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Original Article

Healthcare professionals' perception and practice of complementary and alternative medicine in Qassim region, Saudi Arabia

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Abstract

Introduction: Over the last few decades, use of complementary and alternative medicine (CAM) has grown in popularity, changing health professionals' knowledge and attitude toward CAM, and the treatment recommended by them. The aim of the study was to evaluate the perception and practice of CAM among healthcare professionals.

Methodology: A cross-sectional study was conducted among healthcare providers selected by multistage random sampling technique in two governmental hospitals and ten primary healthcare centers in two governorates in the Qassim region, Saudi Arabia. A web-based, self-administered questionnaire was distributed via social media platforms.

Results: A total of 350 physicians responded to the survey. Good basic knowledge about CAM was reported by 48.6% of the respondents; a positive attitude was adopted by 53%; and CAM was actively practiced by 9.7%. Being a physician > 40 years and consultant affiliation were significantly associated with higher knowledge level about CAM (p = 0.006 and 0.03, respectively), as well as having a proactive practice (p = 0.007 and 0.04, respectively). Practicing CAM was prevalent among non-Saudi and married physicians (p = 0.02 for both). Knowledge about CAM and its practice were strongly correlated (p = 0.007). The most frequent constraints facing CAM practice were lack of knowledge and training on CAM (81.4%) and lack of studies supporting CAM (74.3%).

Conclusions: The practices of health professionals in Qassim region need to be improved despite their expertise and favourable perception of CAM. Educational interventions could play greater roles in providing evidence-based CAM knowledge and enhancing training for physicians.

Key words: complementary medicine; alternative medicine; healthcare professionals; perception; practice.

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Introduction

Complementary and alternative medicine (CAM) is identified as expansive health care practices that are not commonly considered part of the conventional or traditional medicine of a country and are not completely coordinated with the predominant health care system. However, they are utilized reciprocally with conventional medication in some countries [1]. The developing interest in CAM [2,3] mirrors the need to depend on other optional treatments that cannot be found in current modern medication [4].

Although there are uncertainties regarding the effectiveness of most CAM treatments, the utilization of CAM is widely prevalent among the general population [5], and research studies have reported that 30–98% of patients have used different forms of CAM therapies [6,7]. CAM is commonly used by all age groups for chronic disorders, including rheumatic diseases, liver diseases, dermatological disorders, asthma, diabetes, and pediatric cancer [8-13].

As patients increasingly seek CAM, physicians must be willing to discuss its benefits, limitations, and possible side effects [14]. They must be aware of the indicators of non-compliance with the recommended conventional therapies that may be linked to the use of CAM, which mostly are not explicitly acknowledged by

the patients [15]. Although some literature documented that health care providers had poor knowledge about CAM practices [16,17], other studies found that they had a positive attitude towards them [18,19]. There are many types of CAM therapies in use globally. In Saudi Arabia, spiritual therapy (e.g., prayers and recitation of the Quran), Zamzam water, medical massaging, herbal remedies, dietary supplements, camel urine and milk, hijamah (cupping), acupuncture, aromatherapy, relaxation, chiropractic, homeopathy, and movement therapy were the most frequently used CAM therapies [20].

One American study revealed that nearly one-third of the physicians surveyed reported that they took elective courses on CAM in medical school, and only 15% reported having learned of CAM in their residency training [21]. The same was observed among primary care physicians in Turkey, as most (76%) reported that they do not have enough information about CAM to advise or prescribe to their patients [22]. Additionally, many general practitioners in Qatar were interested in assisting their patients in using CAM, while the majority did not believe they were competent to do so because of a lack of awareness and training about CAM [19]. On the other hand, physicians in Bahrain had difficulty in using CAM, especially herbal medicines, because of a lack of formal regulation, poor quality control, and limited information on adverse events [23].

