Original Article

Pharmacy students' use, knowledge and attitudes toward complementary and alternative medicine at Riyadh region, Saudi Arabia

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The survey was conducted to explore use, knowledge and attitudes toward complementary and alternative medicine (CAM) among pharmacy students at the college of pharmacy, King Saud University. A total of 133 fourth- and fifth-year pharmacy students completed a questionnaire designed to explore their use, knowledge and attitudes toward CAM therapies at the college of pharmacy, King Saud University. Study lasted for 3 months from 1st of October until 31st of December in 2007. Nutrition and herbal medicine therapies were the most known therapies by 65% and 53% of the students, respectively. Knowledge about CAM therapies among the students was limited. Thirty-nine percent of the students reported use of some form of CAM at least once in their lifetime. CAM was used for acute, chronic and mild illness as well as nutrition. Herbal medicine, nutrition, massage, relaxation exercises, yoga and mega-dose vitamin were the most CAM used. Lectures were the chief CAM information source. More than one half of the respondents (53–70%) believed that five of the 15 CAM modalities were useful, namely massage, herbal medicine, nutrition, yoga and relaxation exercises. Respondents had a positive attitude toward statements that favoured CAM. Most students strongly agreed or agreed that most CAM therapies were efficacious, whereas 52.6% of the respondents did believe that CAM therapies can be harmful to public health. The study showed that the students had positive attitude toward CAM and exhibited relatively high level of self-reported use of CAM therapies. Overall, students' knowledge of CAM is limited. The students perceived interest in learning and training in CAM. A separate course in CAM including its various components is needed. Also, availability of a reliable CAM information sources will aid the students to increase their knowledge of CAM.

Key words: Acupuncture, alternative medicine, complementary, herbal medicine, pharmacy students

INTRODUCTION

Alternative medicine is broadly defined as any medical practice that does not conform to the standard of the conventional practice of medicine. It is also referred to as complementary or traditional medicine. The use of different types of alternative medicine varies from one country to another, but some common examples are acupuncture, herbal medicine, homeopathy, reflexology, aromatherapy, spiritual healing and chiropractic.[1,2] In recent years, the use of complementary and alternative medicine (CAM) to treat different health problems such as minor and chronic diseases has grown in popularity worldwide. In the United States, the estimated use of CAM was increased among population from 34% in 1990 to 42% in 1997.[3] CAM therapies were also used in European countries by 20 to 50% of the population and by 50% in Australia.[4,5]

In Saudi Arabia, although conventional medicine is the main form of healthcare, CAM enjoys considerable popularity, with the traditional and folk medicine being most commonly used. According to a local survey, 86.6% of respondents used herbal medicine and believed in its efficacy, whereas 54.4% of the respondents surveyed were ignorant of the hazards of herbal medical products they used.[6]

Although the views of the public,[2,7,8] certain healthcare professionals[1,9-12] and medical students[1,12-17] toward alternative medicine are fairly well documented in the literature, there have been only few published studies examining the attitudes of pharmacy students. Baugniet *et al.*[18] compared the views of 442 health professional students in Toranto toward CAM. Kreitzer *et al.*[19] assessed the attitudes of faculty and staff toward CAM in medicine, nursing and pharmacy within academic health centre. Hon *et al.*[20] studied the attitudes and personal experiences with traditional Chinese medicine (TCM) use in 94 Hong Kong pharmacy students. The attitude toward TCM use was positive in 40%, neutral

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in 59% and negative in only 1%. The mean score for the adequacy of curriculum in TCM knowledge were 3.2 and 3.6, respectively. Recently, Freymann *et al.*[21] studied knowledge about and use of CAM in an ethnically diverse student population at the London School of pharmacy. The study showed that a large number of herbal medical products were commonly reported by the students. The knowledge about, interest and use of CAM are also widespread among the students.

