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Student attitude towards integrative medicine in a Caribbean medical school

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Abstract

Background: Patients in developed nations increasingly use Complementary and Alternative Medicine (CAM) and Integrative Medicine (IM). Previous studies have not examined student attitudes towards IM at Xavier University School of Medicine (XUSOM), a Caribbean medical school. Most students are citizens of the United States or Canada and will practice in these countries after graduation. Hence, the present study was conducted using the integrative medicine attitude questionnaire (IMAQ), a previously validated questionnaire. **Methods:** First to fourth semester premedical and undergraduate medical (MD) students were involved in the study. Respondents' gender, semester of study and nationality were noted. Their degree of agreement with a set of 29 statements was studied using a modified Likert-type scale. The total score, openness, and relationship scores were compared among different subgroups. Free text comments were invited. **Results:** Sixty-two of the 79 students (78.5%) participated; 19 were premedical while 43 were MD students. The mean \pm SD total score was 138.85 ± 15.84 (maximum score 203). The mean \pm SD openness score was 94.69 ± 10.99 (maximum score being 147). The mean \pm SD relationship score was 44.16 ± 8.18 (maximum possible score being 56). The scores were not significantly different among subgroups of respondents. The scores of certain statements were low. **Conclusion:** Student attitudes towards CAM and IM were positive and these can be considered for possible inclusion in the curriculum. Studies among students in the clinical years and in other medical schools are recommended. A longitudinal follow up of students can be considered.

Key words: Attitude; Caribbean; complementary and alternative medicine; integrative medicine attitude questionnaire; medical students

Introduction

Complementary and alternative medicine can be considered as a group of diagnostic and therapeutic disciplines existing largely outside western allopathic medicine (1). The Cochrane Collaboration states that complementary and alternative medicine (CAM) incorporates a variety of healing resources, health systems, modalities, and practices along with their accompanying theoretical basis and belief systems that are not regarded as intrinsic by the politically dominant health system of a particular society or culture during a particular

time. Integrative medicine (IM) has a broader agenda, goes beyond just incorporating CAM into the conventional politically dominant allopathic medical system, and focuses on prevention, wellness, and healing. IM emphasizes wellness and health in the patient and healthcare provider at the biological, psychological, social, and spiritual levels and brings together the safest and most effective allopathic and CAM treatments (2).

CAM remedies are becoming increasingly popular in developed nations. In the United States (US), a survey conducted among Hispanic patients at a community health clinic showed that they commonly used CAM and a large proportion wanted to obtain access to CAM through their primary health clinic (3). In the US, the National Health Interview Survey (NHIS) showed that in 2011, an estimated 12.3

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million individuals (about 5.4% of the population) used CAM remedies primarily to save money (4). Most patients visiting a primary care facility are favorably disposed towards a general practitioner (GP) who listens to them, enquires about CAM, and if necessary collaborates with and refers patients to a CAM practitioner (5). Patients, primary care physicians, and CAM practitioners opined that family physicians play an important role in referring patients for CAM treatment, and to a lesser extent may actually provide the treatment (6). Results from a study utilizing data from the NHIS conducted during 2002, 2007, and 2012 showed that non-vitamin, non-mineral dietary supplements were the most popular complementary remedies among the US adults (7). Yoga, tai chi, and qi gong use increased from 2002 to 2012 with the maximum increase noted in the use of yoga.

A positive attitude towards CAM, knowledge of CAM and a willingness to collaborate with CAM healthcare providers among medical students and allopathic doctors is important to develop IM. The data from studies cited in previous paragraphs highlights the fact that patients are increasingly in favor of GPs with a positive attitude towards and knowledge of CAM. Considering the importance of this issue Schneider and coworkers developed the integrative medicine attitude questionnaire (IMAQ) to study attitudes towards CAM and IM among both medical students and healthcare providers (8). The instrument IMAQ has been used in previous studies. In a medical school in Nepal a study conducted among third and fourth semester undergraduate medical students using IMAQ showed that student attitude towards IM was positive (9). IMAQ was further validated through an international longitudinal study, which measured changes in student attitudes to IM over time as they progressed through medical school (10).

