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Complementary and Alternative Medicine: Perceptions of Medical Students from Pakistan

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Abstract:

Background: In view of the increasing popularity of complementary and alternative medicine (CAM), it is imperative that medical students, the health professionals of tomorrow, possess adequate knowledge on the topic.

Objectives: This is a descriptive study designed to assess the knowledge, attitudes and behavior of medical students about CAM and to capture their perceptions and opinions about its integration into the medical curriculum.

Methods: A questionnaire-based cross-sectional survey was done on 198 medical students selected randomly from a Pakistani medical college. Associations between different variables were tested using the χ^2 -test of significance.

Results: Among the 198 participants, a majority believed that some of the CAM modalities are useful; they lacked knowledge, however, about their safety and efficacy. Most of the students believed that it should be used in conjunction with conventional medicine and that, if given adequate training, they would incorporate it in their future medical practice. One-third of the respondents voted in favor of incorporation of CAM into the medical curriculum.

Conclusion: Despite being aware of the usefulness of CAM only a few medical students had pursued further knowledge. In order to prepare the medical students of today to better fulfill their duties as tomorrow's physicians, consideration should be given to incorporating CAM in the medical curriculum.

Keywords: Complementary and Alternative Medicine, Medical students, Curriculum

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The popularity of Complementary and Alternative Medicine (CAM) has increased dramatically throughout the world over the past several years.¹ It has maintained its popularity in a number of Asian countries, such as China, India, Japan and Pakistan.² However, statistics on the prevalence of CAM use in the general population in Pakistan are not available. Studies show that two-thirds of the medical schools in the U.S.A. and Canada now offer either electives or instruction on CAM in their curriculum.³ Between 60% and 80% of medical students now demand more instruction about CAM during their medical training, whereas 30-50% of them would like to learn how they can incorporate selected CAM practices into their repertoire of clinical skills since they believe some CAM modalities to be beneficial for the patients while considering others to be hazardous.⁴

Education at medical school influences attitudes towards CAM. Medical students trained solely in an allopathic environment show increased skepticism towards CAM.^{5,6} Including topics on CAM in the medical school curriculum would better prepare the practicing physician for soliciting information from the patient about the current use of CAM and for responding more effectively to the patients' inquiries about CAM. It will also help the physician assess the merit of introducing or removing a CAM modality in the patients' plan of care. Furthermore, a medical doctor who lacks sufficient information about various aspects of CAM will be at a disadvantage in fulfilling his role as a patient advocate.

In the setting of the developing world, CAM can be effectively used to reduce load on the overburdened health delivery systems. This would require incorporation of CAM teaching in medical curricula; however studies

assessing the perceptions of medical students towards CAM come primarily from the European countries and the United States of America, and data from the developing countries is scarce, as is data from our part of the world. Factors that influence views on CAM like beliefs about the nature of life, disease, and spirituality prevalent in Pakistan might be completely different from those prevalent in the West. Therefore it is imperative that medical students' opinion regarding CAM be assessed beforehand in our specific setting. The present study assesses the knowledge, attitudes and behavior of medical students in a medical school from Pakistan about CAM. It also evaluates their attitudes about the integration of CAM in the medical curriculum.

Methods

This was a cross-sectional study carried out at the Medical College of The Aga Khan University (AKU), Karachi, Pakistan in February 2004. AKU is one of the leading medical schools in the country. It offers a five-year medical education program leading to the degree of Bachelor of Medicine and Bachelor of Surgery (M.B, B.S). The existing curriculum of the medical college offers no formal instruction on CAM. The size of the medical student population of AKU was 406 at the time of the study with an average class size of 81 students. Keeping the expected frequency of all variables at 50%, the desirable sample size using a 95% confidence interval came out to be 197. After 10% inflation and rounding off, the final desired sample size was determined to be 220. The desired sample was selected by a stratified random sampling process. The medical-school record numbers of the students were entered and a set of random numbers generated by computer to select the subjects. All five classes were represented in the sample proportionate to the classes' size.

The development of the questionnaire was based on a review of similar publications published earlier in the scientific literature. It was pilot-tested on a randomly selected group of 20 medical students representing all

five classes. These students were then excluded from the study. Other than age, gender and year of medical school, no further information that could identify the subjects was asked. Apart from the demographic questions, the questionnaire comprised 19 multiple-choice questions relating to the knowledge, attitudes and behavior of the medical students about CAM. Moreover, their knowledge of ten commonly used CAM modalities and their understanding of the clinical outcomes of these modalities were obtained. We based our questionnaire on a study of medical students' opinions about these modalities conducted in a U.S. medical school.⁴ However, we substituted Hikmat and Ayurveda in place of Reflexology and Naturopathy in consideration of our study setting. The subjects were approached by the investigators after their classes in the lecture halls and, after obtaining verbal consent, the questionnaires were distributed among the subjects. The investigator stayed within an approachable distance so that any queries raised by the respondents could be answered; however, no information relating to CAM was divulged.