In view of the recognition that CAM is becoming widely used in Saudi community and the fact that, to the best of our knowledge, no survey has been done locally to address the knowledge of and attitudes of pharmacy students toward CAM, we aimed in this study to explore the use, interest, knowledge and attitudes toward CAM among pharmacy students in King Saud University.

MATERIALS AND METHODS

A self-completed questionnaire survey was conducted among the pharmacy students at the college of pharmacy, King Saud University. Study lasted for 3 months from 1st of October until 31st of December in 2007.

The study targeted the fourth- and fifth-year pharmacy students. Due to time constraints and other logistical difficulties, we tried to approach groups of students after major lectures and class tests so as to obtain a high response rate as possible. The students were informed that their participation in the study was anonymous and was entirely voluntary. Also, they were invited to complete the questionnaire immediately. The questionnaire was administered to the subjects between December 2005 and March 2006.

A 17-item questionnaire was formulated based on literature available. The information in the questionnaire sought to cover the following aspects**:** (A) Demographic and other background data; (B) Knowledge of and attitudes toward CAM and (C) Interest in training and personal use of CAM. Perceived usefulness of CAM and its sources were also assessed among the participants.

Fifteen therapies mentioned in the questionnaire are fair representations of what are the currently used CAM modalities. These were acupuncture, massage, herbal medicine, homeopathy, reflexology, biofeedback, nutrition, aromatherapy, mediation, mega-dose vitamin therapy, yoga, reflexology, spiritual healing, chiropractic and hypnosis.

The data were analysed using SPSS 13.0, and the frequency distributions were obtained. Possible associations between sociodemographic variables and the attitude of the students were determined using one way ANOVA. The level of $P<0.05$ was interpreted as significant differences.

RESULTS

Of the 180 questionnaire distributed, a total of 135 were collected (75% response). Two were rejected because they were incomplete and they did not meet the inclusion criteria, resulting in a total of 133 usable questionnaires. Table 1 shows the demographic characteristics of the respondents. There was significant difference in gender distribution. Overall, there were 82.7% males and 17.3% females respondents. Most of the respondents (69.2%) fell into 22 to 23 years old range. Approximately 90% of respondents were single, 9.8% were married and only 0.8% were stated as others without giving further information.

Table 1: Demographic and other background data

Characteristics	n	%
Gender		
Male	110	82.7
Female	023	17.3
Age (y)		
≤21	19	14.3
22–23	92	69.2
24–27	20	15.1
>27	02	01.6
Marital status		
Single	119	89.5
Married	013	09.8
Others	001	00.8
Class level		
Fourth year	086	64.7
Fifth year	047	35.3
Have you had a family member used CAM therapies?		
Yes	78	58.60
No	55	41.40
Have you ever used CAM therapies?		
Yes	52	39.10
No	81	60.90
Medical conditions treated		
Minor ailment	19	36.54
Acute illness	17	32.69
Nutrition	17	32.69
Chronic illness	12	23.08
Others	04	07.96
Reasons for using complementary and alternative medicine		
My minor ailments do not deserve visit to the physician	33	63.46
CAM therapies were natural and safe	21	40.39
Because of the side effects of conventional therapy	14	26.90
Conventional therapy is very expensive	13	25.00
Treatment with conventional therapy was ineffective	12	23.08
Others	06	11.54

Twenty-nine percent (*n*=52) of the students reported using some form of CAM in their lifetime. The types of CAM most frequently used were herbal medicine (63.96%), nutrition (59.62%), massage (42.31%), relaxation exercises (42.31%), movement therapy (28.85%) and mega-dose vitamin (25%) [Figure 1]. The most frequently cited medical conditions treated with CAM were mild ailments (36.54%), acute illness (32.69%), nutrition (32.69%), chronic disease (23.08%) and others (7.96%) [Figure 2]. When students were asked how CAM therapy helped them to improve their conditions, 48.9% of respondents felt a small amount of help, 23.3% not at all, 17.3% moderate amount of help and only 10.5% felt very much improvement in their medical conditions.