Xavier University School of Medicine (XUSOM) is a private, medical school in Aruba, kingdom of the Netherlands, with a student body mainly from the United States (US), Canada with a few students from other countries. MD students complete six semesters of basic sciences with early clinical exposure in

Aruba and then do their clinical rotations in the US/Canada. At XUSOM, a semester is of 15-week duration and the students are admitted three times a year. The school also offers a premedical course of four semester's duration to prepare school leavers for the undergraduate medical (MD) program. Recently the curriculum has been modified to become integrated, organ system-based with early clinical exposure (11). Around the world, there is an increasing emphasis on integrating teaching-learning of CAM and IM into the traditional medical school curriculum. A recent study in the US revealed that at least half of the schools were offering at least one CAM course or clerkship (12). Traditional medicine, acupuncture, spirituality, and use of herbs along with other general CAM topics were covered and lectures, readings, and observation were the commonly used teaching-learning methods.

International medical graduates (IMGs) educated in Caribbean medical schools make a valuable contribution to the pool of primary care physicians in the US (13). Around 20% of Canadian IMGs had been educated in Caribbean medical schools (14). Considering the increasing use and interest in CAM and IM among the population in these countries medical students as future doctors should be knowledgeable about these subjects. We have not been able to obtain studies dealing with the attitude of medical students towards integrative medicine and CAM in Caribbean medical schools. Considering the trend of increasing use of CAM and IM by patients and increasing emphasis on IM in medical schools in the US and Canada where many Caribbean offshore medical graduates will practice it is important to study the student attitudes towards CAM and IM. In addition, many accreditation organizations including the Caribbean Accreditation Authority for education in Medicine and other Health Professions (CAAM-HP) recommend a certain amount of teaching of CAM and IM in the medical school curriculum. XUSOM is considering strengthening teaching-learning of CAM and IM. Hence, the present research was carried out to study the student attitudes towards IM using the previously validated IMAQ and note differences, if any, in attitudes among different respondents.

Methods

The study was conducted among premedical (first to fourth semester) students and first to fourth semester MD students at the Xavier University School of Medicine in Aruba. The instrument integrative medicine attitude questionnaire (IMAQ) was used in the present study. As most students have American or Canadian nationality and students from other countries also intend to practice in the US or Canada after graduation the original version of IMAQ developed by Schneider and coworkers (7) was used in the present study. Students were invited to participate in the study. All participants provided written informed consent.

Demographic information such as gender, semester of study and nationality was collected. The degree of agreement of respondents with a set of 29 statements using a modified Likert-type scale was used to study their attitudes toward IM. The scale ranged from 1 to 7 with 1 denoting absolute disagreement with the statement and 7 denoting absolute agreement. As recommended by the developer of the instrument certain statements were negatively worded and their scores reversed while calculating the total score and the statements were grouped into two factors. These were 'Openness' dealing with openness towards CAM and holistic medicine and to new ideas and paradigms and 'relationships' dealing with the healthcare practitioners' relationships and interaction between patients and their practitioners.

The one sample Kolmogorov-Smirnov test at 5% level of significance was used to test the normality of distribution of the total score and the openness and relationship scores. Appropriate statistical tests were used to compare scores among different subgroups of respondents ($p < 0.05$).

Respondents were also invited to provide free text comments. Common comments were tabulated.

Results

Sixty-two of the 79 students (78.5%) participated in the study (nineteen of the 23 premedical students (82.6%) and 43 of the 56 basic science MD students (76.8%)). Table 1 shows the respondents' demographic characteristics. Female respondents were more in number and most respondents were of American or Canadian nationality.

