

Evaluation of pioneering introduction of integrative and prophetic medicine education in an Arabic medical school (Taibah University, Saudi Arabia): 10 years' experience

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Abstract

Objective: To assess physicians' attitudes toward integrative medicine (IM), including prophetic medicine (PM), combining the best of modern medicine with the best of alternative and complementary medicine. Most physicians are unfamiliar with IM and PM and may thus be against them and it may communicate that to the public.

Methods: Taibah University (Saudi Arabia) is the sole university in the Arab world with an educational medical course in IM and PM. We assessed IM scientific knowledge and students'

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feedback regarding course contents, course design, and teaching methods. A questionnaire was administered to medical students who attended the course.

Results: A total 650 students (264 men, 386 women) participated in the study; 83% considered the IM (including PM) education beneficial. Among them, 49.6% (range, 60% to 100%) reported that they gained medical benefit from studying IM, and 74% expressed strong positive attitudes toward studying IM. Among participants, 65.8% agreed with the current course topics, without the need to add or delete any topics; 95% of students were satisfied with IM and PM education. Students' interest in the branches of IM included all IM subspecialties.

Conclusion: IM and PM education should be globally generalized to all medical students, physicians, and health practitioners, particularly in Arabic universities.

Keywords

Integrative medicine, prophetic medicine, Taibah College of Medicine, students' attitudes, medical education, Arabic universities

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Introduction

Among current controversial topics are physicians' attitudes toward integrative medicine (IM), which combines modern medicine, prophetic medicine, alternative medicine, and complementary medicine. IM includes the best of evidence-based human medicine, e.g., complementary and alternative medicine (CAM), prophetic medicine, chiropractic, acupuncture, massage, mindfulness training, and others, together with the best of conventional Western (allopathic) medicine.¹ As an example of an IM remedy, Al-hijamah (wet cupping therapy in prophetic medicine) is usually more effective and has greater therapeutic benefits than many pharmaceutical preparations for treating many medical conditions such as pain conditions² and thalassemia.³ The evidence-based Taibah mechanism and Al-hijamah have been confirmed to use a physiological clearance mechanism to clear tissues and blood of many pathological substances.⁴ Teaching of complementary, alternative, Chinese, and prophetic medicines has received insufficient attention or interest

among modern medical schools, particularly in the Middle East. Therefore, many physicians have negative impressions or false ideas and views regarding IM in general and Al-hijamah in particular. However, the case is quite different in American and European medical schools.^{5,6}

To the best of our knowledge, there are no reports from Arabic universities and medical schools regarding IM education, different to Western medical schools.⁵ Many medical schools in the United States (US) have pioneered academic IM education and currently teach physicians to properly integrate the use of evidence-based and personalized IM therapies, to meet patients' needs.⁷ Unfortunately, IM academic education has not received much interest in Arabic medical schools despite increasing interest worldwide from a wide sector including different medical specialties.⁸ More than half of all medical schools in the US and Canada have educational programs in IM and more than 30 academic health centers currently deliver multidisciplinary IM care.⁹ A similarly encouraging situation for IM education exists in Europe. German medical licensing

allows for IM education and has been evaluated positively.⁶ Traditional Chinese medicine is the prevailing IM education in China and some other countries.¹⁰

Many patients in the Arab world and worldwide may benefit from the use of prophetic medicine remedies such as Al-hijamah, ajwa date fruit, costus, nigella sativa, and others. However, a lack of training in IM in medical schools, including prophetic medicine, negatively impacts treatment outcomes. Medical IM education aims to introduce this integrated medical knowledge to medical students, our future physicians. Unfortunately, many students graduate each year from medical schools in Arabic countries without have received any IM academic instruction. These newly trained physicians have little knowledge about IM (including prophetic medicine) and may therefore have negative or false opinions about IM. To date, progress and advancement of education in conventional medicine has not been accompanied by similar advancement in academic IM education, particularly in Arabic medical schools. The College of Medicine at Taibah University (CMTU) in Saudi Arabia was the first college in the Arab world to introduce IM and prophetic medicine academic education in 2007, under the supervision of the internal medicine department. The first author of this paper developed the IM course plan; put forth the course objectives, scope, and sequence; and has taught the course for 10 years (2007–2016), thus carrying on the mission of IM academic education at CMTU. The corresponding author of this article put forth the prophetic medicine course topics, objectives and evaluation and is currently teaching both IM and prophetic medicine at CMTU. In 2007, planning began for a study to investigate the effects of the first IM academic education program in the Arab world. In this article, we report the evaluation, feedback, and impact of IM

