm$ 2.80	18.9 $\pm$ 1.76	11.9 $\pm$ 1.47	28.9 $\pm$ 6.09	22.0 $\pm$ 1.96
Race/ethnicity <sup>b</sup>					
Non-Hispanic white	60.7 $\pm$ 2.36	60.9 $\pm$ 0.99	65.1 $\pm$ 0.68	71.5 $\pm$ 1.77	64.4 $\pm$ 0.42
Non-Hispanic black	21.8 $\pm$ 1.83	18.8 $\pm$ 0.46	11.1 $\pm$ 0.80	14.8 $\pm$ 1.91	17.6 $\pm$ 0.57
Hispanic or Latino	10.5 $\pm$ 1.07	8.0 $\pm$ 0.94	13.7 $\pm$ 0.86	5.6 $\pm$ 0.56	8.8 $\pm$ 0.35
Other	7.0 $\pm$ 0.41	12.4 $\pm$ 0.65	10.1 $\pm$ 0.69	8.2 $\pm$ 0.45	9.2 $\pm$ 0.16
Marital status					
Married or living as married/partners	50.0 $\pm$ 3.14	54.0 $\pm$ 1.73	48.6 $\pm$ 1.51	62.6 $\pm$ 2.11	54.5 $\pm$ 0.96
Single, not living as married or with partner	50.0 $\pm$ 3.14	46.0 $\pm$ 1.73	51.4 $\pm$ 1.51	37.4 $\pm$ 2.11	45.5 $\pm$ 0.96
BMI <sup>c</sup> (weight status)					
<18.5 (underweight)	1.2 $\pm$ 0.24	0.6 $\pm$ 0.17	0.7 $\pm$ 0.14	0.9 $\pm$ 0.19	0.9 $\pm$ 0.09
18.5-24.9 (normal weight)	39.9 $\pm$ 3.24	34.6 $\pm$ 1.33	44.4 $\pm$ 1.89	38.4 $\pm$ 0.99	38.6 $\pm$ 0.87
$\geq$ 25.0-29.9 (overweight)	48.9 $\pm$ 2.35	46.4 $\pm$ 0.89	47.8 $\pm$ 1.29	47.2 $\pm$ 0.82	47.6 $\pm$ 0.78
$\geq$ 30.0 (obese)	10.0 $\pm$ 1.14	18.4 $\pm$ 0.69	7.0 $\pm$ 0.94	13.5 $\pm$ 0.35	12.9 $\pm$ 0.35

Prevalence values adapted here with permission from Bray et al., 2006.<sup>4</sup>

The data for the DoD 2005 Health Behaviors Survey Among Active Duty Military Personnel was collected from April through August, 2005.

<sup>a</sup>Data in italics were previously published in Bray et al.<sup>21</sup> and are included here in modified form with permission of *Military Medicine*.

<sup>b</sup>Race/ethnicity was self-selected and included White, Black, or African American, American Indian or Alaska Native, Asian, Native Hawaiian or other Pacific Islander with a separate question about Spanish, Hispanic, or Latino. The results were grouped after the study into White/non-Hispanic, Black or African American/non-Hispanic, Hispanic or Latino, and Other based on respondent distribution.

<sup>c</sup>Body-mass index (BMI), defined as weight in kilograms divided by squared height in meters, rounded to the nearest tenth, was calculated using respondents' self-reported height (in feet and inches) and weight (in pounds) without shoes. BMI <18.5 was considered underweight, BMI 18.5 to 24.9 equaled normal weight, BMI  $\geq$ 25.0 to 29.9 was classed as overweight, and individuals with BMI >30.0 were considered obese. All individuals in the military meet adult body composition standards and were assessed for this study using adult BMI cut points.

SEM, standard error of the mean; DoD, Department of Defense.

military personnel (Army, Navy, Air Force, and Marines). Nearly half (45.4%) of personnel reported using at least one CAM therapy in the last 12 months (36% if prayer is excluded). Prayer for one's own health, massage therapy, relaxation techniques, herbal medicine, high-dose megavitamins, and chiropractic were the CAM therapies most often sought by military personnel. Military women reported a higher prevalence of CAM use than men, but when other demographic and lifestyle factors were taken into consideration with regression modeling, there was no significant gender association with CAM use. Overall, the prevalence of CAM use in this study was consistent with smaller military studies, where 49.6% CAM use was reported by military veterans in the Southwestern United States,<sup>18</sup> and with 37.2% use of 12 CAM types excluding prayer in U.S. Navy and Marine Corps personnel.<sup>19</sup> The overall use rates in this study are higher than that reported in the military Millennium

Cohort Study (39%); however, populations in that study were not completely representative of the military and were selected before the onset of the current wars and used a different set of categories for CAM.<sup>20</sup>

