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## **Perception of complementary and alternative medicine amongst medical students: a questionnaire based study**

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Received: 13-07-2015 / Revised: 28-08-2015 / Accepted: 29-08-2015

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### **ABSTRACT**

Complementary and Alternative Medicine (CAM) includes herbal medicine, traditional therapies, mind-body intervention etc. As the use of CAM by patients is increasing, ignorance about this by future medical practitioners can cause a communication gap between them and their patients. There is paucity of information regarding the usage and acceptance of CAM by the medical students. To determine the knowledge, attitude and practice of CAM in medical students. A cross sectional, questionnaire based study conducted in 158 medical students of a tertiary care teaching hospital. Among the respondents 74.68 % had used meditation/yoga followed by spirituality (55.69 %), homeopathy (51.26 %), ayurveda (37.97 %). Maximum students (94.29 %) had positive, while 3.79% had negative attitudes towards CAM. The responses for CHBQ (CAM-Health Belief Questionnaire) statements were towards the higher end of the response scale but lower scores were found in reverse scaled statements. The highest mean item score was for 'Knowledge about CAM is important to me as a student/future practicing health professional.' The lowest mean item score was for 'Complementary therapies are a threat to public health'. Students are not ready to accept the therapies which are not tested scientifically. Female students were having significantly stronger positive attitudes toward CAM than their male counterparts. Majority of the respondents use CAM and would like to recommend it to their patients in future. They would prefer scientifically tested alternate medicines. Females were found to have significant stronger positive attitudes toward CAM than their male counterparts.

**Key words:** conventional medicine, CAM, meditation, spirituality

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### **INTRODUCTION**

Complementary and Alternative Medicine (CAM) is defined by the National Center for CAM (NCCAM), United States as "a group of diverse medical and health care systems, practices, and products that are not generally considered part of conventional medicine"[1]. Alternative medicine includes practices based upon very old cultural traditions and indigenous remedies that have existed since ages, as well as practices developed more recently as an alternative to modern medicine. Some alternative medicine modalities are based upon the healing power of nature, while others influence an individual's energy[2]. Complementary medicine refers to use of alternative medicine in combination with the

prescribed conventional therapy. Although conventional medicine has considerable success in healing illness and infectious diseases, patients are in search for alternative therapies for many reasons like side-effects and high cost of conventional therapies [3]. The popularity of CAM has increased considerably throughout the world over the past several years[4]. Many patients with chronic diseases have used at least one of the CAM methods. However they hardly ever shared this information with their primary doctors, for this reason it is important for healthcare professionals to discuss and give counseling about use of CAM to their patients [5,6]. As the use of CAM is increasing, its unawareness by future medical practitioners can cause a communication gap between them and their patients.

Therefore it is essential that medical students who are the health care professionals of tomorrow should have adequate knowledge on the topic. Studies about medical students' attitudes and knowledge of CAM in several countries showed positive attitudes. However in Indian medical students it remains underreported. Taking into account the popularity of CAM remedies in India and the paucity of information in medical students, the present study aimed at investigating the knowledge, attitude and practice of CAM in medical students.

## MATERIALS AND METHODS

This was a cross sectional, questionnaire based study conducted in a tertiary care teaching institute after the approval from the Institutional Ethics Committee. The questionnaire was distributed to 158 respondents who were fifth semester medical students. The students were informed about voluntary participation in the study and their concealed identity. Appropriate instructions about filling the questionnaire were given and necessary consent obtained. Half an hour was allotted for completing the questionnaire.

**CHBQ distribution and scoring:** The previously validated and reliability tested CHBQ [CAM-Health Belief Questionnaire] is valid and reliable instrument useful in measuring medical students' knowledge, attitudes toward alternative medicinal therapies [7, 8]. The questionnaire consisted of three parts. 1) Demographic information 2) questions seeking knowledge of various CAM methods and whether the students are using these for themselves or would like to recommend to the patients in their future professional lives. 3) Questions aiming to identify attitudes and holism towards CAM. The questions in this section consists of 7 point likert scale, 1 meaning absolutely disagree and 7 meaning absolutely agree. Three questions are negatively worded and scaled in reverse to minimize the tendency of respondents to reply in a consistent manner using only part of the rating scale range. Individual CHBQ items can be assessed by calculating mean $\pm$ SD scores of all participants. An overall total score is calculated by summing up scores of all questions in each individual. Since a ten questions scale is used in the present study a maximum score of 70 correlates with a strongly positive attitude toward CAM, a score between 36-59 is representative of a positive attitude, and a score of 11-34 correlates negatively with attitudes toward CAM and 10 is the minimum score possible. (Representative of the least favorable attitude toward CAM). A score of exactly 35 is neutral.