education in a generation of future physicians graduating from CMTU.

Methodology

Ethics approval and consent to participate

Ethics approval was received from the ethical committee of CMTU, according to the Declaration of Helsinki. Participation in this study was voluntary. Written consent to participate was obtained from all students who participated in this study. Our study did not contain any individual identifying data.

Objective of this study

The objective of this study was to measure the impact of the IM course using students' evaluation and feedback and to collect their views concerning the study of IM and CAM. The study began in September 2007 and ended in June 2016.

A 30-hour IM academic educational course was introduced as lecture-based learning during the first 2 years (2007–2008); the course was subsequently reduced to 15 hours (lecture-based learning). In 2016, the medical educational system at CMTU was changed to the Manchester medical education system (problem-based learning). Detailed IM education was changed to student-centered learning using additional resources e.g., IM books, websites, IM publications, and others. Although the Manchester system does not normally include a course in IM, CMTU decided to keep the course within the new system owing to its promising outstanding results and steady success over the previous years.

To assess medical students at CMTU who received their IM education during the past 10 years (2007–2016), a survey of the response to IM education was developed (Appendix 1). The questionnaire was administered to students after completing

the entire course and related exams. The questionnaire was administered to students who agreed to participate in the study. The survey included mixed-type questions; some questions required the students to make a choice (acceptable/good/very good/excellent) whereas other items required students to provide information. Items 1, 3, 4, 6, and 8 were multiple choice-type questions and items 2, 5, and 7 were informational type questions (Appendix 1).

Students' assessment regarding IM academic education

Our study assessed medical students' impressions regarding learning IM and the magnitude of medical educational benefits gained after studying IM, in addition to evaluating students' opinions about the importance of topics included in the IM course.

In this study, we also investigated educational needs with respect to whether students had suggestions of IM course topics that should be added or deleted. Moreover, we gathered students' feedback regarding the current IM course content and curriculum.

Statistics

Study results were analyzed using IBM SPSS Statistics for Windows, Version 20 (IBM Corp., Armonk, NY, USA). Appendix 1 gives a complete version of the questionnaire. A chi-square test was used to compare students' opinions and views. A p value <0.05 was considered significant, and $p < 0.001$ was considered highly significant.

Results

Students' response rate

A total of 650 students (264 men and 386 women) participated in the study, out

of 1000 students who enrolled in the IM course at CMTU. The response rate was 65%. All 1000 students (100%) completed the IM course and passed the exams. The survey response rate was higher among female students (386 students, 59.4%) than male students (264 students, 40.6%) (Table 1).

Students' impressions regarding learning IM

Most students reported a positive impression regarding IM academic education. We compared students' impressions regarding learning IM and responses in different academic years regarding impressions of studying IM (i.e., whether studying IM is beneficial, nonsense or not beneficial). The

Table 1. Descriptive statistics of students participating in the study.

Percent	Frequency	Sex and academic year
2.2	14	M 2007
4.2	27	F 2007
2.3	15	M 2008
3.8	25	F 2008
3.4	22	M 2009
5.4	35	F 2009
2.8	18	M 2010
4.6	30	F 2010
3.1	20	M 2011
5.4	35	F 2011
3.8	25	M 2012
7.2	47	F 2012
5.2	34	M 2013
6.9	45	F 2013
2.2	14	M 2014
8.6	56	F 2014
6.2	40	M 2015
6.2	40	F 2015
9.5	62	M 2016
7.1	46	F 2016
100.0	650	Total

F: female, M: male.

course was reported as interesting to most students who reported the course to be beneficial (83%, 540/650) over the entire study duration (10 years). Only 4% of students (26/650) considered that the course was not beneficial (Figure 1a).