The vast majority of CAM health care occurs outside the military health system (MHS). Massage therapy, used by 14% or an estimated 137,000 personnel, is not a covered benefit. Chiropractic is the only CAM therapy that is currently included in a systematic manner in the MHS; however, access to chiropractic practitioners is limited. In 2005, 54% of active-duty personnel resided in areas served by chiropractic clinics, and the remaining 46% were not served by clinics due to living overseas (14%), in remote areas (5%), or in U.S. installations without chiropractic clinics (28%).<sup>21</sup> Herbal medicines and high-dose megavitamins also are not covered by military health care. However, many military installations include a nutritional supplement store on the

TABLE 2. REPORTED PREVALENCE OF COMPLEMENTARY AND ALTERNATIVE MEDICINE THERAPIES USED BY AT LEAST 5% OF ACTIVE DUTY ARMY, NAVY, AIR FORCE, AND MARINE PERSONNEL IN THE 12 MONTHS PRIOR TO THE SURVEY BY SOCIODEMOGRAPHIC AND LIFESTYLE CHARACTERISTICS

Characteristic	Any CAM therapy type <sup>a</sup>	Prayer for your own health	Massage therapy	Relaxation techniques	Herbal medicine	High-dose megavitamins	Art/music therapy	Exercise/movement therapy	Chiropractic	All other CAM therapy types <sup>a</sup>
Overall prevalence % (±SEM)	46.1 (1.02)	24.4 (0.60)	14.1 (0.59)	10.8 (0.58)	8.9 (0.47)	8.4 (0.40)	7.7 (0.45)	6.8 (0.32)	5.2 (0.46)	15.7 (0.58) 0.4 (0.7)–4.6 (0.25) <sup>a</sup>
Weighted sample estimate	443,264	237,259	136,962	105,602	86,817	81,701	75,251	65,857	50,188	67,585 3,784–44,622 <sup>a</sup>
Gender (p-value)										
Male	43.2 (1.01)	22.6 (0.65)	12.2 (0.57)	9.6 (0.52)	8.2 (0.46)	8.2 (0.40)	7.3 (0.49)	5.2 (0.28)	4.9 (0.44)	14.1 (0.57)
Female	63.3 (1.39)	35.0 (0.93)	24.6 (1.18)	18.0 (1.20)	13.3 (0.99)	9.3 (1.05)	10.2 (0.65)	15.6 (0.88)	6.7 (0.96)	24.7 (1.21)
Age (p-value)										
≤29	43.5 (1.15)	21.5 (0.54)	13.8 (0.68)	10.4 (0.75)	8.3 (0.67)	7.8 (0.48)	9.5 (0.65)	7.2 (0.44)	4.6 (0.42)	16.0 (0.79)
30–39	49.2 (1.26)	27.0 (1.15)	14.8 (1.01)	11.3 (0.79)	9.4 (0.56)	9.1 (0.73)	4.2 (0.40)	6.2 (0.52)	6.0 (0.84)	14.3 (0.86)
40+	53.7 (1.40)	34.4 (1.04)	13.6 (0.95)	12.1 (0.91)	11.1 (0.71)	9.8 (0.83)	6.1 (0.63)	6.0 (0.56)	6.4 (0.75)	16.8 (0.88)
Race/ethnicity <sup>b</sup> (p-value)										
White/non-Hispanic	45.1 (1.32)	21.0 (0.66)	14.4 (0.65)	11.0 (0.70)	9.0 (0.60)	8.9 (0.50)	7.0 (0.58)	6.5 (0.40)	5.8 (0.58)	15.1 (0.71)
Black/non-Hispanic	48.9 (1.29)	36.9 (1.29)	11.4 (0.95)	9.2 (0.82)	7.5 (0.66)	6.3 (0.73)	7.5 (0.65)	6.2 (0.66)	3.3 (0.45)	15.4 (0.97)
Hispanic	43.9 (1.25)	23.5 (1.11)	14.3 (1.20)	10.9 (1.09)	8.0 (0.83)	6.8 (0.86)	9.8 (0.97)	7.3 (0.68)	3.9 (0.55)	15.3 (1.25)
Other <sup>b</sup>	50.5 (1.68)	25.9 (1.37)	16.4 (1.64)	12.5 (1.07)	11.7 (1.49)	10.5 (0.94)	11.0 (1.07)	8.9 (1.07)	5.6 (0.96)	20.5 (1.33)
Education (p-value)										
