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# COMPLEMENTARY THERAPIES AND THE MEDICAL PROFESSION: A STUDY OF MEDICAL STUDENTS' ATTITUDES

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**Background** • *Despite the popularity of complementary therapies with the public, knowledge and use of these therapies among doctors appear limited. However, studies show that physicians and medical students are positive toward complementary therapies and have a high level of interest in learning about them.*

**Methods** • *The attitudes of medical students toward complementary therapies were examined using a questionnaire distributed to 800 first-, third-, and fifth-year medical students at two universities in Melbourne, Australia.*

**Results** • *The survey revealed that whereas Australian medical students were positive toward complementary therapies, their self-reported knowledge was low, with 56% having no knowledge of the principles of complementary therapies. Attitudes toward different therapies were found to vary widely, with students having little knowledge of chiropractic and naturopathy, the two therapies most commonly used by Australians. Students consistently scored meditation, massage, and acupuncture the highest with regard to knowledge, perceived usefulness, intended patterns of referral after graduation, and desire for education in the undergraduate degree.*

**Conclusions** • *When the medical course included some tuition on complementary therapies, students were more positive toward them. A single lecture on complementary therapies was found to have significant impact on medical students' views. Medical students have a high level of interest in complementary therapies that is not being satisfied by their undergraduate curricula. (Altern Ther Health Med. 1998;4(3):68-73)*

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Use of complementary therapies is on the rise.<sup>1,3</sup> Almost half of all Australians have at one time or another used treatments that were not prescribed by a medically trained doctor, and one in five visit a nonmedically trained practitioner of some complementary therapy.<sup>1</sup> Complementary and alternative medicine (CAM) appears to fill a need that is not being addressed by conventional medical treatment.<sup>4,6</sup>

Despite the popularity of CAM with the public, knowledge and use of these therapies among doctors appear extremely limited. Studies show that physicians and medical students are positive toward CAM and have a high level of interest in learning about it.<sup>7,11</sup> However, limited information about complementary therapies is offered in medical undergraduate courses.<sup>12</sup>

This situation raises a number of questions concerning the attitudes of medical students toward CAM. What do medical students think about complementary medicine? Where do medical students currently obtain their information on CAM? Does education on CAM change the views of medical students? If so, does it change them positively or negatively?

## METHODS

A questionnaire was designed to determine students' attitudes toward different aspects of CAM. The questionnaire was based on previous surveys.<sup>7,9,10</sup>

## Subjects

The study group was composed of 1097 first-, third-, and fifth-year medical students from Monash University and the University of Melbourne, both located in Melbourne, Australia. These levels were chosen to illustrate the progression of attitudes throughout the course. The fifth-year students at Melbourne University were divided into two groups: a larger group that had received an introductory lecture on CAM (n=130) and a smaller group that had not (n=33). The lecture was given as a part of the Community Medicine rotation, which some students had not yet attended.

## Design of the Questionnaire

In the questionnaire, complementary therapies were defined as follows:

Approaches to healing not usually included in a doctor's undergraduate training nor offered in public hospitals. Included are traditional medicines; practices and beliefs borrowed from other cultures; the so-called natural therapies; the plant-based medicines of homeopathy and herbalism; and the manipulative techniques of chiropractic, osteopathy, and massage. This survey does not include physiotherapy, occupational therapy, or self-medication with nonprescribed treatments such as vitamins.

This definition was handed to all respondents on a sheet of paper with the explanatory statement accompanying the questionnaire, and was in bold, italicized letters. It was read to the medical students before they began filling out the survey.

Ten complementary therapies were chosen and listed in alphabetical order. They were acupuncture, chiropractic, herbal medicine, homeopathy, hypnosis, meditation, naturopathy, massage, spiritual healing, and reflexology. These therapies were chosen based on the following: (1) the results of surveys<sup>1,4</sup> showing the most popular therapies among Australians, (2) the results of various overseas studies,<sup>2,3</sup> and (3) after taking the medical curricula at the two universities into account.

The study was approved by the Monash University Standing Committee on Ethics in Research on Humans, and the Melbourne University Department of Public Health and Community Medicine Ethics Committee.

### Statistical Analysis

Data were analyzed using the statistical package SAS (version 6.11; 1995). Chi-square and Fisher's Exact Test were used to measure the significance of differences in response. Fisher's Exact Test was used when the cell count was less than five. ( $P < .05$  was considered statistically significant.)

To determine a response on perceived knowledge and utility, desired education, and intended use of CAM as a whole, the data from each of the 10 therapies were pooled and the mean was used. The response for each therapy individually was included. Comparisons were made between students from different year levels, as well as between students who had attended the lecture on CAM and those who had not.

