

Pediatricians' Experience With and Attitudes Toward Complementary/Alternative Medicine

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Objective: To assess (1) pediatricians' attitudes toward and practice of complementary and alternative medicine (CAM) for their patients; (2) their knowledge, experience, and referral patterns for selected CAM therapies; and (3) their desire for continuing medical education courses on CAM therapies.

Method: An anonymous, self-report, 25-item questionnaire was mailed to fellows of the Michigan chapter of the American Academy of Pediatrics.

Results: Of 860 pediatricians, 348 (40.5%) responded; their median age ranged from 35 to 45 years, 54.3% were men, 67.6% were white, 67.9% were general pediatricians, and 65.2% were trained in the United States. Of the respondents, 83.5% believed their patients use CAM therapies, but 55.1% believed this constituted less than 10% of patients. Of the pediatricians who talked about CAM (53.8%), 84.7% said the discussion was initiated generally by the patient's family. More than half of the physicians (55.2%) said they would use CAM therapies personally, and 50.3% would refer for CAM therapies.

Therapies referred for were biofeedback (23.6%), self-help groups (23.3%), relaxation (14.9%), hypnosis (13.8%), and acupuncture or acupressure (10.9%). Of the physicians who responded, 54.1% were interested in continuing medical education courses on CAM therapies. White respondents, US medical school graduates, and general pediatricians were most likely to believe their patients use CAM and discuss or refer for CAM therapies ($P < .01$). Female pediatricians were most likely to discuss or refer for CAM and to want more continuing medical education on CAM therapies ($P < .05$).

Conclusions: A majority of pediatricians sampled believed a small percentage of their patients were seeking alternatives to conventional medicine. Half would consider referring patients for CAM, and most were interested in continuing medical education courses on CAM. Larger studies surveying pediatricians, along with more education and research on CAM therapies, need to be considered for the future.

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Editor's Note: We now have some data on what pediatricians believe. Now let's see the data on how correct they are about their patients' use of CAM, etc. I would bet a substantial majority of Americans use CAM.

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COMPLEMENTARY/ alternative medicine (CAM) refers to a large range of therapies outside the domain of mainstream Western medicine. This covers a vast number of different therapies with different philosophies and practices, ranging from 1000-year-old systems of medicine, such as Ayurvedic¹ medicine and Traditional Chinese Medicine, to homeopathy, prayer, energy healing, massage, chiropractic, and mind-body connections such as biofeedback. Interest in CAM

among the public and medical community is rapidly growing in the United States and in Europe. The National Institutes of Health acknowledged this interest in 1992, establishing the Office of Alternative Medicine aimed at facilitating research in these therapies.²

In April 1995, a panel of experts from the Office of Alternative Medicine held a conference on research methods to evaluate research needs in the large, diverse, and dynamic field of complementary and alternative medicine. This panel defined CAM as

a broad domain of healing resources that encompasses all health systems, modalities, and practices and their accompanying theories and beliefs, other than those intrinsic to the politically dominant health system of a particular society or culture in a given historical period. CAM includes all such practices and ideas self-defined by their users as preventing or treat-

PARTICIPANTS AND METHODS

An anonymous, self-designed questionnaire assessing attitudes, training, and practices regarding CAM was mailed to fellows of the Michigan chapter of the American Academy of Pediatrics in January 1997. Pediatricians in training were excluded. The questionnaire consisted of 25 questions divided into demographic information, pediatricians' perception of their patients' use of CAM, whether their patients or the parents of their patients discussed their use of CAM, personal and family use of CAM, referral practices, formal training in CAM, whether they practiced any CAM therapies, and attitudes regarding the safety or harmfulness and the effectiveness of 14 complementary/alternative therapies. A table format was used that listed 14 CAM therapies: acupuncture/acupressure, biofeedback, chiropractic, herbs, high-dose antioxidant vitamins, homeopathy, hypnosis, imagery, lifestyle diet, massage therapy, osteopathic manipulation, prayer healing, relaxation, and self-help groups. For each therapy the respondents indicated therapies practiced, personal/family use, and referral for treatment, and rated the therapies as effective, safe, harmful, or didn't know. Finally, the survey asked about the respondent's desire for more training in the form of CME courses in CAM. The survey was pre-tested on 15 pediatricians. The study was approved by the institutional review board of the Wayne State University School of Medicine, Detroit, Mich, and is available from us.