In the same context in Saudi Arabia, the majority of the primary care physicians in Riyadh region thought that their knowledge about CAM as a whole and herbal medicine in particular was low or very poor. Less than one fifth (16%) believed that CAM can be used when conventional medicine fails [24]. Another study in the Riyadh region linked physicians' higher qualification degree with their good knowledge of CAM [25]. A recent study among young graduated resident-degree physicians in Tabuk region revealed that 25% had used CAM for their patients earlier, and the majority reported benefits of CAM usage. Also, most of the physicians agreed that CAM is helpful when used in addition to conventional medicine [26]. There is a paucity of data evaluating the perception and practice of CAM among health care professionals in Qassim region, Saudi Arabia. This study aimed to bridge this gap.

Methodology

Study design and sampling

A cross-sectional study was conducted to assess the awareness, perception, and practice of CAM among health care providers in the Qassim region, Saudi Arabia. Our target sample was collected using the multistage random sampling technique. The first stage was selecting 2 out of the 14 governorates in the Qassim region, while the second stage was choosing 1 government hospital and 5 primary healthcare centers from each of the selected governorates using the simple random sampling technique.

The inclusion criteria for the participating individuals were physicians of both genders, of any nationality, with different years of employment, with any qualifications, working in the selected hospitals and primary healthcare centers, having a social media account, and agreeing to participate in the study. The exclusion criteria were physicians from outside the selected hospitals and primary healthcare centers, not having a social media account, and/or refusing to participate in the study. By participating voluntarily, anonymity was guaranteed to all respondents. An informed consent was signed by each participant before participating in the study.

Survey tool and data collection

An online Arabic structured self-administered questionnaire prepared using Google Forms was used for data collection. The aim of the study was clearly explained in the interface. The questionnaire was designed by the authors based on an approved previous survey [24]. The link to the questionnaire was randomly shared on social media platforms (i.e., Facebook, WhatsApp) and with the contact list of investigators. The questionnaire was divided into four parts:

1. The first part included the socio-demographic characteristics, such as gender, age, nationality, job description, and years of experience.
2. The second part dealt with questions regarding knowledge about CAM, such as types of the known CAM, the reasons for CAM use, and complications and sources of knowledge.
3. The third section included questions regarding physicians' attitude about CAM. It included inquiries about the patients' benefit from CAM, usefulness of CAM as a supplement to pharmacological medicine, thinking that CAM is effective and safe, and if CAM is a threat to public health. The responses were in the form of five-point Likert scales (strongly agree, agree, neutral, disagree, or strongly disagree).
4. The final section contained questions regarding practicing CAM. These included questions such as did they use CAM for their patients, regularity of following CAM in social media and scientific channels, assessing the

effectiveness of CAM in their patients, having previous training on CAM, and the most common constraint in practicing CAM. The responses were in the form of frequently, sometimes, rarely, and never.

For each of the three sections — knowledge, attitude, and practice — if the physician correctly answered 75% or more of the questions, it was considered as having good knowledge, positive attitude, and proactive practice; below 75%, it was considered poor.

A pilot study was conducted with 30 physicians to further validate the questionnaire; subsequently, they were excluded from the study. Calculation of the required time to complete the questionnaire, clear phrasing, and fitting comprehension of all questions were guaranteed by this pilot validation. Moreover, another validation for reliability coefficient with Cronbach's alpha was performed, which was 0.79.

Table 1. Sociodemographic characteristics of the studied participants (n = 350).

