



CODEN [USA]: IAJ PBB

ISSN : 2349-7750

INDO AMERICAN JOURNAL OF PHARMACEUTICAL SCIENCES

SJIF Impact Factor: 7.187

Online at: <http://www.iajps.com>

Research Article

KNOWLEDGE AND ATTITUDE OF COMPLEMENTARY AND ALTERNATIVE MEDICINE AMONG MEDICAL STUDENTS IN IMAM ABDULRAHMAN BIN FAISAL UNIVERSITY, DAMMAM, KSA 2019

Abdulrahman almehrij¹, Fawaz almulhim², Mohamed Ali Alamin³, Areej althebaiti⁴,
Ghada alyousif⁵.

¹MBBS, R4 Family Medicine Resident, Ministry of Health, Eastern Province, Saudi Arabia.

² MBBS, R4 Family Medicine Resident, Ministry of Health, Eastern Province, Saudi Arabia.

³ MBBS, MPH, MD, GH-LPM, Research Coordinator, SPFMP, EP, MOH, Family Medicine Academy, First Health Cluster Eastern Province, Saudi Arabia.

⁴ Consultant Family Medicine Family MOH

⁵ Consultant Family Medicine, Imam Abdulrahman Bin Faisal University, Dammam, Saudi Arabia.

Article Received: April 2021

Accepted: April 2021

Published: May 2021

Abstract:

Background: Complementary and Alternative medicine (CAM) has been outlined as a 'cluster of numerous medical and health care systems, practices and merchandise that aren't presently thought of to be a part of conventional medicine.' In the last decade, there has been a global upsurge in the use of CAM in both developed and developing countries. **Methods:** The study included medical students in Imam Abdulrahman bin Faisal University in Dammam 2019. The self-administered survey was adapted from previous studies. SPSS was used to analyse data. **Results:** The total number of respondents was 344 students of them 42.8% were males and 57.2% were females. About 18% of the respondents agreed (or strongly agreed) that CAM is a risk to public health, while 47% disagreed (or strongly disagreed) to this statement. More than 60% of the respondents agreed that CAM and modern medicine should be integrated. Significant positive association between age and perception of CAM as a risk to public health ($p=0.004$). **Conclusion:** We found that most of the students exhibited confidence in CAM not being a threat to the public health. Significant association could be noted between the age, academic year of students, and their acceptance of CAM as a safe option for public health. Students were likely to accept and promote CAM originating from religious background.

Corresponding author:

Abdulrahman almehrij,
MBBS, R4 Family Medicine Resident,
Ministry of Health, Eastern Province, Saudi Arabia.

QR code



Please cite this article in press Abdulrahman almehrij et al., *Knowledge And Attitude Of Complementary And Alternative Medicine Among Medical Students In Imam Abdulrahman Bin Faisal University, Dammam, KSA 2019.*, Indo Am. J. P. Sci, 2021; 08(05).

INTRODUCTION:

Complementary and Alternative medicine (CAM) has been outlined as a 'cluster of numerous medical and health care systems, practices and merchandise that aren't presently thought to be a part of conventional medicine. In the last decade, there has been a global upsurge in the use of CAM in both developed and developing countries (1)

Examples of CAM include new and traditional practices like bloodletting (the act of drawing blood from a patient to achieve equilibrium in body fluids for well-being and to treat diseases, and homoeopathy was established on the idea that "like cures like", in that a patient's symptoms are treated with diluted forms of substances that would create similar symptoms in a healthy person), herbal medicine, acupuncture, traditional Chinese medicine, and faith healing like therapies mentioned in the Quran or Sunnah.

They use natural remedies such as ginger, olive, garlic, pumpkin, and many natural herbs. Non-herbal therapies are also included in Islam. Such as, people read the Quran and pray to seek healing from organic or psychological diseases. (2)

Notably, there is scant literature on data, attitude, and follow (KAP) of CAM among medical students, professionals, and the public in Jap-Mediterranean region countries.

