

# A Survey of Medical Students' Knowledge and Attitudes Toward Complementary and Alternative Medicine in Urmia, Iran

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## Abstract

Personal beliefs of medical students may interfere with their tendency for learning Complementary and Alternative Medicine concepts. This study aimed to investigate the knowledge and attitudes of medical students toward complementary and alternative medicine in Urmia, Iran. A structured questionnaire was used as data collection instrument. One hundred questionnaires were returned. Thirty-one percent of students reported use of alternative medicine for at least once. Iranian Traditional Medicine was the main type of alternative medicine used by medical students (93.5%). Neuromuscular disorders were the main indication of alternative medicine use among students (34.4%). Ninety percent of participants demonstrated competent knowledge about acupuncture while the lowest scores belonged to homeopathy (12%). Study results showed that 49% of medical students had positive attitudes and demonstrated a willingness to receive training on the subject. Thus, there appears a necessity to integrate complementary and alternative medicine into the medical curriculum, by taking expectations and feedbacks of medical students into consideration.

## Keywords

complementary medicine, alternative medicine, traditional medicine, Iranian traditional medicine

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Unconventional, alternative, or unorthodox therapies are difficult to define because they encompass a wide range of practices and beliefs.<sup>1</sup> Decision making in complementary and alternative medicine is mainly based on experience, observation, and traditional healing manuscripts while conventional medicine is based on more evidence-based approach, which refers to the distinct and precise use of current evidence in making decisions about the care of patients.<sup>2</sup>

Complementary medicine is available in various categories. Pharmacies have been identified as one of the most common suppliers in this field by providing herbal and nutritional medicines and vitamin and mineral supplements.<sup>3</sup> Acupuncture, hypnosis, massage therapy, and chiropractic services are considered as complementary and alternative medicine as well.<sup>4</sup>

The popularity of complementary and alternative medicine and its use by general public have increased dramatically over the past 2 decades.<sup>5</sup> Nevertheless, medicine has had always the problem of how to prepare physicians for a complex culture where beliefs, values, and preferences are very different among patients. Educating physicians in the field of complementary and alternative medicine seems to be a good solution to this problem. Curricular concepts of complementary and

alternative medicine mainly focus on alternative systems of care and traditional beliefs among people; however, personal beliefs of medical students may interfere with their tendency for learning complementary and alternative medicine. Therefore, taking measures to increase self-awareness can be beneficial to modify one's own beliefs and attitudes. This measures may also improve students' personal growth and self-care.<sup>6</sup>

A survey conducted among Canadian students in 2005 in order to assess their beliefs about complementary and alternative medicine highlighted the interest and expectations of preclerkship medical students to learn about complementary and alternative medicine and to use this knowledge in their

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future practice. Eighty-nine percent of all students reported that they would ask their future patients about complementary and alternative medicine; only 45% indicated that they currently felt prepared to discuss complementary and alternative medicine with patients or colleagues.<sup>7</sup> In the 16 schools studied, students agreed that there is a need for increased complementary and alternative medicine training programs in undergraduate medical education, yet only 25% of respondents reported receiving complementary and alternative medicine education.<sup>7</sup>

Also, a recent pilot study in England and Germany showed that studying complementary and alternative medicine, in any format, encourages both students and junior doctors to adopt more patient-centered attitudes such as improving doctor-patient relationship. This should be an extra incentive for instructors to educate their learners on complementary and alternative medicine subjects.<sup>8</sup>

In developing countries, complementary and alternative medicine can be beneficially used to reduce the load on overburdened health systems. This would require incorporation of complementary and alternative medicine teaching in medical curricula; however, studies assessing the perceptions of medical students toward complementary and alternative medicine come primarily from the European countries and the United States, and data from the developing countries are scarce, as are data from the Middle East region.

Factors that influence views on complementary and alternative medicine, such as beliefs about the nature of life, disease, and spirituality in Iran might be totally different from those prevalent in Western countries, which necessitate the assessment of medical students' opinion about complementary and alternative medicine in this region.

The present study assesses the knowledge and attitudes of fourth- and fifth-year medical students toward complementary and alternative medicine in West Azerbaijan, Iran.