Sociodemographic data	n (%)
Age (years)	
< 40	245 (70)
≥ 40	105 (30)
Mean (SD)	36.7 (9.6)
Gender	
Male	236 (67.4)
Female	114 (32.6)
Marital status	
Single	97 (27.7)
Married	251 (71.7)
Widow/Divorced	2 (0.6)
Job description	
Consultant	75 (21.4)
Senior Registrar	45 (12.9)
Registrar	56 (16.0)
Resident	166 (47.4)
House officer	8 (2.3)
Nationality	
Saudi	186 (53.1)
Non-Saudi	164 (46.9)
Specialty	
Internal medicine	122 (34.9)
Surgery	49 (14)
Pediatrics	37 (10.6)
Dentist	15 (4.3)
Family medicine	106 (30.3)
General practitioner	21 (5.9)
Years of experience	
< 5	123 (35.1)
5-10	101 (28.9)
> 10	126 (36)
Income	
Not sufficient	53 (15.1)
Sufficient	297 (84.9)

The sample size was calculated using the online openEPI programme. The minimal estimated sample size was 223 according to a 95% confidence interval, 5% margin of error, and prevalence of 82% awareness according to a previous study done in Riyadh, Saudi Arabia [24]. A total of 350 physicians filled out the questionnaire.

Data management and analysis plan

Statistical Package for the Social Sciences version 20 (SPSS Inc. 2011. IBM SPSS statistics for windows, version 20.0, Armnok, NK: IBM Corp.) was used for data coding and tabulation. Quantitative data were expressed as mean ± standard deviation, and the Student *t*-test was used. Qualitative data appeared as number and percentages (n and %), and the Chi square (χ^2) test was applied to assess the relationship between two or more qualitative variables. A two-sided p value < 0.05 was considered significant.

Results

Demographic characteristics of the participants

Data were collected from 350 healthcare providers. Two thirds (70%) of the participants were younger than 40 years of age, and the mean age was 36.7 ± 9.6 years. The majority of the participants (67.4%) were male, and 71.7% were married. Resident and consultant physicians represented 47.4% and 21.4%, respectively. More than half of the respondents (53.1%) were Saudi. The most frequent specialty was internal medicine (34.9%), followed by family medicine (30.3%). Physicians with more than 10 years of experience comprised 36% of the respondents (Table 1).

Knowledge about CAM

Regarding the participants' knowledge about CAM, most (77.1%) reported knowing about CAM; however, 78.9% reported that their knowledge about CAM was insufficient. Only two fifths of the respondents (40.4%) considered CAM as a useful treatment method. Pain, open wounds, and neuromuscular disorders were the most prevalent indications for CAM usage (23%, 22.6%, and 21.1%, respectively). Moreover, most of the respondents (69.4%) knew that some complications could result from CAM usage. Social media (68.3%) and friends/family (55.1%) were the most common sources of information about CAM. In general, 48.6% of the studied healthcare providers had good basic knowledge about CAM (Table 2).

Table 2. Knowledge, attitude and practice of the studied physicians about complementary and alternative medicine (CAM).

