

### The Need Assessment of Medical Students for a Complementary and Alternative Medicine Curriculum

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**Background:** The increasing attention and trend towards complementary and alternative medicine and the usage of such treatments in different nations has highlighted the need for their insertion into the medical curriculum from the basic and clinical sciences courses up to in Continued Medical Education (CME) programs. The familiarity of physicians with complementary therapies is of great importance. The aim of this study was to determine the topics required in the general medical curriculum in the field of complementary and alternative medicine so that they can be further applied by educational planners and administrators.

**Methods:** This was a descriptive cross-sectional study. Regarding the importance of need assessment, at first the agreement-centric Delphi method was used by 15 faculty members and medical students (five faculty members of traditional medicine, five faculty members of clinical sciences and five students) in 3 rounds. With the distribution of open-response questions, the necessary topics in the field of complementary and alternative medicine were covered and after finalization, a structured questionnaire was prepared. In the next step the validity and reliability of the structured questionnaire was studied, then it was completed by 169 cases of the study population and the results were disclosed.

**Results:** The following results were obtained on the needs of the medical curriculum regarding the alternative and complementary medicine: acupuncture: 80.5%; chiropractic: 66.85%, homeopathy: 63.99%, yoga/ tai chi/ spiritual healing/ relaxation: 87.56%, reflexology: 63.35%, hypnotherapy: 63.89%, herbal therapy: 80.46%, damp and dry cupping: 46.73% and massage therapy: 25.50%. Accordingly, the first priority was yoga/ tai chi/ spiritual healing/ relaxation whereas the last priority was massage therapy.

**Conclusion:** The ultimate goal of complementary and alternative medicine training for medical students is to prepare them for a logical and informed encounter with an important challenge in medicine. Therefore, a change in the training programs of medical faculties seems necessary based on the need assessments having been performed in this respect.

**Keywords:** Complementary and alternative medicine (CAM), Medical curriculum, Medical student, Need assessment

### بررسی نیازهای برنامه آموزشی دانشجویان پزشکی در زمینه طب مکمل و جایگزین

**زمینه و هدف:** افزایش توجه و گرایش مردم به طب مکمل و جایگزین و استفاده از درمان های این طب در جوامع مختلف ضرورت وارد شدن مباحث آن را در برنامه های آموزش پزشکی از مقطع علوم پایه و بالینی و حتی آموزش مداوم ایجاد کرده است. آشنا بودن پزشکان با درمان های مکمل بسیار مهم است.

**روش:** این پژوهش یک مطالعه توصیفی - مقطعی بود. با توجه به موضوع تعیین نیازهای برنامه آموزشی در ابتدا به روش توافق محور دلفی در طی سه مرحله توسط ۱۵ نفر از اساتید و دانشجویان پزشکی (۵ نفر اساتید طب سنتی، ۵ نفر اساتید علوم بالینی و ۵ نفر از دانشجویان) با ارسال سوالات باز پاسخ، موضوعات مورد نیاز در حوزه طب سنتی و مکمل را پرسیده و پس از نهایی شدن، پرسشنامه ساختار یافته تهیه شد. در مرحله دوم پرسشنامه ساختاریافته مورد ارزیابی روایی و پایایی قرار گرفته و سپس توسط ۱۶۹ نفر حجم نمونه تکمیل و نتایج مشخص شد.

**یافته ها:** بر اساس نتایج نیازهای برنامه آموزشی دانشجویان پزشکی در زمینه طب مکمل و جایگزین موارد ذیل مشخص گردید که شامل: طب سوزنی ۸۰/۵٪، کایروپراکتیک ۶۶/۸۵٪، هومیوپاتی ۶۳/۹۹٪، یوگا - تای چی - شفای معنوی - تمدداعصاب ۸۷/۵۶٪، رفلکسولوژی ۶۳/۳۵٪، هیپنوتیزم درمانی ۶۳/۸۹٪، گیاه درمانی ۸۰/۴۶٪، حجامت تر و خشک ۴۶/۷۳٪، ماساژدرمانی ۲۵/۵۰٪ بوده اند. اولویت اول با یوگا- تای چی - شفای معنوی - تمدداعصاب و آخرین اولویت با ماساژدرمانی مشخص شد.

