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ORIGINAL CONTRIBUTION

Primary Care Physicians' Attitudes and Practices Regarding Complementary and Alternative Medicine

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Data were gathered from 423 osteopathic primary care physicians who are members of the Michigan Osteopathic Association, assessing their attitudes and practices regarding complementary and alternative medicine (CAM).

Family physicians and general internists were more likely than pediatricians to talk to their patients about CAM. Similarly, female physicians were more likely than male physicians to talk to their patients about CAM or refer their patients for CAM. Finally, physicians aged 35 years and younger were more likely than those 60 years and older to use CAM for themselves or their families.

Predominant among the conditions for which the physicians would refer for CAM were long-term problems, traditional therapy failures, psychiatric disorders, and behavioral problems. Results reveal wide variations in the way osteopathic primary care physicians view and use complementary and alternative care.

Osteopathic primary care physicians serve as the portal to health care for millions of Americans. These physicians are exposed to patients with a wide range of ailments and treatment options. Further, today's primary care physicians are confronted with patients who are seeking information about or who are currently using complementary and alternative medicine (CAM) modes of therapy. Complementary and alternative medicine encompasses modes of therapy outside the domain of mainstream Western medicine, including acupuncture, chiropractic manipulation, biofeedback, herbal medications, high-dose antioxidants, vitamin and mineral supplementation, homeopathic preparations, hypnosis, imagery, lifestyle diet, massage therapy, prayer healing, chelation, relaxation therapies, and self-help groups. Complementary and alternative medicine refers to modes of therapy that are used for medical intervention, health promotion, and disease prevention, and that are neither routinely taught at medical schools in the United States nor routinely underwritten by third-party payers in the American health care system.[1]

The use of CAM by Americans has increased significantly in the past 10 years. The number of visits to alternative medicine practitioners for CAM is estimated to have increased from 427 million in 1990 to 629 million in 1997.[2] The figure of 629 million visits exceeds the number of visits Americans made to all primary care physicians in the United States during the same year. Further, between 50% and 75% of the US population is estimated to be using some form of CAM at a given time.[2] A recent study of women with menopausal symptoms revealed that 76% of the women used some form of CAM for relief of their symptoms.[3] Despite the growing usage and interest in CAM, few of these patients will tell their primary care physicians of their use of these modes of therapy for fear of criticism and humiliation.[4]

Physicians disagree as to how many of their patients use CAM modes of therapy. Rosenbaum et al[5] found that a sample of physicians in Iowa believed that 20% or less of their patients used any form of CAM, while Corbin and Shapiro[6] found that 76% of physicians surveyed believed their patients were using CAM and 48% of the physicians had recommended CAM. In their study of allopathic pediatric physicians' experiences with and attitudes toward CAM, Sikand and Laken[7] found that 83% of surveyed pediatricians believed their patients used CAM, but 55% believed that this constituted fewer than 10% of their patients. Most (54%) physicians in this survey were interested in continuing medical education courses on CAM modes of therapy, 55% said they would use CAM modes of therapy, and 50% indicated that they would refer patients for CAM modes of therapy. In another study, Kreitzer et al[8] found that 90% of faculty and students at the University of Minnesota Medical School believed that clinical care should integrate conventional and CAM modes of therapy into medical practice, and 80% believed CAM should be incorporated into the medical school curriculum.

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Table 1
Frequency Data for Demographic Variables (N = 423)

Factor	%
Gender	
Male	78.3
Female	21.7
Age, y	
⩽35	11.3
36–45	32.3
46–59	41.4
⩾60	15.0
Ethnicity	
Caucasian	93.2
African American	1.2
Hispanic	2.4
Asian	1.2
Native American	0.2
Other	1.7
Practice environment	
Private practice	69.6
Hospital-based practice	14.7
Academic practice	5.1
HMO/PPO	2.7
Clinic	6.6
Public health clinic	1.2
Specialty training environment	
Osteopathic	80.3
Allopathic	6.3
Both	13.3
Practice type	
Residency	1.0
Solo office practice	31.7
Partnership	16.5
Group practice	40.0
Ambulatory clinic	7.0
HMO	0.7
Special manipulative practice	0.5
Other	2.7
Specialization	
Family medicine	78.6
Internal medicine	14.0
Pediatrics	7.5
Practice location	
Urban	21.3
Suburban	56.0
Rural	22.7

HMO indicates health maintenance organization; PPO, preferred provider organization.