A PubMed search of relevant literature using key word complementary and alternative medicine retrieved a dozen of articles; however, only few studies assessed the KAP of the public, professionals, primary care physicians, and pharmacists.

The results of those studies recommend that CAM therapies, particularly herb preparations and regionally notable therapies, square measure utilised by a considerable variety of patients, and public and professionals have positive attitudes toward CAM, known some barriers against CAM, and have sensible data in CAM, and any specific to own a lot of data in CAM and support its integration into primary health care and medical schools [3].

Previous studies in Saudi Arabia and Kuwait support incorporating CAM courses into the university curriculum [1, 2, 3]. In Turkey, a cross-sectional study showed that a large proportion of the medical students were familiar with and had a positive attitude towards CAM [4]. A review paper was also published in this regard, focusing on the important role CAM education plays in facilitating physician-

patient relationship [5]. A study conducted at King Abdulaziz University, Saudi Arabia, noted that Students' attitudes toward CAM learning were encouraging regardless of their limited knowledge on the subject [6]. Other studies conducted in Singapore and Iran concluded that broadening the knowledge of physicians about CAM can assist in minimising the level of risk caused by CAM [7, 8]. Other studies indicated that incorporating some of these CAM curricular activities may be a unique way to foster student self-awareness and personal growth [9-13]. The difference in the likelihood of CAM adoption differed among students from different majors. Other studies showed that nursing and pharmacy students adopted more positive attitudes than medical students towards CAM [14, 15]. It has been evident that students' immersion in lectures, discussions, and sites about CAM can have tremendous effects on their comprehension of the topic. Also, ageing was inversely correlated with confidence in CAM [16 - 20].

Rationale

Medical students are the future physicians, so they must be able to discharge their full role as care providers in an -increasingly- medically diverse world. Due to numerous complementary medicine methods frequently used in different populations and cultures, knowledge about CAM techniques is generally variable. Students mostly understand CAM from other sources than medical curricula, which tend to have a negative attitude towards introducing CAM methods. On the other hand, students' attitudes towards certain CAM methods are related to their social and cultural background. Thus, assessing students' knowledge of CAM is important to facilitate introducing CAM topics in the medical curriculum with a scientifically critical view. The evaluation of students' attitudes could enlighten the way of teaching to consider cultural and religious sensitive issues.

General objective:

To evaluate medical students' knowledge, attitudes and practices toward complementary and alternative medicine (CAM) in Imam Abdulrahman bin Faisal University, Dammam.

Specific objectives:

- To assess the level of medical students' knowledge about (CAM) modalities
- To evaluate medical students' general attitude towards CAM
- To identify medical students' common practices and barriers towards using CAM

MATERIALS AND METHODS:**Study design:**

A cross sectional study using a self-administered questionnaire.

Study population and setting:

The study included medical students in imam Abdulrahman bin Faisal University in Dammam 2019, N= 900 (estimation).

Study subjects (inclusion/ exclusion criteria):

Inclusion criteria:

All medical students, (males and females) from the second to the sixth year.

Exclusion criteria:

First-year medical students (Orientation year)

Sampling:

All medical students in imam Abdulrahman bin Faisal University in Dammam were targeted to be part of this study. The estimated sample was 900, however, only 344 filled the questionnaire. Students were not forced by any means to complete the questionnaire and in case someone had any question they were advised to contact one of the authors.

Study Instruments:

The questionnaire used in this study has been adopted after taking permission from the author of a previous research done by Majmaah University and modified to meet our goals [3]. The questionnaire originated initially from Kreitzer's University of Minnesota Academic Health Center and has been used subsequently in many studies [38, 39]. The used questionnaire has been previously validated by the authors, and it consists of 7 sections:

1. Demographic and general information of the students and the description of students' source of knowledge.
2. Described the respondents' thoughts and general beliefs about health and healing.
3. Described the barriers to use CAM.
4. Described the approach to CAM (Participant's ability to identify CAM).
5. Described the respondents' attitudes towards CAM effectiveness in the treatment of the diseases.
6. Described the respondents' practices regarding CAM modalities.
7. Described the respondents' sources of information about CAM.