High school	35.9 (1.43)	17.0 (0.82)	9.5 (0.70)	7.8 (0.66)	6.6 (0.68)	5.0 (0.53)	8.6 (0.78)	5.1 (0.50)	3.2 (0.44)	13.4 (0.77)
Some college–no degree	50.1 (1.18)	27.3 (0.91)	15.4 (0.75)	12.1 (0.73)	9.6 (0.69)	9.6 (0.58)	8.4 (0.55)	7.4 (0.40)	6.1 (0.65)	17.8 (0.78)
4-year college (BA, BS or equivalent)	46.8 (1.90)	24.7 (1.20)	16.5 (1.32)	10.9 (1.38)	10.2 (1.49)	11.3 (1.34)	5.3 (0.97)	7.8 (0.96)	5.7 (0.89)	13.2 (1.09)
Graduate study	58.8 (1.29)	33.6 (1.14)	19.6 (1.22)	14.2 (1.21)	11.7 (0.78)	10.7 (0.90)	5.1 (0.83)	8.2 (0.96)	6.6 (0.91)	16.1 (0.89)
Body–mass index (BMI) <sup>c</sup> (p-value)										
<25.0	46.6 (1.22)	24.1 (0.87)	14.9 (0.83)	11.3 (0.74)	8.2 (0.60)	6.8 (0.49)	8.7 (0.54)	7.7 (0.65)	4.8 (0.49)	15.9 (0.81)
25.0–29.9	46.2 (1.53)	23.9 (0.96)	13.7 (0.78)	10.2 (0.75)	9.5 (0.64)	9.7 (0.60)	7.3 (0.55)	5.9 (0.38)	5.3 (0.61)	14.9 (0.82)
≥30.0	45.2 (1.62)	26.2 (1.25)	13.4 (1.14)	10.6 (1.19)	8.7 (0.90)	8.9 (0.84)	6.1 (0.87)	6.6 (0.79)	5.7 (0.99)	17.5 (1.12)
Physical activity <sup>c</sup> (p-value)										
None	35.2 (2.58)	18.6 (1.71)	10.0 (0.92)	5.8 (0.96)	7.2 (1.00)	4.6 (0.89)	5.5 (0.86)	3.0 (0.60)	5.1 (0.91)	11.4 (1.79)
Less than moderate	46.2 (1.60)	25.7 (1.39)	13.5 (0.74)	9.2 (0.69)	8.1 (0.76)	7.5 (0.85)	6.4 (0.71)	5.2 (0.50)	6.4 (0.68)	14.7 (0.83)
Moderate	48.6 (1.22)	25.5 (0.89)	14.7 (0.61)	12.0 (0.83)	9.7 (0.56)	8.6 (0.67)	8.2 (0.78)	6.9 (0.48)	4.9 (0.60)	16.4 (0.90)
Vigorous	45.9 (1.15)	23.8 (0.82)	14.8 (1.10)	11.6 (0.91)	8.8 (0.77)	9.7 (0.64)	8.3 (0.64)	8.5 (0.72)	4.9 (0.58)	16.1 (0.95)
Cigarette smoking (p-value)										
Never	47.7 (1.06)	26.9 (0.79)	13.8 (0.65)	10.8 (0.64)	8.8 (0.54)	8.0 (0.57)	7.2 (0.50)	7.1 (0.46)	4.8 (0.54)	14.8 (0.64)
Former	48.8 (1.46)	27.1 (1.45)	14.5 (0.83)	11.3 (1.06)	10.6 (0.96)	10.2 (0.85)	5.1 (0.57)	7.0 (0.97)	6.1 (0.85)	17.0 (1.00)
Current	42.5 (1.46)	19.2 (0.91)	14.4 (0.84)	10.7 (0.82)	8.5 (0.83)	8.4 (0.77)	9.8 (0.84)	6.1 (0.67)	5.4 (0.51)	16.4 (1.07)
Alcohol intake in last 30 days (p-value)										
Never	50.2 (1.61)	31.5 (1.42)	11.6 (0.90)	10.3 (0.85)	8.3 (0.69)	7.0 (0.61)	7.0 (0.67)	7.1 (0.67)	4.6 (0.61)	16.5 (1.06)
1–3 times/month	47.2 (1.07)	25.2 (1.01)	13.7 (0.76)	11.8 (0.80)	8.9 (0.55)	8.3 (0.63)	7.8 (0.75)	7.4 (0.52)	5.7 (0.64)	16.4 (0.89)
≥4 times/month	43.5 (1.23)	20.0 (0.68)	16.0 (0.74)	10.5 (0.68)	9.4 (0.73)	9.4 (0.55)	8.3 (0.58)	6.0 (0.51)	5.0 (0.48)	19.7 (0.83)

P-values: (NS) = Not significant; (\*) = < 0.05; (\*\*) = < 0.01; (\*\*\*) = < 0.001.

<sup>a</sup>CAM types with at least 5% prevalence of use. All Other CAM Types is composed of the remaining CAM therapy types with a prevalence of use < 5% combined details of which can be obtained from the first author. Any CAM Therapy Type includes the prevalence of use of any therapy regardless of type. Range of weighted sample size and prevalence are provided for the other therapy types.

