ORIGINAL ARTICLE

Prevalence, perceptions, and attitudes toward the use of complementary alternative medicine among the community of the western Region, Saudi Arabia

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ABSTRACT

Background: Complementary and alternative medicine (CAM) is widely used in Saudi Arabia and is often perceived as safe due to its natural origin. Despite its increasing use in the western region, public awareness and attitudes toward CAM remain unclear, and many individuals do not report its use to healthcare professionals.

Objectives: This study aimed to assess the prevalence, awareness, and attitudes toward CAM among adults in the western region of Saudi Arabia.

Methods: Data were collected via an online self-reported questionnaire from 849 participants residing in the western region of Saudi Arabia.

Results: Results indicated that 70.4% of participants reported using CAM in the past year. The most commonly used methods included mixed CAM practices, honey, herbal products, ruqyah, and Zamzam water, whereas acupuncture and energy-based therapies were less frequently used. CAM use was more prevalent among females, and the majority of users were aged 18-34 years. Participants primarily obtained information about CAM from family members and social media, and 82.1% did not consult a physician prior to use. Most participants perceived CAM as effective and appropriate when used alongside conventional medicine.

Conclusion: This study highlights the widespread use of CAM in the western region of Saudi Arabia, emphasizes the need for improved public awareness and regulation, and underscores the importance of healthcare provider engagement in CAM to ensure safe and informed use.

Keywords: Complementary and alternative medicine, honey, herbal products, ruqyah, and Zamzam water.

Introduction

Over the last two decades, the use of complementary and alternative medicine (CAM) has significantly increased across all cultures, and it is growing faster than ever in the healthcare sector [1]. Despite being a widely debated subject, there is no single agreed-upon definition of CAM. There are several definitions in the available research [2]. The World Health Organization defines it as "various health practices, knowledge, and beliefs, including

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plant, animal, and mineral-based medicines, spiritual therapies, manual methods, and exercises applied alone or in combination to preserve overall health, in addition to healing, diagnosing, or preventing illness." [3]. The global prevalence of CAM use according to a 2012 meta-analysis ranged from 9.8% to 76% [4]. In Saudi Arabia, a cross-sectional study published in 2014 that studied the use of herbal medicine found that 88.4% of participants had used herbal remedies at some point in their lives [5]. CAM includes any treatment modality that is not routinely used in medical practice. It consists of around 160 modalities that can be classified as pharmacological (e.g., herbalism or homeopathy), physical (e.g., acupuncture, cupping, or chiropractic), nutritional (e.g., macrobiotics and vegetarianism), or cognitive (e.g., hypnosis) [6]. In Saudi Arabia, in particular, CAM comes in different forms; according to a recent cross-sectional study, mind-body therapy, including meditation, Ruqyah, and relaxation, was the most frequently used CAM (54%), followed by biological CAM, such as herbs (46%). Black cumin was the most popular herbal supplement (42%), followed by fenugreek (28%), myrrh (24%), frankincense (22%), cinnamon (15%), garlic (15%), and onion (15%) [7]. Despite the potential benefits of herbal treatments, there have been concerns regarding their safety and quality. Their effectiveness may be reduced by the use of poor materials and insufficient quality control systems [8]. There is an increasing interest in CAM among Saudis, both healthy individuals and patients [9]. Multiple factors have been linked to this trend, including a lack of basic health institutions, unhappiness with conventional therapy, side effects, beneficial elements of herbal medicine, family traditions, and a need for religious values or spirituality [10,11]. In Saudi Arabia, chronic illnesses such as cancer, diabetes, heart disease, and respiratory illnesses are leading causes of death and morbidity. Long-term management of these illnesses places an increasing burden on healthcare services as their prevalence rises [12]. There is plenty of evidence of Saudi Arabians' interest in CAM for both general health and specific medical disorders [13,14]. However, relatively few studies have investigated Saudi patients' use of CAM for chronic disorders [15, 16]. This study aims to evaluate awareness, attitudes, and perceptions toward CAM among the community in the western region of Saudi Arabia. Additionally, we aim to assess community practices related to CAM, including types of therapies used, frequency and duration of use, consultation with healthcare providers, and sources of information.