Data Management and analysis

Data were entered into a personal computer and analysed using SPSS software version 26. All

variables were coded before entry and were checked before analysis. Participants' strongly agree and agree and strongly disagree and disagree responses were pooled for analysis purpose. P-value ≤ 0.05 was considered significant.

RESULTS:

The total number of respondents was 344 students; of them, 42.8% were males, and 57.2% were females. The sample was distributed quite similar on the different academic years with a range of 17.2 to 23% in each year. The mean age of the students was 21.6 (1.7) years old, with only 1.8% aged ≥ 25 years old. Regarding the source of information about CAM, mass media was the main source from where 45.6% of the students obtained their information. The internet and family members (or friends) were reported to be the source of information in 37.5% and 32.6% (table 1).

The majority of the respondents agreed to the general statements such as human being should be treated as a whole (78% agreed), the innate ability of the body to heal itself (62% agreed), and the connection between physical illness and physical stress (81% agreed). However, 43.2% of the respondents disagreed when they were asked if the link between social factors and disease is over-emphasised. Moreover, 44.2% decided that natural products and home remedies are better than chemical treatments. (Table 2)

About 18% of the respondents agreed (or strongly agreed) that CAM is a risk to public health, while 47% disagreed (or strongly disagreed) with this statement. More than 60% of the respondents agreed that CAM and modern medicine should be integrated, CAM's methods could add benefits to modern medicine, or CAM approaches hold promise for the treatment of health problems but with cautions. However, 76% of the respondents agreed about the discouragement of CAM therapies that were not tested scientifically. Furthermore, about 80% of the respondents agreed to the statement of "Health professionals should be able to advise their patients about commonly used CAM methods". Similarly, about 69% and 58% of the respondents agreed that CAM is important to them as a student/future health professional and CAM practices should be included in the medical college's curriculum, respectively. (Table 3)

More than 80% of the respondents classified Hijama (Cupping) and herbal medicine as CAM medicine. Moreover, apitherapy, cauterisation, acupuncture, and Camel milk or urine were classified as CAM

practices by 75%, 69.6%, 61.8%, and 60.3% of the respondents. However, practices such as chiropractic and electromagnetic therapies were classified as CAM by only 24% and 20% of the respondents. Similarly, other practices were not commonly identified as CAM such as homeopathy, ozone therapy, and biofeedback which were classified as modern medicine practices by 38.9%, 34.8%, and 37.2% of the respondents. (Table 4)

The majority of the respondents, 63.4% 59.2% and 65.1%, agreed to the effectiveness of Hijama (Cupping), Roqia (Recitation of Holy Quran), and the spiritual healing, respectively. The effectiveness of the massage and the nutritional supplements was perceived by 60.1% and 66.4% of the respondents. More than half of the respondents thought that herbal medicine is effective, while 11.7% believed that Camel milk and urine therapy is effective. Additionally, many practices have low percentages of perceived effectiveness, such as 10.7%, 13.8%, 14.7%, and 14.3% were reported among students for healing touch, homoeopathy, ozone therapy, and aromatherapy, respectively. (Table 5)

Students' most common CAM practices were prayer/spiritual healing and Roqia (Recitation of Holy Quran) with 54.6% and 53.2% prevalence rate, respectively. The massage and nutritional supplements were also commonly used by 42% and 44.3% of the respondents. In contrast, the least common CAM practices were Ozone therapy and Camel milk and urine therapy which used by 2.5% and 2.7% of the respondents, respectively. Practices such as chiropractic, electromagnetic therapies, homoeopathy, hypnosis, and osteopathy were also rare and used by less than 5% of the respondents. Cupping, osteopathy, and massage were the most recommended to use practices, to someone/patients, by 58.1%, 37.8%, and 34.5% of the respondents. Camel milk and urine therapy were the most recommended not to use practices by 83.7% of the respondents, while Roqia (Recitation of Holy Quran)

was the least recommended not to use practice by 15.8%. Other recommended practices not used by the majority of the students were hypnosis, homoeopathy, ozone therapy, biofeedback, healing touch, electromagnetic therapy, and cauterisation. (Table 6)