Statistical analysis was performed by means of SPSS software (SPSS Inc, Chicago, Ill). Frequency distributions were generated for all variables. Six variables representing attitudes and behaviors related to CAM were subjected to factor analysis in an attempt to derive 2 scales to be used as outcome variables for a multiple regression analysis. The 6 variables were (1) personal or family use of CAM, (2) interest in more education in CAM, (3) whether pediatricians refer their patients for CAM, (4) whether they talk to their patients about CAM, (5) the percentage of their patients they believe use CAM, and (6) whether they believe their patients would tell them if they used CAM. A 2-factor principal-components factor analysis followed by varimax rotation was conducted.

ing illness or promoting health and well being. Boundaries within CAM and between the CAM domain and the domain of the dominant system are not always sharp or fixed. In the United States the dominant healthcare system is, for want of better term, biomedicine. CAM in the U.S. therefore is that broad domain of all healthcare resources to which people have recourse other than practice models of biomedicine.³

Interest in CAM has been heightened by some of the pervasive structural problems of biomedicine, such as high cost, bureaucratization, overspecialization, and limited success in dealing with such problems as chronic illness, mental disorders, and substance abuse. Furthermore, the biomedical model largely concerns itself with

physical disease. These limitations of biomedicine may lead many people to seek alternative approaches.⁴⁻⁶ The advent of antibiotics, immunizations, improved technology, and better sanitation has been associated with lower infant mortality rates, increased life expectancies, and less poverty-related disease in most Western societies. This has shifted focus to issues of improving the quality of our lives. Many CAM therapies focus on improving this quality by means of preventive medicine.

A record number of patients are turning to complementary practitioners in Western countries, including the United States and Canada.⁷⁻¹¹ Eisenberg and colleagues in 1993 indicated that approximately one third of Americans used at least 1 form of alternative therapy. Interestingly enough, only 3 of 10 people in that study informed their physicians of their alternative therapy use. A majority of these patients were well educated and affluent.^{12,13}

In 1993, the American Medical Association published information to evaluate health care approaches that are not based on established scientific knowledge and that are commonly referred to as "alternative" therapies. This publication portrays many CAM therapies as being "quackery" or "health frauds." This portrayal by the American Medical Association may influence physicians to perceive CAM in a negative manner, thus negating working toward integrating biomedicine and CAM therapies.¹⁴

Several studies assessing attitudes, beliefs, and use of CAM by primary care physicians in North America and Europe report that the majority of physicians studied expressed an interest in CAM and would refer patients for CAM.¹⁵⁻²⁷ A study done in Israel also showed that 54% of family physicians thought CAM may be clinically useful and 42% referred patients.²⁸

The use of CAM by parents and children is less well known. A study in Quebec showed that 11% of parents of children seen in an allopathic clinic had consulted 1 or more CAM practitioners for their children.²⁹ Other studies that assess the use and perceived benefit of nonmedical treatments by patients with cystic fibrosis, juvenile arthritis, and cancer found that 66%, 70%, and 46%, respectively, had used some form of nonconventional treatment in conjunction with their conventional care.³⁰⁻³² These findings indicate that CAM is an aspect of pediatrics that we cannot ignore.

This statewide study was conducted to assess (1) pediatricians' beliefs and attitudes toward their patients' use, and use in their personal lives, of CAM therapies; (2) their knowledge, experience, and referral patterns regarding certain CAM therapies; and (3) their desire for continuing medical education (CME) courses on various CAM therapies.

