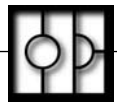

Research Article

Complementary and Alternative Medicine: Attitudes and Use among Health Educators in the United States

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ABSTRACT

Background: *Interest in and use of complementary and alternative medicine (CAM) in the United States is increasing. However, CAM remains an area of nascency for researchers and western practitioners.* ***Purpose:*** *The purpose of this study was to examine U.S. health educators' attitudes toward CAM and their use of common CAM therapies.* ***Methods:*** *A cross-sectional online survey was conducted among members of a professional health educator listserv.* ***Results:*** *Health educators generally have positive attitudes toward CAM and about 90% have used at least one CAM therapy in the last 12 months. Differences in CAM attitudes and use were significant, with females reporting more positive attitudes toward and use of CAM.* ***Discussion:*** *Health educators' overall positive attitudes toward CAM are consistent with the limited extant literature. However, important differences were found by various demographic characteristics, not previously identified.* ***Translation to Health Education Practice:*** *The results of this study support the small, but growing, body of literature regarding the need for CAM education for future health education professionals. A discussion of various approaches to the integration of CAM education into professional preparation programs is included.*

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BACKGROUND

As the costs related to conventional health care continue to increase, more Americans are turning to Complementary and Alternative Medicine for treatment.[1] Recent studies have reported that the proportion of U.S. adult patients who used at least one of the 16 of the most common CAM therapies in a given year increased from 33.8% in 1990 to 42.1% in 1997[2] and to 62% in 2002.[3] The U.S. Centers for Disease Control and Prevention (CDC) reported in December 2008 that "…almost 4 out of 10 adults had used CAM therapy in the past 12 months …"[1]

The U.S. National Center for Complementary and Alternative Medicine (NCCAM) 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."[4] In other words, CAM therapies are not traditionally offered by conventionally trained medical doctors (MDs), doctors of osteopathy (ODs), or by allied health professionals, such as physician assistants, physical therapists, or nurses. Therapies most commonly used include natural products (nonvitamin, nonmineral), deep breathing exercises, meditation, chiropractic and massage.[1] Women are more likely than men to utilize CAM therapies,[1,2,3] as are older adults[1,3,5] and individuals from ethnic minority groups.[1,6,7]

Recent research has explored the attitudes and use of CAM among various health professionals such as physicians,[8-12] nurses,[8,10,11] pharmacists[8,13,14] and physician assistants.[15] An extensive review of the extant literature identified only one study[16] that examined the attitudes and practices of alternative medicine among university

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health educators, of which over four-fifths had a doctoral degree. Johnson and colleagues[17] established a baseline measure of CAM knowledge among health educators in various settings in the United States. As the need to provide CAM education for health educators in professional health education preparation programs in the United States becomes increasingly clear,[17-19] no study has examined the attitudes and use of CAM among health educators.

PURPOSE

The purpose of this study was to extend the previous findings of Johnson et al.[17] regarding knowledge of CAM among health educators by examining the attitudes of health educators' toward CAM and their use of common CAM therapies in the United States. Specifically, this study attempted to address the following research questions: (1) What are the attitudes of health educators toward CAM?; (2) What is the extent to which health educators used any CAM therapies in the past 12 months?; and (3) Do demographic factors (i.e., sex, age, education level, race/ethnicity and employment setting) affect health educators' attitudes and use of CAM?

METHODS

Design and Sample

A cross-sectional survey design was used in this study. The Institutional Review Board at the university where the authors were employed approved this study. The study sample included all of the U.S. members of a professional health educator listserv based in the United States.[20] This listserv included health educators from business and industry, colleges and universities, community and public health agencies, health care facilities, and public and private schools (grades K-12).

Data Collection

Data were collected through an online survey, SurveyMonkey.com. The survey instrument was developed based on an extensive review of literature.[2-5,8,21-23] It included 21 items assessing health educators' attitudes toward CAM, 31 items assessing the use of various common CAM therapies and various demographic items. Attitudes toward CAM were divided into two categories – global attitudes and attitudes specific to the health education community. A panel of five experts in CAM research and practice examined the content validity of the instrument and provided feedback for instrument revision. The revised instrument was pilot tested among 35 health education professionals and further revised based on the pilot results.