Magnitude of educational benefits after studying IM

Most students reported that the magnitude of benefits gained after studying IM was high, although the responses varied in

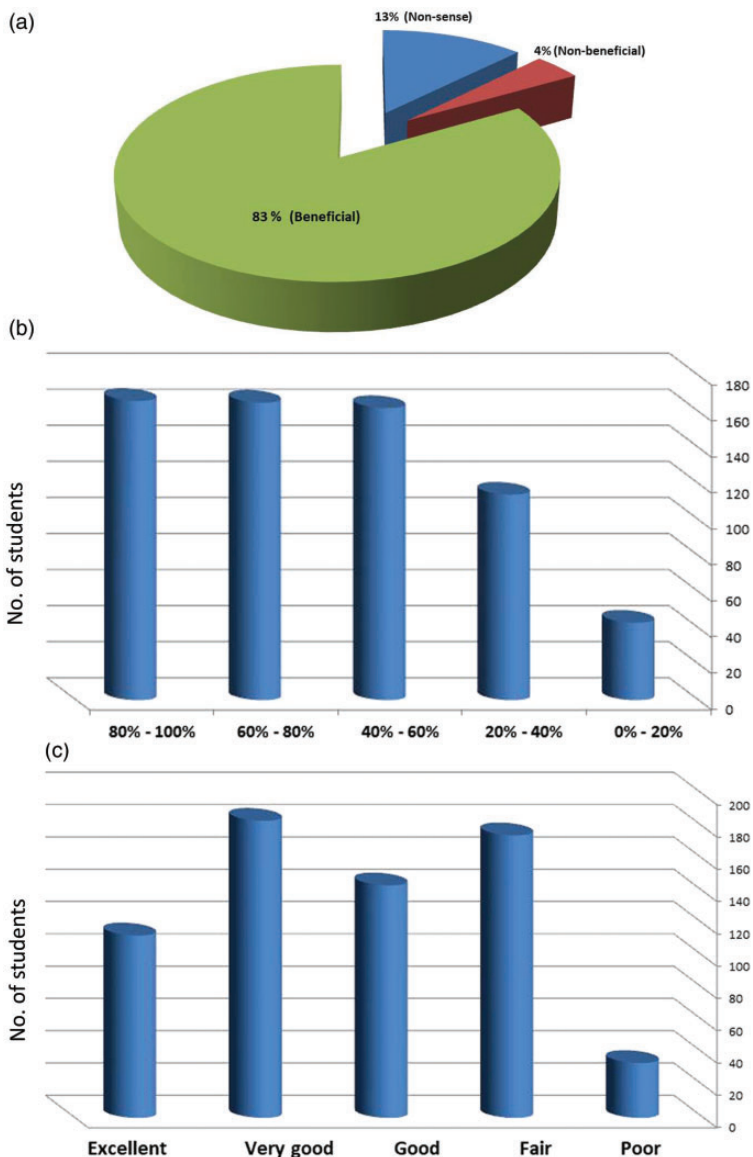


Figure 1. Students' assessment of academic education in integrative medicine (IM). (a) Students' impressions regarding learning IM. (b) Magnitude of medical educational benefits gained after studying IM (c) Students' opinions about topics in IM course.

estimating the percentage of educational benefits. Differences in students' responses regarding the magnitude of benefits gained after studying IM are shown in Figure 1b ($p=0.03$, $\text{chi-square}=87.462$). About 24.9% of students reported that the medical benefits gained from studying IM ranged from 60% to 80%; about 24.7% reported a range of 80% to 100%, about 24.4% benefits gained of 40% to 60%, 19.3% reported a range of 20% to 40%, and 6.7% of students reported the medical benefits gained from studying IM ranged from 0% to 20%. On the basis of these findings, most students (74%) reported that they benefited from the IM course by more than 40% (Figure 1b).