**Statistical analysis:** At the end of the study, all the data was pooled and expressed as counts and percentages. Graph pad prism software version 5.01 was used to analyze data.

## RESULTS

A total of 158 fifth semester medical students participated in this study, 53.79% of the respondents were boys and 46.20% girls. Mean age of the respondents was 19.34 $\pm$  0.71 years. Of the commonly used CAM modalities, 74.68 % participants had used or currently using meditation/yoga followed by spirituality (55.69 %), homeopathy (51.26 %), ayurveda (37.97 %). Amongst the respondents 93.03% would prefer recommending meditation/yoga to their patients in future followed by 74.05% ayurveda, 66.45% spirituality, 59.49% homeopathy. Acupuncture, touch, hypnosis were less preferred methods as shown in table 1. The mean  $\pm$ SD scores of individual CHBQ statements indicative of attitudes towards CAM is shown in table 2. Mean item scores ranged from 3.165 to 6.019 on the 7-point scale. 17.08% respondents had an overall score between 60-70 which indicates strongly positive attitude towards CAM and while 77.21 % had scores between 36-59 indicating positive attitude. A score range of 11-34 was found in very few students (3.79%) which correlates negatively with attitudes towards CAM. A score of exactly 35 which is considered to be neutral was seen in 1.26% of respondents (Table 3). Inter-gender attitude differences with respect to CHBQ statements is shown in table 4. Fig 1 shows sources of information of CAM.

## DISCUSSION

CAM finds an important place in the health care system of India, since the government here has taken a step to endorse 'Indian Systems of Medicine', by the promotion of ayurveda, yoga, unani, siddha and homeopathy. It is relevant to conduct such a study in our set up as it might help initiate a thinking process within the medical fraternity about CAM. Our study mainly investigated the knowledge, attitudes and perceptions of CAM amongst the medical students, who are the future health care professionals. The observed rate of CAM usage by the respondents found in this study is within the range of results reported in previous studies [7,8].

In the present study CAM modalities reported as most frequently used by the students or would be considered for recommending to their patients in future were meditation/yoga followed by spirituality, homeopathy and ayurveda. Probable

reason for this may be easy accessibility, affordability, beliefs about these therapies and its social acceptance. The high preference of meditation /yoga by the respondents may be because it is perceived as the effective therapy which can go a long way towards better health in addition to relaxation and also because it can be done comfortably at their ease[9]. Acupuncture, touch and hypnosis were less preferred methods. Studies in other countries revealed a difference in the knowledge of CAM modalities among medical students. Awareness of acupuncture, massage and meditation was the maximum in students from Australia, America and England [10,11,12]. Hypnosis, chiropractic were well known methods among students from Turkey and Singapore while few students were aware of ayurvedic, homeopathy and naturopathy[13,14]. Likewise in a study from Pakistan aromatherapy and hikmat were found to be more chosen CAM methods by medical students [15]. These differences in awareness and acceptance of different CAM modalities in various parts of globe may be because these are the practices which are indigenous for the particular region and have existed since ages. In the present study attitude of students towards CAM was assessed by two methods, overall score calculation and assessment of individual CHBQ items. Many students showed positive attitudes towards CAM. Overall score indicative of positive attitude towards CAM corresponded to findings from other studies.[8,16]. When individual CHBQ items were assessed the students responded using the entire range of possible scale values on all items. The mean values suggested that the responses were twisted towards the higher end of the response scale. The highest mean item score was for 'knowledge about CAM is important to me as a student/future practicing health professional'. The lowest mean item score was for a reverse scored item, 'complementary therapies are a threat to public health'. In the present study the score was also high for reversed statement 'Treatments not tested in a scientifically recognized manner should be discouraged', which indicates that students don't perceive CAM as a threat to public health but at the same time they are not ready to accept the therapies which are not tested scientifically. Similar findings are reported in other studies[7,17]. However in a study from Australia less than 5% of students agreed with this statement [18]. Analogous to our findings, it has been found in other studies that for most of the CHBQ statements there were higher scores while lower scores were for reverse statements. In a study conducted by Lie D, the highest mean item score was for 'a patient's expectations, health

