Complementary and Alternative Medical Practices: Training, Experience, and Attitudes of a Primary Care Medical School Faculty

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Background: **Interest in alternative and complementary medical practices has grown considerably in recent years. Previous surveys have examined attitudes of the general public and practicing physicians. This study examined the training, experience, and attitudes of medical school faculty, who have the primary responsibility for the education of future family physicians.**

Methods: **A 24-item, self-administered questionnaire was distributed to all 200 faculty at a medical school with a mission of training primary care physicians.**

Results: **Of 30 therapies listed, 5 were considered legitimate medical practices by more than 70% of the faculty. Eighty-five percent of the respondents reported some training in alternative medical therapies, and 62% were interested in additional training. Eighty-three percent of the faculty reported personal experience with alternative therapies and most rated these as effective. Eighty-five percent of the respondents indicated that their general attitude toward alternative medicine is positive.**

Conclusions: **The results indicate that respondents have had substantial exposure to complementary therapies, are interested in learning more about these therapies, and have generally positive attitudes toward alternative medical practices and their use. Because of the role of these therapies in prevention, the positive attitudes might reflect the mission of this medical school to train primary care physicians.**
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Interest in alternative and complementary medical practices has grown considerably in recent years. This interest has been seen in government, the general population, and among practicing physicians. The National Institutes of Health established the Office of Alternative Medicine in 1992, which in 1998 became the National Center for Complementary and Alternative Medicine, with a budget of $104.6 million for fiscal year 2002. The use of alternative or complementary therapies by the US population appears to be substantial.[1–4] In surveys of the general population, Eisenberg and colleagues[1,2] reported that in 1990 such therapies were used by an estimated 34% of the population, increasing to 42% in 1997. According to their surveys, more visits were made to alternative medical practitioners than to all the primary care physicians in those years and the out-of-pocket outlay closely rivaled[1] or exceeded[2] similar payments for all hospitalizations for the same periods.

A survey by Berman and colleagues[5] of 295 family physicians in the Chesapeake Bay region found that most family physicians surveyed considered many alternative practices legitimate, and most expressed interest in receiving training in multiple alternative therapies. Other studies[6,7] report that from 50% to 70% of primary care physicians refer their patients to alternative medical practitioners. There have been few other studies evaluating the attitudes of US physicians toward alternative and complementary health practices[8–10] and conflicting reports of increasing,[5] decreasing,[11] or cautiously[10] positive attitudes of practicing physicians toward alternative medicine make the clear documentation of current trends an important topic.

Because the medical school faculty has the primary responsibility for the education and training

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of future physicians, the faculty knowledge, experience, and attitudes on this topic are important factors in physician training. Whereas more than 60 medical schools[12] are currently offering at least one elective course on alternative medical therapies, the literature concerning medical school faculty attitudes is scarce. Burg and colleagues[13] offer the only survey of a health science center faculty on this topic. Their study elicited data regarding personal use of and referral for 10 alternative therapies. The survey results indicated that more than one half of the health science center faculty have used alternative therapies themselves and that they were even more likely to recommend alternative therapies to patients.

The Burg et al[13] study provides a step forward on this important topic; however, their survey is limited to personal use of and referral to only 10 alternative practices. The present study was designed to assess training, experience, and attitudes of a medical school faculty toward a wider range of alternative medical practices and to determine their interest in training or research in these practices. The survey was conducted at an historically black medical school with a mission of training primary care physicians and included 30 different complementary or alternative medical practices.

Methods

Procedure

A 24-item, self-administered questionnaire was mailed to all the 200 full- and part-time faculty at the Morehouse School of Medicine at the beginning of the fall 1996 semester. A cover letter from the dean encouraging participation was included. Two additional mailings, 3 weeks apart, also with follow-up letters from the dean, were sent to nonrespondents. One week after the last mailing, three telephone calls were made to each nonrespondent in an attempt to get their responses.

Survey Instrument

The questionnaire consisted of 24 items intended to address unresolved issues raised by previous published articles, items that might be unique to a medical school environment, and questions asked in previously published reports. For the purpose of this survey, the phrase "alternative/complementary medicine or therapies" referred to any substance, activity, or practice not usually taught in detail or recommended to medical students.

