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Attitude of Saudi medical students towards complementary and alternative medicine

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Abstract:

BACKGROUND: Alternative medicine is defined as medical therapies that are not regarded as orthodox by the medical profession. The teaching of complementary and alternative medicine (CAM) in medical schools is becoming prevalent worldwide. Only a few studies have been done to assess medical students' attitude toward CAM and the need for CAM courses.

MATERIALS AND METHODS: An observational, descriptive, cross-sectional study was conducted on medical students in two universities, King Saud (KSU) and Majmaah (MU) medical colleges, between February and April 2015. A survey was developed and validated by a pilot study. Data were gathered from both colleges by means of hard and soft copy surveys. Medical students of both genders from the 1st year to the 5th year from both universities were targeted in this study. Fifth-year students from Majmaah and students from the preparatory year were excluded from the study. KSU students comprised 1433, while MU students comprised only 180. The sample size was 384. Data were analyzed using SPSS software.

RESULTS: The study included 399 medical students. Bloodletting is the most known modality (80.7%), while homeopathy is the least known with a percentage of 7.47%. The overall assessment of the attitude toward CAM was neutral, with a mean of 3.1. Students who had taken a CAM course previously were more satisfied with their knowledge than those who had not, showing a statistical significance of $P = 0.0001$.

CONCLUSION: This study showed a lack of knowledge of CAM among medical students. There was an association between taking a CAM course and students' satisfaction with their knowledge. Most of the students agreed with the inclusion of CAM courses in the medical curriculum.

Keywords:

Complementary and alternative medicine, knowledge and attitude, medical students

Introduction

Numerous methods of treating illnesses have been in existence for a long time in different parts of the world. Medical professionals, sociologists, and many other health-care workers have been aware of the capability and availability of these treatment methods. Most of these methods are not supported or have not been verified by biomedical science, but since the 1970s, there has been the encouragement to analyze them with the hope that they would help with the advancement and progress of various medical fields. Many different terms have been used to describe these unverified treatments such as heterodox and fringe medicine, but the most commonly used term has been "alternative medicine."[1]

"Alternative medicine" is defined as any of a range of medical therapies that are not regarded as orthodox by the medical profession. Examples include new and traditional medicinal practices such as bloodletting (the act of drawing blood from

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a patient in order to achieve equilibrium in body fluids for well-being and to treat many diseases, and homeopathy was established on the idea that "like cures like," in that a patient's symptoms are treated with diluted forms of substances that would create similar symptoms in a healthy person), herbal medicine, chiropractic, various forms of acupuncture, traditional Chinese medicine, and faith healing including therapies mentioned in the Holy Quran or Sunnah. They use natural remedies such as ginger, olive, garlic, pumpkin, and many natural herbs. Nonherbal therapies are also included under faith healing in Islam. For example, people read the Holy Quran and pray to seek healing and well-being from organic or psychological diseases.[2]

When we combine alternative medicine with conventional medicine in which treatment is "complemented," we call it complementary medicine.[3]

Complementary and alternative medicine (CAM) is divided into three categories. The first is Codified medical systems which include great traditions which have evolved over 3–4 millennia like Ayurveda (an alternative medicine discipline of Indian origins that includes comprehensive system of the spiritual, breathing, exercise, dietary, and herbal methods), Chinese medicine, and acupuncture. This type has a unique understanding of physiology, pathogenesis, pharmacology, and pharmaceuticals which are different from Western biomedicine. The second is Folk medicine which is not formalized and is indigenous to certain geographical areas and communities such as cauterization in the Arabian peninsula. The third is Allied forms which include techniques for wellbeing such as yoga, tai-chi, and different meditations and breathing techniques.[4]

Therapeutic approaches and preferences vary according to sociocultural, historical, and, at times, the religious background of the individual, but their use is increasing rapidly, particularly among those with chronic illnesses such as diabetes, osteoporosis, liver disease, and even among cancer patients.[5-7]

With the increase in the cost of conventional medical treatment, the incidence of self-medication has increased, and many families prefer to try home remedies and alternative therapies before consulting a qualified medical practitioner.[8]