The most prominent barrier reported by the students to which 79% agreed was the lack of regulation and supervision on CAM practices. This is followed by lack of staff training (76.4% agreed), lack of knowledge (76% agreed), unavailability of competent providers (75% agreed), and lack of evidence for CAM practices (71.5% agreed). The lowest agreement percentage was reported to the statement "CAM is too time-consuming" with only 29.4% agreed to it. (Table 7)

A higher percentage of males (22.6%) agreed to the statement that "CAM is a risk to public health" than females (14.9%). The agreement with this statement increased as the age of the students increased with a significant positive association between age and perception of CAM as a risk to public health ($p=0.004$). The perception of CAM as an important topic to practice in the future was significantly associated with the female gender and 6th academic year ($p<0.001$). (Table 8)

Approximately comparable percentages of males and females (30.8% versus 28.1%) (22.6%) agreed to the statement that "The results of CAM are in most cases due to a placebo effect". The agreement with this statement increased as the age of the students increased but with a non-significant association between age and perception of CAM as a risk to public health ($p=0.345$). The agreement to the statement "few CAM approaches may have limited health benefits. However, there was no true effect on the treatment of symptoms, conditions and/or diseases" was significantly associated with the age group in 22-24 years old ($p<0.033$). (Table 9)

Table (1): Demographic and background characteristics of the respondents (n = 344)

Variables	Frequency	Percent (%)
Gender (n=341)		
Male	146	42.8
Female	195	57.2
Academic year (n=331)		
The second-year	57	17.2
The third-year	68	20.6
The fourth-year	61	18.4
The fifth-year	69	20.8
The sixth-year	76	23.0
Age group (n=337)		
19-21	156	46.3
22-24	175	51.9
25 or older	6	1.8
Source of information (multiple choices allowed) n=331		
Mass media: TV, radio, newspapers, magazines	151	45.6
Internet or CAM websites.	124	37.5
Peer professionals, e.g., physicians, nurses, pharmacists, student.	71	21.5
Medical, nursing, pharmacy, other professional journals	83	25.1
Coursework or formal training	42	12.7
Traditional healers or CAM practitioner.	37	11.2
Family members or friends	108	32.6

Table (2): The thoughts and beliefs of the students about health and healing

Item	Disagree & SD	Neutral	Agree & SA
	N (%)	N(%)	N(%)
1. Human being is treated as a whole.	15 (4.4%)	61 (17.8%)	266 (77.8%)
2. The body has an innate ability to heal itself	21 (6.2%)	109 (31.9%)	212 (62%)
3. There is a connection between social stress and physical illness.	21 (6.2%)	43 (12.6%)	277 (81.3%)
4. The link between social factors and disease is over-emphasised.	148 (43.2%)	108 (31.6%)	86 (25.1%)
5. Determining what the patients' feels, believes or knows about their health is essential to the practitioner in taking steps to improve the patient's health.	7 (2.1%)	35 (10.2%)	300 (87.7%)
6. The environment- pesticides, growth hormones, food additives, power plants- has a greater impact on health and disease than is currently acknowledged.	16 (4.7%)	55 (16.1%)	271 (79.3%)
7. Natural products and home remedies are better than the chemical treatments.	81 (23.6%)	110 (32.2%)	151 (44.2%)