An e-mail with the survey URL, used as a "cover letter," was sent to 1,881 members of the professional health educator listserv[20] on February 4, 2005. This listserv was created and maintained by a renowned professional health educator. Anyone who is interested may send the owner of the listserv an email to join. The e-mail addresses are in the public domain and can be access via the Internet. Excluding the 582 non-deliverable email addresses, non-health educators, or non-US health educators, there were 1,299 valid e-mail addresses which constituted the study sample. There were 253 listserv responses within one week after the initial mailing, 120 responses after the first follow-up email sent two weeks later, 75 after the second follow-up sent three weeks later, and 53 after the third follow-up sent four weeks later. As a result, a total of 501 listserv members responded, yielding a 39% overall response rate. This rate, while somewhat low, is much higher than the reported response rates of between 14.8% and 31.5% in other published on-line survey studies.[12,24,25]

To address any potential issues related non-response bias, a series of chi-square tests were conducted on the responses to the demographic questions of sex, ethnicity, education and employment setting relative to the four waves of responses (initial response, response after the first, second, or third follow-up communication). Individuals responding in later waves were used as a proxy for non-respondents.[26,27] All four chi-square tests generated insignificant results (p-values > 0.1), indicating that non-response bias was not an issue. In addition, because the entire population of the listserv was included in the study, sampling bias was also not considered to have been an issue.[28] Because not all health educators in the United States were listed on the listserv for professional health educators,[20]generalization of the results to the entire health education population in the U.S. needs to be approached with caution.

Demographic characteristics of the respondents are presented in Table 1.

RESULTS

The attitudinal items were tested for reliability using Cronbach's alpha.[29] The 18-item attitudinal scale, developed to measure the overall global attitudes toward CAM among health educators, generated an alpha value of 0.71, after two items were deleted (Table 2, Items 19 and 20). The three-item attitudinal scale (Table 2, Items 16-18), developed to measure participants' specific attitudes toward CAM and health education/educators, generated an alpha value of 0.86, after one item was deleted (Table 1, Item 21). The results of attitudes towards CAM were evaluated, by gender, by education, by ethnicity and by employment setting.

CAM Attitudes

As shown in Table 2, over three-quarters of the participants expressed the view that health educators should be able to discuss with their clients the commonly used CAM methods (84.37%), that CAM should be included in professional health education preparation curriculum (82.23%), and that knowledge of CAM is important to them as professional health educators (75.80%). Using a Likert scale of 1 to 5, with 1 being strongly agree and 5 being strongly disagree, the mean scores for items aimed at identifying negative overall attitudes toward CAM were all above 2.5, indicating that the respondents disagreed with the negative statements (Table 2, Items 5-15). Similarly, of the seven items aimed at identifying positive attitudes towards CAM (Table 2, Items 1-4, 16-18), five had mean scores below 2.5 (Table 2, Items 1, 2, 16-18), indicating that the respondents agreed with the positive statements. However, two of the items aimed at identifying positive attitudes toward CAM

Table 1. Demographic Characteristics of Survey Respondents

	Value	N[1]	Percentage
Gender			
	Female	353	76.08%
	Male	111	23.92%
Education			
	Bachelor's	51	10.99%
	Master's	210	45.26%
	Ph.D.	203	43.75%
Race/Ethnicity			
	Asian/Pacific Islander	15	3.25%
	Black	30	6.49%
	Hispanic	17	3.68%
	Multi Racial	4	.87%
	Native American	6	1.30%
	White	390	84.42%
Employment Setting			
	College/University	254	54.74%
	Community	40	8.62%
	Government Health Agency or Organization[2]	94	20.26%
	School	23	4.96%
	Worksite/Business	26	5.60%
	Self-Employed	11	2.37%
	Health Care Facility[3]	7	1.51%
	Student	4	.86%
	Retired	3	.65%
	Military	2	.43%

[1]The total number of respondents was 501. However, because respondents could skip questions, not all questions received 501 responses.
[2]Includes federal, state and local governments.
[3]Includes hospitals, nursing homes and clinics.

(Table 2, Items 3 and 4) were slightly above 2.5, indicating less agreement by the respondents with these positive statements.