The data were collated and analyzed using SPSS (version 13.0). Complete confidentiality was maintained while the data were being processed. Descriptive statistics were computed on all variables as the primary method of data evaluation. Comparison groups were formulated on the basis of gender, year of education and personal experience with the use of CAM. Differences in terms of knowledge, attitude and behavior concerning CAM were tested using the χ^2 -test of significance. The level of significance was set at 0.05.

Results

Of the 220 students, there were 18 non-respondents and 4 incomplete questionnaires, thus making a response rate of 90%. Our sample comprised 109 (55.1%) males and 89 (44.9%) females. The mean age was 20.7 years with a SD of ± 1.59 years. Among the 198 participants, 158 (79.8%) were aware of the term CAM. They listed newspapers and magazines (42.9%), friends and family

Table 1: Knowledge of different CAM modalities as perceived by the students

	Never heard (%)	Heard but no knowledge (%)	Understand the basic principles (%)	Pursued further knowledge (%)
Acupuncture	7.1	24.2	66.7	2.0
Aromatherapy	26.8	36.9	34.3	2.0
Ayurveda	34.3	40.4	23.2	2.0
Chiropractic	55.1	28.8	15.7	0.5
Hikmat	4.5	31.8	57.6	6.1
Homeopathy	3.0	0.8	56.6	9.6
Hypnosis	10.6	34.8	48.0	6.6
Massage	6.1	24.7	62.6	6.6
Meditation	4.5	29.3	54.0	12.1
Spiritual healing	6.1	40.4	47.0	6.6

(25.8%), and television and radio (14.1%) as the main sources of their knowledge. A highly statistically significant association was observed between the increasing years of medical education and knowledge about CAM ($\chi^2=15.46$, $p=0.002$). Gender was not related to knowledge, attitude or behavior. Regarding practice of CAM, 183 (92.4%) participants reported it is practiced in Pakistan; five students (2.5%) replied negatively, and another ten students (5.1%) expressed no opinion. The main reasons cited by students for CAM use in the general population were religious and spiritual beliefs (24.5%), illiteracy (18.7%) and affordability (17.0%).

Self-reported knowledge about ten commonly used CAM therapies is listed in Table 1.

The number of students who reported having sought CAM at some point in their life was 75 (37.9%) (Table 3).

Personal conviction (35.8%) was the most common reason for seeking CAM, though family pressure (22.7%) and religious/spiritual beliefs (11.2%) also contributed to some extent. A large proportion (73.3%) of those who sought CAM reported it to be useful. The students who have personally sought CAM at any time in their life reported a statistically significantly higher level of knowledge about spiritual healing ($\chi^2=14.74$, $p=0.002$). For rest of the modalities knowledge was not significantly different from those who had never sought CAM for themselves. But there was a significant difference in terms of perception about clinical outcome of CAM modalities. Those who have sought CAM perceive it to be useful more than those who never used any CAM modality for

Table 2. Outcome of different CAM modalities as perceived by medical students

	Harmful (%)	Useful (%)	No opinion (%)
Acupuncture	11.6	63.1	25.3
Aromatherapy	9.6	45.4	44.9
Ayurveda	7.6	40.4	52.0
Chiropractic	7.6	21.7	70.7
Hikmat	19.2	64.1	16.7
Homeopathy	16.2	64.1	19.7
Hypnosis	21.2	38.9	39.9
Massage	6.6	75.2	18.2
Meditation	8.1	70.2	21.7
Spiritual healing	42.0	26.3	31.8

Over two-thirds of the respondents said that they understood at least the basic principles for 4 out of 10 CAM modalities, including massage (69.2%), acupuncture (68.7%), homeopathy (66.2%) and meditation (66.1%). The perceptions of medical students about the clinical outcomes for different CAM modalities are shown in Table 2.

ayurveda ($\chi^2=12.47$, $p=0.04$), meditation ($\chi^2=13.33$, $p=0.01$), and spiritual healing ($\chi^2=18.64$, $p=0.001$). They also perceive it to be safer than conventional medicine ($\chi^2=11.79$, $p=0.003$).