beliefs, and values should be integrated into the patient care process' and the lowest mean item score was for a reverse scored item 'treatments not tested in a scientifically recognized manner should be discouraged'[8]. Similarly in another study conducted by Hulya Akan the highest mean item score was for 'I am interested in exploring new treatment modalities', the lowest mean item score was for a reverse scored item 'much of CAM is actually dangerous to the health of the patients'[14]. In the present study the students had scores  $4.45 \pm 1.56$  on the response scale for 'CAMs caused a placebo effect' which is supported by similar findings from other studies [15,16,17] but in a study from Malaysia respondents remained neutral to the same statement. This could be attributed to the limited available evidence-based information as compared to information that is not evidence based regarding CAM in Malaysia [19]. In the present study though both genders showed an overall positive attitude towards CAM, the difference in mean scores of female students was statistically significant than males for some CHBQ statements (table 4). This indicates that female students are more open to the ideas and theories supporting alternative forms of medicine than their male counterparts. These findings are consistent with results from other studies in which medical students' attitudes toward CAM based on gender were examined [13,20,21]. On the other hand in one study there was no difference in the mean scores of male and the female students [3]. As expected, in the present study the main source of information about CAM cited by the students was internet. This finding coincides with Désirée Lie's study, in which most of the information sought by students regarding CAM was online resources[7]. The students also seek out the information from the CAM practitioners, by attending the CAM lectures and classes, and health conferences. This might be due to their thinking that trained professionals of CAM are good resources to them regarding providing scientific basis of these therapies. In other studies media, friends and family played a major role [22,5].

To conclude, this study reveals that a high percentage of medical students use one or more CAM modality. They would also like to recommend it to patients in their future professional lives. Attitudes to CAM were positive and students felt that CAM would play an important role in their future medical practice. Female students showed statistically significant difference in attitudes towards CAM as compared to their male counterparts.

**Table 1: Usage of different CAM modalities by the respondents and their preference for recommending in future practice**

Modality	Used or currently using it: n(%)	Would recommend it to the patients in future: n (%)
Meditation/yoga	118(74.68 )	147( 93.03 )
Spirituality	88(55.69 )	105( 66.45 )
Homeopathy	81(51.26 )	94 (59.49)
Ayurveda	60(37.97 )	117(74.05 )
Acupuncture	32(20.25 )	75( 47.46 )
Touch	21(13.29 )	53(33.54 )
Pranic	19( 12.02 )	37( 23.41 )
Hypnosis	11( 6.96 )	28( 17.72 )

CAM -Complementary and alternative medicine

**Table 2: Medical students' attitudes towards CAM (by assessing each CHBQ statements)**

CHBQ Statements	Mean $\pm$ SD
Physical and mental health are maintained by an underlying energy or vital force.	4.94 $\pm$ 1.65
Health and disease are a reflection of balance between positive life-enhancing forces and negative destructive forces	5.08 $\pm$ 1.17
Patient's symptoms should be regarded as a manifestation of a general imbalance or dysfunction affecting the whole body	5.31 $\pm$ 1.54
Patient's expectations, health beliefs and values should be integrated into the patient care process	5.48 $\pm$ 1.49
Complementary therapies are a threat to public health	3.16 $\pm$ 2.01
Treatments not tested in a scientifically recognized manner should be discouraged	5.35 $\pm$ 2.02
Effects of complementary therapies are usually the result of a placebo effect.	4.45 $\pm$ 1.56
Complementary therapies include ideas and methods from which conventional medicine could benefit.	5.29 $\pm$ 1.42
Most complementary therapies stimulate the body's natural therapeutic powers	5.25 $\pm$ 1.56
Knowledge about CAM is important to me as a student/future practicing health professional	6.01 $\pm$ 1.49