The use of alternative medicine among Saudi residents of the Riyadh region as observed in previous studies ranged between 68% and 85%,[9,10] which is high compared to that of different parts of the world. In the US for instance, the use was reported in a study as 40%, while in Norway, it was found to be 34%.[11,12]

It has been reported that self-medication with herbs is highly associated with middle age, female gender, and low income.[13]

The teaching of CAM in medical schools is becoming prevalent worldwide. A study in the US in 2015 showed that CAM-related content was found in 66 (50.8%) medical schools. Although the majority of the content of CAM comprised didactic courses offered as electives, only five schools had a CAM course as a requirement and one school required a CAM clerkship.[14] Regionally, few medical schools have started to consider teaching CAM in their curriculum.

Given the fact that the use of CAM by patients is increasing in the gulf region, only a few studies have been done to assess medical students' knowledge and attitude toward CAM. This study was conducted to assess the attitude and satisfaction of medical students in two medical schools with their knowledge of CAM and compare the attitude of students who had taken courses on CAM and those who had not.

Materials and Methods

This was an observational, descriptive, cross-sectional study conducted to evaluate the knowledge and attitude of medical students toward CAM in two universities, King Saud University (KSU) and Majmaah University (MU) medical colleges, in Saudi Arabia. We decided to include KSU as it has one of the oldest and well-known colleges of medicine in the region and compares it with MU where the teaching of CAM as part of the curriculum is well established. All male and female students at KSU and MU universities were targeted in this study. Ethical approval was obtained from the Institutional Review Board (IRB) and informed written consent was taken from all participants. Students who enrolled in this study were 1st, 2nd, 3rd, 4th, and 5th-year medical students. The study was conducted early in 2015 when KSU medical students were almost 1433 and MU medical students were only 180. The sample sizes in the two colleges were unequal, and males and females in the preparatory year were excluded from the study. 5th-year Majmaah medical students were also excluded from the study because of their commitment to hospital training outside the university. Sample size estimated at 384 students was calculated using the following formula [$N = (Z_{\alpha}/2)^2 p\ (1-p)/D^2$] on the assumption that the prevalence of CAM awareness was 10% in different years for both males and females with 3% degree of precision and 95% (1.96) level of confidence.[15] A self-administered questionnaire was developed to achieve the aim of this study. The questionnaire consisting of 16 questions (5 on demographics, 3 on students' knowledge, and 8 on attitude) was validated

by a pilot study on 15 students. Any problems detected were corrected before the data collection. Data were collected by two methods: a classic paper questionnaire and an electronic survey. After explaining the study objectives to the students and taking verbal consent from them, they were asked to fill the questionnaires. Researchers reviewed the completed questionnaires and all those which were incomplete were excluded. The study was approved by the IRB committee of KSU (letter of approval attached to the manuscript).

Statistical analysis

Data were analyzed using SPSS software version 21.0 (IBM Corp., Released 2012, Armonk, NY). Descriptive analysis included mean and standard deviation for quantitative variables such as age and grade point average (GPA), and frequencies and percentages for categorical variables such as gender and university. Assessment of the mean attitude on a 5-point scoring system was established, where positive statements got 5 points for "strongly agree" and negative statements got 5 points for "strongly disagree." The value closer to 5 indicated a more positive attitude and vice versa. Chi-square test was performed to look for any association of either the use of CAM modalities or taking a CAM course with other variables from the survey; all tests were performed at 5% significant level.

Results

A total of 401 medical students participated in this study. Two responses were excluded from the study for being incomplete. As shown in Table 1, the mean age of the participants was 20.7 years, and we found that 76.9% of the responses were from KSU and 23.1% from MU. Of the participants, 71.2% were male and 28.8% were female, and 47% of the students had a GPA range of 4.5–5.

Two-thirds of the students, i.e. 71.7% were familiar with CAM practice.