<sup>b</sup>See footnotes in Table 1 for definitions.

<sup>c</sup>Moderate Physical Activity: Any activity that burns 3.5 to 7 kcal/min or the equivalent of 3 to 6 metabolic equivalents (METs) and results in achieving 60%–73% percent of peak heart rate: walking briskly, mowing the lawn, dancing, swimming, or bicycling on level terrain. Vigorous Physical Activity: Any activity that burns more than 7 kcal/min or the equivalent of 6 or more metabolic equivalents (METs) and results in achieving 74 to 88 percent of peak heart rate: jogging, mowing the lawn with a non-motorized push mower, chopping wood, participating in high impact aerobic dancing, swimming continuous laps, or bicycling uphill.

SEM, standard error of the mean; CAM, complementary and alternative medicine.

TABLE 3. MULTIVARIATE ANALYSES OF DEMOGRAPHIC AND LIFESTYLE CHARACTERISTICS ASSOCIATED WITH USE OF COMPLEMENTARY AND ALTERNATIVE MEDICINE THERAPIES AMONG ACTIVE DUTY ARMY, NAVY, AIR FORCE, AND MARINE MILITARY PERSONNEL

Characteristic	Any CAM therapy type <sup>a</sup>	Prayer for your own health	Massage therapy	Relaxation techniques	Herbal medicine	High-dose megavitamins	Arthritic therapy	Exercise/movement therapy	Chiropractic	All other CAM therapy types <sup>a</sup>
Gender	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Male	1.06 (0.65,1.72)	0.91 (0.51,1.62)	0.94 (0.47,1.86)	1.02 (0.50,2.05)	1.55 (0.72,3.37)	0.90 (0.48,1.70)	1.07 (0.56,2.04)	1.29 (0.63,2.67)	1.07 (0.56,2.06)	0.85 (0.62,1.18)
Female	1.20 (0.77,1.87)	1.42 (0.86,2.32)	1.84 (0.83,4.08)	1.43 (0.67,3.04)	2.50 (1.12,5.60)*	2.50 (1.06,5.86)*	1.82 (0.84,3.95)	2.17 (0.89,5.29)	2.26 (1.08,4.74)*	0.76 (0.56,1.03)
Age	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
<29	1.27 (0.78,2.05)	2.25 (1.18,4.31)*	2.09 (0.89,4.89)	2.80 (1.30,6.03)**	3.10 (1.30,7.37)**	3.53 (1.33,9.37)**	3.99 (1.67,9.52)**	3.47 (1.43,8.45)**	3.42 (1.36,8.58)**	0.68 (0.43,1.06)
30-39	0.91 (0.61,1.37)	0.68 (0.39,1.19)	0.46 (0.23,0.94)*	0.57 (0.32,1.01)*	0.43 (0.24,0.78)**	0.38 (0.18,0.82)**	0.49 (0.26,0.92)*	0.38 (0.20,0.72)**	0.35 (0.19,0.66)**	0.56 (0.40,0.79)**
Black/non-Hispanic	1.08 (0.60,1.97)	1.04 (0.48,2.27)	1.19 (0.45,3.18)	1.17 (0.46,2.99)	0.98 (0.45,2.16)	1.27 (0.50,3.26)	0.87 (0.42,1.83)	1.72 (0.65,4.57)	0.77 (0.34,1.72)	0.83 (0.59,1.15)
Hispanic	1.17 (0.64,2.11)	0.67 (0.40,1.14)	0.84 (0.34,2.05)	0.90 (0.35,2.35)	0.70 (0.28,1.74)	0.96 (0.34,2.74)	0.94 (0.37,2.38)	0.83 (0.33,2.11)	0.94 (0.36,2.48)	0.98 (0.57,1.67)
Other	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Race/ethnicity <sup>a</sup>										
White/non-Hispanic	0.91 (0.61,1.37)	0.68 (0.39,1.19)	0.46 (0.23,0.94)*	0.57 (0.32,1.01)*	0.43 (0.24,0.78)**	0.38 (0.18,0.82)**	0.49 (0.26,0.92)*	0.38 (0.20,0.72)**	0.35 (0.19,0.66)**	0.56 (0.40,0.79)**
Black/non-Hispanic	1.08 (0.60,1.97)	1.04 (0.48,2.27)	1.19 (0.45,3.18)	1.17 (0.46,2.99)	0.98 (0.45,2.16)	1.27 (0.50,3.26)	0.87 (0.42,1.83)	1.72 (0.65,4.57)	0.77 (0.34,1.72)	0.83 (0.59,1.15)
Hispanic	1.17 (0.64,2.11)	0.67 (0.40,1.14)	0.84 (0.34,2.05)	0.90 (0.35,2.35)	0.70 (0.28,1.74)	0.96 (0.34,2.74)	0.94 (0.37,2.38)	0.83 (0.33,2.11)	0.94 (0.36,2.48)	0.98 (0.57,1.67)
Other	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Education	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