Table (3): The attitudes of the students towards CAM

Item	Disagree & SD	Neutral	Agree & SA
	N (%)	N(%)	N(%)
1.CAM is a risk to public health.	161(47)	119(34.8)	62(18.1)
2. Clinical care should integrate the best of modern/ Western and CAM practices.	34(10)	72(21.1)	236(69.1)
3. CAM includes ideas and methods from which modern/ Western medicine could benefit.	21(6.1)	93(27.2)	228(66.6)
4. While we need to be cautious in our claims, a number of CAM approaches hold promise for the treatment of symptoms, conditions and/or diseases.	22(6.4)	100(29.2)	220(64.3)
5. The results of CAM are, in most cases, due to a placebo effect.	131(38.6)	109(32.2)	99(29.2)
6. CAM therapies not tested in a scientific manner should be discouraged.	27(7.9)	55(16.1)	260(76)
7. Though a few CAM approaches may have limited health benefits, however, there is no true effect on the treatment of symptoms, conditions and/or diseases	142(41.5)	106(31)	94(27.4)
8. Health professionals should be able to advise their patients about commonly used CAM methods.	14(4.1)	56(16.4)	272(79.5)
9. CAM practices should be included in my medical college's curriculum.	55(16.1)	87(25.4)	200(58.4)
10. Knowledge about CAM is important to me as a student/future health professional.	49(14.4)	58(17)	235(68.7)

*Differences in the number of the respondents between items due to missing answers.

Table (4): Medical students' knowledge about (CAM) modalities (how students classify the following therapies?)

Item	CAM	Modern Medicine	I don't know	Item	CAM	Modern Medicine	I don't know
	N (%)	N (%)	N (%)		N (%)	N (%)	N (%)
Hijama (Cupping)	286 (85.4)	19 (5.7)	3 (9.0)	Herbal medicine	27 (82.1)	21 (6.2)	40 (11.8)
Roqia (Recitation of Holy Quran)	197 (57.9)	18 (5.3)	125 (36.8)	Camel milk and urine therapy	205 (60.3)	6 (1.8)	129 (37.9)
Acupuncture	209 (61.8)	50 (14.8)	79 (23.4)	Bee product, stings honey	255 (75.0)	21 (6.2)	64 (18.8)
Prayer/spiritual healing	176 (51.8)	36 (10.6)	128 (37.6)	Chiropractic	82 (24.0)	138 (40.5)	121 (35.5)
Cauterization	236 (69.6)	30 (8.8)	73 (21.5)	Electromagnetic therapies	68 (19.9)	159 (46.5)	115 (33.6)
Homeopathy	68 (19.9)	133 (38.9)	141 (41.2)	Biofeedback	54 (15.7)	128 (37.2)	162 (47.1)
Hypnosis/guided imagery	109 (31.9)	112 (32.7)	121 (35.4)	Meditation	165 (48.2)	48 (14.0)	129 (37.7)
Massage	233 (68.3)	44 (12.9)	64 (18.8)	Physiotherapy	103 (30.1)	150 (43.9)	89 (26.0)
Ozone therapy	63 (18.4)	119 (34.8)	160 (46.8)	Therapeutic/healing touch	96 (28.1)	47 (13.7)	199 (58.2)
Nutritional supplements	69 (20.2)	211 (61.7)	62 (18.1)	Aromatherapy	198 (57.9)	25 (7.3)	119 (34.8)
Naturopathy	135 (39.5)	49 (14.3)	158 (46.2)	Osteopathy	88 (25.8)	144 (42.2)	109 (32.0)

Table (5): The attitudes of the students towards CAM effectiveness in the treatment of the diseases