RESULTS

A total of 860 questionnaires were mailed; 369 were returned after a second mailing, and only questionnaires that were 75% complete were analyzed. The results of 348 questionnaire are reported in this study, for a 40.5% response rate. The 348 fellows who responded to the questionnaire were compared with all fellows in Michigan for

age and sex. No significant differences were noted; the sample was representative of the population. The median age of the sample ranged from 35 to 45 years, median years in practice ranged from 5 to 13, 54.5% were men, 67.6% were white, 67.9% considered themselves to be general pediatricians, and 65.2% had graduated from US medical schools.

Compared with other ethnic groups, more white pediatricians reported that they believe their patients are using CAM and that they talk to their patients about CAM ($P<.001$). More US medical school graduates than non-US medical school graduates reported that they believe their patients are using CAM and talk to their patients about CAM ($P<.001$). More generalists than specialists reported that they believe their patients are using CAM and refer for CAM ($P<.01$).

PERCEPTIONS OF PERSONAL USE OF CAM BY PATIENTS AND PEDIATRICIANS

Of the sample, 83.5% believe some of their patients are using some form of CAM therapies, although most (55.1%) believe that this use constitutes less than 10% of their patients. While 53.5% talk with their patients and the parents of their patients about CAM, the discussion is generally initiated by the patient's family (84.7%). More than three quarters (76.1%) believe their patients or the parents of their patients would tell them if they were using CAM. Whereas 55.2% said they would consider using 1 or more CAM therapies for themselves or their family, half (50.3%) would consider referring their patients to other practitioners for CAM therapies. **Table 1** lists medical problems for which respondents either use CAM themselves or refer patients. These were more often for chronic problems (headaches, backaches, pain management, seizures), for which traditional therapies had failed, for behavioral problems, and for psychiatric disorders (anxiety, depression). Less than 20% would use CAM or refer patients for CAM for medical problems such as cancer, chronic diseases for which there are no cures, neuro-

logical diseases (demyelinating), and human immunodeficiency virus infection.

ATTITUDES TOWARD SPECIFIC THERAPIES

Table 2 summarizes responses to questions about 14 common CAM therapies. Only 37% used any form of CAM in their personal lives (most frequently cited were relaxation, massage, herbs, and prayer healing). Pediatricians stated that they would refer patients for some therapies, especially biofeedback (23.6%), self-help groups (23.3%), relaxation (14.9%), hypnosis (13.8%), and acupuncture/acupressure (10.9%).

Therapies considered to be most effective were relaxation (56.0%), self-help groups (54.3%), acupuncture/acupressure (51.1%), hypnosis (50.3%), biofeedback (49.1%), and massage therapy (46.3%). Therapies considered to be most effective were similar to those considered to be safe, for personal use, or for which they would refer patients. Interestingly, while pediatricians ranked some therapies (such as chiropractic, herbs, high-dose antioxidant vitamins or minerals, homeopathy, lifestyle diet, and osteopathic manipulation) as effective, they were less likely to consider them safe. More than half of

Table 1. Medical Problems for Which 348 Pediatricians Use or Refer for CAM Therapies*

Medical Problems	%
Chronic problems (headaches, backaches, pain management, muscular dystrophy, seizures)	55.9
When traditional therapy fails	45.8
Behavioral problems (eg, ADHD, nightmares)	32.8
Psychiatric disorders (eg, anxiety, depression)	26.7
Cancer	15.9
Other chronic diseases for which there are no cures	14.8
Neurological diseases (eg, demyelinating)	13.0
HIV infection	9.6

*CAM indicates complementary/alternative medicine; ADHD, attention-deficit/hyperactivity disorder; and HIV, human immunodeficiency virus.