A majority of students (76.3%) held the opinion that CAM should be used in conjunction with conventional

Table 3. Outcome stated by participants who sought CAM

Sought	YES		Frequency	Percent
		Harmful	2	1.0
		No effect	13	6.6
		Useful	55	27.8
		Not sure	5	2.5
		Total	75	37.9
	NO		123	62.1
Total			198	100.0

A large proportion of students from all the classes regarded various modalities to be useful, especially massage (75.2%), meditation (70.2%), hikmat (64.1%), homeopathy (64.1%), and acupuncture (63.1%).

medicine. These students were also more likely to have sought CAM for themselves ($\chi^2=7.14$, $p=0.002$). If given proper training, 120 (60.6%) students professed that they will incorporate CAM in their future medical practices. About its incorporation into the medical curriculum at AKU, 102 (51.5%) voted in favor, 70 (35.4%) rejected

the proposition, and 28 (13.1%) of them expressed no opinion. The various options suggested by those medical students who thought it should be incorporated into the medical curriculum were introductory lectures (28.4%), optional/elective courses (27.5%), compulsory course of 2 weeks and compulsory course of 4 weeks (19.6% each).

Discussion

Keeping in mind the already over-burdened health systems of the developing world, we believe that CAM carries much greater implications than anticipated. It is pertinent to conduct such a study in Pakistan as it might help initiate a thinking process within the medical community about CAM. It also might provide an idea of the medical students' perspective about CAM to the curriculum developers that will help them make relevant changes in the medical curriculum. Our study principally explores the knowledge, attitudes and behavior towards CAM among the medical students of The Aga Khan University. It also tests whether or not there exist significant differences in their views at different stages of their medical training and their attitudes about its integration into the medical curriculum.

We consider our response rate to be appropriate as the sample size had already been inflated by 10%. A sizable number of students lacked sufficient knowledge or understanding regarding the safety of ten commonly used CAM modalities, which corroborates previous studies.⁴ As expected, the main sources cited by those who knew about CAM were media (newspapers, magazines, radio and television), friends and family. This is in accordance with earlier literature, since these are the sources which increase one's general knowledge.⁴ The main reasons considered by students for the use of CAM in the general population were religious and spiritual beliefs, illiteracy and affordability.

More than one-third of the students had sought CAM for themselves at least once. The main reason cited by them was personal conviction in face of evidence. This was very high as compared to 13% of students who reported personal treatment by a CAM practitioner in another study done among medical students at a US medical school.⁸ This might be attributed to religious and cultural beliefs and family factors in Pakistan that are different from those prevalent in the West. In another study conducted in the U.S., it was found that medical students were quite open to considering use of CAM modalities, which is evident from the fact that these students had reported fewer negative outcomes.⁹ Our data indicated similar results, since three-fourths (73%)

of those students who sought CAM for themselves had regarded it to be beneficial. In another study, 86% of medical students at a U.S. university were reported to have little or no personal or professional experience with CAM, though 98% of those surveyed regarded CAM to have beneficial effects.¹⁰

A positive relationship was observed between advancing years of medical education and the awareness of CAM, a finding conforming to the general increase in knowledge. A significant tendency for students to seek CAM for themselves was found among all classes. No association between the years of medical education and opinions about role of CAM in modern medicine and its incorporation in future medical practice was found. This is at odds with earlier studies that demonstrated that the students' skepticism about CAM increases with increasing years of medical education.⁵ Similarly, we did not find any association between gender and knowledge or attitudes towards CAM, which again is contrary to other studies.^{11,12}

Studies have shown that medical students would like more instruction about alternative medical therapies before they can provide advice to patients.⁷ Medical schools in the West are increasingly offering courses addressing alternative medicine in the curriculum.¹³ About half of the students (51.5%) at our university were of the opinion that CAM should be incorporated into the medical curriculum at AKU. This was lower than the figures reported in the Western literature where it varied from 72% to 91%.¹⁴ The lower interest in pursuing CAM at the medical college might point towards the heavy work load on medical students. A majority of the students intended to incorporate CAM in their future medical practice, provided they had adequate training in its use. The high degree of receptivity for CAM suggests the need for both faculty training and curriculum development in this field.

Study limitations and Recommendations - Due to the scarcity of time and resources, our study was confined to the medical students of the Aga Khan University Medical College only; this limits the representativeness of our results. Furthermore, the reliability or validity of the questionnaire was not determined beforehand. Reliance on self-report by the medical students also weakens the study, since retrospective accounts of health practices and reasons for making certain health care decisions might induce bias. More studies are warranted in order to assess the true prevalence of CAM use in the general population and the inclination of medical students as well as other students.

Conclusion - This is the first study aimed at assessing the views prevalent among medical students in Pakistan regarding CAM. We found a dearth of knowledge about CAM among the students. They showed interest in the subject, however, and a significant number had sought it for themselves. The current trends of integrative medicine and holistic attitude towards patient care dictate newer approaches in the improvement of the existing curriculum. The curriculum should enable medical students, the doctors of tomorrow, to provide a better management and advocacy plan to their patients. Students' lack of knowledge about various modalities of CAM but their awareness of its contribution to patients' well being and their alacrity to incorporate it into their future practices should serve as a stimulus to include CAM, either formally or informally, into medical curricula.

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