Table 1: Demographic characteristics of the respondents*

Characteristic	Number (percentage)
Semester of study	
Premedical 1	2 (3.2)
Premedical 2	8 (12.9)
Premedical 3	2 (3.2)
Premedical 4	7 (11.3)
MD 1	13 (21)
MD2	13 (21)
MD 4	17 (27.4)
Gender	
Male	24 (38.7)
Female	37 (59.7)
Nationality	
American	27 (43.5)
Canadian	15 (24.2)
Others	17 (27.4)

'The number of respondents may not add to 62 as certain respondents did not complete some of the demographic characteristics'

The total score, openness score, and relationships scores were found to follow a normal distribution on carrying out the one sample Kolmogorov-Smirnov test and hence mean and standard deviation were used as the measures of central tendency and variance. The mean \pm SD total score was 138.85 ± 15.84 . The maximum possible total score was 203. The mean \pm SD openness score was 94.69 ± 10.99 (maximum score being 147). The mean \pm SD relationship score was 44.16 ± 8.18 (maximum score 56).

Table 2: Total score among different subgroups of respondents.

Characteristic	Score	P value
Semester of study		
Premed 1	142	
Premed 2	138.25	
Premed 3	154.52	
Premed 4	137.71	
MD 1	140.38	
MD2	138.83	
MD4	137.57	0.782
Gender		
Male	136.08	
Female	138.91	0.66
Nationality		
American	141.48	
Canadian	138.00	
Others	136.65	0.797

There was no significant difference in the total score among different subgroups. Table 3 details the openness scores among different subgroups of respondents. The openness score was not significantly different among different subgroups.

Table 3: Openness score among different subgroups of respondents.

Characteristic	Score	P value
Semester of study		
Premed 1	98.00	0.755
Premed 2	92.75	
Premed 3	106.00	
Premed 4	92.43	
MD 1	95.80	
MD2	95.42	
MD4	94.23	
Gender		
Male	94.83	0.969
Female	94.94	
Nationality		
American	97.52	0.457
Canadian	91.69	
Others	93.71	

Table 4 shows the relationships score among different subgroups of respondents. Again, no significant differences were noted among different subgroups.

Table 5 shows the mean scores of different individual statements. The reversed score of statement 2,

the score of statement 5, and the reversed score of statement 17 were low. Only a limited number of free text comments were obtained. Among the comments were:

Table 4: Relationships score among different subgroups of respondents

Characteristic	Score	P value
Semester of study		
Premed 1	44.00	0.952
Premed 2	45.50	
Premed 3	48.50	
Premed 4	45.28	
MD 1	44.61	
MD2	43.41	
MD4	43.23	
Gender		
Male	43.25	0.426
Female	44.97	
Nationality		
American	43.96	0.534
Canadian	46.30	
Others	42.94	

‘This is a very interesting topic being covered. It seems that western medicines are more directed to cure the disease/

Table 5: Mean scores of individual statements

Statement	Mean score
A patient is healed when the underlying pathological processes are corrected or controlled.	4.87
The physician’s role is primarily to promote the health and healing of the physical body.	3.84
Patients whose physicians are knowledgeable of multiple medical systems and complementary and alternative practices (i.e., Chinese, Ayurvedic, Osteopathic, Homeopathic, etc.), in addition to conventional medicine, do better than those whose physicians are only familiar with conventional medicine.	5.02
Physicians should warn patients to avoid using botanical medicines (herbs) and dietary supplements until they have undergone rigorous testing such as is required for any pharmaceutical drug.	4.69
It is appropriate for physicians to use intuition (‘gut feelings’) as a major factor in determining appropriate therapies for patients.	2.89
The spiritual beliefs and practices of physicians play no important role in healing.	4.39
The spiritual beliefs and practices of patients play no important role in healing.	5.35
It is irresponsible for physicians to recommend acupuncture to patients with conditions like chemotherapy-related nausea and vomiting or headache.	4.76
End of life care should be valued as an opportunity for physicians to help patients heal profoundly.	4.26
It is not desirable for a physician to take therapeutic advantage of the placebo effect.	4.63
Healing is not possible when a disease is incurable.	5.26
Physicians knowledgeable of multiple medical systems and complementary and alternative practices (i.e., Chinese, Ayurvedic, Osteopathic, Homeopathic, etc.), in addition to conventional medicine, generate improved patient satisfaction.	5.21
Therapeutic touch has been completely discredited as a healing modality.	4.84
Physicians who model a balanced lifestyle (i.e., Attending to their own health, social, family, and spiritual needs, as well as interests beyond medicine) generate improved patient satisfaction.	5.77
Quality of life measures are of equal importance as disease specific outcomes in research.	5.63
Chiropractic is a valuable method for resolving a wide variety of musculoskeletal problems (beyond back pain).	4.48
The physician’s role is primarily to treat disease, not to address personal change and growth of patients.	2.71