Table 2. Usage (Personal and Practice), Referral Patterns, Effectiveness, Safety, and Desire for More Continuing Medical Education (CME) on Various Complementary/Alternative Therapies Among 348 Responding Physicians

Therapies	% of Respondents						
	Therapies Practiced	Self/Family Use	Refer for	May Be Effective	Safe	May Be Harmful	Learn About (More CME)
Acupuncture/acupressure	1.4	7.5	10.9	51.1	30.7	3.4	40.1
Biofeedback	6.6	6.9	23.6	49.1	37.9	0.3	41.3
Chiropractic manipulation	0	4.3	7.2	32.5	6.9	40.8	12.8
Herbs	2.3	11.2	4.0	33.3	10.1	29.0	34.3
High-dose antioxidant vitamins/minerals	2.3	7.2	1.7	20.7	5.2	39.9	15.7
Homeopathy	1.1	5.5	4.0	21.0	12.1	13.5	25.0
Hypnosis	2.3	4.6	13.8	50.3	24.4	4.9	31.4
Imagery	4.3	6.9	9.2	31.9	21.8	0.9	15.7
Lifestyle diet	1.4	3.7	4.3	18.4	7.2	17.2	17.4
Massage therapy	4.3	16.1	13.2	46.3	36.8	1.1	25.0
Osteopathic manipulation	2.6	6.3	10.3	35.3	17.0	15.2	14.0
Prayer healing	4.0	11.2	4.6	35.9	31.3	6.0	11.6
Relaxation (yoga, meditation)	8.0	17.8	14.9	56.0	40.2	0.6	36.6
Self-help groups	7.2	8.0	23.3	54.3	37.1	4.9	14.0

Table 3. Two-Factor Varimax Rotated Solution of Attitudes and Patient Relationships as Related to CAM*

Variable	Factor 1, Positive Attitudes Toward CAM	Factor 2, Physician-Patient Relationship
Self or family use CAM	0.86	NA
More CME	0.81	NA
Refers patients for CAM	0.76	NA
Talks to patients about CAM	NA	0.79
Uses CAM in practice	NA	0.79
Patients tell physician they use CAM	NA	0.46

*CAM indicates complementary/alternative medicine; NA, not applicable; and CME, continuing medical education.

the pediatricians (54.1%) were interested in learning about 1 or more CAM therapies, especially biofeedback (41.3%), acupuncture/acupressure (40.1%), relaxation (36.6%), herbs (34.3%), hypnosis (31.4%), and massage therapy (25.0%).

FACTORS AFFECTING POSITIVE ATTITUDES TOWARD CAM AND PATIENT-PHYSICIAN RELATIONSHIP

Table 3 presents the derived 2-factor varimax rotated solution (named as follows: factor 1, positive attitudes toward CAM [eigenvalue, 2.3]; and factor 2, physician-patient relationships [eigenvalue, 1.3]) as it relates to CAM therapies. Eigenvalues greater than 1 represent a significant relationship.

Table 4 presents the stepwise linear multiple regression results for the described factor-derived outcome variables, positive attitudes toward CAM and patient-physician relationship. Intercorrelations among 6 demographic variables (US or foreign medical school, age, sex, years in practice, generalist/specialist, and ethnicity) and the 2 outcome variables eliminated ethnicity as a potential predictor. Five demographic predictor variables were entered into the 2 outcome analyses: age, sex, generalist/specialist, US/foreign medical school, and years in practice.

In the stepwise linear multiple regression analysis for factor 1, positive attitudes toward CAM, 2 significant predictors were found: younger age and female sex, accounting for 7.8% of the variance for more favorable attitudes. In the stepwise linear multiple regression analysis for factor 2, patient-physician relationship, the same 5 variables were entered into the analysis and 3 predictors were found: female sex, US medical school, and fewer years in practice, explaining 12.4% of the variance for more interaction between the pediatrician and the patient and the patient's family regarding CAM.

COMMENT

The key findings of this study indicate that the majority of pediatricians surveyed in Michigan believe their patients are using some form of CAM (83.5%) and discus-

Table 4. Stepwise Linear Multiple Regressions (N = 348)

Variable	Cumulative R ²	F to Remove	Zero-Order Correlation
Positive Attitudes Toward CAM*			
Younger age	0.05	10.86	-0.23
Female sex	0.08	7.06	0.20
Patient-Physician Relationship†			
US medical school	0.07	18.47	0.26
Female sex	0.10	7.39	0.18
Fewer years in practice	0.12	6.22	0.19

*Predictor variables that were not significant (P < .05) were years in practice, age, and generalist vs specialist. CAM indicates complementary/alternative medicine.