Table 2
Medical Problems for Which Primary Care Physicians Would Use Complementary and Alternative Medicine or Refer Their Patients for Complementary and Alternative Medicine (N = 423)

Medical Problem	%
Chronic problems (eg, headache, backache, pain management, seizure)	82.0
Cancer	30.5
Human immunodeficiency virus infection	12.3
Other chronic diseases for which there is no cure	14.4
Neurologic diseases	33.1
Behavioral problems	50.8
Psychiatric disorders	53.2
Traditional therapy failures	71.9

Berman et al,[9] in their study of training, attitudes, and practice patterns of primary care physicians regarding CAM, found that osteopathic physicians were more receptive to CAM than their allopathic counterparts. However, to date we know of no research on CAM that specifically examines the osteopathic medical profession or of any studies that probe the differences in attitudes and practices involving CAM between osteopathic primary care specialties. In this study of Michigan osteopathic primary care physicians specializing in family medicine, pediatrics, and general internal medicine, we address the following broad research questions:

- How do osteopathic primary care physicians' attitudes and usage regarding CAM relate to the demographics of physicians and their clinical practices?
- For what sorts of medical problems do osteopathic primary care physicians most commonly use or refer patients for CAM modes of therapy?
- What are the prevailing attitudes and practices of osteopathic primary care physicians regarding specific CAM modes of therapy?
- What variables predict osteopathic primary care physicians' attitudes toward CAM and physician-patient communication about CAM?

Methods

A questionnaire assessing attitudes, training, and practices regarding CAM was mailed to 1101 osteopathic primary care physicians residing in Michigan (representing the areas of general internal medicine, family medicine, and pediatrics) who are members of the Michigan Osteopathic Association. Of 1101 surveyed, 423 primary care physicians responded to the survey.

Table 3
Personal and Practice Usage, Referral Patterns, Effectiveness, Safety, Possible Harmfulness, and Desire for More Continuing Medical Education for Various Complementary and Alternative Modes of Therapy (N = 423)

Modes of Therapy	Modes of Therapy Practiced, %	Self/ Family Use, %	Refer For, %	May Be Effective, %	Safe, %	May Be Harmful, %	More CME, %
Acupuncture	12.3	17.5	45.2	61.2	54.6	2.5	5.0
Antioxidants (high-dose)	19.4	18.4	3.8	35.7	19.4	27.0	18.2
Aromatherapy	1.9	9.0	5.0	21.3	29.6	5.2	33.1
Biofeedback	5.9	7.8	43.0	55.1	49.6	1.9	10.2
Chelation therapy	2.6	2.4	9.0	17.0	9.0	37.6	24.3
Herbal therapy	20.8	18.7	9.2	49.2	22.5	31.7	13.7
Homeopathy	5.2	7.1	9.5	24.3	18.4	10.4	28.8
Hypnosis	4.3	6.1	31.4	45.2	33.3	5.2	15.8
Imagery	5.9	6.1	11.3	27.0	23.6	2.1	33.1
Lifestyle diet	19.6	14.2	12.8	35.5	24.6	9.9	21.3
Magnetic therapy	4.7	9.0	5.0	24.8	27.9	5.7	34.8
Massage therapy	18.9	31.2	40.7	52.7	53.0	1.4	4.5
Mineral therapy	19.6	16.8	5.9	31.4	22.7	17.5	21.3
Prayer	16.8	20.1	10.6	44.4	43.7	3.3	16.3
Reflexology	2.4	6.1	7.8	21.5	24.8	2.4	32.2
Relaxation therapy	15.1	14.4	26.5	51.5	47.3	1.4	8.3
Self-help groups	12.5	10.6	40.9	53.2	47.0	4.3	6.6
Touch therapy	7.3	5.7	9.9	27.7	27.7	2.1	29.1
Vitamin therapy	32.4	34.0	8.0	41.8	29.6	16.5	13.7
Other	0.2	0.2	0.5	0.9	0.9	0.0	1.9

CME indicates continuing medical education.