When compared with their counterparts, female participants had a significantly higher mean score on all of the items aimed at identifying negative attitude toward CAM (Table 3, Items 5-15) and a significantly lower mean score on one item aimed at identifying positive attitudes toward CAM (Table 3, Items 1-4). Females also generated significantly lower mean scores for two of the three items indicating positive attitudes for CAM and knowledge among Health Educators (Table 3, Items 16-18).

Participants' attitudes toward CAM changed very little with age. Only three statements were found to have responses correlated with age (i.e., "*Conventional therapies improve my health better than CAM*"," *The results of CAM are in most cases due to a placebo effect*", and "*CAM is a threat to public health*"), and these correlations were found to be negative, indicating that the older participants have significantly more negative attitudes toward those three statements than their younger counterparts. Similarly, the education levels did not have a significant influence on the attitudes toward CAM except for one item. Participants with a master's degree disagreed with the statement, "*The results of CAM are in most cases are due to a placebo effect*," significantly more strongly than those with a Ph.D. degree (mean scores of 3.60 and 3.40, respectively).

Given the unbalanced numbers of responding health educators by ethnicity, ANOVA tests provided little indication of meaningful differences among the groups. However, two statements were found to generate statistically valid differences. Participants of Asian origin expressed a more positive attitude than both black and white participants toward the statement, "*CAM therapies have fewer side effects than conventional therapies*" (mean scores of 1.87 vs. 2.77 and 2.73, respectively). Hispanic participants expressed a significantly more positive attitude than both black and white participants toward the statement, "*CAM therapies not tested in a scientific manner should be banned*" (mean scores of 2.65 vs. 3.53, and 3.37, respectively).

No statistically significant differences of attitudes toward CAM were detected among participants from different employment settings. However, participants from worksite or business settings (n=27) appeared to have more positive attitudes toward CAM (more positive attitude scores in 13 of the 18 statements), followed by those working in college/university settings (n=254) (more positive attitude scores in three of the 18 statements) and in community settings (n=40) (more positive attitude scores in two of the 18 statements). Such directional results could be caused by small sample sizes for some respondent groups by employment setting.

CAM Use

This study found that about 90% of the participating health educators in the United States reported having used at least one form of CAM therapies in the 12 months preceding the survey. Among the 31 common CAM therapies addressed by the survey, daily vitamins excluding megavitamins or vitamin prescribed by a doctor was used most often

Table 2. Results of Basic CAM Attitudes

Measurement Item 1=Strongly Agree 5=Strongly Disagree	*N*	Mean Score	Std Dev.	% Agree or Strongly Agree
Attitudes Toward CAM				
1. CAM physicians have more time for their patients than conventional physicians.	471	2.29	0.82	60.30%
2. CAM therapies can help patients cope better with their disease.	471	2.34	0.85	57.11%
3. CAM therapies have fewer side effects than conventional therapies.	471	2.73	0.93	42.04%
4. CAM provides more cost-effective treatment than conventional medicine.	471	2.79	0.98	38.43%
5. Conventional medicine should be the first line of treatment before CAM.	476	2.96	1.04	28.78%
6. Conventional therapies improve my health better than CAM.	476	3.05	0.85	20.80%
7. CAM is more art than science.	467	3.21	0.94	24.63%
8. CAM is fairly unscientific and imprecise.	468	3.34	1.00	23.72%
9. CAM therapies not tested in a scientific manner should be banned.	468	3.35	1.01	18.80%
10. CAM is mostly questionable.	468	3.43	0.95	17.52%
11. The results of CAM are in most cases due to a placebo effect.	471	3.49	0.83	8.49%
12. There is no evidence that CAM is safe.	468	3.69	0.82	8.33%
13. CAM is only effective in treating minor complains and ailments.	468	3.72	0.81	7.26%
14. Patients on CAM rarely get better.	467	3.90	0.69	1.71%
15. CAM is a threat to public health.	467	4.15	0.78	3.21%
19. *Health care should integrate the best of CAM therapies and conventional methods.	476	1.77	0.81	83.82%
20. *Conventional medicine could benefit from ideas and methods of CAM.	476	1.60	0.70	91.60%
Attitudes Toward CAM and Health Educators				
16. Health educators should be able to discuss with their clients about commonly used CAM methods.	467	1.91	0.80	84.37%
17. CAM should be included in professional health education preparation curriculum.	467	1.95	0.86	82.23%
18. Knowledge of CAM is important to me as a professional health educator.	467	2.00	0.94	75.80%
21. *I believe that most health educators are knowledgeable of CAM.	476	3.97	0.83	7.98%

*Identifies that an item was deleted due to low correlation with the other items in the construct.