Of the CAM users, nearly two-thirds (62%) indicated that they had been exposed to CAM by family members and 40% by friends who practice CAM. Exposure to self administration occurred in 42%, to personal treatment by a CAM practitioner in 37% and only 8% of respondents were exposed to CAM by others.

There were various different reasons for using CAM. The commonest are listed in Table 1. In the 52 participants (39%) who had used CAM, 63.46% use it for minor ailments which do not deserve visit to the physician, 25% felt that modern medicine is very expensive, 26.9% used CAM because of the side effects of conventional drug therapy, 40.39% used CAM because they felt it was natural and safe and 23.10% used CAM because treatment with conventional therapy is ineffective. Only 11.54% cited other reasons for using CAM. Respondents were allowed to choose more than one option, if applicable.

When comparing male with female students, there were no significant differences between any of these findings. However, comparing fourth-year with fifth-year students revealed significant differences with four of these findings. For instance, fifth-year students used CAM therapy more frequently for treatment of acute illness compared with the fourth-year students (*P*=0.030), whereas more students in the fifth year were exposed to CAM by friends and families compared with fourth-year students (*P*=0.023 and 0.016, respectively). Also, more fourth-year students than fifth-year students used CAM because of conventional therapies failure (*P*=0.040).

Furthermore, when the students were asked if any member in their family used CAM therapy, 58.6% of the students said "yes" [Table 1]. Females tended to answer "yes" more than the males (*P*=0.046), and the percentage of females who answered "yes" were 1.3 times that of males.

Seventy-six percent (*n*=101) of the students surveyed wished to receive more training in CAM during their study and after graduation from college of pharmacy in order to equip themselves with the necessary skills and knowledge to counsel patients about CAM therapies. Only 24% felt otherwise. More than 80% of respondents also felt that CAM should be taught as a separate course with more components on CAM in pharmacy curriculum. Furthermore, majority of the students were most interested in attending training program in herbal medicine (69%), nutrition (66%), massage (63%), Yoga (58%), relaxation exercises (56%), acupuncture (49%), hypnosis (42%), mediation (35%), mega-dose vitamin (35%), reflexology (28%), aromatherapy (27%), biofeedback (26%), homeopathy (24%), spiritual healing (23%) and chiropractic (18%), as seen in Figure 3. More females than males were interested in attending training programs in reflexology and mediation therapies (*P*=0.019 and 0.040, respectively). Fourth-year students also exhibited significant differences in interest to the fifth-year students by being more interested in homeopathy (*P*=0.033).

The students' perceived knowledge about CAM therapies is listed in Table 2. For the majority of CAM therapies listed, most of the students either have no knowledge or small amount of knowledge. The best known therapy was