A visual inspection of the CAM knowledge chart [Figure 1] of our entire sample (n = 399) showed that bloodletting was the most popular (80.7%), while homeopathy was the CAM modality least known by students at a percentage of 7.47%.

Table 2 shows that the students' attitude toward CAM was not consistent. However, according to the 5-point scoring system, the overall number of responses was neutral with a mean of 3.1. The highest mean score (3.6) was for the statement: "Patients benefit more from doctors who have knowledge of CAM." The lowest mean score (2.4) was for the statement: "CAM treatments are not tested in a scientifically recognized manner."

Table 1: Characteristics of medical students, Saudi Arabia, 2015 (n=399)

Variable	Number (%)
University	
KSU	307 (76.94)
MU	92 (23.06)
Sex	
Male	284 (71.18)
Female	115 (28.82)
Medical year/age	
1st ≈ 19 years old	103 (25.81)
2nd ≈ 20 years old	86 (21.55)
3rd ≈ 21 years old	92 (23.07)
4th ≈ 22 years old	67 (16.79)
5th ≈ 23 years old	51 (12.78)
GPA	
<3	5 (1.25)
3-3.49	25 (6.27)
3.5-3.99	50 (12.53)
4-4.49	131 (32.83)
4.5-5	188 (47.12)

GPA=Grade point average, KSU=King Saud University, MU=Majmaah University

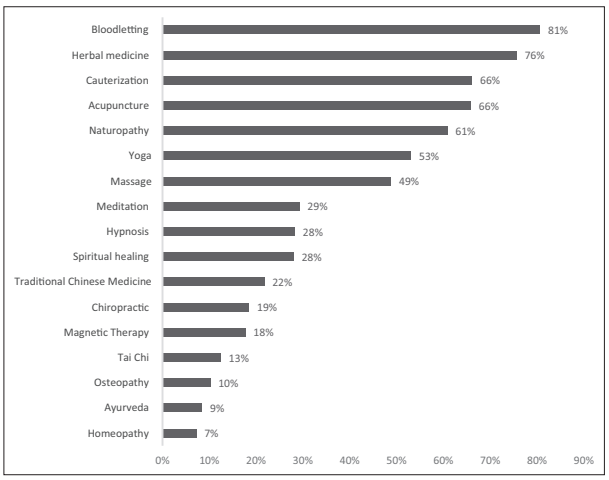

Figure 1: Percentage of familiarity among medical students in different (complementary and alternative medicine) modalities, Saudi Arabia, 2015

The results also show that only 24% of the students were satisfied with their knowledge of CAM and 68% were interested in learning more about it. Moreover, more than half of the students (59%) support the inclusion of CAM in the medical curriculum. Sixty percent of them preferred to have CAM courses taught separately and 40.6% wanted them integrated with other courses. Significantly, the addition of a CAM course was mostly supported by those who used CAM and females ($P < 0.01$).

Only 15% of the students had ever taken a CAM course. About 68% of them agreed that the course helped to improve their knowledge and 51.6% admitted that the course gave them a positive attitude toward CAM.

A relationship was found between using CAM and taking a CAM course. Almost 63% of the students who had taken a course have used CAM therapy, while only 29% of students who had not taken a course have used CAM ($P = 0.0001$). It was also noted that students' satisfaction with their knowledge was correlated with taking CAM course. Sixty percent of the students who had taken a course were satisfied with their knowledge, while only 18% of students who had not taken a course before were satisfied ($P = 0.0001$) [Table 3].

Although it is not statistically significant [Table 3], the study shows that students who had taken a CAM course had a better attitude (3.17 vs. 3.08), were more familiar with CAM (77% vs. 71%), and more likely to support the inclusion of a CAM course (66% vs. 58%) than students who had not taken a course. In contrast, students who had not taken a course were more interested in learning about CAM (69% vs. 63%) than students who had taken a course.

The study shows that 34.1% of the students had used CAM therapy previously for various reasons. Most of them (75.7%) had used it for treatment, while 47.7% had used it for prevention and health promotion. There is a relationship between the use of CAM and satisfaction with the knowledge of CAM ($P = 0.0001$). Users were more satisfied than nonusers. Moreover, users were more interested in getting to know more about CAM than nonusers ($P = 0.013$) [Table 4].