Table 3. Comparison of Responses by Gender

Measurement Item 1=Strongly Agree 5=Strongly Disagree	Female Mean *N* = 353	Male Mean *N* = 111	t-value
Attitudes Toward CAM			
1. CAM physicians have more time for their patients than conventional physicians.	2.25	2.40	-1.79
2. CAM therapies can help patients cope better with their disease.	2.27	2.50	-2.53*
3. CAM therapies have fewer side effects than conventional therapies.	2.67	2.86	-1.88
4. CAM provides more cost-effective treatment than conventional medicine.	2.75	2.88	-1.27
5. Conventional medicine should be the first line of treatment before CAM.	3.04	2.72	2.81**
6. Conventional therapies improve my health better than CAM.	3.17	2.63	6.02**
7. CAM is more art than science.	3.32	2.88	4.33**
8. CAM is fairly unscientific and imprecise.	3.44	3.03	3.85**
9. CAM therapies not tested in a scientific manner should be banned.	3.42	3.15	2.47*
10.CAM is mostly questionable.	3.56	3.04	5.18**
11.The results of CAM are in most cases due to a placebo effect.	3.61	3.13	5.52**
12 There is no evidence that CAM is safe.	3.76	3.50	2.94**
13.CAM is only effective in treating minor complains and ailments.	3.78	3.57	2.37*
14. Patients on CAM rarely get better.	3.95	3.73	3.00**
15. CAM is a threat to public health.	4.23	3.93	3.56**
Attitudes Toward CAM and Health Educators			
16. Health educators should be able to discuss with their clients about commonly used CAM methods.	1.87	2.02	-1.69
17. CAM should be included in professional health education preparation curriculum.	1.87	2.20	-3.58**
18. Knowledge of CAM is important to me as a professional health educator.	1.93	2.20	2.58*

*$P < 0.05$ **$P < 0.01$

(55.58%), followed by massage (54.72%), exercise that is not for the purpose of managing weight (45.28%), relaxation (such as using meditation) (37.77%), herbs/medicinal teas (30.90%), aromatherapy (27.47%), yoga (27.25%), prayer/spiritual healing by others (24.46%), guided imagery (22.96%), chiropractic (19.31%), mineral supplements (19.10%), and acupressure (10.52%).

Where significant differences between genders were detected according to relative risk statistics, these differences always indicated greater CAM usage among female participants. For example, female respondents were 1.92 times more likely to have reported using aromatherapy, 1.84 times more likely to have reported using guided imagery, 1.74 times more likely to have reported using herbs and medicinal teas, 1.68 times more likely to have reported using massage, 1.83 times more likely to have reported using prayer or spiritual healing by others, 2.91 times more likely to have reported using a special diet not for the purposes of managing weight, and 1.90 times more likely to have reported using yoga than their male counterparts. The odds ratios and 95% confidence intervals for these findings can be found in Table 4.

T-tests revealed that the older participants were significantly more likely than the younger participants to have reported having used acupressure ($t = -2.45$, $P < 0.05$), daily vitamins excluding megavitamins or vitamin prescribed by a doctor ($t = -2.71$, $P < 0.01$), exercise that is not for the purpose of managing weight ($t = -2.66$, $P < 0.01$), megavitamins excluding a daily vitamin or vitamin prescribed by a doctor ($t = -2.18$,

P < 0.01), mineral supplements (*t =-3.26, P < 0.01*), and Tai Chi (*t=-3.42, P < 0.01*) in the 12 months preceding the survey (Details available upon request). In contrast, younger participants were significantly more likely than the older participants to report having practiced yoga in the 12 months preceding the survey (*t = 2.88, P < 0.01*).