Items	Response	n (%)
Knowledge about CAM		
Do you know about CAM?	No	80 (22.9)
	Yes	270 (77.1)
Is your knowledge about CAM sufficient?	Not satisfied	276 (78.9)
	Satisfied	74 (21.1)
For which of the following reasons can CAM be used?	Prevention	144 (23.5)
	Treatment	247 (40.4)
	Promoting health	221 (36.1)
What are the main indicators for CAM usage?	Orthopedic conditions	174 (18.0)
	Neuromuscular disorders	204 (21.1)
	Internal medicine	148 (15.3)
	Wound healing	218 (22.6)
	Pain killer	222 (23.0)
Source of information	Medical Curricula	92 (26.3)
	Social media/internet	239 (68.3)
	Scientific Journals/books	120 (34.3)
	Conferences/workshops	56 (16.0)
	Friends/family	193 (55.1)
Is there any complication linked to CAM usage?	No complications	27 (7.7)
	Some complications	243 (69.4)
	A lot of complications	80 (22.9)
Basic knowledge	Poor	179 (51.1)
	Good	170 (48.6)
Attitude of participants towards CAM		
CAM usage by patients is helpful or beneficial in their management	Strongly disagree/Disagree	57 (16.3)
	Neutral	141 (40.3)
	Agree/Strongly agree	152 (43.4)
Usage of CAM is safe	Strongly disagree/Disagree	110 (31.4)
	Neutral	146 (41.7)
	Agree/Strongly agree	94 (26.9)
CAM treatments are not tested in a scientifically recognized manner.	Strongly disagree/Disagree	37 (10.6)
	Neutral	93 (26.6)
	Agree/Strongly agree	220 (62.9)
CAM is an useful supplement to pharmacological medicine	Strongly disagree/Disagree	78 (22.3)
	Neutral	117 (33.4)
	Agree/Strongly agree	155 (44.3)
Patients benefit more from doctors who have knowledge about CAM	Strongly disagree/Disagree	48 (13.7)
	Neutral	93 (26.6)
	Agree/Strongly agree	209 (59.7)
CAM is common in your city or neighborhood	Strongly disagree/Disagree	37 (10.6)
	Neutral	93 (26.6)
	Agree/Strongly agree	220 (62.9)
CAM usage should be limited to patients who have failed conventional therapy	Strongly disagree/Disagree	96 (27.4)
	Neutral	119 (34.0)
	Agree/Strongly agree	135 (38.6)
There is a need for law to regulate medicinal herbs in your neighborhood	Strongly disagree/Disagree	25 (7.1)
	Neutral	74 (21.1)
	Agree/Strongly agree	251 (71.7)
I support including CAM teaching in medical school curricula	Strongly disagree/Disagree	45 (12.9)
	Neutral	81 (23.1)
	Agree/Strongly agree	224 (64)
In general, CAM is a threat to public health	Strongly disagree/Disagree	91 (26)
	Neutral	124 (35.4)
	Agree/Strongly agree	135 (38.6)
General level of attitude	Negative attitude	164 (47)
	Positive attitude	185 (53)
Practices of CAM		
Are you following CAM in social media and scientific channels?	Never/Rarely	201 (57.4)
	Sometimes/Frequent	149 (42.6)
Do you have experience of any kind of CAM with your patients?	Never/Rarely	207 (59.1)
	Sometimes/Frequent	143 (40.9)
Would you ever advise your patients to refrain (stop) from using certain CAM during using any other medicine?	Never/Rarely	88 (25.1)
	Sometimes/Frequent	262 (74.9)
Have you ever asked your patients in your clinic if they take any kind of CAM?	Never/Rarely	89 (25.4)
	Sometimes/Frequent	261 (74.6)
Do you recommend using CAM?	Never/Rarely	207 (59.1)
	Sometimes/Frequent	143 (40.9)
Did you attend any CAM courses/workshops?	Never/Rarely	268 (76.6)
	Sometimes/Frequent	82 (23.4)
Practice level	Poor	316 (90.3)
	Proactive	34 (9.7)

Cupping/hejamah was the most known CAM type (71.1%), followed by acupuncture (60.1%), spiritual healing (54.9%), massage (54.9%), cauterisation (52.9%), and herbal medicine (51.7%) (Figure 1).

Attitude toward CAM

Most of the participants (62.9%) agreed that CAM is common in their neighborhood. One third (31.4%) thought that CAM is unsafe and agreed that CAM is a threat to public health, and 38.6% believed that it should be limited to patients who had failed conventional therapy. Two fifths of the respondents (43.4%) believed that CAM usage by patients was helpful or beneficial in their management. Most of the respondents (72%) believed that there is a need for laws to regulate medicinal herbs. Two thirds (64%) agreed that it would be helpful to add CAM modules in medical schools' curricula. As a whole, half of the studied health care providers (53%) had a positive attitude toward CAM usage (Table 2).

Practice of CAM

Most of the respondents (76.6%) reported that they never attended any CAM course or workshop. More than half of the studied healthcare providers (59.1%) reported that they neither experienced any kind of CAM with their patients nor recommended its use. The majority of the respondents (74.6%) frequently asked their patients if they take any kind of CAM and sometimes advised their patients to stop using certain CAM during other conventional medication use (74.9%). Only one tenth of our healthcare workers (9.7%) had proactively practiced CAM (Table 2).