### RESULTS

A total of 1097 medical students were eligible to complete the questionnaire; 800 questionnaires were completed, for an overall response rate of 73%.

Initial inspection of results highlighted a consistent trend with regard to the 10 therapies. When a question required an answer for each therapy, acupuncture, meditation, and massage were consistently the most popular, forming the "top" group of therapies. Herbal medicine, hypnosis, and chiropractic formed a "middle" group. Naturopathy, homeopathy, spiritual healing, and reflexology formed the "bottom" group.

The grouping of therapies into top, middle, and bottom was

found to be valid for levels of knowledge and utility, need for education, and intention to refer after graduation.

Three groups of therapies were formed according to medical students' level of knowledge. The level of self-reported knowledge was highest in the group made up of meditation, massage, and acupuncture, with more than 65% understanding the basics or having received some training in them. The middle group consisted of hypnosis, herbal medicine, and chiropractic, with just under 50% claiming some knowledge of them. Naturopathy, spiritual healing, homeopathy, and reflexology were the least understood, with 31% or fewer of the students claiming some knowledge of them (Table 1).

The therapies medical students knew most about were considered to be the most useful. Massage, acupuncture, and meditation were considered useful by more than 80% of medical students. Herbal medicine, chiropractic, and hypnosis were considered useful by more than 50%. When students were not positive toward a therapy, which was the case for naturopathy, spiritual healing, homeopathy, and reflexology, it was because they didn't know about or had no opinion of its utility, not because they considered it harmful or not useful.

### *Question 1: What are medical students' attitudes toward complementary therapies?*

Most students expressed a positive attitude toward complementary therapies in general. Most (75%) agreed that complementary therapies include ideas and methods from which conventional medicine could benefit, that these therapies could provide a useful supplement to mainstream medicine (70%), and that CAM did not threaten public health (62%). Students seemed divided on whether therapies that were not scientifically tested should be discouraged. Students also seemed unsure whether the effects of complementary therapies were due to a placebo response and whether they stimulate the body's natural healing powers (Table 2).

### *Question 2: What are students' self-perceived levels of knowledge of various complementary therapies?*

In general, self-reported knowledge of complementary therapies was low, with 56% of the students having no knowledge of the principles of the 10 complementary therapies. However, whereas 8% of the students reported having pursued self-education by reading books or attending formal training in a particular modality, 36% of students claimed that they understood the basic principles involved (Table 1).

### *Question 3: What are students' opinions of the usefulness of various complementary therapies?*

Medical students generally considered CAM to be useful. More than half of the medical students surveyed thought that complementary therapies were either useful or very useful (51%). A substantial number didn't know about or had no opinion concerning the utility of complementary therapies (35%). CAM was viewed as not useful or harmful by 14% of the students (Table 3).

TABLE 1 Students' self-perceived knowledge of individual complementary therapies

Therapy	Understand basic principles or have received some training (%)
Meditation	70
Massage	70
Acupuncture	65
Hypnosis	47
Herbal medicine	46
Chiropractic	44
Naturopathy	31
Spiritual healing	28
Homeopathy	23
Reflexology	15

**Question 4: How do medical students expect to use complementary therapies after graduation?**

Despite the fact that more than 50% of medical students considered CAM in general to be useful, most students chose to "sit on the fence," stating that they would neither persuade nor

dissuade patients from using complementary therapies (53%). A considerable number of students intended to encourage their patients' suggestion of using CAM (26%), whereas 9% claimed they would actively encourage (ie, refer) their patients. A small number (3%) stated that they would actively dissuade their patients from using CAM, and 9% claimed they would discourage complementary therapy use.

Despite this general reservation concerning the intended use of CAM, when it came to specific therapies most medical students intended to encourage or refer patients for the top group of therapies (massage, meditation, and acupuncture) (64%). For all other CAM therapies, the intended use after graduation showed little variation. On average, 16% of medical students would discourage their patients' suggestion or actively dissuade them from using complementary therapies, whereas most (62%) would neither persuade nor dissuade their patients from CAM use.

**Question 5: Do medical students perceive a need for education in complementary therapies?**

Pooling of the data from the 10 therapies showed that in general more than half (54%) of the medical students supported some sort of training in complementary therapies in the undergraduate degree. An optional unit was thought desirable by 44% of students and a compulsory unit by 10%. Postgraduate education in CAM would be considered by 15% of students, whereas 31% did not want any education at all.