The reported CAM use did not differ significantly among participating health educators with different education levels except for yoga. Significantly more participating health educators with a bachelor's degree than those with a graduate degree report having practiced yoga (33.33% vs. 32.86% for those with a master's degree and 20.20% for those with a doctoral degree, χ^2=9.35, *P* < .01) (Details available upon request). Although a statistically significant difference in the reported Reiki use was detected among participating health educators with different education levels (*P* < .05), the percentages of usage were much lower (2.46% for those with doctoral degrees versus 6.19% for those with master's degrees and 0% for those with bachelor's degrees).

Statistically significant differences in the use of herbs/medicinal teas, prayer/spiritual healing by others, and folk remedies, reflexology and traditional Chinese medicine were observed among participants with different ethnic backgrounds (Table 5). Similar differences were noted for the use of Ayurveda, chiropractic, hypnosis, magnets, mineral supplements, special diet and Tai Chi among participants from different employment settings (Table 6). However, due to the very small number of respondents in some groups, such results should be viewed as directional rather than inferential.

DISCUSSION

The results from this study revealed that health educators who participated in this study generally had positive attitudes toward CAM. This is consistent with the reported positive attitudes among other health professionals.[8-13,22,30] Similar to results found in studies among physicians,[12,31] the majority of the health educators participated in the present study felt strongly about the need for them to be able to discuss the commonly used CAM with their clients. They believed that CAM knowledge is important to them and expressed their strong desire to have CAM education included in the professional health education preparation curriculum. Those findings support the need to provide CAM education for health educators as suggested by previous reports.[17,19] The authors of the present study found that the overall favorable attitudes toward CAM suggest that CAM education programs could be easily accepted and endorsed by health educators, making the implementation of a CAM education program a less challenging task.

Although the survey item, "*I believe that most health educators are knowledgeable of CAM,*" was removed due to a low correlation with other items in the attitudinal construct, its high mean score of 3.97 combined with the very small percentage of participants (7.98%) who agreed with this statement indicate that the majority of the participants did not believe that most health educators are knowledgeable of CAM. This was potentially contradictory to a study conducted by Johnson, Priestley and Johnson[17] who reported that the majority of the health educators in their study reported some degree of CAM knowledge about the basic CAM concepts and the commonly used CAM therapies except for a few infrequently used therapies (i.e., Ayurveda, Naturopathy and Qi Gong). This suggests that the participating health educators were not confident about their own level of CAM knowledge (or the CAM knowledge of their peers), further indicating the need to have CAM education for professional health educators.

When compared to their male counterparts, female participants had significantly more positive attitudes toward CAM and were more likely to use some form of CAM therapies in the past 12 months prior to the survey. These findings are consistent with the published studies that examined women's attitudes toward CAM[15,30] and the use of CAM.[1-3,5,9] In the present study, significantly more female participants reported having used aromatherapy, chiropractic, guided imagery, herbal/medicinal teas, massage, prayer/spiritual healing by others and yoga.

Although age only had a limited impact on participants' attitudes toward CAM, age had a more significant impact on the reported usage of CAM among the health educators surveyed. Specifically, the younger educators were significantly more likely than the older ones to agree with the statements, "*Conventional therapies improve my health better than CAM", "The results of CAM are in most cases due to a placebo effect," and "CAM is a threat to public health.*" This result suggests that the younger participants had more negative attitudes toward those statements, consistent with the result reported by Sikand and Larken.[30] In addition, the older health educators who participated in this survey were more likely to report the use of acupressure, daily vitamins excluding megavitamins or vitamin prescribed by a doctor, exercise not for weight management, megavitamins excluding daily vitamins or vitamins prescribed by a doctor, mineral supplements and Tai Chi. It was interesting to note that the younger participants were significantly more likely to report having practiced yoga in the past 12 months. This result may be a function of experience and longevity – older educators may have had more direct experiences with the limitations of traditional western approaches, making them more receptive and accepting of alternatives.