CAM - Complementary and alternative medicine, CHBQ- CAM- Health Belief Questionnaire; mean score &lt;3.5 correlates negatively with attitudes

**Table 3. Medical students' attitudes towards CAM (by assessing overall score)**

Overall score	n( %)
0-10	--
11-21	--
22-35	6(3.79)
36-46	35(22.15)
47-57	87(55.06)
58-70	27(17.08)

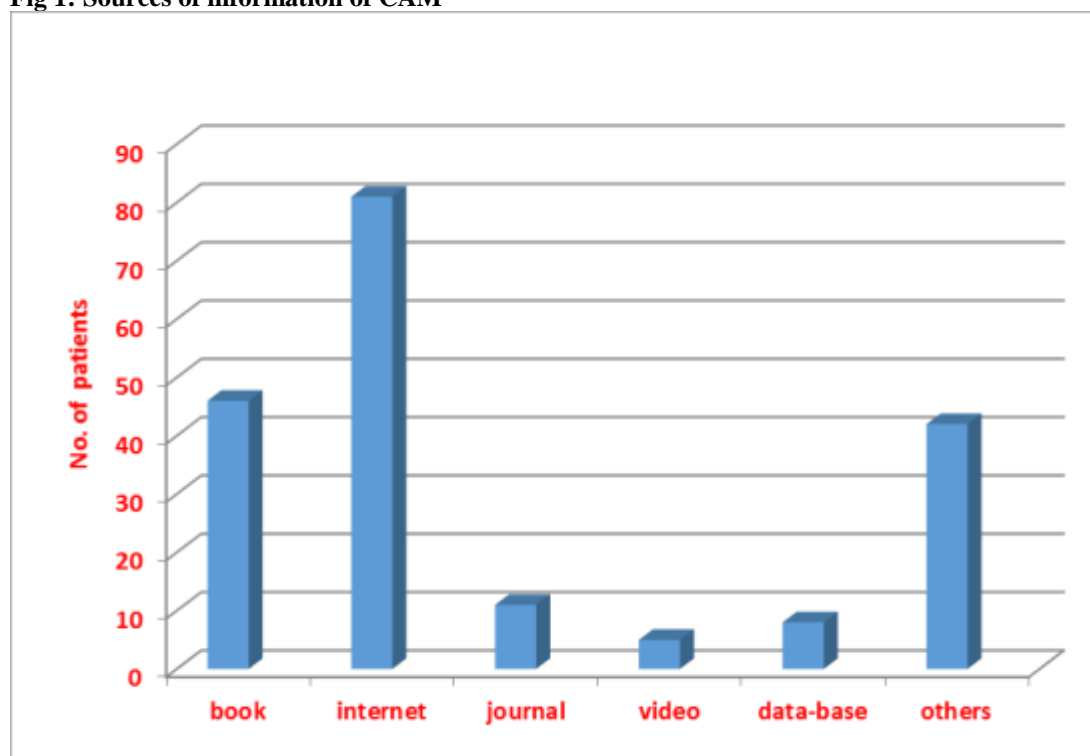
CAM - Complementary and alternative medicine

**Table 4: Gender wise differences in attitude towards CAM**

CHBQ Statements	boys(n=85 )	girls(n=73 )	P value
Physical and mental health are maintained by an underlying energy or vital force.	4.58 ± 1.69	5.31 ±1.55	0.0052
Complementary therapies are a threat to public health	3.44 ± 2.15	2.80± 1.81	0.0489
Knowledge about CAM is important to me as a student/future practicing health professional	5.87±1.68	6.70 ± 1.85	0.0487

CAM - Complementary and alternative medicine,  
 CHBQ- CAM- Health Belief Questionnaire  
 Unpaired ‘t’ test, P value<0.05—statistically significant

**Fig 1: Sources of information of CAM**



CAM-complementary and alternate medicine

Others- are CAM practitioners, CAM lectures and classes, and health conferences

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