The questionnaire used in this study was a modified version of the one developed by Sikand and Laken[7] for their study of the attitudes of pediatricians toward CAM. Besides requesting demographic information, our instrument consisted of 27 questions divided into the following: whether the physicians used any CAM modes of therapy with their patients, referred their patients for CAM modes of therapy, whether they had personal or family use of CAM, or had formal training in CAM, and whether their patients discussed the use of CAM with their physicians. In addition, the physicians' attitudes regarding 20 CAM modes of therapy were elicited, including acupuncture, aromatherapy, biofeedback, chelation therapy, chiropractic manipulation, magnetic healing, herbal therapy, high-dose antioxidants, mineral therapy, vitamin therapy, homeopathy, hypnosis, imagery, lifestyle diet, massage therapy, prayer healing, reflexology, relaxation techniques, self-help groups, and touch therapy. For each therapy, respondents were asked to indicate whether they used it in their practice, used it for themselves or their family, or whether they referred patients for treatment. Respondents were also asked to indicate whether they considered those modes of therapy to be effective, safe, or possibly harmful (if they knew). Last, the physicians were asked to indicate whether they desired more training in CAM in the form of continuing medical education courses. The study project, including the survey instrument and consent procedures, was approved by the Institutional Review Board.

To analyze the first research question, separate stepwise logistic regression analyses were implemented, taking the dependent variable respectively as:

- Do you talk to your patients about CAM?
- Do you believe your patients would tell you if they were using CAM modes of therapy?
- Would you consider using CAM modes of therapy for yourself?

Table 4
Factor Analysis Eigenvalues and Loading Values for Positive Attitude Toward Complementary and Alternative Medicine and Physician-Patient Communication Regarding Complementary and Alternative Medicine (N = 423)

Factor	Positive Attitude (λ_1 = 2.087)	Physician-Patient Communication (λ_2 = 1.162)
Refer for CAM	0.406	−0.048
More CME for CAM	0.403	−0.008
Self or family use	0.467	−0.112
Talk to patients about CAM	−0.044	0.546
Would patient tell about CAM use?	−0.074	0.373
% of patients who ask about CAM	−0.044	0.578

CAM indicates complementary and alternative medicine; CME, continuing medical education.

- Would you consider using CAM modes of therapy for your family?
- Would you consider using CAM modes of therapy for your patients?
- Would you consider referring your patients for CAM?

In each analysis, the predictor variables were taken as age, gender, race, practice environment, practice type, training, specialty type, and practice location. The second and third research questions were investigated with descriptive statistics.

To address the fourth research question, six items on the questionnaire representing attitudes and behaviors related to CAM were subjected to factor analysis to derive scales to be used as outcome variables for analysis of variance. The six variables were (1) personal or family use of CAM, (2) interest in further education in CAM, (3) percentage of patients who asked the physicians about CAM, (4) whether physicians referred their patients for CAM, (5) whether physicians talked to their patients about CAM, and (6) whether physicians believe their patients would tell them if they used CAM modes of therapy. A principal components factor analysis followed by varimax rotation was conducted.

Results

Responses were received from 423 physicians for a response rate of 38.4%. Of these respondents, 78.3% were men and 21.7% were women, between the ages of 46 and 59 years. Additional demographic data including ethnicity, practice environment, specialty training environment, practice type, specialization, and practice location are presented in *Table 1*.