To provide some basis for comparison, the first three items were structured to follow closely items reported in previous studies.[5,14] Each of these items contained an identical list of 30 specific alternative or complementary medical therapies. For the first question, the respondents evaluated each therapy as either a legitimate medical practice, belonging outside medicine, or not sure. The second item asked the respondents to indicate how much training they have had (none, some, a lot or advanced) in each therapy and in which they would like to receive training or additional training. The third item had the respondents check those therapies with which they have had personal experience and evaluate the effectiveness of those using the categories, effective, not effective, harmful, or unknown. The other 21 items were in the form of statements with a 7-point Likert-type scale (strongly agree, agree, agree somewhat, no opinion, disagree somewhat, disagree, and strongly disagree). The agree-disagree statements reported here can be loosely grouped into three categories relating to alternative medical therapies: (1) general attitude, (2) placebo effects, and (3) use. The questionnaire also contained 12 demographic items relating to age, sex, ethnicity, degree, and specialty.

Data Analysis

The survey data were entered and verified using Epi Info and analyzed with SPSS.[15] The response rate for individual questions varied somewhat; therefore, analyses ignore blank or missing values except where noted. In those cases where respondents reported more than one degree, the highest degree earned was used to classify the data. The category "other degree" indicates those respondents with master degrees and/or doctorates other than the MD or PhD. A general linear model[15] (GLM) analysis was used to separate the shared effects of demographic factors on training, experience, and attitudes. The relation of demographic factors to the survey items is reported only where they are significant by this analysis.

Results

One hundred forty-six questionnaires were returned, of which 143 were usable, resulting in a response rate of 72%.

Table 1. Percentage of Respondents with Demographic Characteristics, by Academic Degrees.

Demographic Characteristic	MD (n = 75)	PhD (n = 48)	Other Degree (n = 20)	Total (n = 143)
Sex, male	65	63	33	60
Age, years				
<36	9	8	20	11
36–45	56	32	45	46
46–55	16	47	30	28
≥56	19	13	5	15
Ethnicity				
African American	74	48	75	66
Asian	16	17	10	16
White	7	28	10	14
Other	3	7	5	4

Note: 143 responses were received from 200 questionnaires for a 72% response rate.

Demographic Characteristics

The demographic characteristics of the study respondents are displayed in Table 1. Sixty percent of the responding faculty were male. Men predominated among the doctor of medicine (MD) and academic doctorate (PhD) faculty (65% and 63% respectively) whereas the other degree faculty were largely women (67%). Forty-six percent of the respondents were between the ages of 36 and 45 years. The PhD faculty were older, with 60% older than 46 years of age compared with 35% of the MD and other degree faculty. The medical specialties with the most respondents were medicine (40%), pediatrics (12%), and family practice (11%). No other specialty exceeded 10%. Almost one half of the MD respondents (49%) reported a private practice. The PhD faculty had been teaching in a medical school environment longer than either MD or other faculty (mean 14 years, 10 years, and 7 years, respectively). Nearly 90% of all the respondents spent at least some of their time teaching.

African Americans made up 66% of the faculty. The ethnic, sex, and degree characteristics of the responding sample closely match those of the faculty at large.

Perceived Legitimacy, Training, and Personal Experience

Perceived Legitimacy

Five therapies (nutrition and diet, counseling or psychotherapy, fitness and exercise, emotional support groups, and biofeedback) were considered legitimate medical practices by more than 70% of the respondents (Table 2). An additional 6 therapies (acupuncture, herbal medicine, massage therapy, chiropractic, hypnotherapy, and meditation) were considered a legitimate medical practice by more than 50% of the faculty. On the other hand, 9 therapies were given this classification by less than 25% of the responders (colon therapy, naturopathic medicine, macrobiotic diet, therapeutic touch, bioelectromagnetics, tai chi, Ayurvedic medicine, aromatherapy, and Reiki). African Americans and whites rated significantly more (GLM $P = .03$) of these therapies as legitimate than did Asian and other respondents.