Was IM education attractive to medical students?

The IM course attracted the interest of an increasing number of students over the relatively long study duration ($p=0.02$). Differences in students' responses to the question "Are course topics poor, fair, good, very good or excellent?" (Figure 1c) showed that most students viewed the IM course favorably ($p<0.001$) and rated the IM course from good to excellent. In total, 138 students (21.23%) gave a rating of "good" for the IM course, 178 students (27.38%) rated the course as "very good", and 113 students (17.4%) gave a rating of excellent (Figure 1c; $\text{chi-square}=112.631$), indicating that the course topics attracted increasingly greater interest each year.

Suggesting IM course modifications versus keeping current course contents

Most students stated that they did not feel the IM course needed to be modified. A total 428 of 650 (65.8%) students did not feel that course topics needed to be added or deleted (Figure 2a). Another 222 of 650 (34.2%) students suggested that some topics should be

included or omitted. We compared students' responses to this question in different academic years ($\text{chi-square}=65.286$), confirming that students tended to be satisfied ($p<0.05$) with the current IM course contents (Figure 2a, 2b).

Students' overall evaluation of the IM course at CMTU

Students' overall evaluation of the IM course was positive. Only 40 students (6.15%) considered the course contents to be poor. Most students (610, 93.85%) were satisfied with the current course contents, which they rated as fair to excellent. About 190 students (29.2%) considered the course contents to be very good and 80 students (12.3%) felt that the course contents were excellent (Figure 2b). Course satisfaction among students also increased each year.

Discussion

Honoring patients' interest and use of IM (including prophetic medicine) are a main part of the definition of respecting patients' preferences and providing patient-centered medical care. Effective communication regarding IM improves patient quality of life, reduces distress, alleviates unwanted side effects that could result from the use of inappropriate treatments, and possibly improves clinical outcomes.¹¹

Currently, the future of IM and prophetic medicine education is promising at modern international medical schools. Unfortunately, IM and prophetic medicine education has not received much attention at medical schools in the Arab world, where IM is almost unknown. Our study revealed that most of the 650 medical students (264 men and 386 women) at CMTU who participated in our study throughout the entire period investigated (2007–2016) (Table 1) exhibited a promising interest in studying

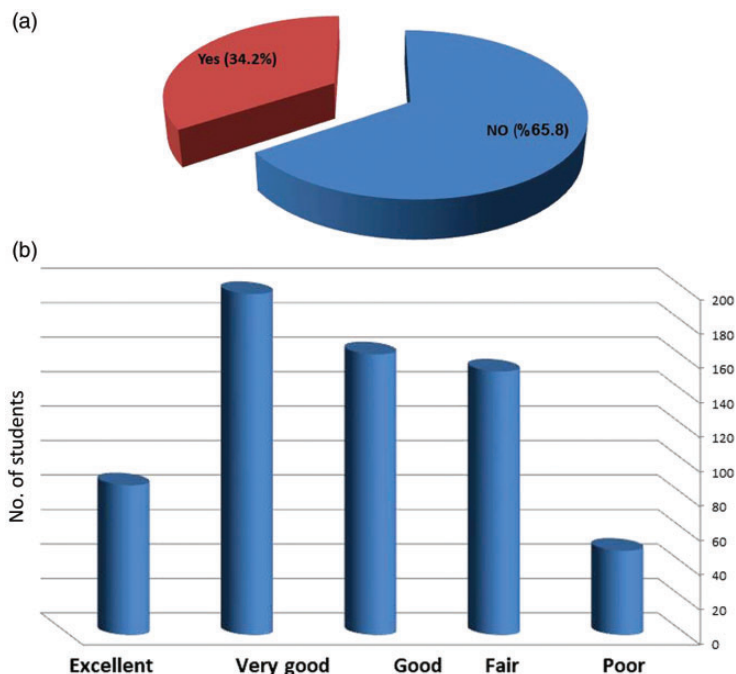


Figure 2. Students' evaluation of educational course in integrative medicine (IM). (a) Suggestions about adding or deleting some course topics. (b) Students' evaluation regarding current IM course contents and curriculum.

