



## Knowledge, Attitude and Practice of Students of Gonabad University of Medical Sciences toward Famous Methods of Complementary and Alternative Medicine

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### Abstract

Since students of the of medical universities would have role in health centres and hospitals in the future, they must be aware about complementary and alternative medicine (CAM) therapies, related side effects, risks and possible complications. Due to the growing use of CAM in Iran, this study aims to evaluate the level of awareness, attitude, and performance of students of Gonabad University of Medical Sciences. Thisacross-sectional study was performed on 249 medical students(155 girls and 94 boys)of Gonabad University of Medical Sciences in 2014 with mean(SD) age of  $20.90 \pm 2.18$  years. A standard questionnaire was used for data collection. Data were entered into SPSSv. 20 software. The p value less than 0.05 was considered significant. The level of awareness was low with an overall score of  $22.56 \pm 6.54$ , and only 22.1% had a positive attitude. About as 46.2% of students used traditional medicine, especially herbal medicine, to treat a cold, and3.2% had the experience of traditional medicine courses.About24.9% of them were in favour of having a course on traditional medicine and 26.9% were interested in traditional medicine. About57.42% of students advised traditional medicine, especially for treatment of muscle pain, and more than 80% believed thattraditional medicine courses are useful. More than 60% preferred methods of traditional medicine to modern medicine, while, 22.1% believed that traditional medicine has side effects. Also, 34.5% believed that traditional medicine is a low-cost option. Based on the poor knowledge and attitudes of medical students toward complementary medicine, it is necessary to enhance students' awareness through CAM courses in the university.

**Keywords:** Complementary medicine, Student knowledge, Attitude, Practice

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## Introduction

Complementary and alternative medicine (CAM), along with modern medicine, is widely used in treatment and in prevention of diseases in Iran. Since traditional medicine is formed in different cultures and in different regions, its standards and evaluation methods are not sufficiently developed at both national and international levels [1]. World Health Organization has defined CAM in the following way: "all of the theoretical and practical sciences, used for medical diagnosis, prevention and treatment of physical illness, mental or social disorders that are not part of conventional medicine" [2, 3]. Generally, CAM therapies are divided into 5 groups: acupuncture, herbal therapy, hypnosis, cupping, massage therapy, and yoga [4, 5].

Studies show that treatment with this medicine is increasing among the general population over the past two decades. The prevalence of using at least one method of traditional medicine has been 38% in America, 48% in Australia, 17% in Canada, 26% in Britain, and 68.9% in France [6], and in Asia, 76% in Japan, 55.6% in Malaysia, 67.8% in Saudi Arabia, 74.8% in South Korea, and 44.6% in Singapore [6, 7]. These stats call for the need of increasing the physicians' knowledge of the principles and application of CAM. In addition, some studies show that many doctors and medical professionals have poor skills of CAM; for example, a study in the Tehran University of Medical Sciences showed that more than 70% of students are not aware of traditional medicine and only 37% had a positive attitude toward CAM [8]. In another study, 92% of Indian assistants were aware of methods of complementary medicine; among them, 62% believed that CAM had low side effects and recommended it to others and 32% had the experience of using CAM. The majority of participants believed that CAM methods must be included in their educational curriculum [9].

A study in Pakistan reported that major Pakistani students are familiar with CAM and believed that its application is useful [10-12]. Over 70% of Malaysian students had experience of using alternative medicine, and more than 60% believed that CAM is a useful method [13].

About 57.8% of Turkish nursing students were in favour of treatment with CAM alongside modern medicine. 61.3% were in favour of adding CAM courses to their curriculum. The nursing students showed more positive attitudes compared with Turkish medical students. However, both groups had low knowledge of the CAM [13].

Medical students would work in health centres and hospitals in the future, thus, they must have been familiarized about CAM therapies and its effectiveness as well as its side effects, risks and possible complications. Therefore, the aim of this study was to assess the awareness, attitude, and practice of students of the Gonabad University of Medical Sciences in 2014.

## Methods

This cross-sectional study was performed following approval by the Ethics Committee of Gonabad University of Medical Sciences (code 93/19) in 2014. Almost 260 students of the Gonabad University of Medical Sciences were selected using cluster method; but, 11 did not complete the questionnaire and were excluded from the study. Finally, 249 questionnaires were completed. The Cronbach's alpha results were 0.84 for the knowledge, 0.89 for the attitude, and 0.75 for the performance of 70 pre-test samples. To determine validity, a specialized committee was formed in treatment centres that included two specialists in traditional medicine, two health education specialists, and one presenter and expert in health promotion. After reviewing and fixing the bugs, the validity of the tool was confirmed.