**نتیجه گیری:** هدف نهایی از آموزش طب مکمل و جایگزین به دانشجویان پزشکی، آماده کردن آنها برای برخورد منطقی و آگاهانه با یک چالش مهم در پزشکی است. لذا، تغییر در برنامه های آموزشی دانشکده های پزشکی ضروری به نظر می رسد.

**واژه های کلیدی:** برنامه آموزشی، دانشجوی پزشکی، طب مکمل و جایگزین، نیازسنجی

### تعیین مقدمات برنامه های آموزشی برای دانشجویان طب پزشکی و طب مکمل و طب سبیل

**الأرضية والهدف:** إن زيادة إهتمام الناس بالطب التكميلي والطب السبيل واستمرارهم للوسائل العلاجية لربئین الطیبین أدى إلى إدخال علومهم فی البرنامج التعليمي للطب البشري من مراحل العلوم الأساسية حتى المراحل السريرية والتعليم الدائم. إن عرف الأطباء على الوسائل العلاجية للطب التكميلي أمر مهم جداً.

**الطريقة:** هذه الدراسة هي دراسة توصيفية - مقطعية. فی البداية تم طرح أسئلة مفتوحة عن الموضوعات السبيلة فی الطب التقليدي والتكميلي وذلك بطريقة توافق محور دلفي وذلك بثلاث مراحل عن طريق ۱۵ شخص من طلاب الطب والأستاذة ( ۵ أستاذة طب تقليدي، ۵ أستاذة علوم سريرية، ۵ طلاب ) بعد ذلك تم صياغة ورقة الإستطلاع وفي المرحلة الثانية تم تقييم ورقة الأسئلة الإستطلاعية من حيث صحتها وبعدها عن طريق ۱۶۹ شخص تم تكمیل حجم العينة والنتائج.

**النتائج:** استناداً إلى نتائج احتياجات طلاب الطب فی مجال الطب التكميلي والسبيل، تم تحديد ما يلي: الوضو الجالبر ۸۰.۵٪، كايروپراكتيك ۶۶.۸۵٪، هوميوپاتي ۶۳.۹۹٪، اليوغا - تاى جى - الشفاء الروحى - إراحة الأعصاب ۸۷ / ۵۶٪، ريفليكسولوجى ۶۳.۳۵٪، التنويم المغناطيسى العلاجى ۸۷.۹۸٪، والعلاج بالأعصاب ۸۰.۴۶٪، الحجامة الرطبة والجافة بنسبة ۶۳.۴۳٪، والعلاج بالتدليك ۶۳.۳۵٪، كانت الأولوية الأولى لى يوغا- تاى جى - الشفاء الروحى - إراحة الأعصاب، والأولوية الأخيرة مع علاجات التدليك.

**النتيجة:** الهدف النهائي من التدريب على الطب التكميلي والسبيل لطلاب الطب هو إعدادهم لتبرر منطقي ومستنير لمواجهة التحديات الطبية السبيلة. لذلك، يبدو من الضروري تغيير المنهج فی الكليات الطبية.

**الكلمات الدلالية:** البرنامج التعليمي، طلاب الطب، الطب التكميلي والطب السبيل، الحاجة إلى التقييم

### متبادل طریقه باه طب کے بارے میں میڈیکل طلباء کی ضرورتوں کو پورا کرنے کی ضرورت

**بیک گراؤنڈ:** عوام متبادل طریقه ہائے طب پر کافی دھیان دے رہے ہیں، مختلف معاشروں میں متبادل طریقه ہائے طب کی ضرورت محسوس کی جارہی ہے اور ان امور کو ماڈرن میڈیکل اور کلینیکل نصاب میں سمونے کی ضرورت ہے بلکہ ان طریقه ہائے علاج کے بارے میں ایڈیٹ رہنا بھی ضروری ہے۔ ڈاکٹروں کا متبادل طریقه ہائے طب سے واقف ہونا علاج کو موثر بنانے کے لئے بہت اہمیت کا حامل ہے۔