Statement	Mean score
Massage therapy often makes patients 'feel' better temporarily, but does not lead to objective improvement in long-term outcomes for patients.	4.95
The innate healing capacity of patients often determines the outcome of the case regardless of treatment interventions.	4.18
A strong relationship between patient and physician is an extremely valuable therapeutic intervention that leads to improved outcomes.	5.66
Physicians who strive to understand themselves generate improved patient satisfaction.	5.50
Instilling hope in patients is a physician's duty.	4.90
Physicians should be prepared to answer patient's questions regarding the safety, efficacy, and proper usage of commonly used botanical medicines such as Saw Palmetto, St. John's Wort, Valerian, etc.	5.68
Counseling on nutrition should be a major role of the physician towards the prevention of chronic disease.	
Physicians should avoid recommending botanical medicines based on observations of long-term use in other cultures and systems of healing, because such evidence is not based on large randomized controlled trials.	4.56
Osteopathic manipulative therapy is a valuable method for resolving a wide variety of musculoskeletal problems (beyond back pain).	4.43
Information obtained by research methods other than randomized controlled trials has little value to physicians.	5.05
It is ethical for physicians to recommend therapies to patients that involve the use of subtle energy fields in and around the body for medical purposes (i.e., Reiki, Healing touch, Therapeutic touch, etc.)	4.32
Physicians who strive to understand themselves provide better care than those who do not.	5.24

The scores of statements 1, 2, 4, 6, 7, 8, 10, 11, 13, 17, 18, 25, 27 have been reversed.

illness whereas eastern medicines and techniques are for temporary relief- which makes people happy as they get instant relief.' (Premedical respondent)

'This study may be better given to those in MD only who may have greater background and knowledge of the questions.' (Premedical respondent)

'CAM can be extremely useful as long as you do not use methods that may have adverse reactions with western allopathic medicine. Sometimes spiritual health can help people feel better if they are not in a positive mood.' (Premedical respondent)

Discussion

The mean total score was 138.85 while the mean openness and relationship scores were 94.69 and 44.16. The maximum possible scores were 203, 147, and 56. A greater number of respondents were female and of American or Canadian nationality.

Information was collected only on the country of nationality of the students and we did not obtain information about the country of origin. Many students, though holding the US or Canadian passports at present, were of South Asian, Middle Eastern or East Asian descent. In many of these countries CAM remedies may have been the original medical system with the western allopathic system of medicine becoming dominant later predominantly

due to the influence of colonial powers. In the US and Canada, allopathic western medicine is the dominant medical system, though increasing number of people are using CAM remedies and treatments as mentioned in the introduction.

Many accreditation organizations and regulators require a certain amount of CAM topics and concepts be addressed in the undergraduate medical curriculum. In the US, the National center for complementary and alternative medicine at the National institutes of health has funded CAM education projects in the US health professions schools (15). Among the challenges mentioned were developing strategies to introduce information about CAM into already packed health professions school curricula, ensuring that conventional health professionals have authoritative resources to inform their patients about the risks and benefits of CAM practices, and identifying appropriate roles for CAM practitioners to educate conventional health professionals about CAM treatments. The rationale behind introducing CAM into conventional curricula is to enable healthcare professionals to provide informed advice to patients interested in using these therapies. Most educational programs have used a mixture of strategies, including experiential learning and online resources (16). Common challenges mentioned by the authors included the

need for qualified faculty, incorporating CAM into a crowded and changing curricula, a lack of defined best practices in CAM, and the issue of sustainability of programs after the initial grant funding runs out. In Australia, a pilot study of medical interns who had participated in a CAM education session was conducted (17). Student attitude towards the educational session was positive. They acquired knowledge of the interactions between conventional medicines and CAM treatments, and indicated an increased awareness of the role and scope of CAM in clinical practice.