## Methods

This study was a cross-sectional survey carried out in Urmia University of Medical Sciences, West Azerbaijan, Iran in 2013. A total of 110 randomly selected fourth- and fifth-year medical students were asked to participate in the survey. Predesigned questionnaires were distributed among the participants and eventually 100 questionnaires were completely filled and returned to the investigator. The study was approved by the ethical committee of the School of Medicine and the participants' personal information remained confidential.

A structured, self-administered questionnaire was used as our data collection instrument. The questionnaire was developed based on a review of a similar research that was previously published in the scientific literature<sup>9</sup> and consisted of several sections, including demographics, knowledge and attitude questions, and sources of students and their families' information about complementary and alternative medicine. The validity of the questionnaire and its content was approved by 5 academic members of the faculty of medicine. We also used Cronbach's alpha (0.87) to assess the reliability of the designed questionnaire. Study questions were centered on 5 complementary and alternative medicine categories of acupuncture, Iranian traditional

**Table 1.** Knowledge of the Medical Students About Different Types of Alternative Medicine.

Evaluated Category	Students With Correct Answers, n (%)	Students With Incorrect Answers, n (%)
Acupuncture	90 (90)	10 (10)
Homeopathy	12 (12)	88 (88)
Osteopathy	60 (60)	40 (40)
Chiropractic	39 (39)	61 (61)
Iranian traditional medicine	51 (51)	49 (49)

medicine, homeopathy, chiropractic, and osteopathy as they are the most commonly used types of alternative medicine in Iran.

Knowledge evaluation section in questionnaire consisted of multiple choice questions in which 1 point was allocated for correct answers and 0 point was allocated for incorrect answers. In other words, in each question students were asked to circle the correct answer about each type of complementary and alternative medicine. In the attitude evaluation section, 2 points were allocated for positive answers, 0 point for negative answers, and 1 point for "No opinion" option. Overall score of 0 to 10 showed negative attitude, 11 to 21 average attitude, and 22 to 32 points was an indicator of positive attitude.

The data were collated and analyzed using SPSS (version 16). Descriptive statistics were computed on all variables as the primary method of data evaluation.

## Results

Knowledge and attitudes of 100 fourth- and fifth-year medical students studying in Urmia University of Medical Sciences toward alternative medicine were evaluated. Mean age of participants was  $23.5 \pm 1.1$  years (range 22-31 years). Knowledge assessment of the medical students in each of the alternative medicine categories is presented in Table 1.

Eighty-five percent (85/100) of participants were able to completely distinguish the different types of complementary and alternative medicine therapies among all given therapies in questionnaire and put them in complementary and alternative medicine category. Six percent (6/100) gave partially correct answers to this question while 9% (9/100) could not distinguish complementary and alternative medicine therapies from other forms of therapies.

After exclusion of 5 participants with no encounter with alternative medicine, the method of acquaintance with alternative medicine was studied in 95 participants. Twenty-eight participants (29.5%) stated that they got familiarized with alternative medicine by family and friends. This was followed by Internet and media in 16 (16.8%) and 15 (15.8%) of the cases, respectively. Seven participants (7.4%) first knew about alternative medicine in literature and only 3 (3.2%) participants had the experience of training courses or workshops in this field.

In self-assessment questions, 8% of students claimed that they believe they were knowledgeable in complementary and alternative medicine field, 31% stated they had moderate knowledge while 61% believed they did not have sufficient knowledge in this field.