The research instrument was a questionnaire comprising three parts: demographic information, 12 knowledge questions, and 12 attitude questions. The rating was based on the Likert type method from strongly agree [5] to strongly disagree [1]. Therefore, the least score would be 11 and at most 55. Knowledge scores were considered as follows: (27–0) weak, (41–28) average, and (55–42) good. In addition, students who scored equal to or higher than 50% were considered to have positive attitude. Also, there were 14 dichotomous (Yes/No) questions about advising CAM to others, effectiveness, and interest in CAM. There were four open questions about treatments recommended to others or appropriate patients for complementary medicine.

#### Statistical analysis

SPSS software version 20 and descriptive statistics were used. In addition, the t-test was used to compare the two genders.

## Results

A total of 249 students (155 girls and 94 boys) with a mean (SD) age of  $20.90 \pm 2.18$  years participated in this study. The range of age was 18 to 33 years, and 99.2% of the students were living in urban, while 0.8% lives in rural areas. As many as 3.2% of the students ( $n = 8$ ) had the experience of traditional medicine courses; two nursing students, two midwifery students, one master of public health students, and three medical students (Table 1). About 115 students (46.2%) had used traditional medicine (Table 1).

About 48.59% of the students believed that traditional medicine is effective. The highest efficiency was related to medical students  $31.52 \pm 4.78$ , while the lowest was related to environmental health students  $23.63 \pm 6.97$  (Table 1). As many as 24.9% of students were in favour of having a course of traditional medicine, of which 41.93% were nursing students (Table 1).

About 26.9% of students ( $n = 67$ ) were interested

**Table 1.** Demographic values of students in Gonabad University of Medical Sciences

Variable	Female	Male	P value
Passing complementary medicine courses			0.14
Yes	(3.2%) 5	(3.2%) 3	
No	(96.8%) 150	(96.8%) 91	
Having personal experience of using of complementary medicine			0.12
Yes	(50.3%) 78	(39.4%) 37	
No	(49.7%) 77	(60.7%) 57	
Opinion of efficiency of CAM			0.96
Yes	(50.3%) 78	(45.7%) 43	
No	(49.7%) 77	(54.3%) 51	
Recommending CAM to others			0.87
Yes	(58%) 90	(56.4%) 54	
No	(41.3%) 64	(43.6%) 41	
Agree with designating courses for training CAM			0.03
Yes	(71.3%) 67	(28.7%) 27	
No	(77.4%) 120	(22.6%) 35	
Interest to learn traditional medicine			0.004
Yes	(26.5%) 41	(27.7%) 26	
No	(73.5%) 114	(72.3%) 68	

**Table 2.** Level of knowledge of students of Gonabad University of Medical Sciences on CAM

Methods	No knowledge	Low	Moderate	High	Very High
Cupping	(12%) 30	(34.1%) 85	(44.6%) 111	(8%) 20	(0.4%) 1
Acupuncture	(22.1%) 55	(30.1%) 75	(33.7%) 84	(12.4%) 31	(1.2%) 3
Herbal Medicine	(6.8%) 17	(23.7%) 59	(47.4%) 118	(20.5%) 51	(1.6%) 4
Phlebotomy	(49.8%) 124	(32.5%) 81	(12.9%) 32	(3.6%) 9	-
Massage therapy	(12%) 30	(33.3%) 83	(39%) 97	(14.1%) 35	(0.8%) 2
Meditation	(41.4%) 103	(36.1%) 90	(14.9%) 37	(5.6%) 14	(1.2%) 3
Hypnosis	(44.6%) 111	(37.8%) 94	(13.7%) 34	(2.8%) 7	(0.4%) 1
Traditional Bathroom	(45.4%) 113	(35.3%) 88	(16.5%) 41	(1.6%) 4	-
Acupressure	(51%) 127	(32.5%) 81	(14.9%) 37	(0.4%) 1	-
Touch therapy	(47.4%) 118	(34.9%) 87	(15.7%) 39	(0.4%) 1	(0.8%) 2
Aromatherapy	(47%) 117	(27.3%) 68	(21.7%) 54	(2.4%) 6	(0.8%) 2

in traditional medicine. Most of them were nursing students ( $n = 22$ ) with just one interested operating

room student (1.47%).

The overall awareness core was  $22.56 \pm 6.54$ . Most awareness was for 10th semester students with an average of  $30.33 \pm 3.98$ , and the lowest was in the first-semester students with an average of  $6.19 \pm 6.09$ .