High school	1.43 (0.94,2.17)	1.19 (0.70,2.02)	1.16 (0.51,2.63)	1.18 (0.55,2.52)	0.99 (0.45,2.19)	1.00 (0.47,2.13)	1.25 (0.58,2.69)	1.24 (0.60,2.59)	1.00 (0.51,1.98)	0.93 (0.65,1.32)
Some college--no degree	2.59 (1.27,5.29)**	2.29 (0.84,6.29)	4.45 (1.65,12.00)**	5.14 (1.78,14.81)**	5.40 (1.61,18.09)**	2.42 (0.75,7.73)	3.46 (0.82,14.62)	6.29 (2.04,19.39)**	3.36 (1.46,7.72)**	1.81 (0.95,3.46)
4-year college (BA, BS or equivalent)	1.83 (0.93,3.60)	0.96 (0.41,2.24)	1.38 (0.31,6.07)	1.40 (0.38,5.17)	1.05 (0.27,4.11)	0.88 (0.21,3.74)	1.42 (0.36,5.62)	1.17 (0.30,4.59)	0.79 (0.21,2.96)	1.19 (0.65,2.20)
Graduate study	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Body-Mass Index (BMI) <sup>a</sup>										
<25.0	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
25.0-29.9	0.95 (0.63,1.43)	1.07 (0.64,1.80)	0.95 (0.50,1.81)	1.40 (0.70,2.80)	0.98 (0.57,1.67)	1.01 (0.51,2.01)	1.04 (0.55,1.96)	1.00 (0.54,1.88)	1.11 (0.60,2.06)	1.07 (0.77,1.49)
>30.0	1.06 (0.64,1.76)	0.84 (0.44,1.61)	0.64 (0.30,1.36)	1.00 (0.44,2.30)	1.19 (0.51,2.76)	1.01 (0.48,2.14)	1.03 (0.47,2.27)	1.06 (0.49,2.30)	0.93 (0.46,1.90)	1.17 (0.73,1.89)
Physical activity <sup>a</sup>										
None	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Less than moderate	0.60 (0.31,1.17)	0.31 (0.15,0.63) ***	0.29 (0.11,0.78)*	0.29 (0.10,0.85)*	0.35 (0.13,0.90)*	0.26 (0.09,0.71)**	0.16 (0.07,0.39)**	0.44 (0.16,1.15)	0.44 (0.15,1.26)	0.87 (0.47,1.60)
Moderate	0.65 (0.41,1.05)	0.39 (0.21,0.73)**	0.38 (0.16,0.92)*	0.40 (0.16,1.03)	0.55 (0.27,1.15)	0.27 (0.10,0.75)**	0.24 (0.09,0.65)	0.44 (0.19,1.01)*	0.63 (0.27,1.48)	0.76 (0.46,1.26)
Vigorous	0.72 (0.53,0.97)*	0.46 (0.28,0.77)**	0.36 (0.15,0.84)*	0.36 (0.15,0.88)*	0.49 (0.22,1.12)	0.30 (0.12,0.77)**	0.30 (0.14,0.63)**	0.63 (0.31,1.26)	0.59 (0.25,1.41)	0.92 (0.66,1.28)
Cigarette smoking										
Never	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Former	1.12 (0.71,1.77)	1.35 (0.65,2.78)	0.88 (0.38,2.01)	0.59 (0.25,1.39)	0.86 (0.39,1.92)	0.67 (0.35,1.26)	0.88 (0.40,1.95)	0.67 (0.30,1.47)	1.11 (0.52,2.36)	0.96 (0.70,1.33)
Current	1.47 (0.91,2.38)	1.31 (0.73,2.37)	1.07 (0.46,2.47)	1.15 (0.53,2.52)	1.08 (0.44,2.68)	1.19 (0.50,2.81)	1.46 (0.77,2.75)	1.07 (0.43,2.63)	1.18 (0.50,2.75)	1.26 (0.89,1.78)
Alcohol intake in last 30 days										
Never	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Former	1.12 (0.71,1.77)	1.35 (0.65,2.78)	0.88 (0.38,2.01)	0.59 (0.25,1.39)	0.86 (0.39,1.92)	0.67 (0.35,1.26)	0.88 (0.40,1.95)	0.67 (0.30,1.47)	1.11 (0.52,2.36)	0.96 (0.70,1.33)
Current	1.47 (0.91,2.38)	1.31 (0.73,2.37)	1.07 (0.46,2.47)	1.15 (0.53,2.52)	1.08 (0.44,2.68)	1.19 (0.50,2.81)	1.46 (0.77,2.75)	1.07 (0.43,2.63)	1.18 (0.50,2.75)	1.26 (0.89,1.78)
Alcohol intake in last 30 days										
Never	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
1-3 times/month	0.99 (0.68,1.43)	0.57 (0.36,0.91)*	0.54 (0.23,1.27)	0.43 (0.20,0.92)*	0.72 (0.34,1.53)	0.79 (0.30,2.06)	0.34 (0.14,0.80)*	0.88 (0.36,2.17)	0.80 (0.40,1.62)	0.82 (0.57,1.20)
>4 times/month	1.01 (0.68,1.50)	0.66 (0.42,1.05)	0.73 (0.30,1.77)	0.62 (0.30,1.27)	0.99 (0.46,2.16)	1.00 (0.41,2.44)	0.44 (0.21,0.90)*	1.07 (0.46,2.49)	0.76 (0.40,1.46)	1.01 (0.71,1.43)