Most medical students (71%) would like to see education on the top three therapies (massage, meditation, and acupuncture) included in the undergraduate curriculum (56% thought it should be optional, 15% thought it should be compulsory). More than half of the students (55%) would like the middle

TABLE 2 Medical students' attitudes toward complementary therapies

Attitude	Strongly agree and agree (%)	Neutral (%)	Strongly disagree and disagree (%)
Complementary therapies are a threat to public health	10	27	62
Treatments not tested in a scientifically recognized manner should be discouraged	36	28	36
Complementary therapies are a useful supplement to regular medicine	70	23	7
The effects of complementary therapies are usually due to a placebo effect	28	48	24
Complementary therapies include ideas and methods from which conventional medicine could benefit	75	20	5
Most complementary therapies stimulate the body's natural therapeutic powers	36	47	17

TABLE 3 Students' perceived utility of individual complementary therapies

Therapy	Useful or very useful (%)
Massage	85
Acupuncture	83
Meditation	81
Herbal medicine	60
Chiropractic	53
Hypnosis	52
Naturopathy	32
Spiritual healing	32
Homeopathy	18
Reflexology	15

three therapies (herbal medicine, hypnosis, and chiropractic) included (46% optional, 9% compulsory), whereas less than half (40%) thought education on complementary therapies should encompass the bottom group (naturopathy, homeopathy, reflexology, and spiritual healing) (34% optional, 6% compulsory). This finding was consistent with medical students' self-perceived knowledge, perceived utility, and intended patterns of referral for CAM.

**Question 6: What are students' estimates of the public's use of complementary therapies and do they perceive it as changing?**

Thirty-four percent of medical students correctly estimated the percentage of some form of CAM use by Australians (49% of the Australian public, according to one study<sup>1</sup>). A total of 15% of the students overestimated CAM usage; most students (51%) underestimated it.

The demand for complementary therapies by the public was seen to be increasing by the overwhelming majority of medical students (86%), whereas 12% thought it was remaining stable, and 2% thought it was decreasing.

**Question 7: What types of exposure have medical students had to complementary therapies?**

Most medical students' exposure to CAM included anecdotes (82%) and media-based information (76%). A substantial proportion of medical students had been exposed to complementary practitioners: 46% had friends or colleagues who practiced CAM, and 28% had been treated personally by a CAM practitioner.

**Question 8: Do students think complementary practitioners require formal registration?**

Most medical students (66%) agreed that nonmedical practitioners of CAM should be registered. Eighty-seven percent of students thought that acupuncturists should be required to register, and 84% felt that chiropractors should. More than 50% thought practitioners of all other therapies (except spiritual healing, 49%) should be registered.

**Question 9: Do students think complementary practitioners should be eligible for government rebates (Medicare)?**

A minority of students (28%) thought that nonmedical practitioners of CAM should be eligible for Medicare rebates. Acupuncturists were favored for rebates by 57% of students and chiropractors by 48%.

**Question 10: Do students think doctors should receive formal training in complementary therapies before using them in clinical practice?**

The vast majority of medical students (80%) thought that doctors should receive training before practicing CAM. Acupuncture and chiropractic were the therapies in which medical students thought it most important for doctors to train before attempting to practice (93% and 89%, respectively). This finding is consistent with registration of nonmedical practitioners and eligibility for Medicare rebates. More than 70% of medical students thought that if a doctor were to practice any of these therapies, he or she should receive formal training.

**Effect of an Introductory Lecture on CAM**

In every respect, the fifth-year students who had received a lecture on complementary therapies were significantly more positive than were those who had not. The lectured group not only had a more positive attitude toward CAM, they also claimed to know more ( $P < .001$ ), considered these therapies more useful ( $P < .05$ ), thought education on CAM more necessary ( $P < .001$ ), and had a greater intention to refer patients for complementary therapies after graduation ( $P < .001$ ).

**DISCUSSION**

Medical students appear to have little general knowledge of CAM, revealing a discrepancy between students' knowledge of complementary therapies and the therapies that are most popular with the Australian public. Chiropractors, naturopaths, and acupuncturists are the most popular complementary practitioners used by the Australian public.<sup>1</sup> However, only 44% of medical students had some knowledge of chiropractic, and 31% had some knowledge of naturopathy, rating these the sixth and seventh most understood therapies, respectively. This indicates that students have little understanding of the complementary therapies most used by the general population.

The discrepancy between public use and students' knowledge was surprising, given that most medical students are exposed to CAM through anecdotes from patients, family, and

friends, and through media-based information such as medical journals. These sources would be expected to accurately reflect the therapies that are most popular with the public. However, it may be that students only take notice of the exposure they receive to CAM—mostly acupuncture, massage, and meditation—while they are attending a university, whereas anecdotes and media reports are ignored. This lack of understanding of the public's use of CAM suggests that when medical students graduate they will not have sufficient knowledge to properly advise patients. This insufficiency may compromise doctor-patient communications and limit the liaison between doctors and complementary practitioners.