Relation of knowledge, attitude and practice (KAP) and demographic characteristics

It was obvious that physicians older than 40 years of age and consultants who had significantly higher knowledge about CAM (*p value* = 0.006 and 0.03, respectively), also proactively practiced CAM (*p value* = 0.007 and 0.04, respectively). Furthermore, non-Saudi healthcare professionals and married physicians (*p value* = 0.02 for both) showed a significantly higher proactive CAM behavior (Table 3).

Figure 1. Types of complementary and alternative medicine (CAM) known by the respondents.

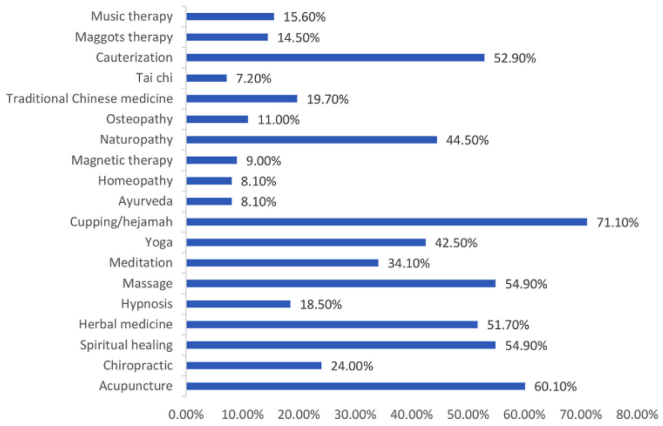


Table 3. Relation between sociodemographic data and knowledge, attitude and practice of the studied participants towards complementary and alternative medicine (CAM).

Sociodemographic data		Knowledge			Attitude			Practice		
		Poor n (%)	Good n (%)	*p* value	Negative n (%)	Positive n (%)	*p* value	Poor n (%)	Proactive n (%)	*p* value
Age	< 40 years	137 (56.1)	107 (43.9)	*0.006**	115 (47.1)	129 (52.9)	0.93	228 (93.1)	17 (6.9)	0.007*
	≥ 40 years	42 (40)	63 (60)		49 (46.7)	56 (53.3)		88 (83.8)	17 (16.2)	
Gender	Male	119 (50)	117 (49.6)	0.64	113 (47.9)	123 (52.1)	0.63	211 (89.4)	25 (10.6)	0.42
	Female	60 (53.1)	53 (46.9)		51 (45.1)	62 (54.9)		105 (92.1)	9 (7.9)	
Marital status	Single	58 (59.8)	39 (40.2)	0.11	42 (43.3)	55 (56.7)	0.43	89 (91.8)	8 (8.2)	*0.02**
	Married	120 (48)	130 (52)		121 (48.4)	129 (51.6)		226 (90.0)	25 (10.0)	
	Widow/Divorced	1 (50)	1 (50)		1 (50)	1 (50)		1 (50.0)	1 (50.0)	
Job description	Consultant	29 (39.2)	45 (60.8)	*0.03**	31 (41.9)	43 (58.1)	0.17	70 (93.3)	5 (6.7)	*0.04**
	Senior Registrar	21 (46.7)	24 (53.3)		26 (57.8)	19 (42.2)		39 (86.7)	6 (13.3)	
	Registrar	29 (51.8)	27 (48.2)		32 (57.1)	24 (42.9)		46 (82.1)	10 (17.9)	
	Resident	98 (59)	68 (41)		71 (42.8)	95 (57.2)		155 (93.4)	11 (6.6)	
	House officer	2 (25)	6 (75)		4 (50)	4 (50)		6 (75.0)	2 (25.0)	
Nationality	Saudi	97 (52.4)	88 (47.6)	0.65	81 (43.8)	104 (56.2)	0.20	174 (93.5)	12 (6.5)	*0.02**
	Non-Saudi	82 (50)	82 (50)		83 (50.6)	81 (49.4)		142 (86.6)	22 (13.4)	
Years of experience	< 5	72 (58.5)	51 (41.5)	0.13	54 (43.9)	69 (56.1)	0.63	114 (92.7)	9 (7.3)	0.34
	5-10	48 (48)	52 (52)		47 (47.0)	53 (53)		92 (91.1)	9 (8.9)	
	> 10	59 (46.8)	67 (53.2)		63 (50)	63 (50)		110 (87.)	16 (12.7)	
Income	Not sufficient	29 (54.7)	24 (45.3)	0.59	25 (47.2)	28 (52.8)	0.97	49 (92.5)	4 (7.5)	0.56
	Sufficient	150 (50.7)	146 (49.3)		139 (46)	157 (53)		267 (89.9)	30 (10.1)	