and participating in IM and prophetic medicine education, and this interest increased year after year. Among participants, most (83%) considered learning IM to be beneficial (Figure 1a). About 74% of medical students who completed our questionnaire expressed strong positive attitudes toward studying IM and reported that the magnitude of benefit gained after studying IM was more than 40% (Figure 1b). Moreover, respondents were quite satisfied with the current IM course content (Figure 1c) ($p < 0.05$).

Students' evaluation of the IM course in general was queried in the survey, to identify areas for future improvement in the IM scientific material provided to medical students at CMTU. Upon the evaluation of feedback regarding positive and negative points in the course, we found that most respondents (65.8%) recommended no

future changes to the scientific materials in the IM course (Figure 2a), which was statistically significant ($p < 0.05$). About 34.2% of students recommended future additions or omissions to further improve the IM course. Agreement of most students (65.8%) with the current course topics reflected students' satisfaction with the current IM education.

There is a growing body of evidence supporting the safety and efficacy of multiple available IM therapies, with an increased budget from \$20 to \$50 million in 1999 in the US.¹² Unfortunately, IM education in the Arab world is still in its beginning stages, although academic medical education is continuously progressing at leading Arabic universities and medical schools, particularly internationally ranked universities in Saudi Arabia. However, CAM, prophetic medicine, and IM education at

Saudi universities has not gone hand in hand with advancements in modern Western medical education. Taibah University in Saudi Arabia pioneered the introduction of IM education to the medical curriculum for undergraduate medical students. As revealed in our findings, students' evaluation regarding the IM educational course contents was quite positive (Figure 2b).

Our study findings lead us to conclude that IM education and IM clinical practice are vital in modern medicine. It is critical for medical students to have knowledge about IM, which combines the most suitable for patients from allopathic medicine, prophetic medicine and the best of complementary and alternative medicine. Clinical practice can improve substantially in many respects by introducing IM into medical curricula and practice. Physicians can choose the best treatment for their patients, from among both modern medicine and alternative medicine, thus discouraging patients from seeking treatment and medical advice from non-medical personnel.

In summary, this study touches on a controversial topic in that some physicians may deny or be against very effective remedies simply because such treatments are not included in the medical curriculum. Our study reports the results of 10 years of promising feedback in the study of IM. When patients reach the point of "treatment failure", they often seek advice from non-medical sources; this can be avoided if the treating physician has knowledge of and a background in IM.

List of abbreviations

CAM: Complementary and alternative medicine, CMTU: College of Medicine at Taibah University, IM: Integrative medicine, NIH: National Institutes of Health.

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Declaration of conflicting interest

The authors declare that there is no conflict of interest.

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Additional files

Additional file 1

Title of data: Study questionnaire.

Description of data: Students’ attitudes toward integrative medicine medical education were evaluated once they had completed the questionnaire. Written consent to participate in the study was obtained from participants prior to completing the survey, according to the ethics and regulations.

Appendix I:

Questionnaire on students’ attitudes about integrative medicine (IM) education

Name: (optional) _____

Academic year: _____

No	Statement	Response				
1	I believe the study of IM is. . .	Beneficial	Not beneficial	Nonsense		
2	I have benefited from the study of IM.	Provide a percentage (%)				
3	I think the course topics are. . .	Poor	Acceptable	Good	Very good	Excellent
4	I suggest adding or deleting some of the course topics.	Agree		Don't agree		
5	<i>If you answered (Agree), please insert your comments here.</i>					
6	I think the course contents are. . .	Poor	Acceptable	Good	Very good	Excellent
7	<i>If you have a suggestion concerning the content of the course, please insert it here.</i>					
8	I think the teaching method of the course is. . .	Poor	Acceptable	Good	Very good	Excellent