Participants' education levels did not have any significant impact on the attitudes toward and usage of CAM except for one attitudinal item ("The results of CAM are in most cases are due to a placebo effect") and the use of one CAM therapy (yoga). Interestingly enough, it was noted that the participants with a master's degree were significantly more likely to disagree with this one attitudinal item than those with a doctorate degree while those with a bachelor's degree were more likely to practice yoga than those with a graduate degree. This means that participants with a terminal degree were more likely than those with a master's degree to believe that the results of CAM in most cases are due to a placebo effect, indicating that those with a terminal degree may expect more scientifically proven effects of CAM therapies.

Table 4. Percentage of Respondents Who Have Used the Following in the Last 12 Months

	Overall (n=464)	Female (n=353)	Male (n=111)	Odds Ratio (95% CI)
Daily vitamins excluding megavitamins or vitamin prescribed by a doctor	55.60	58.07	47.75	1.52 (0.99, 2.33)
Massage	54.74	60.62	36.04	2.73 (1.76, 4.25)
Exercise that is not for the purpose of managing weight	45.26	45.89	43.24	1.11 (0.73, 1.71)
Relaxation (such as using meditation)	37.93	39.09	34.23	1.23 (0.79, 1.93)
Herbs/Medicinal Teas	31.03	34.56	19.82	2.14 (1.28, 3.58)
Aromatherapy	27.59	31.16	16.22	2.34 (1.35, 4.07)
Yoga	27.37	30.88	16.22	2.31 (1.33, 4.01)
Prayer/Spiritual Healing by others	24.57	27.20	16.22	1.93 (1.11, 3.37)
Guided Imagery	23.06	25.21	16.22	1.74 (0.99, 3.05)
Chiropractic	19.18	21.53	11.71	2.07 (1.10, 3.89)
Mineral Supplements	19.18	20.96	13.51	1.70 (0.93, 3.10)
Acupressure	10.52	11.61	7.21	1.69 (0.77, 3.73)
Special Diet that is not for the purpose of managing weight	8.84	10.48	3.60	3.13 (1.09, 8.99)
Folk Remedies	7.11	7.65	5.41	1.45 (0.58, 3.61)
Biofeedback	6.90	6.80	7.21	0.94 (0.41, 2.15)
Acupuncture	6.68	7.08	5.41	1.33 (0.53, 3.34)
Megavitamins excluding a daily vitamin or vitamin prescribed by a doctor	6.25	6.23	6.31	0.99 (0.41, 2.38)
Reflexology	5.60	6.52	2.70	2.51 (0.74, 8.52)
Tai Chi	4.96	4.82	5.41	0.89 (0.34, 2.30)
Therapeutic Touch	4.96	5.95	1.80	3.45 (0.79, 14.95)
Homeopathy	4.53	5.38	1.80	3.10 (0.71, 13.53)
Reiki	3.88	5.10	0	NA
Osteopathy	3.02	3.40	1.80	1.92 (3.76, 8.70)
Magnets	2.80	3.12	1.80	1.75 (0.38, 8.03)
Qi Gong	2.80	2.27	4.50	0.49 (0.16, 1.54)
Ayurveda	2.59	2.83	1.80	1.59 (0.34, 7.36)
Hypnosis	1.72	1.70	1.80	0.94 (0.19, 4.74)
Naturopathy	1.51	1.42	1.80	0.78 (0.15, 4.09)
Traditional Chinese Medicine	1.52	1.43	1.81	0.78 (0.16, 4.10)
Energy Emitting Machines	0.43	0.57	0	NA
Chelation	0	0	0	NA

Table 5. Respondents Who Have Used CAM Therapy in the Last 12 Months by Ethnicity