Discussion

The aim of this study was to assess medical students' knowledge and attitude toward CAM and to evaluate the effect of a CAM course on this knowledge and attitude. The literature shows that medical students' knowledge

Table 2: Students attitudes toward complementary and alternative medicine, Saudi Arabia, 2015

Item	Strongly agree %	Agree %	Neutral %	Disagree %	Strongly disagree %	Mean score
Patients benefit more from doctors who have knowledge about CAM	19.05	37.34	28.82	12.03	2.76	3.58
The use of herbal products represents a valid form of medicine that can treat a wide variety of diseases	7.79	37.94	38.44	13.07	2.76	3.35
CAM is a useful supplement to regular medicine	7.81	36.27	37.53	15.37	3.02	3.30
In general, CAM is a threat to public health	4.51	28.07	37.59	23.81	6.02	2.99
CAM results are usually due to a placebo effect	4.77	22.11	48.99	19.36	4.77	2.97
CAM treatments are not tested in a scientifically recognized manner	19.35	36.68	31.91	10.80	1.26	2.38

CAM=Complementary and alternative medicine

Table 3: Effect of enrollment in a complementary and alternative medicine course on student's attitudes toward teaching complementary and alternative medicine in the medical curriculum, Saudi Arabia, 2015

	Have you taken any CAM courses before?		*p*-Value
	Yes *N* (%)	No *N* (%)	
Are you familiar with any CAM?			
Yes	48 (77.4)	238 (70.6)	0.348
No	14 (22.6)	99 (29.4)	
Have you used CAM before?			
Yes	39 (62.9)	97 (28.8)	0.0001
No	23 (37.1)	240 (71.2)	
How do you feel about your knowledge toward CAM?			
Satisfied	37 (59.7)	60 (17.8)	0.0001
Not satisfied	25 (40.3)	277 (82.2)	
Are you interested to know more about CAM?			
Yes	39 (62.9)	234 (69.4)	0.385
No	23 (37.1)	103 (30.6)	
Do you prefer CAM course to be taught as			
Separate course	41 (66.1)	196 (58.2)	0.301
Integrated with other courses	21 (33.9)	141 (41.9)	
Do you support including CAM teaching in medical curriculum?			
Yes	41 (66.1)	195 (57.9)	0.282
No	21 (33.9)	142 (42.1)	

CAM=Complementary and alternative medicine

Table 4: Effect of using complementary and alternative medicine therapies on student's knowledge and interest in complementary and alternative medicine, Saudi Arabia, 2015

	Have you used CAM before?		*p*-Value
	Yes %	No %	
I am interested to know more about CAM			
Yes	76.50	64.30	0.013
No	23.50	35.70	
How do you feel about your knowledge toward CAM?			
Satisfied	35.30	18.60	0.0001
Not satisfied	64.70	81.40	
I support including CAM teaching in medical curriculum			
Yes	72.80	52.10	0.0001
No	27.20	47.90	

CAM=Complementary and alternative medicine

of CAM modalities differs from country to country. In a local study done in Saudi Arabia, magnetic therapy and spiritual healing were the most known modalities.[16] In Turkey, herbal medicine and acupuncture were the most known modalities,[15] while in Kuwait, herbal medicine and prayer/Quran reciting were the most known modalities.[17] In our study, bloodletting and herbal medicine were the most known modalities by medical students. This could be due to the influence of the culture or the popularity of the use of the two modalities by the population. Homeopathy was the least known CAM modality because it is uncommon in the Gulf region.