*Significant value.

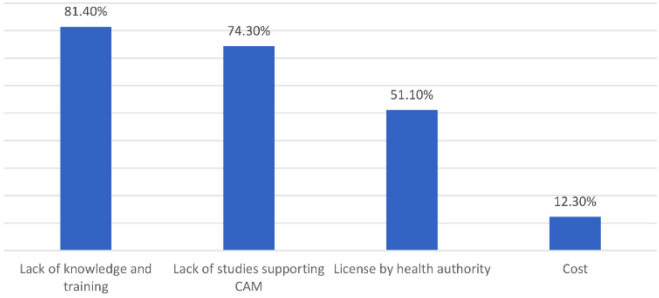
The greatest constraints to practicing CAM

As reported by the studied participants, lack of knowledge and training on CAM (81.4%), lack of studies supporting CAM (74.3%), and lack of CAM licensing by health authorities (51.1%) were the most prevalent constraints facing CAM practice (Figure 2).

Correlation between KAP about CAM and its practice among health care providers

There was a significant positive correlation between knowledge about CAM and its practice (*p value* = 0.007) (Table 4).

Figure 2. The most common constrains facing practicing of complementary and alternative medicine (CAM).



Discussion

Nearly half of the healthcare providers who responded to the survey (48.6%) had good basic knowledge about CAM. In the current study, older (> 40 years) physicians and consultants were the most significantly knowledgeable groups. This, to some extent, reflects the increased interest in CAM with the increasing experience of healthcare providers. A Saudi study reported highly qualified health professionals, with a doctorate degree, had a significantly higher level of knowledge regarding CAM than others who were less qualified [25]. It was the responsibility of the health professionals to become knowledgeable about this area of medicine [27]. In previous studies in Turkey [22], Qatar [19], the United Arab Emirates [28], Ghana [29], and Bahrain [23], most of the health care practitioners admitted that they do not have enough knowledge on CAM. This emphasises the need for more academic training programmes on CAM during the healthcare professional residency curricula.

Surprisingly, in the current study, the most frequently reported sources of information were social media/internet, followed by friends/family, while medical curricula were reported by only one quarter of responders. This stresses the importance of incorporating modules about CAM in the medical schools and conferences to provide physicians with evidence-based knowledge about the benefits and risks of the different CAM practices. This finding is in accordance with a previous study in the Riyadh region, Saudi Arabia [25]. Indeed, a positive correlation was observed between using internet technology and developing knowledge and self-training [30]. Due to the Islamic background of Saudi Arabia, the prevalent known CAM types were cupping/Hejamah, acupuncture, and spiritual healing with the Quran; followed by massage, cauterisation, and herbal medicine. The same was observed between programme residents of all specialties in Tabouk region [26] and health professionals in Riyadh region [25], Saudi Arabia. On the other hand, it is obvious that CAM types vary between different countries. Homeopathy, massage, and herbal medicine were the frequently known types among health professionals in Western Mexico [31]; massage and herbal medicine were commonly practiced by Iranian nurses [32]; and psychotherapy, supplements and diet, herbal medicine, acupuncture, and massage were the most known CAM types among general practitioners in Qatar [19].