Subjects and Methods

Study setting

The study was a cross-sectional study conducted using a self-structured questionnaire. The study aimed to assess awareness, perception, attitudes, and practices regarding the use of CAM, as well as the prevalence of CAM use among residents of the western region of Saudi Arabia. Participants were recruited from various areas of the western region of Saudi Arabia.

Duration of the study

The study was conducted from April 2025 to October 2025.

Study population and sampling

Participants

Individuals aged 18 years and older residing in the western region of Saudi Arabia were invited to participate in the study.

Sampling method

The study was conducted using an open online questionnaire. The survey was distributed via social media platforms, including WhatsApp, Twitter, and Snapchat, between April 2025 and October 2025. All eligible participants who voluntarily completed the questionnaire were included. A convenience sampling method was used.

Sample size calculation

Based on a pre-study sample size calculation using a 5% margin of error, a 95% confidence interval (CI), and an anticipated prevalence of 50%, the minimum required sample size was estimated using the formula $n = Z^2p(1-p)/E^2$, where n represents the sample size, Z is 1.96 for a 95% CI, p is the expected prevalence (0.50), and E is the margin of error (0.05). The calculated minimum sample size was 384 participants. A total of 849 participants were ultimately included in the analysis, exceeding the minimum required sample size.

Eligibility criteria: Adults aged 18 years and older residing in the western region of Saudi Arabia who provided informed consent were included in the study. Duplicate or incomplete survey responses were excluded.

Questionnaire design

The questionnaire consisted of 26 questions divided into five sections:

Demographic data (7 questions)

included questions on gender, age, nationality, educational level, monthly income, region of residence, and occupation.

Health status (2 questions)

assessed participants' current health status, presence of chronic diseases, and smoking status.

Practices CAM use (10 questions)

assessed participants' CAM utilization, including types of methods used, frequency and duration of use, money spent, consultation with healthcare providers, reasons for non-consultation, sources of CAM information, and reasons for using CAM.

Perception and attitude (4 questions)

evaluated participants' beliefs regarding CAM effectiveness and safety, their preference for using CAM

alongside conventional medicine, and their satisfaction with CAM outcomes.

Awareness of CAM use (3 questions)

assessed participants' familiarity with the risks and benefits of CAM, their views regarding the need for CAM regulation by health authorities, and whether they would recommend CAM to others.

Variables of the Study

Independent variables

Sociodemographic variables.

Presence of chronic diseases.

Smoking status.

Dependent variables

Prevalence of CAM use.

Practice of CAM use.

Awareness of CAM.

Perception and attitude toward CAM use.

Validity and reliability of the measurement instrument

Validity

After reviewing the literature, the questionnaire was prepared by the authors of the research and then was reviewed by a medical oncology consultant to ensure that it covered all relevant data related to the study questions.

Reliability

The reliability analysis of our questionnaire using Cronbach's alpha showed varying levels of internal consistency across sections.

The CAM Practices section showed moderate reliability ($\alpha = 0.599$). The Perceptions and Attitudes section demonstrated high reliability ($\alpha = 0.883$), indicating that the items within this section were highly correlated and measured a cohesive construct. The Awareness section had moderate reliability ($\alpha = 0.605$). The complete questionnaire demonstrated an acceptable reliability score ($\alpha = 0.704$), indicating reasonable internal consistency across all sections.

Pilot test

The questionnaire was distributed to 20 individuals, who were asked to complete it in order to assess its clarity and the feasibility of the study. Data from the pilot test were excluded from the final dataset.

Statistical analysis plan

Data analysis was performed using SPSS Statistics (Version 29.0). An initial data cleaning and validation process was undertaken to identify and address any data entry errors or missing values. Descriptive statistics were used to characterize the study sample and primary variables of interest. Categorical data, including all sociodemographic information, CAM utilization practices, and healthcare consultation patterns, are presented as frequencies (N) and percentages. Continuous data, on a Likert scale for perceptions and attitudes and awareness toward CAM, are summarized as mean ± standard deviation. Inferential analyses were performed to examine associations between sociodemographic factors (independent variables) and key outcomes (dependent variables). Chi-square tests (X^2) were used to assess the associations between sociodemographic characteristics and CAM utilization and healthcare provider consultation. A 5-point scale (Disagree = 1, Agree = 5) was used to calculate the mean total of perception and awareness scores. The Kolmogorov-Smirnov (K-S) test was used to assess the normality of the data. Given that the data were not normally distributed, the non-parametric tests were used. The Kruskal-Wallis test and Mann-Whitney U test were utilized to compare the mean perception and awareness scores across dichotomous or three or more groups, respectively. A two-sided p-value of < 0.05 was defined as the threshold for statistical significance.