**Table 2.** Medical Students' Attitudes Toward Alternative Medicine.

Questions Asked for Attitudes Evaluation	Agree, n (%)	No Opinion, n (%)	Disagree, n (%)
1 Complementary and alternative medicine principles can be used for better clinical care	82 (82)	15 (15)	3 (3)
2 Complementary and alternative medicine therapies are similar to placebo	25 (25)	40 (40)	35 (35)
3 It is necessary to instruct complementary and alternative medicine subjects in medical curriculum	55 (55)	27 (27)	18 (18)
4 Most traditional therapies stimulate body's natural therapeutic powers	76 (76)	23 (23)	1 (1)
5 Limitation of Evidence-based medicine in treatment of some diseases is the main reason that people choose complementary and alternative medicine	39 (39)	32 (32)	29 (29)
6 Decision about complementary and alternative medicine use should be based on Evidence-based research	63 (63)	28 (28)	9 (9)
7 Use of traditional medicine by physicians must be licensed	87 (87)	12 (12)	1 (1)
8 Traditional medicine practices performed by non-physicians are acceptable	15 (15)	21 (21)	64 (64)
9 Traditional medicine services should be under supervision of the Ministry of Health	77 (77)	20 (20)	2 (2)
10 Some traditional medicine therapies should be covered by insurance services	54 (54)	36 (36)	10 (10)
11 Using traditional medicine for patients is more cost effective than conventional medicine	39 (39)	45 (45)	16 (16)
12 Traditional medicine has fewer complications than conventional medicine	34 (34)	45 (45)	21 (21)
13 Patients' tendency toward traditional medicine is due to the failure of conventional medicine	42 (42)	32 (32)	26 (26)
14 Alternative medicine is a threat to community health	8 (8)	29 (29)	63 (63)
15 Tendency of patients toward alternative medicine is due to its higher availability	33 (33)	35 (35)	32 (32)
16 Tendency of people toward traditional medicine is due to its historical and cultural features	57 (57)	32 (32)	11 (11)

Fifteen (15%) students had personally used complementary and alternative medicine once in their lives, 16 (16%) students used complementary medicine several times while 69 (69%) students reported that they had not used complementary and alternative medicine at all. Iranian traditional medicine was the main type of complementary and alternative medicine used by students with a history of at least one-time complementary and alternative medicine encounter with 29 (93.5%) cases while only 1 student (3.2%) had used acupuncture and one report (3.2%) was recorded for homeopathy.

Regarding the indications of complementary and alternative medicine used by medical students, 11 students (34.4%) stated that they had used complementary and alternative medicine for neuromuscular indications, 25% had used complementary and alternative medicine for treatment of back pain and articular disorders followed by 12.5% for headache, 3.1% for hypertension, and 25% for other indications.

Prevalence of complementary and alternative medicine use by medical students' families was assessed as well. Twelve participants (12%) mentioned that their family has used complementary and alternative medicine once, 33 participants (33%) stated that their family has used complementary and alternative medicine for several times and in 55 cases (55%) they reported no complementary and alternative medicine use by family. Different types of complementary and alternative medicine used by the family members of medical students in descending order was 33 cases (73.3%) Iranian traditional medicine, 1 case (2.2%) homeopathy, and 1 case (2.2%) chiropractic.

Four main indications of complementary and alternative medicine use among family members was neuromuscular disorders, back pain and articular disease, hypertension, and headache with 19.5%, 36.6%, 9.8%, and 7.3%, respectively.

The results of evaluating the attitude of medical students are presented in Table 2.

Study results showed that 49% of medical students held positive attitudes about complementary and alternative medicine and moderate attitude was observed in 51% of participants. No negative attitude was derived from the survey. The average point was  $21.16 \pm 2.92$  (mean  $\pm$  standard deviation) with minimum and maximum scores of 13 and 27, respectively.

## Discussion

Increasing popularity of complementary and alternative medicine in society necessitates the inclusion of these subjects into medical education from the preclinical years through residency and beyond.<sup>10</sup>

Our study results indicated that 50.4% of the medical students had a relatively good profile of knowledge about complementary and alternative medicine, which was comparable to the knowledge of physicians in Rafsanjan region in Iran where 53.8% of respondents demonstrated sufficient knowledge in this field<sup>11</sup> and was higher than 31.4% of knowledge among students shown by a previous study by Naghibi Harat et al.<sup>12</sup> Students' knowledge about acupuncture and osteopathy was found to be competent while a lack of knowledge was observed in homeopathy and chiropractic.