P-values: (\*) = < 0.05; (\*\*) = < 0.01; (\*\*\*) = < 0.001.

All results are reported as Odds Ratio (95% Confidence Interval), except for the Weighted Sample Size. Odds ratio of 1.00 represents the reference.

<sup>a</sup>See footnotes in Tables 1 and 2 for detailed definitions.

TABLE 4. COMPARISON OF PREVALENCE OF U.S. ACTIVE DUTY ARMY, NAVY, AIR FORCE, AND MARINE MILITARY PERSONNEL AND CIVILIAN USE OF COMPLEMENTARY AND ALTERNATIVE MEDICINE THERAPIES

CAM therapy type	2005 DoD survey of health-related behaviors among military personnel % (standard error) <sup>a</sup>	National Health Interview Survey 2002 % (standard error) <sup>b</sup>	National Health Interview Survey 2007 % (standard error) <sup>c</sup>
Any CAM <sup>d</sup>	55.4 (0.80)	62.1 (0.40) <sup>d***</sup>	DNC <sup>e</sup>
Any CAM without prayer for your own health <sup>e,f</sup>	44.5 (0.98)	36.0 (0.36) <sup>***</sup>	38.3 (0.50) <sup>***</sup>
Acupuncture	1.5 (0.22)	1.1 (0.07)	1.4 (0.10)
Biofeedback	0.6 (0.10)	0.1 (0.02) <sup>***</sup>	0.2 (0.04) <sup>**</sup>
Chiropractic <sup>g</sup>	6.2 (0.62)	7.5 (0.19)	8.6 (0.27) <sup>***</sup>
Diet therapy/lifestyle diet <sup>h</sup>	2.4 (0.26)	3.5 (0.12) <sup>***</sup>	3.6 (0.15) <sup>**</sup>
Energy healing	4.6 (0.36)	0.5 (0.05) <sup>***</sup>	0.5 (0.06)
Folk remedies	0.8 (0.10)	0.1 (0.02) <sup>***</sup>	DNC <sup>e</sup>
Guided imagery therapy	14.8 (0.63)	2.1 (0.10) <sup>***</sup>	2.2 (0.16) <sup>***</sup>
Massage therapy	14.1 (0.6)	5.0 (0.16) <sup>***</sup>	8.3 (0.23) <sup>***</sup>
Herbal medicine	12.1 (0.71)	18.9 (0.28) <sup>***</sup>	17.7 (0.37) <sup>***</sup>
High-dose megavitamins <sup>i</sup>	9.7 (0.44)	2.8 (0.11) <sup>***</sup>	DNC <sup>e</sup>
Homeopathy	1.8 (0.28)	1.7 (0.09)	1.8 (0.11)
Hypnosis	0.8 (0.10)	0.2 (0.03) <sup>***</sup>	0.2 (0.04) <sup>***</sup>
Prayer for your own health	31.8 (0.57)	43.0 (0.40) <sup>***</sup>	DNC <sup>e</sup>
Relaxation techniques	7.6 (0.39)	3.0 (0.12) <sup>***</sup>	2.9 (0.15) <sup>***</sup>
Spiritual healing by others	9.6 (0.61)	2.0 (0.09) <sup>***</sup>	DNC <sup>e</sup>

P-values: \* < 0.05; \*\* < 0.01; \*\*\* < 0.001.

Statistically significant differences between the Department of Defense (DoD) Survey results and the 2002 NHIS and 2007 NHIS results by two-tailed *t*-test are indicated by  $p < 0.01$  or  $p < 0.001$ .

<sup>a</sup>Adjusted for the 2000 Census by gender, age, and race/ethnicity.