Awareness scores for male and female students were  $23.40 \pm 6.44$  and  $22.05 \pm 6.57$ , respectively, which were not statistically significant ( $p = 0.14$ ). The highest level of awareness was related to medical students with an average of  $28.76 \pm 5.59$ , and the lowest was for environmental students with an average of  $17.90 \pm 5.30$ . In this study, 22.1% of students ( $n = 55$ ) had a positive attitude and 77.9% ( $n = 194$ ) had a negative attitude. The most used methods were herbal medicines with 47.4%, while the least used methods were hypnosis, acupressure, and therapeutic touch (Table 3). The highest use of

traditional medicine by students was in treatment of cold (18%) and the lowest use was in toxicity (1%) (Figure 1). As many as 57.42% of the students were recommending methods of traditional medicine, with the highest number of advices relating to muscle pain and the lowest to infection, poisoning, diabetes, croup, joint pain, and fractures (Figure 2).

About 201 students (80.7%) agreed to add the CAM to their curriculum, of which 86.56% were female nursing students (Table 4). In total, 83.5% (208 persons) knew the information based of traditional medicine, of which 76 were nurse. As many as 22.1% (55 students) believed that traditional medicine has side effects, of which 23 were nurse (Table 5). 85.1% ( $n = 212$ ) believed that CAM is an effective method, of

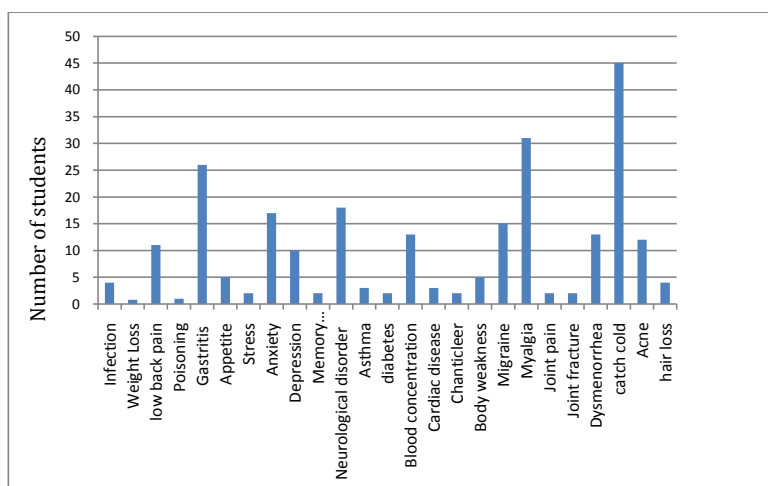


Figure 1. Having experience of personal use of CAM for treatment by students

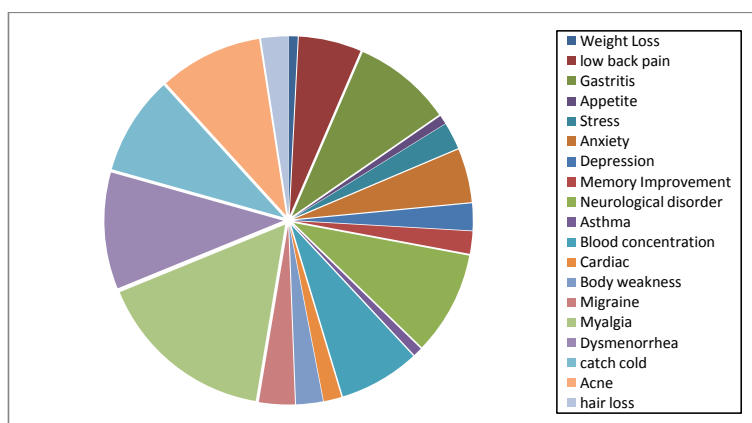


Figure 2. Having experience of recommending CAM for treatment by students

which 63.67% were female undergraduate level students (Table 4). Only 19 persons (7.6%) believed that professional permission is needed, of which 63.15% were undergraduate nursing students (Table 4).

About 67.5% of students (n = 168) preferred traditional medicine to modern methods, of which 63.9% were female students in nursing (Table 4). About 19.7% of students (n = 49) used traditional medicine methods in case of recommendation of a physician, of which 63.26% were female students in nursing (Table 4). About 34.5% of students (n = 86) believed that methods of traditional medicine are of lower cost, of which 30.23% were female students in nursing (Table 4).