**روش:** اس تحقیق میں پندرہ افراد شامل تھے ان میں پانچ طب یونانی کے اساتذہ، پانچ افراد کلینیکل میڈیسن کے ماہر اور پانچ افراد میڈیکل طلباء تھے۔ ڈیٹا کی جمع آوری کے لئے ایک سوالنامہ بنایا گیا، اہل نظر نے اس سوالنامے کی علمی لحاظ سے تائید کی۔ اس کے بعد ایک سو انتہر افراد نے اسے مکمل کیا اور نتائج واضح کئے۔

**نتیجے:** اس تحقیق سے حاصل شدہ نتائج کے مطابق مذکورہ بالا افراد نے آکو پنکچر، کایروپریکٹیک، ہومیوپیتھی، یوگا، تائی چی، دعا و اوراد سے شفا، اعصاب کو سکون پہنچا کر شفا حاصل کرنا، ریفلیکسولوجی، بیپونو ٹیزم تھراپی، جزی بوٹیوں سے علاج، طب یونانی کی حجامت، خواہ خشک ہو یا تر ہو کو متبادل طبی طریقه قرار دیا گیا۔ اس کے علاوہ یوگا، مالش سے علاج اور تائی چی، دعا و اوراد سے علاج اور اعصاب کو سکون پہنچا کر علاج کرنے کے طریقوں کو ترجیح دی گئی ہے۔

**سفاہش:** متبادل طبی طریقوں کی تعلیم کا بنیادی هدف یہ ہے کہ میڈیکل طلباء معاشرے میں پیش آنے والی میڈیکل چیلنجوں کا بہتر طریقه سے سامنا کرسکیں، اسی وجہ سے میڈیکل یونیورسٹیوں کے تعلیمی نصاب میں تبدیلیاں لانے کی اشد ضرورت ہے۔

**کلیدی الفاظ:** میڈیکل تعلیم، متبادل طریقه ہائے علاج، تحقیق، چیلنج

## INTRODUCTION

Complementary and Alternative Medicine (CAM) includes a variety of treatments that are outside the paradigm of ordinary medical practice and are often used in conjunction with or in combination with this method. In general, CAM can be mentioned as a group of treatments which have a more comprehensive approach towards medical problems, in comparison to conventional monotherapy treatments that may only consider the "mechanism of the body". Many types of CAM have been created by non-western countries and it is based on the true culture in these communities (1). WHO report mentions that around 75% of the world population act towards indigenous medical techniques or traditional systems (2).

At the start of the 21st century, the report by Flexner identified controversy in the medical curriculum of medical schools of the United States. The findings of this stage report was set at standardizing conventional medical education emphasizing on biomedical sciences, technology, pharmacology and scientific methodology. Therapeutic approaches which were alternative and non-biomedical were removed from the medical curriculum. In the 1970s, the revitalization in public interest towards natural, global and foreign treatments in the U.S. and professional endeavors were pursued through a number of different fields including massage therapy, naturopathy and acupuncture. In the following studies on American adults, a great number of patients using alternative treatments along with inspiration were explicitly stated, cases who generally did not talk about their alternative treatment with their doctor (3).

Therefore, training of complementary and alternative medicine (CAM) once again was inserted into the college curriculum. CAM is not a single approach, so it is often described in terms of undeniable conditions or what is not present. These approaches are therapeutic and are not a major part of the biomedical system or are topics that are not commonly used in medical education. There are several suggestions for why knowledge about CAM is necessary for future physicians. It is believed that knowledge on CAM treatments can increase the positive attitude towards them. General knowledge on the theories and practices of well-known CAM treatments can help a doctor better consult his patient about his/her healthcare choices (4, 5).

It has been estimated that over 80% of the population in low-income countries use herbal remedies as part of their principal healthcare. The use of traditional, complementary and alternative medicine has also increased in countries with a high income. In response to the association between traditional, complementary and alternative medicine in primary healthcare throughout the world, WHO has repeatedly confirmed its support for the development of traditional, complementary and alternative medicine over the last decade. In the 2008 congress, WHO published the Beijing statement on traditional medicine. This statement was based on the framework of traditional, complementary and alternative medicine policies, responding to governments around the world and reaffirming the importance of integrating traditional, complementary and alternative

medicine among members of the Health System Committee. One of its most important guidelines was to strengthen the relationship between biomedical doctors with traditional, complementary and alternative medicine as well as developing educational programs on traditional, complementary and alternative medicine for medical doctors and students (6-9).