Results

The total sample size was 849, with 681 females and a smaller proportion of males (19.8%). In terms of age distribution, the majority of participants were young adults, with 70.7% falling within the 18-34 age bracket. Those aged 35-49 years constituted 20.6%, while individuals aged 50 years and above represented the smallest age group at 8.7%. The sample predominantly consisted of Saudi nationals (93.2%), with non-Saudis making up 6.8%. Education levels were high, as 74.3% of the participants had attained a college degree or higher. A further 22.5% had completed high school, and only 2.4% had a primary or intermediate school level of education. Regarding socioeconomic status, the most common monthly income category was less than 5,000 SAR (61.6%). A smaller proportion reported an income between 5,000 and 10,000 SAR (17.2%), and 21.2% had a monthly income exceeding 10,000 SAR. Geographically, most participants resided in Medina (75.1%), followed by other cities in the western region (12.1%), Jeddah (7.9%), and Makkah (4.8%). The employment status of participants was varied: students formed the largest group (39.6%), followed by unemployed individuals (29.3%) and employed individuals (27.4%). Retired persons constituted a small fraction of the sample (3.7%). Concerning health characteristics, a large majority of participants reported having no chronic diseases (85.5%), and the vast majority were non-smokers (94.2%) (Table 1).

A significant majority of the participants (70.4%) reported using at least one method of CAM therapy in the past year, while 29.6% reported no use. Among the various CAM methods used, multiple options were the most frequently reported category, indicating the use of more than one therapy, and were employed by 70.2% of CAM users. The most common single therapy was honey (6.9%), and acupuncture (0.3%) was reported less frequently. Regarding usage patterns, the vast majority of CAM users (88.6%) reported using therapies only when needed. Far fewer reported monthly use (2.2%). In

Table 1. *Participant characteristics and sociodemographic information.*

		Count	Layer Column N %
Gender	Male	168	19.8%
	Female	681	80.2%
Nationality	Saudi	791	93.2%
	Non-Saudi	58	6.8%
Age	18-34	600	70.7%
	35-50	175	20.6%
	50 and more	74	8.7%
Educational Level	Primary/Intermediate school	20	2.4%
	High school	190	22.5%
	Diploma	7	0.8%
	College or higher	628	74.3%
Monthly Income (SAR)	< 5,000	523	61.6%
	5,000-10,000	146	17.2%
	> 10,000	180	21.2%
Residence	Jeddah	67	7.9%
	Makkah	41	4.8%
	Medina	638	75.1%
	Other region	103	12.1%
Employment status	Unemployed	249	29.3%
	Student	336	39.6%
	Employed	233	27.4%
	Retired	31	3.7%
Having chronic diseases	Yes	123	14.5%
	No	726	85.5%
Which types of chronic diseases*	Diabetes	35	21.47%
	Hypertension	34	20.86%
	Gastrointestinal Disorders	25	15.34%
	Respiratory Disorders	25	15.34%
	Thyroid	11	6.75%
	Cardiovascular Diseases	10	6.13%
	Other Conditions	17	10.43%
	Rheumatoid Arthritis	2	1.23%
	Cancer	2	1.23%
	High Cholesterol	2	1.23%
Smoking	Yes	49	5.8%
	No	800	94.2%

* The question was optional, and multiple responses were permitted.

terms of the overall duration of CAM use, most users had engaged in these practices for less than 1 year (61.2%). A substantial portion reported using CAM for 1-5 years (15.7%), and 23.1% had been users for more than 5 years. Financially, most CAM users spent modest amounts, with 63.2% reporting an expenditure of less than 200 SAR in the past year, while smaller proportions spent 501-1000 SAR (5.4%) or more than 1000 SAR (3.3%) (Table 2).