Training

When asked to indicate whether they had any training (some, a lot or advanced, Table 2) in the same list of 30 alternative medical therapies, the 5 most frequently cited were nutrition and diet, fitness and exercise, counseling or psychotherapy, emotional support groups, and meditation. Eighty-five percent of the respondents reported at least some training in 1 or more alternative medical therapies, while 50% claimed either a lot or advanced levels. When the 5 alternative medical therapies most frequently classified as legitimate medical practices (nutrition and diet, counseling or psychotherapy, fitness and exercise, emotional support groups, and biofeedback) were removed from this analysis, 71% of those responding nonetheless indicated at least some training in at least 1 therapy, and 29% of the faculty reported a lot or advanced training. Of this latter group, one half were medical doctors (28% of the total MD respondents). The PhD respondents indicated having had training in significantly fewer of these therapies than either the MD or other degree respondents (GLM $P = .038$).

Respondents were most interested in receiving training in nutrition and diet, herbal medicine, and biofeedback. Meditation, acupuncture, and fitness and exercise tied for fourth place (Table 2). Whereas 62% of all respondents wanted training in at least 1 of the 30 alternative medical therapies, 34% indicated a desire for training in 5 or more therapies. Forty-eight percent of the respondents indicated a desire for further training in a therapy in which they already have had some level of training.

Personal Experience and Perceived Effectiveness

Eighty-three percent (118) of the faculty reported having had a personal experience with 1 or more

Table 2. Percentage of Respondents Indicating Perceived Legitimacy of Alternative Therapies, and Amount of Training, and Expressed Interest in Training in These.

Alternative Medical Therapy	Legitimate Medical Practice	Amount of Training		Interest in Training
		Some	A Lot, Advanced	
Nutrition and diet	96	46	28	32
Counseling or psychotherapy	94	34	23	11
Fitness and exercise	91	45	28	26
Emotional support groups	79	36	20	14
Biofeedback	73	28	4	29
Acupuncture	63	11	1	26
Herbal medicine	54	35	5	30
Massage therapy	54	17	4	21
Chiropractic	53	4	0	9
Hypnotherapy	52	14	4	10
Meditation	51	34	10	26
Homeopathic medicine	39	11	2	9
Traditional Chinese medicine	38	13	1	14
Acupressure	37	9	0	19
Chelation therapy	35	7	1	7
Music therapy	35	18	3	11
Cultural/folk medicine	34	19	5	20
Dance/movement therapies	32	15	3	10
Prayer/spiritual healing	32	22	16	14
Megavitamin therapy	28	14	2	6
Guided imagery	25	10	6	6
Colon therapy	24	4	1	4
Naturopathic medicine	20	2	1	3
Macrobiotic diet	19	7	1	4
Therapeutic touch	19	7	3	8
Bioelectromagnetics	18	2	0	4
Tai chi	17	10	4	16
Ayurvedic medicine	15	7	1	8
Aromatherapy	12	7	2	7
Reiki	4	1	2	1

Note: Therapies are listed in order of perceived legitimacy. Total n = 143; however, the number of responses to the individual therapies ranged from 136 to 141 for legitimacy and from 135 to 140 for training.

alternative medical therapy, resulting in 676 separate experiences (the 5 most frequently cited were fitness and exercise, nutrition and diet, prayer or spiritual healing, counseling or psychotherapy, and herbal medicine, Table 3), for an average of 5.7 different therapies experienced by those who reported using alternative medical therapies. If, as before, the top 5 most legitimate alternative medical therapies are removed from the analysis, 70% (100) of those respondents nevertheless reported 400 experiences, averaging 4 different therapies each. The MD and PhD respondents reported personal experience with significantly fewer (GLM $P = .047$) therapies than the other degree respondents. This effect is consistent for both the full list of 30 practices and the 25 practices remaining when the 5 therapies most frequently classified as legitimate are removed from the analysis.

When respondents rated the effectiveness of the therapies with which they had experience, 87% of the experiences were rated as effective. Three percent were rated not effective, 10% were rated as unknown, and only 0.3% were rated as harmful. The latter group involved one experience each in chiropractic and megavitamin therapy.

The data on training and experience were further analyzed in relation to the respondents' own answers to question 1 in which therapies were eval-

Table 3. Percentage of Respondents Reporting Personal Experience with and Perceived Effectiveness of Alternative Therapies.