**Table 3.** Having experience of recommending and personal use of traditional medicine by students

Methods of CAM	Having experience of personal use CAM	Having experience of recommending CAM
Cupping	(8%)20	(11.4%) 28
Phlebotomy	(0.8%)2	(1.2%) 3
Massage therapy	(17.7%) 44	(31.7%) 79
Acupuncture	(10.8%) 27	(6.4%) 16
Herbal Medicine	(47.4%) 118	(41%) 95
Meditation	(11.6%) 29	(7.6%) 19
Hypnosis	(0%)	(0%)
Traditional Bathroom	(1.6%)4	(0.8%) 2
Acupressure	(0%)	(0%)
Touch therapy	(0%)	(0%)
Aromatherapy	(1.2%) 5	(0%)

**Table 4.** Opinions of students about complementary and alternative medicine

Variable	Female	Male	P value
Knowledge of students about duration of CAM specific education			0.39
Yes	(82.6%) 128	(22.3%) 73	
No	(17.4%) 27	(77.7%) 21	

Knowledge of student about base and foundation of CAM methods			0.42
Yes	(85.2%) 132	(80.9%) 76	
No	(14.8%) 23	(19.1%) 18	
Opinions of the students about CAM therapies are safe and have very few side effects			0.08
Yes	(25.8%) 40	(16%) 15	
No	(74.2%) 115	(84%) 79	
Traditional methods are being considered as the only treatment			0.30
Yes	(87.1%) 135	(81.9%) 77	
No	(12.9%)20	(18.1%) 17	
Opinions of the students about the necessity of having license by the Ministry of Health for traditional medicine specialists			0.88
Yes	(7.7%) 12	(7.4%) 7	
No	(92.3%) 143	(92.6%) 87	
Preferring CAM to modern treatments			0.71
Yes	(68.4%) 106	(66%)62	
No	(31.6%) 49	(34%)32	
Using CAM after recommendation physician			0.91
Yes	(20%) 31	(19.1%) 18	
No	(80%) 124	(80.9%) 76	
Low cost traditional medicine compared to the modern medicine			0.47
Yes	(36.1%) 56	(31.9%) 30	
No	(63.9%) 99	(68.1%) 64	

### Discussion

Our results showed that the students' knowledge and attitude toward the CAM was low. According to the study of Shani and colleagues at the University of Ben-Gurion, the awareness level and the attitude of physicians and medical students to acupuncture was low, but they had a positive attitude toward CAM [7].

A study on the knowledge and attitude of Tehran University of Medical Sciences students

and assistants showed that 73.7% of the students did not know anything about traditional medicine and only 37% had a positive attitude. Most of these students were not recommending traditional methods to patients. About 40.9% of them knew that there is academic education for practitioners of traditional medicine. About 69% had used at least one of the methods of traditional medicine, with herbal therapy being the most used method and phlebotomy the least used method [8]. In our study, herbal medicine was constantly the most used method, but hypnosis, acupuncture, and therapeutic touch were the least used methods of traditional medicine. This may be due to widespread availability, low cost and little time for herbal medicine compared to the massage therapy, acupuncture and hypnosis.

In another study in India, 92% of assistants were aware of CAM methods. The highest percentage of awareness was about yoga. Awareness of senior students was higher than low semester students. As many as 53% of residents believed that CAM is expensive, while 62% believed that CAM has low side effects and recommend it to others. The highest percentage of recommendations related to the treatment of psychological diseases and the lowest percentage for the treatment was for malignancies. As many as 32% had experience of using complementary medicine. The majority believed that CAM methods must be included in the educational curriculum [9]. Similarly, in our study, senior students' awareness was higher than that of low semester students. As many as 24.9% of students were in favour of having a course of traditional medicine, while 26.9% were interested in traditional medicine. As many as 55.8% of students were recommending methods of traditional medicine. This may be due to greater availability of medicinal herbs compared to the yoga centers in our study. Another study in Pakistan showed that 79.8% of students were informed about CAM

and no significant difference was observed in this respect between male and female students. More than two-thirds of the students knew the basis of CAM. 73.3% believed CAM is a useful method. Most people knew that massage therapy is helpful and the least of them knew that chiropractic is useful. 76.3% preferred CAM alongside modern medicine [10]. In our study, no significant difference was observed between the knowledge and attitudes of male and female students. Most methods used were herbal medicine, while the least used were hypnosis, acupuncture, and touch therapy. More than 60% of students preferred methods of traditional medicine than modern medicine.

Evaluation of knowledge, attitude, and practice of pharmacy students in Australia showed that 93.7% of students had used CAM. As many as 95% of students knew CAM to be a useful method. As many as 95.5% believed that their patients are advised to use methods of alternative medicine. As many as 89.2% of students were in favour of a course of CAM in the curriculum and believed that the use of CAM alongside modern methods is applicable [11].