†Predictor variables that were not significant (P < .05) were age and generalist vs specialist.

sions of CAM are generally initiated by parents of the patients or the patients themselves (84.7%). Furthermore, while 50.3% of pediatricians would consider referring patients for CAM, they are most likely to refer patients with chronic diseases, such as headaches, backaches, chronic pain, and seizures (55.9%). Female pediatricians are more likely to discuss CAM with their patients (52.2%), and the majority of pediatricians are interested in CME courses in CAM (54.1%).

Results of this study are similar to those of studies of other primary care physicians. Schachter et al²⁸ in Israel and Anderson and Anderson¹⁶ in Oxford, England, indicated that 89% of family physicians and 95% of general practitioners believe their patients use "nonconventional" therapies. Verhoef and Sutherland²⁶ reported that 65% of general practitioners perceive a demand for alternative medicine from their patients. Similarly, other studies report that the majority of physicians surveyed would refer patients for CAM and desire more CME on CAM.^{15,19,20,22-25,27}

Greater than 50% (53.8%) of the pediatricians in this study reported that they talk to the parents of the patients or to the patients themselves about CAM, but the majority stated that the discussion was usually initiated by the patient's family. Most believe that the parents of the patients or the patients would tell them if they use CAM. The study by Elder et al⁷ supports this belief, as 53% of family practice patients surveyed in Oregon said that they would tell their physician about their use of CAM therapies. This is in contrast to the study by Eisenberg et al¹² that indicates that only one third of the patients surveyed would tell their physicians if they were using CAM therapies.

The majority of the pediatricians in our study would consider using CAM in their personal life, but only a little more than 35% (37.2%) use any of the 14 CAM therapies listed. Relaxation, massage therapy, prayer healing, and herbs were the most commonly used. Studies by Schachter et al²⁸ and Borkan et al²⁴ indicate that 27% of family physicians and 55% of primary care physicians, respectively, use CAM personally. A study of general practitioner trainees indicated that 22% of these physicians use CAM therapies.²² Only 10.3% of the pediatricians in our study practice

any form of CAM. This is less than the percentages in other reports of primary care physicians, which range from 13% to 38%.^{16,19,20,23,24,28}

A substantial number of pediatricians (26.7%-55.9%) in our study reported that they would use CAM or refer patients for CAM for chronic medical problems (headaches, backaches, pain management, muscular dystrophy, seizures, etc), when traditional therapy fails, for behavioral problems (attention-deficit/hyperactivity disorder, nightmares, etc), and for psychiatric disorders (anxiety, depression, etc). This was similar to other studies.^{15,18,26} Conversely, studies of patients with similar health problems found that most of these patients used CAM.^{7,12,29,31} Interestingly, less than one fourth of the pediatricians surveyed in our study referred patients for CAM for cancer, human immunodeficiency virus infection, and other medical conditions for which there is no cure.

The most common CAM therapies to which pediatricians in our study refer patients were biofeedback, self-help groups, relaxation, hypnosis, massage therapy, and acupuncture/acupressure. Less than 10% refer for chiropractic manipulation, osteopathic manipulation, homeopathy, herbal medicine, and prayer healing. This is contrary to studies in Europe that indicate that manipulative therapies (chiropractic and osteopathic), acupuncture, and homeopathy were therapies referred to more often.^{15,16,19,20,23} This may be because many of these therapies have been accepted by mainstream medicine in Europe more so than in the United States.

More than one fourth of pediatricians in our study consider acupuncture/acupressure, biofeedback, chiropractic or osteopathic manipulation, herbs, hypnosis, imagery, massage therapy, prayer healing, relaxation, and self-help groups to be effective. Even though one third of the physicians reported that they think manipulative therapies may be effective, less than 20% believe they are safe, and less than 10% refer patients for these therapies. One explanation for this discrepancy may be that manipulative therapies for children are often used for non-musculoskeletal disorders, such as otitis media, respiratory tract disorders, colic, enuresis, etc, often delaying appropriate and effective medical treatment.^{33,34} Furthermore, no scientific studies have proved these therapies to be useful for these conditions. In adults, manipulative therapies are most often used for musculoskeletal disorders, where they may be effective.