	Personal Experience				Consider Treatment Effective*			
Alternative Medical Therapy	MD	PhD	Other	Total	MD	PhD	Other	Total
Fitness and exercise	57	54	70	58	100	92	93	98
Nutrition and diet	55	50	80	57	98	96	88	95
Prayer/spiritual healing	33	31	55	36	84	80	91	84
Counseling or psychotherapy	40	23	30	33	100	91	100	98
Herbal medicine	27	31	40	30	65	87	88	77
Emotional support groups	32	17	30	27	96	100	83	95
Meditation	25	29	30	27	84	86	100	87
Massage therapy	23	19	55	26	88	89	91	89
Biofeedback	20	15	25	19	87	86	80	85
Chiropractic	13	15	30	16	70	57	83	70
Cultural/folk medicine	13	15	30	16	90	100	67	87
Acupuncture	12	13	25	14	89	83	40	75
Acupressure	8	10	25	11	83	60	80	75
Guided imagery	9	13	15	11	86	83	67	81
Music therapy	11	13	10	11	88	83	100	88
Traditional Chinese medicine	7	17	15	11	80	63	67	69
Tai chi	8	8	20	10	83	75	75	79
Hypnotherapy	12	4	10	9	78	100	0	69
Ayurvedic medicine	5	10	10	8	75	100	100	91
Homeopathic medicine	5	8	15	8	75	100	67	82
Megavitamin therapy	8	6	10	8	33	33	100	45
Aromatherapy	7	2	15	6	100	100	100	100
Chelation therapy	5	0	10	4	100	0	100	100
Therapeutic touch	4	2	10	4	100	100	100	100
Colon therapy	4	0	5	3	67	0	100	75
Dance/movement therapies	3	2	10	3	100	100	100	100
Macrobiotic diet	3	2	5	3	50	100	0	50
Reiki	1	0	10	2	100	0	50	67
Bioelectromagnetics	3	0	0	1	50	0	0	50
Naturopathic medicine	0	0	5	1	0	0	100	100

Note: Therapies are listed in order of percentage of total respondents with personal experience.
*The percentages given for effectiveness reflect only those respondents who have had personal experience with that therapy.

uated as to their perceived level of legitimacy. Sixty-five percent of the respondents reported experience with, training in, or an interest in receiving training in an activity which they themselves did not categorize as a legitimate medical practice.

Attitudes

Respondents were asked to rate on a 7-point scale their level of agreement or disagreement with statements related to general attitude, placebo effects, and the use of alternative medical practices (Table 4). A rating of 1 indicates strong agreement with the statement, a 7 indicates strong disagreement with the statement.

General Attitude

The statement "My general attitude toward alternative medicine is positive" was endorsed with a mean of 2.66. The PhD (mean = 2.44) and other degree (mean = 2.20) respondents agreed more strongly (GLM $P = .005$) than the MD respondents (mean = 2.93) that their general attitude toward alternative medicine is positive. General attitude toward alternative medicine was positively correlated with the statement, "My attitude toward alternative medicine has changed substantially over the past few years." Those who felt positively about alternative medicine were more likely to have recently changed their attitudes (r [n = 140] = 0.531,

Table 4. Attitudes Toward Alternative Medical Therapies, by Degree.

Attitudes	Degree			Total Mean (SD)
	MD Mean (SD)	PhD Mean (SD)	Other Mean (SD)	
General attitudes				
Both the mind and body must be treated for the patient to regain complete health (n = 142)	1.68 (0.90)	1.72 (0.88)	1.60 (0.82)	1.68 (0.88)
The mind-body connection to health also contains an important spiritual component (n = 142)	1.97 (0.99)	2.27 (1.55)	2.00 (1.12)	2.08 (1.23)
My general attitude toward alternative medicine is positive (n = 142)	2.93 (1.25)	2.44 (1.53)	2.20 (1.20)	2.66 (1.37)
My attitude toward alternative medicine has changed substantially over the past few years (n = 141)	3.55 (1.69)	3.26 (1.77)	3.40 (1.79)	3.43 (1.73)
Placebo effects				
Alternative medical therapies are mainly useful for their placebo effects instead of as specific remedies (n = 143)	4.63 (1.34)	4.92 (1.49)	4.80 (1.28)	4.75 (1.38)
Any improvement perceived by the patient using alternative medical therapies is mainly due to the alternative therapists empathy, time spent with the patient and/or perceived individualized treatment (n = 143)	4.60 (1.36)	5.17 (1.39)	4.95 (1.50)	4.84 (1.40)
If a patient improves because of a placebo effect, the patient has not really improved, even if the improvements are verified by clinical findings (n = 140)	5.64 (1.27)	5.34 (1.42)	5.10 (1.21)	5.46 (1.32)
Using alternative medical therapies				
Patients with an untreatable condition should be encouraged to seek alternative therapies (n = 141)	3.66 (1.58)	2.63 (1.51)	3.00 (1.52)	3.21 (1.61)
A physician should not advise any patient to try alternative therapies because it might raise false hopes (n = 142)	4.88 (1.38)	5.28 (1.31)	5.00 (1.38)	5.03 (1.36)

All items were rated on a 7-point scale: 1 = strongly agree, 7 = strongly disagree. Items are listed within category in order of total sample's decreasing agreement.