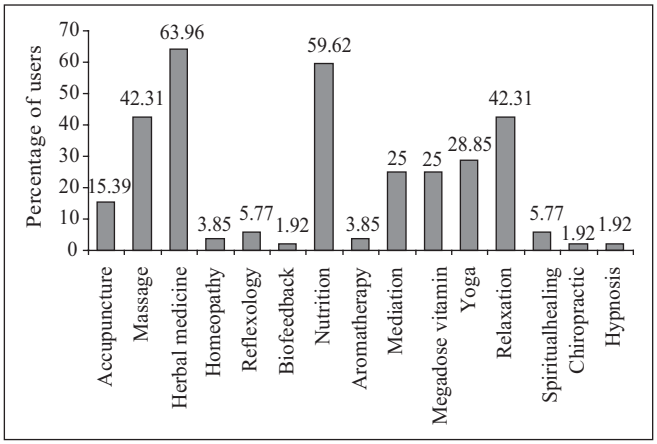

Figure 1: Types of CAM used

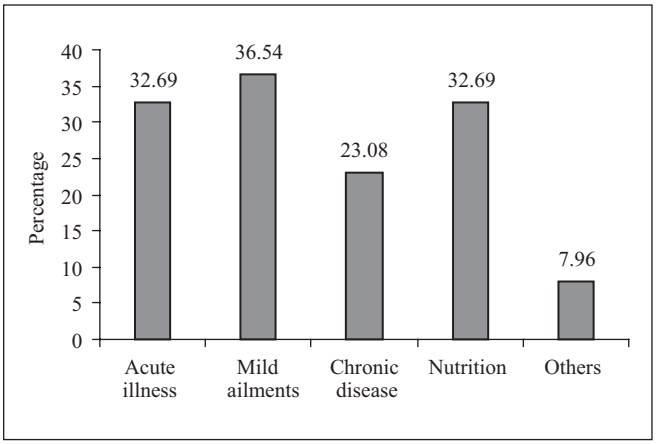

Figure 2: Types of medical conditions treated by CAM

nutrition, of which 65% know either "fair" or "very much." This was followed by herbal medicine (53%). Very few respondents claimed that they know "fair" or "very much" about homeopathy, reflexology, biofeedback, aromatherapy, spiritual healing, chiropractic and hypnosis.

Assessment of the influence of sociodemographic characteristics of respondents on their level of knowledge about CAM showed that females were more knowledgeable in aromatherapy than males (P=0.033). Fifth-year students also revealed significant differences to the fourth-year students by being more knowledgeable in both acupuncture (P=0.005) and massage therapies (P=0.027).

When the students were asked to indicate the sources from which they obtained their information about CAM therapies, most of the students claimed that they used a range of sources of CAM. The most frequently used were lectures (75%), mass media (66%), family member or close friend (56%), colleagues (55%), textbooks (46%), journals (38%) and pharmacists (23%). Other sources were leaflets and databases (18% each). In addition, the respondents (7.5%) used other sources.