Family physicians were 5 times as likely as pediatricians to talk to their patients about CAM ($P = .003$), while general internists were 5.4 times as likely as pediatricians to talk to their patients about CAM ($P = .019$). Similarly, female physicians were 4.4 times as likely as male physicians to talk to their patients about CAM ($P = .022$). Physicians aged 35 years and younger were 4.9 times as likely as those aged 60 years and older to use CAM modes of therapy for themselves ($P = .010$), and 6.1 times as likely to use CAM for their families ($P = .009$). Finally, female physicians were 2.7 times as likely as male physicians to refer patients for CAM ($P = .007$).

Table 2 lists particular medical problems for which the physicians would use CAM modes of therapy or refer their patients. Predominant among these are long-term problems, eg, headache, backache, and pain management (82%); traditional therapy failures (71.9%); psychiatric disorders (53.2%); and behavioral problems (50.8%). Fewer than 15% of the physicians would use CAM or refer patients for CAM for treatment of human immunodeficiency virus (HIV) infection or chronic diseases other than cancer or HIV for which there is no cure.

Table 3 summarizes the physicians' attitudes and practices regarding specific CAM modes of therapy. Modes of therapy most commonly used in practice were vitamins (32.4%), herbal medications (20.8%), minerals (19.6%), lifestyle diet (19.6%), high-dose antioxidants (19.4%), and massage therapy (18.9%).

The CAM modes of therapy that the surveyed physicians used for themselves or for their families were similar to what they used for their patients. The CAM modes of therapy for which they would most often refer their patients were acupuncture (45.2%), biofeedback (43.0%), self-help groups (40.9%), massage therapy (40.7%), hypnosis (31.4%), and chiropractic manipulation (31.4%), while those most often considered by the physicians to be effective were acupuncture (61.2%), biofeedback (55.1%), self-help groups (53.2%), massage (52.7%), relaxation techniques (51.5%), and herbal medications (49.2%).

Thus, their referral practices and their attitudes concerning effectiveness were fairly aligned. For some modes of therapy (eg,

herbal medications, high-dose antioxidants, chelation), there were interesting discrepancies in that the physicians were less certain about safety than they were about effectiveness. The CAM modes of therapy that the physicians most often wanted to learn more about were magnetic therapy (34.8%), aromatherapy (33.1%), imagery (33.1%), reflexology (32.2%), and touch (29.1%).

Table 4 contains the results of the factor analysis. Two factors were derived as follows: factor 1 ($\lambda_1 = 2.087$) named Positive Attitudes Toward CAM and factor 2 ($\lambda_2 = 1.162$) named Physician-Patient Communication About CAM. The components of Positive Attitude Toward CAM were "refer for CAM," "more CME training for CAM," and "self or family use of CAM," while the components of Physician-Patient Communication About CAM were "talk to patients about CAM," "would patients tell about CAM use?" and "percent of patients who ask about CAM." As is the normal rule, only factors with eigenvalue exceeding 1 were considered.

We performed two analyses of variance, taking Positive Attitudes Toward CAM and Physician-Patient Communication About CAM, respectively, as the dependent variables. The predictor variables in each case were age, gender, race, practice environment, practice type, training, specialty type, and practice location. Years in practice was entered as a covariate. There were no significant predictors of Positive Attitudes Toward CAM. The only significant predictor of Physician-Patient Communication About CAM was specialty type (adjusted $R^2 = 0.07$). Further investigation revealed that family medicine and general internal medicine scores were higher than those for pediatrics ($P = .004$ and $P = .005$, respectively).

Discussion

The physicians in our sample were predominantly male (78.3%) and Caucasian (93.2%) between the ages of 46 and 59 years. Seventy-eight percent were family physicians, 14% were general internists, and 7.5% were pediatricians, while 80.3% received their specialty training in osteopathic residency programs. Most (69.6%) were in private practice.