$P < .001$). The most strongly agreed on statement in the questionnaire was "Both the mind and body must be treated for the patient to regain complete health" (mean = 1.68). There was also strong agreement with a related statement, "The mind-body connection to health,[sic] also contains an important spiritual component" (mean = 2.08).

Women (mean = 2.91) agreed more strongly (GLM $P = .008$) than did men (mean = 3.78) with the statement that their attitudes toward alternative medicine had changed substantially during the past few years. Women respondents also agreed more strongly than the male respondents with the statements indicating the need to treat both mind and body for complete health (female mean = 1.43; male mean = 1.86; GLM $P = .01$) and the inclusion of a spiritual component in the mind-body connection to health (female mean = 1.65; male mean = 2.38; GLM $P = .003$). African Americans (mean = 1.85) agreed more strongly (GLM $P = .045$) with the latter statement than the other ethnic groups (mean = 2.52).

Placebo Effects

The respondents tended to disagree with statements that attributed the effectiveness of alternative medical therapies to only placebo (mean = 4.75) or therapist (mean = 4.84) effects. The female respondents (female mean = 5.13; male mean = 4.51; GLM $P = .018$) and the African American respondents (African American mean = 5.00; other ethnic groups mean = 4.30; GLM $P = .023$) disagreed more strongly with the statement attributing the effectiveness of alternative therapies to mainly placebo effects. The PhD respondents (mean = 5.17) disagreed more strongly (GLM $P = .02$) than the other degree (mean = 4.95) or MD (mean = 4.60) respondents with a statement that attributed effectiveness to therapist effects. Respondents disagreed with the statement that clini-

cally verified improvements, attributed to a placebo effect, should not be viewed as real improvements (mean = 5.46). African American respondents (mean = 5.64) disagreed more strongly (GLM P = .005) with this concept than the other ethnic groups (mean = 5.00).

Using Alternative Medical Therapies

There was a substantial discrepancy between the responses of the MD (mean = 3.66) and PhD (mean = 2.63) respondents regarding a statement which suggested that patients with untreatable conditions be encouraged to seek alternative therapies. There was a significant difference (GLM P = .004), because 27% of the PhD respondents strongly agreed compared with only 4% of the MD respondents. In response to a related concept, respondents disagreed with the statement, "Physicians should not advise patients to try alternative therapies because it might raise false hopes" (mean = 5.03). The African American respondents (mean = 5.23) disagreed more strongly (GLM P = .031) with this statement than the other ethnic groups (mean = 4.69).

Discussion

Any discussion of alternative medical therapies must be tempered with the realization that these therapies span a broad range of activities. For the purpose of this study, the phrase "alternative/complimentary medicine or therapies" referred to any substance, activity, or practice not usually taught in detail or recommended to a medical student. This definition was used with the knowledge that more than 60 medical schools currently offer courses covering these topics. Any future definition might require modification. Since the completion of this study, the results of the panel on definition and description at the Office of Alternative Medicine (now the National Center for Complementary and Alternative Medicine) defined complimentary and alternative medicine as ". . . a broad domain of healing resources that encompasses all health systems, modalities, and practices and their accompanying theories and belief, other than those intrinsic to the politically dominant health system . . . ," and those ". . . boundaries . . . are not always sharp or fixed."[16] With this caveat in mind, the results of this survey indicate that these respondents have had substantial exposure to alternative and complementary therapies, appear to be interested in gaining further knowledge about these therapies, and overall have generally positive attitudes toward alternative medical practices.

The findings that 65% of the respondents have been involved with or have an interest in an alternative or complementary therapy which they themselves do not consider a legitimate medical practice and that 87% of the personal experiences with an alternative or complementary therapy have been viewed as effective further indicate that this medical school faculty has a positive attitude toward, considerable knowledge about, and experience with alternative and complementary therapies.