	Asian (*N* = 15)	Black (*N* = 30)	Hispanic (*N* = 17)	White (*N* = 390)
Daily vitamins excluding megavitamins or vitamin prescribed by a doctor	53.33	53.33	35.29	56.15
Massage	60.00	46.67	41.18	16.67
Exercise that is not for the purpose of managing weight	33.33	36.67	29.41	47.44
Relaxation (such as using meditation)	26.67	36.67	29.41	39.49
Herbs/Medicinal Teas	40.00*	50.00*	35.29*	28.72*
Aromatherapy	26.67	33.33	23.53	27.44
Yoga	26.67	16.67	35.29	28.46
Prayer/Spiritual Healing by others	20.00*	63.33*	11.76*	22.31*
Guided Imagery	13.33	20.00	17.65	24.36
Chiropractic	6.67	6.67	29.41	20.00
Mineral Supplements	20.00	20.00	5.88	20.00
Acupressure	6.67	3.33	11.76	11.28
Special Diet that is not for the purpose of managing weight	0	16.67	11.76	8.72
Folk Remedies	13.33*	16.67*	29.41*	5.13*
Biofeedback	6.67	6.67	0	7.44
Acupuncture	0	6.67	5.88	6.92
Megavitamins excluding a daily vitamin or vitamin prescribed by a doctor	0	6.67	5.88	6.41
Reflexology	0*	10.00*	0*	5.38*
Tai Chi	0	0	5.88	5.64
Therapeutic Touch	0	0	5.88	5.38
Homeopathy	0	0	5.88	4.87
Reiki	0	3.33	5.88	4.10
Osteopathy	0	3.33	0	3.33
Magnets	0	3.33	5.88	2.56
Qi Gong	0	0	5.88	3.08
Ayurveda	6.67	0	0	2.82
Hypnosis	0	0	0	2.05
Naturopathy	0	0	0	1.79
Traditional Chinese Medicine	13.33*	0*	0*	1.03*
Energy Emitting Machines	0	3.33	0	0.26
Chelation	0	0	0	0

* $P < 0.05$ for χ^2

Table 6. Participants Who Used CAM Therapy in the Last 12 Months by Employment

	College (*N* = 254)	Community (*N* = 40)	Govt Org (*N* = 94)	School (*N* = 23)	Worksite/ Business (*N* = 26)
Daily vitamins excluding megavitamins or vitamin prescribed by a doctor	56.30	50.00	56.38	56.52	53.85
Massage	54.33	52.50	54.26	43.48	69.23
Exercise that is not for the purpose of managing weight	42.91	45.00	45.74	43.48	53.85
Relaxation (such as using meditation)	39.37	27.50	34.04	52.17	53.85
Herbs/Medicinal Teas	29.92	25.00	29.79	52.17	50.00
Aromatherapy	26.77	35.00	25.53	43.48	26.92
Yoga	25.98	27.50	23.40	43.48	38.46
Prayer/Spiritual Healing by others	25.59	27.50	20.21	21.74	30.77
Guided Imagery	23.62	20.00	19.15	34.78	26.92
Chiropractic	13.78*	27.50*	26.60*	34.78*	19.23*
Mineral Supplements	18.50*	5.00*	18.09*	30.43*	23.08*
Acupressure	9.06	7.50	15.96	8.70	11.54
Special Diet that is not for the purpose of managing weight	6.69**	5.00**	11.70**	17.39**	7.69**
Folk Remedies	7.09	5.00	6.38	8.70	15.38
Biofeedback	7.09	5.00	6.38	4.35	15.38
Acupuncture	6.30	5.00	6.38	4.35	11.54
Megavitamins excluding a daily vitamin or vitamin prescribed by a doctor	6.69	5.00	5.32	4.35	7.69
Reflexology	4.72	0	7.45	17.39	0
Tai Chi	3.54*	12.50*	4.26*	4.35*	0*
Therapeutic Touch	3.94	5.00	5.32	4.35	7.69
Homeopathy	2.36	5.00	7.45	13.04	3.85
Reiki	3.54	5.00	4.26	4.35	7.69
Osteopathy	1.97	2.50	6.38	4.35	0
Magnets	1.97*	2.50*	3.19*	4.35*	3.85*
Qi Gong	2.76	10.00	1.06	4.35	0
Ayurveda	2.36*	0*	3.19*	4.35*	3.85*
Hypnosis	1.18**	0**	2.13**	0**	3.85**
Naturopathy	1.18	5.00	1.06	0	3.85
Traditional Chinese Medicine	1.18	5.00	2.13	0	0
Energy Emitting Machines	.39	0	0	0	3.85
Chelation	0	0	0	0	0