Item	D	N	A	Item	D	N	A
	N (%)	N (%)	N (%)		N (%)	N (%)	N (%)
Hijama (Cupping)	38 11.3	85 25.3	213 63.4	Herbal medicine	48 14.4	109 32.8	175 52.7
Roqia (Recitation of Holy Quran)	26 7.8	111 33.0	199 59.2	Camel milk and urine therapy	193 57.9	101 30.3	39 11.7
Acupuncture	50 15.0	185 55.6	98 29.4	Bee product stings honey	68 20.4	131 39.3	134 40.2
Prayer/spiritual healing	31 9.3	85 25.5	217 65.1	Chiropractic	38 11.4	191 57.7	102 30.8
Cauterization	78 23.4	134 40.2	175 52.7	Electromagnetic therapies	77 23.1	201 60.4	55 16.5
Homoeopathy	76 22.8	211 63.4	46 13.8	Biofeedback	54 16.6	211 64.7	61 18.7
Hypnosis/guided imagery	93 27.9	175 52.6	65 19.5	Meditation	80 24.3	127 38.6	122 37.1
Massage	51 15.5	81 24.5	199 60.1	Therapeutic/healing touch	95 29.1	196 60.1	35 10.7
Ozone therapy	61 18.7	217 66.6	48 14.7	Aromatherapy	119 36.2	163 49.5	47 14.3
Nutritional supplements	22 6.6	89 27.0	219 66.4	Osteopathy	34 10.3	178 54.1	117 35.6
Naturopathy	64 19.5	178 54.1	87 26.4				

*D = Disagree & strongly disagree, N =Neutral, A= Agree & strongly agree

Table (6): The common practices of students in regards to CAM (Have you ever used the following?)

Item	U	R	RN	Item	U	R	RN
	N (%)	N (%)	N (%)		N (%)	N (%)	N (%)
Hijama (Cupping)	53	176	74	Herbal medicine	117	92	92
Is effective	17.5	58.1	24.4		38.9	30.6	30.6
Roqia (Recitation of Holy Quran)	165	96	49	Camel milk and urine therapy	8	40	246
	53.2	31.0	15.8		2.7	13.6	83.7
Acupuncture	16	94	174	Bee product (stings honey)	107	72	126
	5.6	33.1	61.3		35.1	23.6	41.3
Prayer/spiritual healing	166	83	53	Chiropractic	11	83	186
	54.6	27.3	17.4		3.9	29.6	66.4
Cauterization	21	61	209	Electromagnetic therapies	10	63	205
	7.2	21.0	71.8		3.6	22.7	73.7
Homoeopathy	10	52	216	Biofeedback	16	58	201
	3.6	18.7	77.7		5.8	21.1	73.1
Hypnosis/guided imagery	13	52	211	Meditation	73	94	124
	4.7	18.8	76.4		25.1	32.3	42.6
Massage	123	101	69	Therapeutic/healing touch	19	54	205
	42.0	34.5	23.5		6.8	19.4	73.7
Ozone therapy	7	70	202	Aromatherapy	48	54	181
	2.5	25.1	72.4		17.0	19.1	64.0
Nutritional supplements	132	93	73	Osteopathy	9	105	164
	44.3	31.2	24.5		3.2	37.8	59.0
Naturopathy	31	80	172				
	11.0	28.3	60.8				

U = Used it in your lifetime, R = Recommended it to someone/patients, RN = Recommended not using it.

Table (7): The barriers and reasons for not using CAM in medical settings

Item	Disagree & SD	Neutral	Agree & SA
	N (%)	N(%)	N(%)
CAM practices were not included in my medical college's curriculum	44(13.1)	94(27.8)	200(59.2)
There is a lack of knowledge about CAM.	29(8.6)	52(15.4)	257(76.1)
There is a lack of evidence for CAM practices.	39(11.6)	57(16.9)	242(71.5)
CAM practices are not regulated and supervised.	26(7.7)	46(13.6)	266(78.7)
There is unavailability of competent providers.	24(7.1)	61(18.0)	253(74.9)
There is lack of staff training.	16(4.8)	63(18.8)	256(76.4)
Local medical insurance companies do not recognise CAM practices.	32(9.6)	94(28.2)	207(62.1)
Lack of appropriate equipment for CAM practice.	40(11.9)	87(25.9)	209(62.2)
It is too time-consuming	129(38.4)	108(32.1)	99(29.4)

Table (8): Association between respondents' characteristics and the general attitude towards CAM