In this study, more than half of the healthcare professionals showed a positive attitude toward CAM. This is in line with other studies in the Riyadh [25] and Tabouk region [26], Saudi Arabia; Qatar [19]; Turkey [22]; and the USA [21]. Although our participants had a good level of knowledge and positive attitude toward CAM, only one tenth of the whole group proactively practiced CAM. Proactive CAM behaviour was significantly more among healthcare providers who were aged 40 years or older, married, of non-Saudi nationality, and had consultant qualification. Additionally, a significant positive correlation was observed between knowledge about CAM and its practice. This concern can be explained based on the fact that our respondents reported that the most prevalent constraints facing CAM practice were lack of

Table 4. Correlations between knowledge, attitude and practice of the studied group toward complementary and alternative medicine (CAM).

Variable	Knowledge		Attitude	
	r test	*p* value	r test	*p* value
Attitude	0.01	0.81	----------	----------
Practice	0.14	0.007*	0.09	0.07

*Significant value.

knowledge and training on CAM, lack of studies supporting CAM, and lack of CAM licensing by health authorities.

There is no paradox between this finding and that reported by physicians in Ohio, USA [21]. They cited unawareness about the availability of evidence-based CAM resources or favoured case-based lectures for CAM education and the lack of time during patient interactions as the main obstacles to more widespread use of CAM in clinical practice. In addition, the majority of the general practitioners in Tabuk region, Saudi Arabia [26] reported a lack of knowledge and training in CAM as the most challenging barrier to its use. In line with this trend, one study indicated that patients' healthcare costs and mortality rates are lower when their general practitioners had CAM training [33]. In the current study, two fifths of the participants indicated CAM acceptance for their patients. This agrees with a previous study in Italy [34] where most of the healthcare practitioners advised their patients on CAM usage. Moreover, it was recorded that healthcare providers in the USA used CAM for their patients with fair results and referred patients to CAM practitioners [30]. Furthermore, referring patients to CAM specialists was practiced by most of the physicians in the UK [35] and the Netherlands [36]. Even if there are some evidence bases for CAM usage, they are not sufficiently presented in conferences and residency programmes. More budget and incentives to encourage new trials on different CAM practices would help raise their level of evidence. Journals focused on CAM would also be helpful to spread evidence-based CAM practices.

Our study is limited because it is cross-sectional in nature and based on an online survey. This does not allow us to calculate the response rate to the survey. Another limitation is that the survey asked about CAM as a whole and was not directed to a specific type of CAM practice. It would be interesting to have further studies related to specific CAM types. The results of the current study cannot be generalised to all regions of Saudi Arabia, as it represents the Qassim region only.

Conclusions

Although healthcare professionals in the Qassim region had some basic knowledge and a favorable perception of CAM, its usage was not significantly observed in their clinical practice. Availability of more precise educational resources and websites about CAM, as well as training for physicians are recommended. This study offers insightful information on the perception of physicians about CAM. It is crucial that CAM practices be incorporated into medical and pharmacy school curricula and healthcare services.

Acknowledgements

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Authors' contribution

Idea conception, data curation, formal analysis, and writing and revision of the entire manuscript: MAA, AIA; conceptualization, survey tool design, data collection, and writing and revision of the entire manuscript: FFA, AHA, AIA, HMA, TAA, JAA, AIA. All authors have read and agreed to the published version of the manuscript.

Data availability

All data generated or analyzed during this study are included in this article. Further enquiries can be directed to the corresponding author.

Ethical approval

Approval of the study was obtained from the Regional Research Ethics Committee in Qassim region (No 607-43-4883 on 18/5/2022). The aim of the study was explained to the head managers of the studied hospitals and primary health care centers to take their approval before conducting the study. All data were kept confidential and were used only for research purposes.

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