## METHODS

This was a descriptive cross-sectional study. The study population in the first stage consisted of 15 medical professors and students (5 prof. of CAM, 5 prof. of clinical medicine and 5 medical students) who were selected based on purposive sampling. In this stage according to the Delphi method (in 3 rounds) the opinions were combined and a structured questionnaire was designed. In the 2nd stage the content validity of the structured questionnaire prepared in the first stage was determined by ten experts and professors in the fields of medical education, traditional and complementary medicine. The reliability coefficient for the questionnaire items in the 2nd stage was calculated as 89.6% with the SPSS software and based on Cronbach's alpha. The main target community in this study was the faculty members of the medical school. By using Cochran's formula the sample size was calculated as 169 cases. In the 3rd stage, the designed questionnaire was filled in by the sample population.

## RESULTS

After collecting the data and performing statistical analyses the following results were obtained. Among the 169 studied cases 130 (77%) were male. 56 (33.13%) were in the 30-40 year age group, 85 (50.29%) in the 41-50 year age group, 23 (13.60%) in the 51-60 year age group and 5 (2.98%) in the over 60 years age group. The percentage of agreement and related and required topics in the field of complementary and alternative medicine are described in the tables below (tables 1-5)

Other results are divided into the agreed topics as follows:

Regarding homeopathy the percentage of total agreement in the diagnostic basic was 33.12%, treatment principles were 53.24% and common complications in its application was 53.24%. In terms of reflexology the total agreement percentage in the diagnostic basic was 53.24%, its treatment principles was 56.79% and common complications 53.24%. In the field of hypnosis therapy the percentage of total agreement in the diagnostic basic was 53.83%, treatment principles 46.73% and common complications 80.46%. The same figures were 43.18%, 40.22% and 43.77% in wet and dry cupping and 73.36%, 73.95% and 70.4% for massage therapy.

## DISCUSSION

Based on the obtained results, the first need of the medical student's curriculum is to learn about the diagnostic basics, the principles of treatment and common complications in the field of yoga, tai chi, spiritual healing and relaxation. Accordingly, the second and third educational priorities are acupuncture and herbal medicine, respectively. Regarding the many researches performed in the field of traditional,

<b>Table 1. Percentage of Persons Agreeing on the Need for a Student's Curriculum on Complementary and Alternative Medicine</b>						
Row	Educational topic in the field of complementary and alternative medicine	Percentage of agreement				
		Very agree	Agree	opposite	Very opposite	No comment
1	Yoga-Tai chi-Spiritual healing-Relaxation	27,21	60,35	6,50	2,95	2,95
2	Acupuncture	30,17	50,33	6,50	6,50	6,50
3	Herbalism	43,78	36,68	13,01	6,50	0
4	Chiropractic	13,60	53,25	20,11	6,50	6,50
5	Homeopathy	20,11	43,78	13,01	10,05	2,36
6	Hypnotherapy	23,66	40,23	26,62	6,50	2,95
7	Reflexology	13,6	50,29	23,07	13,01	0
8	wet and dry Cupping	16,56	30,17	30,17	20,11	2,95
9	Massage therapy	20,11	5,39	16,56	2,95	2,95

<b>Table 2. Percentage of Persons agreement on the needs of the General Medical Student's Curriculum on Acupuncture</b>						
Row	Acupuncture	Percentage of agreement				
		Very agree	Agree	opposite	Very opposite	No comment
1	The role of language in the diagnostic basic	23,07	43,19	20,11	3,55	10,05
2	The role of acupressure in controlling common symptoms	16,56	46,74	20,11	6,50	10,05
3	The role of acupuncture in controlling pain	36,68	43,19	10,05	3,55	6,50

<b>Table 3. Percentage of Persons agreement on the needs of the general medical student's curriculum on chiropractic</b>						
Row	Chiropractic	Percentage of agreement				
		Very agree	Agree	opposite	Very opposite	No comment
1	Diagnostic basic in Chiropractic	13,01	50,29	16,56	10,05	10,05
2	Treatment principles in Chiropractic	10,05	53,25	16,56	10,05	10,05
3	Common complications in Chiropractic use	20,11	40,23	23,07	6,50	10,05