Sex, ethnicity, practice type, and location of medical training all have a significant effect on pediatricians' attitudes toward CAM therapies. This study supports results of other studies that indicate that female sex is a significant positive predictor of favorable attitudes toward CAM and of more interaction between pediatricians and the patients or their parents.^{15,23} More female pediatricians refer patients for CAM, and more female pediatricians wanted CME courses on CAM therapies. More whites and more graduates of US medical schools compared with foreign-born or -trained physicians believe their patients use CAM, and they also are more likely to discuss CAM with their patients and the parents of their patients. This may be explained by the fact that non-US medical school graduates may have

firm beliefs in biomedicine and may reject CAM so as to be seen as integrated into the US allopathic biomedical model.

Pediatricians in general practice were more likely than specialists to believe their patients use CAM, to refer for CAM, and to want more CME courses in CAM. Our results are similar to those of the study of primary care physicians by Borkan et al,²⁴ who believe that the physician-patient relationship between physicians in general practice vs subspecialties may be more open, and that physicians in general practice may be more aware of the limitations of biomedicine or deal with less severe, but often chronic, conditions for which CAM may be more appropriate.

This study has implications for clinical practice and for future medical education. It is clear from this and other studies that primary care physicians, including pediatricians, are generally aware that their patients are seeking alternatives to conventional biomedicine. This awareness is associated with an interest in and referral to complementary/alternative therapies despite the lack of substantial scientific basis for some therapies. Many CAM therapies focus on preventive medicine and emphasize a holistic approach to the patient, considering the patient in the context of mind, body, emotions, and environment.^{34,35} Patients have a positive attitude toward CAM, and its use is increasing even in children. Pediatricians need to be aware of this and maintain an attitude that is open and nonthreatening. Inquiries about the use of CAM should be a part of the routine pediatric medical history.³³

This study has several limitations. The survey instrument was administered only to pediatricians in the state of Michigan who were members of the Michigan chapter of the American Academy of Pediatrics, and therefore the results may not be generalizable to all pediatricians. The fact that we had a 40% response rate to our survey raises the possibility of response bias, since many physicians may have strong views for or against CAM, therefore accounting for the large number of nonresponders. Also, although the use of CAM is widespread, it is not widely used in the United States for children; thus, many pediatricians may not be aware of many of these therapies and their use in pediatrics. Finally, many CAM therapies have not been widely studied in children, and even practitioners of CAM may not see a large number of children.

CONCLUSIONS

Primary care physicians, including pediatricians surveyed in this and other studies, are interested in CME courses that involve training in CAM. Clearly, there is a need and a demand for more education, along with clinical guidelines for CAM therapies within the context of biomedicine.^{36,37} Given the use of CAM by patients and the growing scientific support for some therapies, perhaps some CAM therapies can be integrated as part of both undergraduate and postgraduate medical education. More research in various CAM therapies and larger studies surveying attitudes and referral patterns of pediatricians need to be considered for the future.

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Announcement

1999 Certifying Examinations of the American Board of Pediatrics: Adolescent Medicine Subspecialty Examination*

Examination Date: November 15, 1999. Registration for first-time applicants: February 1, 1999, through April 30, 1999 (postmarked). Registration for reregistrants: March 15, 1999, through June 15, 1999 (postmarked).

*If you are applying through the ABIM for the 1999 Adolescent Medicine Certifying Examination, you must contact ABIM for registration dates.

You must contact the ABP for application material. Each application will be considered individually and must be acceptable to the Subboard. The eligibility requirements may be obtained by contacting the American Board of Pediatrics, 111 Silver Cedar Ct, Chapel Hill, NC 27514; telephone: 919-929-0461; fax: 919-929-9255; or through the ABP web site: <http://www.abp.org>.