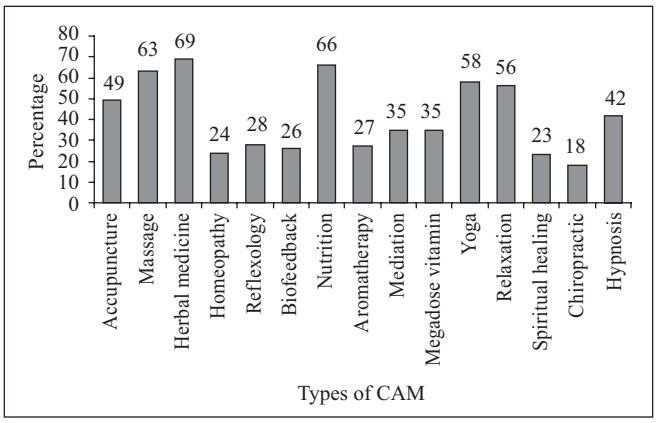

Figure 3: Students' interest in CAM training

Table 2: Students' perceived of knowledge and expansion of knowledge CAM

Therapies	Know nothing n (%)*	Small amount of knowledge n (%)*	Fair knowledge n (%)*	Very much knowledge n (%)*
Students' self-perceived of knowledge about CAM therapies				
Acupuncture	28 (21.1)	74 (56.6)	28 (21.1)	03 (02.3)
Massage	28 (21.1)	69 (51.9)	27 (20.3)	09 (06.8)
Herbal medicine	10 (07.5)	53 (39.8)	55 (41.4)	15 (11.3)
Homeopathy	74 (55.6)	40 (30.1)	18 (13.5)	01 (00.8)
Reflexology	82 (61.7)	39 (29.3)	09 (06.8)	03 (02.3)
Biofeedback	82 (61.7)	37 (27.8)	07 (05.3)	07 (05.3)
Nutrition	09 (06.9)	37 (27.8)	61 (45.9)	26 (19.5)
Aromatherapy	66 (49.6)	49 (36.8)	13 (09.8)	05 (03.8)
Mediation	45 (33.8)	39 (29.3)	36 (27.1)	13 (09.8)
Mega-dose vitamin	51 (38.3)	43 (32.3)	36 (27.1)	03 (02.3)
Movement therapy (Yoga)	42 (31.6)	62 (46.6)	24 (18.0)	05 (03.8)
Relaxation exercises	23 (17.3)	77 (57.8)	23 (17.3)	10 (07.5)
Spiritual healing	88 (66.2)	27 (20.3)	15 (11.3)	03 (02.3)
Chiropractic	105 (79.9)	19 (14.3)	07 (05.3)	02 (01.5)
Hypnosis	56 (42.1)	53 (39.8)	17 (12.8)	07 (05.3)
Therapies	**Not at all n (%)***	**A small amount n (%)***	**A moderate amount n (%)***	**Very much n (%)***
Need for expansion of knowledge about CAM				
Acupuncture	59 (44.4)	25 (18.8	19 (14.3)	30 (22.6)
Massage	49 (36.8)	27 (20.3)	27 (20.3)	30 (22.6
Herbal medicine	38 (28.6)	18 (13.5)	28 (21.1)	49 (36.2)
Homeopathy	69 (51.9)	23 (17.3)	25 (18.5)	16 (12.0)
Reflexology	71 (53.4)	22 (16.5)	22 (16.5)	18 (13.5)
Biofeedback	67 (50.4)	30 (22.6)	18 (13.5)	18 (13.5)
Nutrition	32 (24.1)	17 (12.8)	22 (16.5)	62 (46.6)
Aromatherapy	65 (48.9)	26 (19.5)	19 (14.3)	23 (17.3)
Mediation	58 (43.6)	22 (16.5)	23 (17.3)	30 (22.6)
Mega-dose vitamin	53 (39.8)	28 (21.1)	31 (23.3)	21 (15.5)
Movement (Yoga)	47 (35.3)	22 (16.5)	29 (21.8)	35 (26.3)
Relaxation exercises	52 (39.1)	19 (14.3)	25 (18.8)	37 (27.8)
Spiritual healing	66 (49.6)	28 (21.1)	22 (16.5)	17 (12.8)
Chiropractic	73 (54.9)	32 (24.1)	15 (11.3)	13 (09.8)

*Recording more than one use was possible

When the students were asked whether they are interested to expand their knowledge about CAM, 81% of the respondents agreed with more emphasis on CAM therapies such as nutrition and herbal medicine, as cited in Table 2. Females were more interested in relaxation therapy than males (P=0.011). However, fifth-year students were more interested in homeopathy than fourth-year students (P=0.011).

On the other hand, when the students were asked how they could expand their knowledge on CAM, 54.9% said by internet, 45.5% by attending continuous education, 38.3% by seminars and 28.6% by consulting health professionals. Females more than males were preferred to expand their knowledge by continuing education (P=0.012). Similarly, fifth-year than fourth-year students were more interested in attending continuing education (P=0.019).

The percentage of students rating CAM therapy as very useful or useful for the 15 CAM modalities is illustrated in Table 3. More than half of the respondents (53–70%) believed that five of these modalities were very useful or useful therapies, namely massage, herbal medicine, nutrition, yoga and relaxation exercises. The students, who reported highest knowledge about a given therapy, generally gave the therapy usefulness rating [Table 3]. Males rated acupuncture as very useful or useful CAM therapy more the females (P=0.022). Whereas, fourth-year students rated both acupuncture and relaxation therapies as "very useful or useful" CAM therapies more than the fifth-year students (P=0.02 and 0.016, respectively)

On the other hand, when the students were asked to rate the most useful CAM information sources, lectures were identified as the most useful CAM information source (75%), followed by colleagues (68%), drug information centre (66%), internet (65%), Mass media (63%), textbooks (61%), journals and full-text databases (59% each). Only family and friends were the least rated as useful CAM information sources (43.6 and 49%, respectively) [Table 3]. When comparing fourth-year with fifth-year students, there were no significant differences between these findings. However, with regard to gender, females rated family as "very useful or useful" source of information more than the males (P=0.013)