<b>Table 4. Percentage of Persons agreement on the needs of the general medical student in the field of yoga, Tai chi, spiritual healing and relaxation</b>						
Row	Yoga-Tai chi-Spiritual healing-Relaxation	Percentage of agreement				
		Very agree	Agree	opposite	Very opposite	No comment
1	Diagnostic basic in Yoga-Tai chi-Spiritual healing-Relaxation	23,07	43,78	20,11	2,95	10,05
2	Treatment principles in Yoga-Tai chi-Spiritual healing-Relaxation	23,66	46,74	16,56	2,95	10,05
3	Common complications in Yoga-Tai chi-Spiritual healing-Relaxation use	23,66	46,74	23,01	6,50	10,05

complementary and alternative medicine, the results emphasize on this point. Quartey et al. in a systematic review have stated that based on the performed estimations over 80% of the population in low-income countries apply herbal

medicine in the main healthcare sector whereas the use of traditional, complementary and alternative medicine has increased among high-income nations as well. Therefore, teaching courses on traditional, complementary and

**Table 5. Percentage of Persons agreement on the needs of the general medicine student in the field of herbal medicine**

Row	Herbal Medicine	Percentage of agreement				
		Very agree	Agree	opposite	Very opposite	No comment
1	Diagnostic basic in Herbal Medicine	40,23	26,62	23,66	6,50	2,95
2	Treatment principles in Herbal Medicine	40,23	30,17	20,11	6,50	2,95
3	Common complications in Herbal Medicine use	40,23	23,66	36,68	6,50	6,50

alternative medicine for Western physicians seems to improve the attitude, knowledge and skills of both medical doctors and medical students towards the use of traditional, complementary and alternative medicine. However, due to the methodological limitations of present studies, a comprehensive conclusion cannot be obtained (6, 10).

Davati et al. (11) in their research acknowledged that based on a study performed in 2000, physicians are paying particular attention to complementary and alternative therapies, yet there are some concerns due to the lack of scientific evidence on the efficacy of such therapies and lack of proper coding rules. Moreover, in a study conducted in Iran on 340 general physicians, 84% believed that in recent years the use of these methods has been considered more than ever before. Herbal medicine, cupping and acupuncture are the most commonly used traditional medicines in Iran (11). The findings of the latter study were consistent with that of the current study, namely, the acquisition of the second and third rank in the need metrics for acupuncture and herbal medicine. Regarding the findings of this study in which yoga, spiritual healing, acupuncture and chiropractic received the 1st to 4th rank in the need assessment; in the study by Solimani et al. regarding the attitude of medical students and residents on complementary and alternative medicine, this point has been well-documented that treatment with alternative and complementary medicine is becoming more and more popular every day. It is estimated that among each three individuals, one has used such treatments for common diseases such as low back pain, headache, anxiety and depression. Planning systems in developed countries aim to include certain CAM courses in their medical students' curriculum so that it can help the doctor and his/her patient to choose the best treatment option with the least complications (12).

Evad et al. performed a research on knowledge, attitude and motives towards complementary and alternative medicine treatments among medical and pharmacology students in Kuwait. He reported that the students need further and better education on complementary and alternative medicine to be able to better treat their patients in the future. Spiritual healing (Prayer and Quran reading), herbal products and massage therapy are considered as the most effective methods (13). In our study, spiritual healing achieved the 1st, herbal therapy the 3rd and massage therapy the 9th rank in this respect. Given that in each society there are certain medical beliefs that influence both the physician and the patient's choice, complementary and alternative medicine training policies at medical universities should be

designed on this basis (14). The curriculum of the medical students of the Medical Faculty of Mashhad University of Medical Sciences is based on the views of the faculty members which have been identified with respect to the conditions and beliefs in this region. Nevertheless, the findings of this research along with those of other studies emphasize on the necessity of implementing a standard educational program in the field of complementary and alternative medicine in the medical students' curriculum. Mousavizadeh and Ansari in their study entitled "Complementary/alternative medicine and medical education", after discussing the complementary and alternative medicine and its place in the health services and the reasons for its acceptance and disapproval, its dynamics in the medical and medical education curriculum, as well as the status of complementary and alternative medicine training in today's world, concluded that although in many medical schools in the industrialized countries complementary and alternative medicine are taught, the educational programs for this medicine are variable and often superficial. In spite of the increasing attention, a standardized curriculum for teaching complementary and alternative medicine for medical doctors has not yet been developed (15).