The therapies that were most understood by students were also viewed as the most useful—a finding consistent with that of several studies.<sup>7,13</sup> The link between exposure to complementary therapies and a positive attitude toward them was a general finding of the study, and was strongly supported by the results from the group that had received a lecture compared with the other group that did not. Despite significant differences between the two groups, it is difficult to say whether these differences in attitudes were purely due to the lecture; the baseline measurement of the whole year level before the lecture was not taken, and the prelectured group was not resurveyed after the lecture to gauge changes in attitude.

No significant differences were found in the responses of first-, third-, and fifth-year students. This finding was expected: because medical students receive no tuition on most of these therapies, knowledge and perceptions of them would not be expected to alter substantially. This implies that fifth-year medical students are no more equipped to advise patients on the use of CAM than are first-year students. A different interpretation, however, is that medical students acquire more knowledge about the therapies as they progress through the course, but rate their knowledge as low because they recognize the rudimentary nature of that knowledge.

Acupuncture was the only therapy for which medical students' knowledge and perceived utility increased through the course (both  $P < .001$ ). In addition, acupuncture was the only therapy in the top group for which an overwhelming majority of medical students (87%) thought nonmedical practitioners should be registered and eligible for Medicare rebates (57%). This may be related to the education received on this therapy: students in their third year at Monash University are offered an optional unit in acupuncture, which is very popular. Knowledge of acupuncture is not limited to these students because other students may learn about the technique from their peers who have taken the course. This process may reflect the way doctors learn about CAM—that is, from colleagues rather than through formal education. The integration of acupuncture into conventional medical treatment may take place through such methods.

More than half of the students thought that education in complementary therapies was necessary. Acupuncture, massage, and meditation were seen as the most important to be included in the curriculum. Most medical students favored optional edu-

cation to introduce the principles of various therapies. This suggests that medical students do not think it should be compulsory for doctors to know about CAM, but that they should have the option of learning about it. It is also possible that medical students simply do not wish to add any more topics to an already intense medical course load.

Although medical students perceived CAM as generally useful (51%), most stated that they would neither encourage nor discourage patients from using complementary therapies (53%). This may reflect medical students' lack of knowledge and confidence in advising patients about the use of CAM, or it may be that medical students believe that patients should "pursue complementary therapies on their own suggestion" (stated by a first-year student) rather than on a doctor's recommendation—and then only "if Western medicine had little to offer" (stated by a fifth-year student). Because they consider themselves providers of Western medicine, these medical students may not wish to involve themselves with CAM. However, these findings might also suggest that medical students view CAM as an "alternative to conventional medicine" (first-year student), and that using it would "mean abandonment of conventional therapies," which is believed to be "dangerous" (first-year student).

Medical students may also believe that CAM should be used only "as a last resort when medicine has failed"—a suggestion made by a fifth-year student—leading one to believe that these students would rather refer to a Western specialist than to a complementary practitioner. The fact that patients pay for CAM out of their own pocket while Western treatment is paid for by Medicare may also be a factor that would discourage medical students from referring patients for CAM.

Despite the perception among most medical students that demand for complementary therapies is increasing, and in spite of the fact that almost half of these students overestimated the prevalence of CAM use in the Australian population, medical students' willingness to refer patients after graduation to complementary practitioners was low overall (only 9% would refer and 26% would encourage their patients' suggestion). Studies of overseas doctors' patterns of referral show far higher rates of referral for CAM, with up to 93% of general practitioners referring patients for complementary therapies.<sup>7</sup> It would be useful to survey the same medical students a few years after graduation to see whether their actual use of CAM differed from their intended use, as well as to examine what factors combined to change their behavior. It would also be useful to investigate the attitudes and practices of current Australian doctors to compare their attitudes with those of medical students.

## CONCLUSIONS

In general, Australian medical students have a positive attitude toward complementary therapies. Specific therapies can be classified into three broad groups based on students' knowledge and attitudes. The therapies in the top group included acupuncture, meditation, and massage—therapies to which most undergraduates are exposed during their training. Despite having a

positive attitude toward complementary therapies and viewing them as useful, Australian medical students show little understanding of CAM and appear to view it differently from the public. Whereas most medical students overestimate the public's use of complementary therapies, they do not appear to be confident in advising patients on the suitability of their use, nor do they feel comfortable referring patients for CAM treatments.

Currently medical students are mainly exposed to CAM via anecdotes and the media; however, most students perceive a need for education in complementary therapies in their undergraduate degree. Formal exposure, such as a single lecture on CAM, can be shown to positively affect medical students' attitudes toward these therapies.

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