Forty-nine percent of the students showed a positive attitude toward complementary and alternative medicine, which was comparable to 42% positive attitudes in the study by Naghibi Harat et al.<sup>12</sup> A survey conducted among German physicians and medical students demonstrated that although 73.8% of physicians and 40% of medical students had information about complementary and alternative medicine, neither of them felt that they had sufficient knowledge about complementary and alternative medicine. Both groups believed that complementary and alternative medicine should be included in medical education.<sup>13</sup>

On the other hand, previous studies have shown that although medical students have the least knowledge about

complementary and alternative medicine compared with general practitioners and hospital doctors who share the similar level of knowledge about complementary and alternative medicine therapies, they are more enthusiastic to learn about alternative medicine.<sup>14</sup> Therefore, acquainting medical students with complementary and alternative medicine principles from the first years of their studies can prepare them to use these practices in the future more effectively. A research on current attitudes among physicians toward complementary and alternative medicine revealed that although most physicians believed that some types of complementary and alternative medicine therapies look promising for treatment of diseases, nearly 80% of them never refer their patients to a complementary and alternative medicine specialist.<sup>15</sup>

In recent years, there has been steady increase in the number of medical schools that have included alternative medicine in their curriculum. However, there is a lack of uniformity in content and format of the complementary and alternative medicine courses offered by different universities.<sup>16</sup> In Iran, traditional and alternative medicine specialty has been offered for medicine and pharmacy graduates by 13 medical universities in recent years. Nevertheless, the number of graduates is still limited, which cannot meet the growing demand of the society for this specialty.

One of the main concerns that complementary and alternative medicine is facing, especially in developing countries like Iran, is that these therapies are mainly performed by people with no academic training in this field, which increases the risk of deviation from scientific approaches and eventually causing unwanted complications. This necessitates the inclusion of complementary and alternative medicine subjects in medical curriculum in medical universities in Iran.

In this study, neuromuscular disorders and back pain were the main indications of complementary and alternative medicine that were used by students and their families. In another study, which assessed the pattern of complementary and alternative use among urban population, people mainly used complementary and alternative medicine for digestive problems, obesity, and hyperlipidemia.<sup>17</sup>

In the same study among urban population, the prevalence of complementary and alternative medicine use was estimated about 63% among people, which was twice the prevalence of complementary and alternative medicine use among medical students in our investigation. This maybe an indicator of higher popularity of complementary medicine among lay population.<sup>17</sup> We also determined the prevalence of complementary and alternative use among students' family members. A previous study in a developing country has shown that nearly one-fourth of students tend to use alternative medicine only due to family pressure.<sup>5</sup> Therefore, it seems that families play an important role as a source of acquaintance with complementary and alternative medicine; sometimes cultural and religious beliefs among students' family members may even oblige them to choose these practices.

Fifty-five percent of our participants agreed that complementary and alternative medicine subjects should be included

in medical education program. In another study, which was conducted among pharmacy students, more than 60% of students had positive attitudes on the general knowledge related to traditional and complementary medicine; however, they were uncertain about the effectiveness and safety of complementary therapies.<sup>18</sup>

A survey among medical education institutions in 3 European countries revealed that the majority of respondents favor the integration of complementary and alternative medicine into medical curricula (research 85%, teaching 84%, and treatment 60%). However, in reality, complementary and alternative medicine has a very lower rate of integration in curriculum in these institutions (treatment 26%, research 19%, and education 18%).<sup>19</sup>

## Conclusion

This is the first investigation that assessed the views of medical students about complementary and alternative medicine in West Azerbaijan, Iran. We found a dearth of knowledge among fourth- and fifth-year medical students. The participants showed interest in inclusion of complementary and alternative medicine concepts in the medical curriculum. There appears a necessity to integrate complementary and alternative medicine into the medical curriculum due to current trends of integrative medicine and holistic attitude toward patient care. Taking expectations and feedbacks of medical students into consideration would help us take newer approaches in the improvement of the existing curriculum and apply them in educational regulations.

## Authors' Note

This study was performed as a MD thesis of Mahshid Sadeghi.

## Author Contributions

Mahshid Sadeghi: Acquisition of data, data collection and analysis. Soheila Rabiipour: Study conception and design, data analysis and interpretation.

Aida Sefidani Forough: Data analysis, Manuscript drafting, preparation and submission, critical revision.

Shiva Jabbari: Data analysis, manuscript preparation and revision.

Shahram Shahabi: Study conception and design, data interpretation.

## Declaration of Conflicting Interests

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## Ethical Approval

This study received approval from Urmia University of Medical Sciences, School of Medicine Ethics Committee (Approval Number Usmu.Rec.1392.161).

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