In a study conducted in a Nepalese medical school using IMAQ, the median total score was 131, and the total score differed significantly among different subgroups of respondents. The median openness score was around 80 and the median relationship score was around 40. Our openness score was higher compared to the Nepalese study [9]. The mean total score was also higher than that noted in Nepal. Unlike in the Nepalese study, different subgroups of respondents did not show significantly different scores in the present study. Table 5 shows the mean scores of individual statements. The reversed score for the statement that it is appropriate for physicians to use intuition as a major factor in determining appropriate therapies for patients was low. A similar situation was noted with regard to the role of the physician being primarily to treat disease and not to address issues of personal change and growth in patients. The scores of most other statements were high.

A study conducted in Australia noted that doctors' interpretation of what constituted 'integrative medicine' and 'integrative practice' was diverse and was influenced by the respondents' personal characteristics (18). IM focused on health promotion, maintenance, and use of both conventional and non-conventional treatments that work. The authors concluded that the concept and practice of IM was diverse among the practitioners. A multi-country study conducted among students in four medical schools situated in the United Kingdom, the United States, and New Zealand concluded that various factors were significantly associated with IMAQ scores during the fourth year of medical school (10). Age, gender, CAM use by the respondent, CAM

education in the curriculum and the school in which they were enrolled were associated with attitudes towards CAM during the fourth year of school while gender and CAM use were associated with the change in attitude between the first and the fourth year.

Differences have been noted in how doctors trained in western medicine from different cultures interpret IMAQ. A study conducted in Korea noted that western and Korean physicians might have different understanding about and perception of CAM and what is meant by holism (19). A similar result was noted among doctors trained in western medicine in Hong Kong, China (20). For Chinese doctors the emphasis of holism was on 'tonifying' the body rather than on expending efforts toward nurturing the mind and spirit. Most respondents in our study were US or Canadian citizens who had completed their schooling in these countries even though they may have been of Asian extraction. Therefore, use of the original version of IMAQ may have been justified as mentioned previously.

Student attitude towards IM was positive and their openness and relationships score was high. Introducing a certain amount of teaching-learning about CAM and integrative medicine in the MD curriculum in the institution can be considered. Though no formal sessions are offered at present, students undertake their early clinical exposure with a general practitioner who practices integrative medicine and uses CAM modalities in his therapy. We are working towards implementing a greater amount of teaching-learning about CAM in the curriculum both during the basic science semesters and the clinical rotations which students undertake in the US and Canada. While doing so, an understanding of the challenges mentioned in the US health professions schools is useful (12, 15, 16).

The study was conducted using a previously developed and validated instrument. The response rate was good. Students were informed that the authors of the study were available for consultation in case of any doubts or questions. Certain premedical students might have had some difficulty in understanding some of the statements. The study was conducted only among students doing

their premedical and basic science MD program at one medical school. Student attitudes were studied using a questionnaire and was not triangulated with information obtained from other sources. The number of respondents in the subgroup of different semesters was low, which might have affected the analysis.

Conclusion

Student attitudes towards CAM and integrative medicine were positive. No significant differences were noted among different subgroups of respondents. As there have been only few studies using IMAQ we were able to compare the scores obtained in the present study only with a few studies. Sessions on CAM and IM can be considered for possible inclusion in the curriculum. Studies among students in the clinical years of study and among students in other medical schools are recommended. A longitudinal follow up of students as they progress through medical school to note changes in attitude, if any, can be considered.

Conflict of interest:

'No potential conflict of interest relevant to this article was reported.'

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