In Malaysia, 70.4% of students had used CAM methods. Only 4.6% considered complementary medicine harmful, and 60.3% believed CAM is an effective method [12].

About 57.8% of nursing students in Turkey were in favour of CAM alongside modern medicine. 61.3% of them were in favour of adding CAM courses in the curriculum. The results showed that nursing students had a more positive attitude toward medical students. However, both groups had little information about CAM [13]. It seems that there is a positive view of the CAM in Asian countries such as Malaysia, Turkey, and Pakistan.

Berman found a relationship between reductions in the rate of interest for CAM and the rising number of semesters [14]. On the other hand, Greenfield did not find a significant rela-

relationship between reductions in the rate of interest for CAM and rising semester [15]. Similarly, our results showed that the rate of interest is not affected by the rising number of semesters. Collecting data for sources of students' awareness about traditional medicine is recommended for future studies. There were lots of modalities such as Prayer therapy that we did not mention it in our work and it was a limitation of this study.

## Conclusion

Acquiring or improving CAM knowledge is essential for medical fields' students. This can be achieved by holding workshops of CAM or presenting courses of CAM during academic curriculum. Use of complementary and alternative medicine is increasing among the general population, thus, it is necessary to provide a platform for public education and training of expert persons.

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## Conflict of Interests

None.

## References

- [1] Global Data. National Center for Complementary and Alternative Medicine. In.: Thomson Reuters Embargoed Research Collection. 2014.
- [2] Farahmand SK, Zhi GL, Saghebi SA, Mohammadi M, Mohammadi S, Mohammadi G. The Effects of Wet Cupping on Coronary Risk Factors in Patients with Metabolic Syndrome: A Randomized Controlled Trial. *Am J Chin Med* 2012;40:269-277.
- [3] Complementary and alternative medicine: Definitions. WHO website. Medicines.
- [4] Harris PE, Cooper KL, Relton C, Thomas KJ. Prevalence of complementary and alternative medicine (CAM) use by the general population: a systematic review and update. *Int J Clin Pract* 2012;66:924-939.
- [5] Kiani MA, Nagaphi M, Jafari SA, Ghayour Mobarhan M, Mohammadi S, Seidi M. The Effect of Music on Pain, Anxiety and Vital Signs of Children during Colonoscopy. *Life Sci J* 2013;10:31-33.
- [6] Harris PE, Cooper KL, Relton C, Thomas KJ. Prevalence of complementary and alternative medicine (CAM) use by the general population: a systematic review and update. *Int J Clin Pract* 2012;66:915-916.
- [7] Shani-Gershoni Z, Freud T, Press Y, Peleg R. Knowledge and Attitudes of Internists Compared to Medical Students Regarding Acupuncture. *IMAJ* 2008;10:219-222.
- [8] Naghibi Harat Z, Jalali N, Zarafshan M, Ebadiani M, Karbakhsh M. A glance on Iranian traditional medicine and determining the medical student's perspective. *Ijme* 2008;1:45-54.
- [9] Kong FH, Man LK, Shetty RS, Kamath VG. Knowledge, Attitude and Practice of Complementary and Alternative Medicine (CAM) among Medical Practitioners. *IJRRMS* 2013;3:5-9.
- [10] Majeed K, Mahmud H, Majeed K, Khawaja HR, Mansoor S, Masood S, Khimani F. Complementary and alternative medicine: Perceptions of medical students in Pakistan. *Med Educ Online [serial online]* 2007;12:11.
- [11] Tiralongo E, Wallis M. Attitudes and perceptions of Australian pharmacy students towards Complementary and Alternative Medicine – a pilot study. *BMC Complement Altern Med* 8:2008.
- [12] Farooqui M, Othman CN, Kanakal M. Knowledge, Attitudes, Practices (KAP) of Complementary & Alternative Medicine (CAM) Amongst Diploma Pharmacy Students in Malaysia. *Open Conf Proc J* 2013;4:165.
- [13] Yildirim Y, Parlar S, Eyigor S, Sertoğlu O, Eyigor C, Fadilolu C. An analysis of nursing and medical students' attitudes towards and knowledge of complementary and alternative medicine (CAM). *J Clin Nurs* 2010;19:1157-1166.
- [14] Berman BM. Complementary medicine and medical education. *BMJ* 2001;322:121-122.
- [15] Greenfield SM, Brown R, Dawlatly SL, Reynolds JA, Roberst S, Dawlatly RJ. Gender differences among medical students in attitudes to learning about complementary and alternative medicine. *Complement Ther Med* 2006;14:207-212.