Variable		Disagree		Neutral		Agree		Chi-Square (DF)	P-Value
		Row N	%	Row N	%	Row N	%		
CAM is a risk to public health									
Gender	Male	71	48.6%	42	28.8%	33	22.6%	5.37 (2)	0.068
	Female	90	46.2%	76	39.0%	29	14.9%		
Age group	19-21 y	76	48.7%	46	29.5%	34	21.8%	15.41 (4)**	0.004*
	22-24 y	83	47.7%	67	38.5%	24	13.8%		
	25 y or older	0	0.0%	2	33.3%	4	66.7%		
Academic year	2-3 academic year	50	46.7%	30	28.0%	27	25.2%	13.35 (4)	0.010*
	4-5 academic year	59	52.2%	32	28.3%	22	19.5%		
	6th academic year	47	42.3%	51	45.9%	13	11.7%		
Knowledge about CAM is important to me as a student/future practising health professional									
Gender	Male	35	24.0%	32	21.9%	79	54.1%	27.8 (2)	0.000*
	Female	14	7.2%	26	13.3%	155	79.5%		
Age group	19-21 y	30	19.2%	26	16.7%	100	64.1%	7.13 (4)**	0.129
	22-24 y	18	10.3%	27	15.5%	129	74.1%		
	25 y or older	1	16.7%	2	33.3%	3	50.0%		
Academic year	2-3 academic year	22	20.6%	14	13.1%	71	66.4%	26.32 (4)	0.000*
	4-5 academic year	19	16.8%	30	26.5%	64	56.6%		
	6th academic year	8	7.2%	9	8.1%	94	84.7%		

N = Number, DF = Degree of Freedom, * = significant P-value, ** =Fisher-exact test used

Table (9): Association between respondents' characteristics and the general attitude towards CAM

Variable		Disagree		Neutral		Agree		Chi-Square (DF)	P - Value
		Row N	%	Row N	%	Row N	%		
The results of CAM are, in most cases, due to a placebo effect.									
Gender	Male	56	38.4%	45	30.8%	45	30.8%	0.32	0.852
	Female	75	39.1%	63	32.8%	54	28.1%		
Age group	19-21 y	59	37.8%	53	34.0%	44	28.2%	4.5	0.345
	22-24 y	68	39.8%	52	30.4%	51	29.8%		
	25 y or older	1	16.7%	1	16.7%	4	66.7%		
Academic year	2-3 academic year	36	33.6%	38	35.5%	33	30.8%	5.1	0.274
	4-5 academic year	45	39.8%	39	34.5%	29	25.7%		
	6th academic year	45	41.7%	26	24.1%	37	34.3%		
Though a few CAM approaches may have limited health benefits, however, there is no true effect on the treatment of symptoms, conditions and/or diseases									
Gender	Male	64	43.8%	38	26.0%	44	30.1%	3.1	0.213
	Female	77	39.5%	68	34.9%	50	25.6%		
Age group	19-21 y	78	50.0%	45	28.8%	33	21.2%	10.5	0.033*
	22-24 y	61	35.1%	54	31.0%	59	33.9%		
	25 y or older	2	33.3%	3	50.0%	1	16.7%		
Academic year	2-3 academic year	56	52.3%	28	26.2%	23	21.5%	8.6	0.073
	4-5 academic year	40	35.4%	41	36.3%	32	28.3%		
	6th academic year	44	39.6%	31	27.9%	36	32.4%		

DISCUSSION:

Our study included 344 participants; of them, 42.8% were males, and 57.2% were females. We found that the majority enjoyed a moderate level of knowledge and held a relatively positive attitude towards CAM. They, however, did not practice the majority of CAM therapies.

This study found that most of the students exhibited confidence in CAM not being a threat to public health. This is controversial when compared to some of the prior studies [24, 23]. Others, however, have agreed with this result [25, 3]. This variation in acceptability of CAM may be due to variations in their educational and financial background. A previous study conducted in Malaysia to assess the socioeconomic factors lying behind the tendency to apply CAM found that people with lower income, higher education, and a positive attitude towards CAM were more likely to perform it [26]. Another study conducted in Saudi Arabia found a significant association between the educational level and the performance of CAM, but no association was found

in case of the income [27] which supports the hypothesis that education plays a vital role in shaping the physicians they become. Financial status, in speaking of the background, however, remains questionable.