Accordingly, it has been clearly stated that despite the worldwide tendency to use complementary and alternative medicine along with conventional treatments, the Medical Faculty of Mashhad University of Medical Sciences has not been effectively addressed yet. CAM has been recently included in the medical curriculum as two optional courses for medical students (a superficial look to the performance of complementary and alternative medicine in the medical students' curriculum). Therefore, it is necessary for educational planners and administrators to consider this topic more than before.

Lee et al. in another study entitled "complementary and alternative medicine and medical students in Australia: where do we stand?" stated that widespread support and the need for complementary and alternative medicine means that CAM is something that is likely to remain. Given the great popularity and potential of harm, we, as future physicians, have to be interested in this aspect of treatment and must actively participate in CAM discussions with patients, especially when many people believe that they are being judged intensely, their practitioners should disclose this. We ought to definitely maintain an open mind towards them (1). In addition to the data on the substantive nature and acceptability of complementary and alternative medicine in



medical and health societies worldwide, the other aspect which should be considered regarding this field of clinical science is its legal and ethical issues. Taghipour et al. in a systematic review focused on the ethical and legal challenges in complementary and alternative medicine. The mentioned topics in this study showed that complementary and alternative medicine for being applicable and defendable in legal assemblies require the development or revision of relevant and specific laws.

The process of dealing with errors and failures and their references should be specified and the type of punishment and penalties need to be defined; in addition, the authorities must provide the necessary documentation and training. On one hand, the national interest and coherence of the medical community in accepting this fact along with adopting educational and research approaches and correcting and updating traditional medicine texts and on the other hand, compilation and review of laws by legal and medical authorities are required, that can be presented in executive programs with determined schedules (16). Although in our study the legal and ethical aspects of complementary and alternative medicine was not discussed, but it was an issues of concern in the need assessments done, concerning the majority of faculty members on this type of treatment. This is due to the lack of valid evidence and strong evidence-based medicine capable of convincing such members.

In a study conducted by Cowen and Cyr in 2015, they stated that the study of CAM evidence-based methods can help doctors refer more patients to CAM treatments. Nevertheless, reference to licensed CAM providers is not required for the treatment and insurance pay back in the United States whereas other referrals for CAM treatment can have a potential responsibility. Experimental treatment with CAM and the use of CAM methods for self-care may be beneficial in the improvement of medical empowerment and cultural competence in medical students. However, there are certain questions regarding the efficiency of CAM and the potential risks for the patients' health, the introduction of ethical issues in CAM training for medical students especially when it includes participation or receiving treatment. The previous polls showed that 64% and 84% of medical schools provided CAM training. The scope of these reports, which were published in 1998 and 2002, respectively, along with the display of a few medical

schools showed that further studies on CAM are required in the medical curriculum (4).

Given the many researches and studies performed on awareness and attitude towards CAM throughout the world, it can be concluded that the application of this medicine is increasing and developing day by day in a way that in developed and developing countries the trend toward using CAM therapeutic options are a priority in comparison to the conventional and modern treatments.

However, one should keep in mind that CAM is never intended to deny modern medicine, but complementary and alternative medicine can be beneficial to patients besides modern medicine. Therefore policymakers and educational planners need to pay attention to this trend and respond to this need of the community through proper planning. It means that by implementing appropriate courses for medical students, expert physicians can be trained for the future.

The issue of most concern for experts and faculty members in the clinical field, is the type of training and the relevant educational resources. In other words the evidence-based basis of this science is still a matter of question. However, with scientific scholars and expert professors in CAM, and the presence of scientific centers, educational institutions and reputable faculties throughout the world, one can be sure that acceptable planning can be done in this regard. Moreover, by conducting further and more precise studies in CAM, it is possible to promote the status of this medicine in scientific societies.

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