The students' attitudes toward CAM are listed in Table 4. In general, respondents had positive attitudes toward statements that favoured CAM. The majority of the students "strongly agrees or agrees" that most CAM therapies are effective. However, only 52.6% of the respondents did believe that CAM therapies can be

Table 3: Students' perceived usefulness of different CAM therapies and resources

Therapies	No used/not useful n (%)	Neutral n (%)	Useful/very useful n (%)
Students' perceived usefulness of different CAM therapies			
Acupuncture	20 (15.0)	56 (42.1)	57 (42.9)
Massage	17 (12.8)	42 (31.6)	74 (55.6)
Herbal medicine	05 (03.8)	39 (29.3)	89 (66.9)
Homeopathy	38 (28.6)	60 (45.1)	35 (26.3)
Reflexology	32 (24.0)	59 (44.4)	42 (31.6)
Biofeedback	33 (24.8)	67 (50.4)	33 (24.8)
Nutrition	12 (09.0)	27 (20.3)	94 (69.6)
Mediation	22 (16.5)	58 (43.6)	53 (39.8)
Mega-dose vitamin	18 (13.6)	58 (43.6)	57 (42.8)
Movement therapy (Yoga)	21 (15.8)	41 (30.8)	71 (53.4)
Relaxation exercises	18 (13.6)	39 (29.3)	76 (57.1)
Spiritual healing	15 (18.8)	64 (48.1)	44 (33.1)
Chiropractic	34 (25.5)	64 (48.1)	34 (26.3)
Hypnosis	37 (27.8)	62 (46.6)	33 (25.6)
Usefulness of CAM recourses			
Lectures	10 (07.6)	23 (17.3)	100 (75.2)
Colleagues	13 (09.6)	30 (22.6)	090 (67.6)
Friends	26 (19.6)	42 (31.6)	065 (48.9)
Family	21 (15.8)	54 (40.6)	058 (43.6)
Full text computerised data base	14 (10.6	41 (30.6)	078 (58.6)
Internet	10 (07.5)	36 (27.1)	087 (65.4)
Drug information centre	11 (08.3)	34 (25.6)	088 (66.1)
Mass media	08 (06.0)	41 (30.6)	084 (63.1)
Journal	17 (12.8)	38 (28.6)	078 (58.6)
Textbook	18 (13.6)	33 (24.8)	082 (61.7)

Table 4: Students' attitudes toward complementary and alternative therapies

Items	5/4	3	1/2	Gender *P*=<0.05	Class level *P*=<0.05
Most alternative medicine therapies are efficacious	124 (93.2)	02 (01.2)	07 (05.3)	0.991	0.188
Herbal medicine should be sold only in pharmacies	105 (79.0)	06 (04.5)	22 (16.5)	0.908	0.903
The use of CAM should limited only to patients who have failed conventional therapy	059 (44.4)	06 (04.5)	68 (51.2)	0.100	0.271
Providing CAM information is pharmacist's professional responsibility	113 (85.0)	04 (03.0)	16 (12.0)	0.302	0.229
Continuing education on CAM should be mandatory	099 (74.4)	04 (03.0)	30 (22.6)	0.744	0.208
There is a scientific basis for CAM therapies	105 (79.0)	05 (03.5)	23 (17.3)	0.004	0.019
Response to CAM can only be attributed to placebo effect	067 (50.4)	15 (11.3)	51 (38.3)	0.401	0.077
CAM can be harmful to the public health	070 (52.6)	13 (09.8)	50 (37.6)	0.621	0.828
The role of the pharmacist is to advise patients about commonly used CAM therapies	104 (78.2)	09 (06.8)	20 (15.1)	0.835	0.854
Patients should inform the pharmacists about their herbal therapies when they are seeking medical advice	113 (85.0)	04 (03.0)	16 (12.0)	0.157	0.961
Deciding on CAM as first line therapy is inappropriate	082 (61.7)	07 (05.3)	44 (33.0)	0.396	0.503
The use CAM as adjuvant to conventional therapy is of benefit to the patient	101 (76.0)	07 (05.3)	25 (18.8)	0.472	0.757
Most CAM therapies stimulate body's natural healing power	099 (74.4)	06 (04.5)	28 (21.0)	0.019	0.301
CAM should be taught as separate course in the curriculum	082 (61.0)	09 (06.8)	42 (31.6)	0.854	0.112
Pharmacists and physicians should be aware of what CAM in their countries	109 (81.9)	05 (03.5)	19 (14.3)	0.111	0.765
CAM not tested clinically should be discouraged	097 (73.0)	04 (03.0)	22 (24.1)	0.227	0.904
Pharmacists should not discuss CAM with their patients because it will arose their interest to use them	054 (40.6)	08 (06.0)	71 (53.4)	0.383	0.759