There were wide variations in the way these osteopathic primary care physicians viewed CAM. Family physicians and general internists were both five times more likely to discuss CAM with their patients than their pediatric counterparts. This difference could be attributed to the fact that adult patients, seen mostly by family practitioners and internists, are more likely to consume CAM than pediatric patients. Second, our survey indicated that the most common referrals by the physicians for CAM were massage, acupuncture, biofeedback, and self-help groups. As the pediatric population is not likely to use these services, we would expect the referral rates of pediatricians to be lower.

Another trend seen in our study was that female physicians were 2.7 times as likely to refer patients for CAM than their male counterparts and 4.4 times more likely to discuss CAM with their patients, which is in accordance with findings by Sikand and Laken.[7] A possible explanation for this trend is that younger physicians were more likely to use CAM for themselves or their families (physicians younger than 35 years were 4.9 times as likely to use CAM for themselves and 6.1 times as likely to use CAM for their families than those aged 60 years and older), and the average age of the female physicians was lower than their male counterparts (59% of the women were younger than 45 years, while only 40% of the male physicians were in the same age group). Another possibility may be that female physicians are more receptive to CAM than their male counterparts, as they may be more likely to assume the traditional role of the family health caretaker and thus may be more familiar with some CAM modes of therapy in the family context.

The physicians in our sample were most likely to either use or refer their patients for CAM for chronic problems (82%), failure of traditional modes of therapy (71.9%), psychiatric disorders (53.2%), and behavioral problems (50.8%). These rates of referral are higher than, but consistent with, the findings of Sikand et al[7] with respect to Michigan pediatricians, who reported use or referral rates for long-term problems (55.9%), failure of traditional modes of therapy (45.8%), psychiatric disorders (32.8%), and behavioral disorders (26.7%). Our study did not ask whether these modes of therapy were used as stand-alone modes of therapy or used as adjunctive therapy to traditional medical modes of therapy. It would be important to know whether osteopathic physicians are using CAM separately or in conjunction with traditional modes of therapy for these conditions.

The osteopathic physicians in our sample were not likely to refer patients for CAM when treating a long-term disease for which there is no cure (14.4%). Again, this result is similar to the finding by Sikand et al,[7] who reported a referral rate of 14.8% for this group of patients. One would think that a disease for which there is no current medical therapy would be a good candidate for CAM; however, the attitudes of the surveyed physicians did not support this notion.

The most common specific modes of therapy either practiced or referred for by the physicians in our sample were massage therapy (58%), acupuncture (57%), self-help groups (53%), biofeedback (49%), and relaxation therapy (41%). This differs from the findings of Burg et al,[10] who found that the most commonly used modes of therapy of Florida health professionals were massage therapy (32%), dietary supplements (28%), and relaxation techniques (24%). However, Ko et al,[11] in their study of psychiatrists, reported referral rates for acupuncture (85%) and biofeedback (81%) that are similar to the results of our study. The modes of therapy most often used by physicians in our survey (eg, massage therapy, acupuncture, self-help groups, biofeedback, relaxation therapy) are common CAM treatments for long-term problems (eg, headaches, backaches, pain management) and therefore entirely consistent with the physicians' reports of the medical problems for which they would likely use CAM or refer their patients for CAM.

Our study did not find a statistically significant predictor of Positive Attitude Toward CAM; however, the family practitioners' and internists' scores for Physician-Patient Communication About CAM were higher than those of pediatricians. As alluded to earlier, this is likely due to the fact that the CAM modes of therapy most commonly used or referred for by these osteopathic physicians tended to be modes of therapy generally accepted to be more appropriate for use with adult patients than pediatric patients.

Conclusion

The study results revealed some general trends. Female physicians were more predisposed toward CAM than male physicians in terms of talking to their patients about CAM or referring them for CAM, while younger physicians were more predisposed toward CAM in terms of using it either for themselves or their families. Similarly, family physicians and general internists were more likely to discuss CAM with their patients than pediatricians. The physicians' use and referral practices varied widely depending on the medical problem; however, most (no statistical significance implied) indicated a willingness to use CAM or refer patients for CAM in cases of long-term problems (eg, headache, backache, pain management) or when traditional therapy fails.

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