The main element affecting the culture of our community is religious belief. Many herbal treatments are mentioned in the holy book (Quran). For example ginger, known in Arabic as (Zanjibil),[18] is commonly used to cure/control anorexia, intestinal pain, headache, diarrhea, constipation, intestinal swelling, and stomach disorder. Garlic (Thūm) is also mentioned in the holy book (Quran) and known for its numerous benefits as a digestive stimulant, diuretic, anti-allergic, and antispasmodic.[19] Other plants mentioned in the holy book (Quran) include onion (sūrat l-baqarah [2:61]), camphor (sūrat l-insān [76:5]), olives, figs (sūrat l-tīn [95:1]), squash (sūrat l-ṣāfāt [37:146]), sweet Basil (sūrat l-raḥmān [55:12]), grapes (sūrat l-naḥl [16:11]), pomegranate (sūrat l-raḥmān [55:68]), and many others.[20]

The study in general indicates that students' attitude toward CAM is neutral but can be affected positively by improving their knowledge. The mean score of attitude reported in this study, which was 3.1, is similar to a report by Desylvia *et al*. at David Geffen School of Medicine, Los Angeles,[21] where the students scored a mean of 3.7 and to another study done in the University of California, Irvine,[22] where the students scored 47.8/70.

However, some attitudes revealed in the study were quite different from those of other students in the region. For example, 30% of our students disagreed with the statement: "CAM is a threat to public health," while it was 61.6% of the students in Kuwait who disagreed with the same statement. Furthermore, 44% of our students agreed with the statement: "Alternative medicine is a useful supplement to conventional medicine," while in Kuwait, 80% of the students agreed the statement.[17] These differences may be consistent with the students' belief that CAM therapies are not scientifically tested.

The most positive attitude reported by the students is that "Patients benefit more from doctors who have knowledge about CAM." This is consistent with the finding in the literature that physicians with a CAM background tend to refer their patients more to CAM therapies and use some CAM modalities in their clinics.[23]

CAM education for health-care providers is essential to ensure patient safety, communicate effectively with patients, and improve patient care.[23] Therefore, there have been educational initiatives in developed countries, and surveys of institutions indicate an increasing prevalence of CAM education in medical schools and residency programs.[23]

Most medical schools do not provide any training on CAM despite the trend of initiatives in developed countries.[24,25]

This study and another study[26] show a positive effect of CAM courses on students' knowledge, which is reflected in their acknowledgment of the importance of this training in helping their patients and guiding them to use evidence-based CAM therapies appropriately.

One-third of our population (34.1%) has reported self-use of a CAM modality. This prevalence is lower than that of medical and pharmacy students in Kuwait where 55% of them had used CAM previously and the prevalence is lower than the overall use of general population in Riyadh (68%–85%).[9,10] This could be because students were uncertain of the scientific basis of CAM therapy and may also not have considered Quran reciting/prayer as a form of CAM. The age difference between students in this study and that of the participants of other national studies could be an important factor.

The study shows that two-thirds of the students who had taken a CAM course before the study had used CAM therapy, compared to 37% of Kuwaiti students who had not taken any CAM course.[13] This supports the idea that improving knowledge will positively affect the use of CAM.

Overall, the enrollment of students in CAM courses affects knowledge and attitude positively. This finding is supported by others; a study done in the University of Washington in the United States showed that more than half of the students who took the course agreed that the course helped increase their knowledge of CAM by 70% and the level of interest about learning CAM by 50%.[22] We encourage medical schools to consider teaching CAM as part of their curriculum.

Conclusion

This study revealed medical students' lack of knowledge of CAM. It was also found that the majority of medical students were interested in learning more about CAM; 60% supported the inclusion of CAM in the medical curriculum and more than half of the students wanted CAM to be taught as a separate course. It also shows that most of the students who had taken the course agreed that it gave them a positive attitude toward CAM and supported CAM teaching in the medical curriculum.

Although this study reveals a positive attitude toward teaching CAM in medical schools, there are some limitations that make any generalization of the results insupportable.

This type of study cannot explain the causation and the effect of CAM course on students' attitude, knowledge, or practice. We encourage future prospective studies to explore the causation and relation between taking a CAM course and a change in attitude toward it. In addition, other wide range studies such as meta-analysis are suggested to make the results more general to represent a majority of students worldwide.

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Conflicts of interest

There are no conflicts of interest.

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