5 – Strongly agree; 4 – Agree; 3 – Neutral; 2 – Disagree; 1 – Strongly disagree

harmful to public health. The respondents were divided evenly as to whether the providing CAM information is pharmacist's professional responsibility, also to whether patients should inform their healthcare providers about their herbal therapies when seeking consultation or advice of healthcare providers. The majority of respondents strongly agreed or agreed that most CAM therapies stimulate the body's natural healing power. However, half of the respondents believed that response to CAM therapies can only be attributed to placebo effect. Moreover, less than half agreed with the statement that the use of CAM should be limited only to patients who have failed conventional therapy. Furthermore, 79% of the students strongly agreed or agreed that herbal medication as part of CAM should be sold only in pharmacies, 82% strongly agreed or agreed that pharmacists and physicians should be aware of what CAM is in their country and 74% felt that continuing education on herbal medication should be mandatory.

Assessment of the influence of sociodemographic characteristics of the respondents on their attitudes toward CAM revealed no significant differences for most of the items in this section, as cited in Table 4. Gender of the participant was significantly associated with two out of 17 items. More females than males "strongly agree or agree" that there is scientific evidence for the use of CAM and that CAM stimulate body's natural healing power (*P*=0.019). The percentage of females who answered "strongly agree or agree" was 1.2 times that of males. Class levels were also significantly associated with one out of 17 items. Fifth-year students tended to "strongly agree or agree" more than the fourth-year students that there is scientific evidence for the use of CAM.

DISCUSSION

The results of the study generally indicate a favourable attitude among students toward CAM therapies. In spite of this fact, however, the study showed that most of the students had limited knowledge of CAM therapies. This may be due to the fact that the students were more educated in conventional medicine concepts and the majority was not exposed to CAM. The lack of the knowledge on most CAM therapies suggests that the students will not have the sufficient knowledge to better advice their patients and provide information to other healthcare professionals after graduation. The two CAM therapies that the students claimed to know much more about were herbal and nutrition therapies, a finding consistent with another study.[20] This could be due to the fact that these therapies have been used widely by the public or the students who were exposed to these therapies during their study period.

Studies in other countries revealed geographical differences in the knowledge of CAM therapies among medical and pharmacy students. The American students were

more knowledgeable on massage, herbal medicine and mediation.[22] The Australian students perceived knowledge of acupuncture, mediation and massage.[13] British students more preferred acupuncture, yoga and homeopathy,[23] whereas Singapore students were more knowledgeable in acupuncture and herbal medicines.[17]

Approximately one in three pharmacy students have used CAM at least once in their lifetime. This implies that CAM is well accepted by the students, a finding consistent with other studies which found medical, pharmacy and non-medical students to have positive attitude toward CAM,[21,24,25] and that students did not seem particularly concerned about the scientific evidence treatment.[26]