*$P < 0.05$, **$P < 0.01$ for χ^2

Due to the small number of participants in some groups, the influence of race/ethnicity and primary employment settings was difficult to detect. Although there were statistically significant differences in CAM attitudes and CAM usage among responding health educators with different race/ethnic background or from various primary employment settings, such differences had little practical significance. Future studies should employ stratified sampling methods to include more participants of non-white race/ethnic origins and from non-academic settings. Such studies would reveal whether the significant differences among participants of different ethnic origins and from various primary employment settings are of practical importance. As research in this area continues to grow and mature, future researchers may consider investigating the knowledge, attitudes and usage of more finely defined domains within CAM. Because not all health educators in the United States were listed on the listserv for professional health educators,[20] generalization of the results to the entire health education population in the U.S. needs to be approached with caution.

Although little is known about the number of health education programs in the United States that have offered CAM education courses or how, if any, CAM education has been integrated into professional health education curriculum. Future studies need to investigate the best model of providing CAM education for health educators so that they are better prepared to educate and serve their clients in various settings.

TRANSLATION TO HEALTH EDUCATION PRACTICE

The findings from this study, along with a growing body of research on CAM knowledge and attitudes among health professionals, strongly support the need for CAM education in health education professional preparation programs across the United States. Although health educators surveyed have positive attitudes toward CAM use and a significant number of them have used CAM therapies in the last twelve months, the majority of participants in this study did not believe that health educators have adequate knowledge of common CAM concepts or therapies.

As this quote from an article by Patterson and Graf published in the Journal of Health Education illustrates, there is a pressing need for professional preparation programs to address this lack of knowledge among future health educators: "In an era of increased competition for resources and clients within the health and medical care forums, it is imperative that health educators become educated about CAM and begin to carve out their niche in educating consumers, planning and evaluating programs, conducting research on consumers' and health professionals' usage, knowledge and attitudes about CAM, and determine the efficacy of CAM approaches. …if we as a profession fail to become actively engaged [in CAM], others will define our role or exclude us altogether (pp350-351)."[19]

Integrating CAM education into health education preparation programs will undoubtedly require an increased focus on the social aspects of health and wellness, as well as a willingness to adapt to changing patterns in health care by both providers and clients/patients. Researchers have suggested that CAM education be provided to health educators by offering a separate course on CAM, having CAM integrated into the current health education curriculum,[19] or offering continuing education and professional development opportunities.[17,19] However, many lessons, barriers, and strategies can be gleamed from the experiences of medical and nursing schools as they have attempted to integrate CAM education into the curriculum. Many medical schools have attempted to incorporate CAM education as elective courses. Recent studies report that 64% of U.S. medical schools offer such courses[32] and only 18% of the graduate public health programs offer CAM courses.[33] The interest in CAM among graduate public health students and faculty was reported by 82% and 61% of graduate public health programs in the United States, respectively.[33] Likewise, medical students have expressed tremendous support for the inclusion of CAM within traditional core curricula, yet 50% of them rated their education in alternative medicine to be "inadequate." Interestingly, this number has not changed since 1998 despite the doubling of CAM elective courses offered at medical schools over the past two years, from 34 medical schools in 1996 to 75 schools in 1998.[33] Clearly, CAM elective courses alone are not adequately preparing future physicians to advise their patients concerning treatments related to CAM.

The Complementary and Alternative Medicine Education Project funded by the NCCAM identified several major themes as crucial to the success of integrating CAM into health professions curricula, including top-down support from institutions' highest administrators; formal and informal engagement of key faculty and opinion leaders raised awareness, interest, and participation in programs; and a wide-range of faculty development efforts increased CAM-teaching capacity.[34] Most significant among the barriers were issues such as the resistance by faculty, the curriculum being perceived as too full, presenting CAM content in an evidence-based and even-handed way, providing useful, reliable resources and developing teaching and assessment tools.[35]

These barriers and strategies can prove useful for health education professional education programs embarking on new CAM education initiatives. In order to implement real change, health education professional preparation programs must: (1) take the long view, making CAM education part of the entire continuum of health education; (2) ensure that faculty are prepared to integrate instruction; (3) change student assessments to reflect new educational objectives; and (4) reallocate resources to support a changed curriculum. A commitment to respond to societal needs and expectations is of greatest importance in directing changes in the training of future health educators.

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