<sup>b</sup>Barnes P, Powell-Griner E, McFann K, Nahin RL. *Complementary and alternative medicine use among adults: United States, 2002*. Hyattsville, MD: Advance data from vital and health statistics; 2004.<sup>1</sup>

<sup>c</sup>Barnes PM, Bloom B, Nahin RL. *Complementary and alternative medicine use among adults and children: United States, 2007*. Hyattsville, MD: National Center for Health Statistics; 2008.<sup>2</sup>

<sup>d</sup>Any CAM type in the 2005 DoD survey of Health Related Behaviors included: acupuncture, homeopathy, herbal medicine, chiropractic, massage, therapy, exercise/movement therapy, high dose megavitamins, spiritual healing by others, lifestyle diet, relaxation techniques, guided imagery, energy healing, folk remedies, biofeedback, hypnosis, art/music therapy, self-help group, hyperbaric oxygen therapy, prayer for own health, other therapy types. Respondents may have reported using more than one type of therapy. Any CAM Type in the 2004 NHIS included acupuncture; ayurveda; homeopathic treatment; naturopathy; chelation therapy; folk medicine; nonvitamin, nonmineral, natural products; diet-based therapies; megavitamin therapy; chiropractic care; massage; biofeedback; meditation; guided imagery; progressive relaxation; deep breathing exercises; hypnosis; yoga; tai chi; qi gong; prayer for health reasons; and energy healing therapy/Reiki. Respondents may have reported using more than one type of therapy. Any or all CAM Type in the 2007 NHIS included: acupuncture; ayurveda; homeopathic treatment; naturopathy; chelation therapy; nonvitamin, nonmineral, natural products; diet-based therapies; chiropractic or osteopathic manipulation; massage; movement therapies; biofeedback; meditation; guided imagery; progressive relaxation; deep breathing exercises; hypnosis; yoga; *t'ai chi*; *qigong*; and energy healing therapy.

<sup>e</sup>DNC, Data Not Comparable. The definition of CAM used in the report of the 2007 NHIS followed the taxonomy of unconventional health care and did not include folk medicine practices, praying for one's own health or having others pray for one's health.<sup>9</sup> Therefore, the combined Any CAM for the 2007 NHIS is not comparable to the 2005 DoD Survey or the 2002 NHIS. Statistical comparisons were performed between the reported use of CAM in the 2005 DoD Survey of Health Related Behaviors adjusted to the 2000 Census with the 2002 NHIS and 2007 NHIS where the CAM definitions were comparable.

<sup>f</sup>The 2004 NHIS Included 4 additional categories of prayer that were not in the military survey: prayer for health reasons, others ever prayed for your health, participate in prayer group, healing ritual for own health.

<sup>g</sup>While questions were asked about chiropractic therapy in both 2002 and 2007, the data are not comparable because respondents were asked about chiropractic care in 2002 and chiropractic or osteopathic manipulation in 2007<sup>12</sup> (Barnes PM, Bloom B, Nahin RL. *Complementary and alternative medicine use among adults and children: United States, 2007*. Hyattsville, MD: National Center for Health Statistics; 2008. p.10).

<sup>h</sup>The 2004 NHIS also included six subcategories that were not in the military survey: vegetarian diet, macrobiotic diet, Atkins diet, Pritikin diet, Ornish diet, zone diet.

<sup>i</sup>While questions were asked about nonvitamin, nonmineral, natural products in both 2002 and 2007, the data are not comparable due primarily to question order and specific nonvitamin, nonmineral, natural products covered<sup>12</sup> (Barnes PM, Bloom B, Nahin RL. *Complementary and alternative medicine use among adults and children: United States, 2007*. Hyattsville, MD: National Center for Health Statistics; 2008. p.10).

premises where these products are readily available. Based on the 2007 NHIS of CAM use among U.S. civilians<sup>2</sup>, 83 million people spent \$33.9 billion on CAM therapies that were not reimbursed, with \$11.9 billion in CAM practitioner costs and \$22.0 billion in self-care CAM costs including CAM products (such as nonvitamin, nonmineral, natural products), classes, and materials in the year prior to the survey.<sup>22</sup>

The associations found of CAM use with demographic and lifestyle factors were similar to those reported for the

U.S. civilian population.<sup>1,12,13,23</sup> For example, as in the civilian population, educational attainment was a significant predictor of CAM use.<sup>12,13,23</sup> Older age was also significantly associated with seven of the eight most commonly used CAM therapies among military personnel. Association of CAM use with higher educational attainment and increased age may reflect a more mature desire to resolve persistent health problems, and the income level to do so.

Surveys include different CAM types, and this approach can lead to varying estimates of percent use.<sup>1,9</sup> However, the large size and representative nature of this sample, the inclusion of 19 CAM types, and adjustment to the 2000 U.S. census enable making reasonable comparisons between this study's data and data from national civilian studies. Comparing types of CAM use in this military study with three national civilian surveys,<sup>1-3</sup> prayer for one's own health was the most frequently cited CAM type in all surveys (24.4% in this study; and 25.2%, 35.1%, 43.0%, respectively, in the civilian surveys).