Most students welcomed the inclusion of CAM therapies in their pharmacy curriculum, a finding similar to another study in which pharmacy students believed that CAM should be taught as a separate course in their curriculum.[18] Including topics on various aspects of CAM in the pharmacy curriculum would better prepare the students who are the pharmacists of the future for soliciting information from the patient about current use of CAM and for more effectively responding to the patients' inquires about CAM as well as assessing the merit of introducing or removing a CAM therapy in the patient's plan. Wetzel *et al*.[26] suggested that a good starting point for the inclusion of CAM in the curriculum is to equip students with knowledge of therapies commonly used by local population. Thus, the course should be constructed with the same requirements that applied to other clinical courses, with content that include historical background of particular therapies, with special emphasis on the therapies available in the country, mechanism of action, the scientific basis for efficacy, clinical applicability, indication and contraindication and approach to calculating the risk against benefit ratio for use in the patient.

Moreover, the study revealed that students were generally professed interested in learning about CAM topics. Unlike students' attitude in another study,[15] which tended to prefer experimental learning, in our study, however, the respondents more likely perceived lectures as learning strategy, besides other learning methods.

With regard to rating most useful CAM therapies, the results of the study revealed that the students rated therapy as very useful or useful for the more commonly used therapies, a finding consistent with previous study.[18]

Attitudes of pharmacists toward CAM varied. Regarding the statements that CAM therapies are harmful to public health or having solely placebo effect (≤52.6%) was selected more frequently by the students. This may reflect the general uncertainty about the efficacy of CAM. In addition, those who perceived CAM as harmful most likely did so because of their great knowledge on herbal medicine and conventional therapies drug interactions. In spite of this fact, however, students see CAM as integral part of their practice in the future as more students support the statement that continuing education should be mandatory. Furthermore, 44% of the students agreed with the statement that the use of CAM should be limited only to patients who have failed conventional therapy. This perhaps may suggest that students either thought that CAMs have no role in patient therapy or that these therapies should be used in combination with conventional therapies. This latter suggestion is possibly supported by those who believed that the use of alternative medicine as adjuvant to the conventional therapy is of benefit to the patient. The majority of respondents acknowledge the professional responsibility of practicing pharmacists in providing information about CAM therapies to their patients. Such high feeling may indicate that many students are willing to encounter CAM in their pharmacy practice or discuss CAM with their patients in the future. Although many of students disagreed with the use of CAM therapies that lack scientific evidence, 24% of the students, however, would accept CAM that has not been tested clinically. This could signal the increase of use of CAM in the future. Similar sentiments were also expressed by another study.[13]

Limitation

Several limitations to our study should be acknowledged. First, this study is self-administered questionnaire. Therefore, reliability of answers cannot be verified. Second, the result of this study cannot be generalised to the pharmacy students nationally, since the survey sample consisted primarily of students in King Saud University. Third, a non-validated instrument was used in this study. Fourth, the possibility of incorrect interpretation by students must be considered, since it was assumed that every student interpreted each question in his or her intended manner. Finally, the high male-to-female ratio found in this study is not a truly representative value for actual gender distribution in the population (1 : 1 male to female ratio, according to the national census, national institute for statistics), but rather reflect the gender of female at the period of time.

CONCLUSION

The study showed that the students had positive attitude toward CAM and exhibited reasonable level of self-reported use of CAM. Overall, students' knowledge of CAM is limited and their attitudes toward CAM therapies varied. The students professed the interest in learning and training in CAM, so they could better advise their patients on CAM

and provide information to other healthcare professionals. The increase use of CAM necessitates teaching CAM in a separate course including its various components in the curriculum. Also, availability of reliable CAM information sources will aid the students to increase their knowledge of CAM. Moreover, the need remains to compare the attitudes of both pharmacy students and other groups of healthcare professional students regarding alternative medicine. Furthermore, the assessment of the attitudes of pharmacy students toward CAM in different colleges of pharmacy in the country is also demanded.

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