The major proportion of our sample recorded receiving their information concerning CAM from Mass media: TV, radio, newspapers, magazines, and only a small proportion from Coursework or formal training. This is inconsistent with the previous findings of Qureshi *et al.* where the highest percentage received their knowledge from fellow professionals, followed by mass media [3]. In Palestine, the majority received their information from social media, then the internet, and in the third place came TV [28]. Ghana also had TV as their commonest source of information [29]. This highlights the crucial role of mass and social media in spreading knowledge [30]. They do not only spread awareness but also educate over a prolonged period.

In this study, students, especially females, reported higher results in thinking that knowledge about CAM is vital to their future as physicians. This comes along with findings of Qureshi *et al.* where students agreed that physician's knowledge about CAM makes them better physician. Physicians, on the other hand, think that incorporating CAM can have a positive impact on their patient's satisfaction [31]. In a multi centers study in Italy, almost half of the patients suffering from cancer were using one form or more of CAM [32]. Patients with inflammatory bowel disease were also more likely to resort to CAM and even abandon conventional treatment [33]. Another study's recorded reasons for patients' preference of CAM included the ineffectiveness of conventional treatment and the sufferance from previous side effects to the conventional treatment [34]. This leads us to the conclusion that dissatisfaction with conventional medication (CM) leads to the usage of CAM, in addition to the perceived safety of CAM [35]. This also makes us think that we should offer more support to the application of CAM courses, agreeing with the opinion held by the students, which shall help in narrowing the gap between a patient and their physician, and allowing the patient to understand more about the pros and cons of any CM compared to CAM.

Older age and a higher level of academic education were significantly associated with perceiving CAM as a dangerous option to public health. This increase in disapproval may be due to the prior application and encounter of knowledge pertaining to CAM during their later years. Speaking of the effect of CAM application on public health, we would like to mention some previous papers. CAM has, evidently, minor risk when it comes to its application. Acupuncture, for example, was proven to cause no damage, and the same case for cervical manipulation [36]. In our study, 58.1% of participants have previously recommended cupping to someone, and 63.4% agreed or strongly agreed to its usage. Although cupping can have many positive impacts, it can also have some side effects. It can help in the treatment of acne, herpes zoster, paralysis, and pain management; however, it can cause red marks, swelling, bruising, and panniculitis. The effect of cupping depends on the procedure used and the type of cups used [37].

The majority of the students agreed that they use Roqia (Recitation of Holy Quran), Prayer/spiritual healing, herbal medicine, and massage as a means of CAM while disagreed with the usage of other means of CAM. This may be influenced by the religious

upbringing of the students and, furthermore, highlights the effect the environment plays in educating young doctors.

Strengths and Limitations

This is the first study of its kind in Imam Abdulrahman bin Faisal University in Dammam, including medical students from all academic years almost equally, which makes it representative of the whole cohort of students. The survey used was validated previously, and the sample was quite large. However, questions were not answered by all students, and this created some form of gap in the numbers of each question which we had to fill. Also, the questionnaire lacked choices to portray a negative practice and only assumed a positive practice. Another limitation of this study stems from its nature as a cross-sectional study.

CONCLUSION AND RECOMMENDATIONS:

In this study, we aimed to assess the knowledge and attitude of medical students concerning CAM in Imam Abdulrahman bin Faisal University in Dammam. We found that most of the students exhibited confidence in CAM not being a threat to public health. A significant association could be noted between the age, academic year of students, and their acceptance of CAM as a safe option for public health. Students were likely to accept and promote CAM originating from a religious background. Thus, we encourage upcoming studies to further examine the relationship between the religious background of students and attitude towards CAM. We also encourage the incorporation of CAM knowledge in the curricula to help cover the present gap in knowledge.

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