It might be argued that the inclusion of some well-respected alternative therapies (such as nutrition and diet) into a survey such as this would yield an erroneously high impression of respondent experience with alternative therapies. Removal of the top five therapies in this study, however, only reduced the 85% level of overall experience to 71%, which nevertheless indicates a substantial level of interest. The 71% personal experience rate is considerably higher than the 52% reported by Burg et al[13] in their survey of experience with alternative practices by a medical school faculty. This higher rate might be attributable to the inclusion in our study of more forms of complementary and alternative therapies, especially in that every one of the 30 alternative practices listed in the present study was checked for personal experience at least once. It might also be related to the higher survey response rate in our study (72%), compared with the Burg et al study (59%), or the variability of the response rate across the different schools of the health science center. The larger number of complementary and alternative practices in our questions and our higher response rate could also account for some of the differences found regarding personal experience between our results and those of the other physician surveys.[5,7]

The response to a broad statement such as "My general attitude toward alternative medicine is positive" must be viewed cautiously. Nonetheless, such an answer can help to describe the general atmosphere that surrounds the topic. A high level of agreement with that statement and an 85% response indicating some level of previous training, desire for future training, or previous personal experience indicate the level of awareness toward

alternative medical therapies at this particular institution.

The first three questions of this survey were modeled after a study of family physicians by Berman and colleagues.[5] For about 60% of the therapies that were common to both studies, the proportion of respondents rating alternative therapies as legitimate medical practices were within 10% of each other in the two studies. With the exception of herbal medicine, the Berman et al study respondents, all practicing physicians, reported a higher percentage of training in alternative therapies than did the respondents in this study. In our study, a private practice was reported by only 29% of all respondents, but almost one-half of the MD respondents. If there is a tendency for practicing physicians to seek training in alternative therapies, then this tendency might explain Berman and colleagues' higher percentage of respondents who report such training.

Our data suggest that as a group those who have a positive attitude toward alternative medical practices have had a recent attitude change toward the positive. This change might reflect growing acceptance of alternative and complementary therapies, reaction to patients' increasing use of these therapies, or an increase in the amount of information available on the subject.

Clinical caution on the part of MD respondents might explain some of the difference between their responses and those of the PhD respondents to the two attitude statements related to referrals for alternative practices. The PhD respondents agreed more strongly than the MD respondents with the statement which suggested that patients with untreatable conditions be encouraged to seek alternative therapies. These respondents also disagreed more strongly than the MD respondents with the statement suggesting that physicians should not advise patients to try alternative therapies because it might raise false hopes. Although these two attitude statements describe situations of an extreme nature, the data from our respondents are nonetheless consistent with the referral rates to alternative providers that have been reported in other studies.[6,7,13]

Among our respondents, degree, sex, and ethnicity are related mainly to the strength of opinions on the general attitudes and use of alternative therapies. Although there appear to be some demographic factors that are related to the attitude or knowledge about an individual alternative or complementary therapy, the sample size and composition and the overall diversity of such therapies make further interpretation of these factors difficult at this time.

Even though this study sample is small, our data relate to other similarly small samples, and a picture of attitudes toward alternative and complementary medical practices seems to be emerging. For example, the analysis of our data with the five most highly ranked therapies removed nonetheless indicates positive attitudes similar to those of other studies.[5,14] Because the use of alternative therapies is often related to prevention, the positive attitudes might be a reflection of the institutional mission to train primary care physicians. These results might, however, also reflect a generally increasing interest in alternative medicine, as is seen in the results of recent surveys, as well as in the increase in the number of managed care companies that now incorporate payment for certain alternative practices into their insurance coverage.[17,18] In addition, a growing number of state governments are considering legislation pertaining to the practice of such therapies by health care professionals. Indeed, some of the therapies, eg, counseling or psychotherapy, and chiropractic, and massage in some states, are already legislated. With increased acceptance of insurance coverage for alternative and complementary therapies and high levels of use by the general population, there will be a greater need for the primary care physician to be familiar with these practices, as well as with their patients' use of them. Medical school faculty need to prepare themselves to address complementary and alternative modalities in their teaching to ensure that graduates are prepared for the realities of patient preferences and behaviors.

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