CAM use of specific therapies by military and civilians (NHIS 2002; NHIS 2007) differed significantly. For the 14 therapies reported in this study, which were comparable to therapies in at least one of the NHIS surveys, when adjusted to the 2000 census and excluding prayer, military personnel used nine CAM types significantly more than civilians. Civilians used only chiropractic, diet therapy/lifestyle, diet, and herbal medicine significantly more than the military. Only 2% of civilians used guided imagery therapy, 3% used relaxation techniques, and 5%–8% reported using massage therapy. In contrast, these CAM therapies are estimated to be three of the most commonly used therapies by military personnel, excluding prayer and exercise/movement therapy (no comparable therapy in the NHIS study). Thus, three CAM therapies associated with stress management were used by military populations at an estimated 2.5–7 times the rate of civilians. This high degree of use of an uncompensated health care benefit for stress indicates that further research is needed to explore both the factors associated with that stress as well as the effectiveness of CAM in dealing with it. The use of CAM as an alternative therapy for stress as opposed to costly and sometimes addictive drug therapies may have positive long-term consequences for the health and readiness of active duty.<sup>24</sup>

Military leadership has begun to look at the role of CAM as a means of providing extended support for stress management and pain to larger numbers in the military.<sup>25</sup> In addition, the military has begun to fund research and services that include CAM for service members and their families. These efforts are relatively new, however, and the availability of data and use of CAM in the military is still small. For example, covered chiropractic care is available at 42 U.S. military treatment facilities (MTFs),<sup>26</sup> but overall use of chiropractic in this study was lower in this population compared to civilian use.

Unmonitored use of CAM in the military may have negative consequences on health and military performance. Results of a number of large randomized, placebo-controlled trials of herbal treatments<sup>27-29</sup> and acupuncture<sup>30,31</sup> have been negative, making the substitution of these CAM treatments for proven therapies risky. In addition, some CAM therapies, particularly herbal supplements, have been associated with potential harm through toxicity and herb/pharmaceutical interactions.<sup>32,33</sup> Herbal medicines and nutrients in doses well above the Dietary Reference Intakes (DRIs)<sup>34</sup> are two of the CAM therapies most commonly used by military personnel.<sup>35</sup> Recent studies further underscore questions about the long-term health benefits of use of nutrient supplements at doses above the DRIs.<sup>36,37</sup>

Of the 10 most commonly used CAM therapies, only two involve regular practitioner contact (massage therapy and chiropractic). Since few civilians tell their health care

providers about their CAM use<sup>3,23</sup> one would expect few military personnel to report CAM use to their physicians. With at least 20% of active duty military living outside the United States or in remote areas,<sup>21</sup> the risk of using unmonitored, self-administered therapies is increased.

A limitation of this study was that it was cross-sectional in nature and therefore data must be interpreted as associative. The response rate was lower than expected (51.8%), for the total of on-site and mailed questionnaires. This low rate was a result of the timing of the survey administration when the military as a whole was experiencing a high level of deployment, which has been reflected in the other versions of this survey over the years.<sup>14</sup> The timing of the installation group surveys was planned well in advance, and therefore many selected personnel were deployed when the surveys were administered, and mailing of questionnaires to persons not available at the installations on the scheduled dates yielded low response rates due to travel and general inaccessibility of the personnel. This limitation is somewhat mitigated by the fact that the survey was carefully designed to be representative of the active-duty military and included a very large sample (16,146), which is comparable with national civilian surveys.<sup>1,22</sup> Adjustment was also made for nonresponse in the analyses.

Military service, with repeated deployments and high demands on performance, physical and cognitive function, and psychologic resilience, may multiply the risks of CAM use even for those practices that are thought to be safe. Military personnel receive their health care at MTFs, but also through nonmilitary civilian care providers. With 45% of the 1.1 million study-eligible active duty personnel using CAM, and the steady increase in CAM use globally, it is important to understand why military personnel are using CAM, the role these therapies play in their health care, and for military health care providers to recognize and monitor CAM use with their patients. The safe and effective delivery of CAM therapies to military populations will require a fully coordinated effort by the MHS to identify standards of individual practice and organizational performance for monitoring and evaluation.

### Acknowledgments

This work was supported by the Department of the Army (Award No. W81XWH-06-2-0009) to the Samueli Institute; Samueli Institute's contract (P4805.039) to RTI International; RTI subcontract (3-312-0209842) to Abt Associates Inc.; and Department of Defense under Cooperative Agreement No. DAMD17-00-2-0057 between TRICARE Management Activity and RTI International.

### Disclosure Statement

No competing financial interests exist.

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