Most CAM users (82.1%) did not consult a healthcare provider before using CAM. Only 17.9% sought medical advice prior to use. Among the small subset who did consult a provider (n = 107), the healthcare providers' responses were varied. A majority (63.7%) were reported to encourage the use of CAM, while a minority (8.8%) discouraged it. For the users who did not inform their healthcare provider, the primary individual reason was the perception that CAM is completely safe (14.6%). However, most participants selected multiple reasons for not informing the healthcare provider (46%). Only a small number selected fear of judgment or disapproval (2.1%) or other reasons (0.5%) (Table 3).

The prevalence of CAM use in the past year was generally high across all sociodemographic subgroups, with no statistically significant associations found. CAM past use was not significantly associated with gender (p = 0.078), age (p = 0.186), nationality (p = 0.732), educational level (p = 0.476), monthly income (p = 0.201), residence (p = 0.185), employment status (p = 0.595), having a chronic disease (p = 0.472), or smoking status (p = 0.418). In contrast, the likelihood of consulting a healthcare

Table 2. *Practices of CAM among included participants.*

		Count	Layer Column N %
Have you used any CAM therapies in the past year?	Yes	598	70.4%
	No	251	29.6%
CAM methods have been used*	Honey	41	6.9%
	Herbal remedies	21	3.5%
	Ruqayyah (Quranic healing)	22	3.7%
	Black seeds	2	0.3%
	Hijama (cupping)	13	2.2%
	Acupuncture	2	0.3%
	Zamzam water	19	3.2%
	Recited oils/water	6	1%
	Used more than one method	420	70.2%
	Not specified	52	8.7%
Frequency of CAM Use:	Only when needed	530	88.6%
	Daily	34	5.7%
	Weekly	21	3.5%
	Monthly	13	2.2%
Duration of CAM Use:	< 1 year	366	61.2%
	1-5 years	94	15.7%
	> 5 years	138	23.1%
How much money have you spent on CAM in the past year?	Less than 200 SAR	378	63.2%
	200-500 SAR	168	28.1%
	501-1000 SAR	32	5.4%
	More than 1000 SAR	20	3.3%
Source of CAM Information:	Family	371	62%
	Friends	43	7.2%
	Social media	113	18.9%
	Healthcare provider	16	2.7%
	Religious leader	34	5.7%
	Self-research	7	1.2%
	Other source	14	2.3%
Reasons for using CAM	Avoiding the side effects of medications	25	4.2%
	General wellness	42	7%
	Cultural or religious beliefs	15	2.5%
	Preference for natural treatments	9	1.5%
	Recommendations from family or friends	23	3.8%
	Desire to explore all possible treatment options	13	2.2%
	Multiple reasons	455	76.1%
	Other reasons	16	2.7%

Table 3. *Healthcare consultation and CAM utilization.*

		Count	Layer Column N %
Did you consult a healthcare provider before using CAM?	Yes	107	17.9%
	No	491	82.1%
If you answered yes, how did the doctor respond?	Discourage	9	8.8%
	Neutral	28	27.5%
	Encourage	65	63.7%
	Missing / Not specified	5	4.7%
If you answered no, what was the reason for not informing the doctor?	Fear of judgment or disapproval	9	2.1%
	Believe that it is not relevant to medical care	52	12.2%
	Lack of physician inquiry	59	13.8%
	Perception that CAM is completely safe	62	14.6%
	Desire for autonomy in healthcare decisions	46	10.8%
	Other reason	2	0.5%
	Multiple reasons	196	46%
	Missing / Not specified	65	13.2%

provider before CAM use showed statistically significant variations based on two factors. A significant association with consultation of a healthcare provider prior to CAM utilization was found with employment status ($p = 0.049$). Retired individuals reported the highest consultation rate (27.3%), followed by employed individuals (22.9%). A significantly stronger association was observed with the presence of chronic diseases ($p = 0.003$) (Table 4).

Overall, participants held positive perceptions and attitudes toward CAM, with a total mean score of 3.61 ± 0.93 on a 5-point scale. A strong majority believed in the efficacy of CAM, with 70.9% somewhat agreeing or agreeing that it is highly effective. Furthermore, a majority (59.9%) reported being satisfied with CAM outcomes, and an even larger proportion (64.0%) preferred using CAM alongside conventional medicine. Regarding awareness, the total mean score was 3.79 ± 0.97. Participants showed strong endorsement for the regulation of CAM by the authority, with 70.2% somewhat agreeing or agreeing that CAM should be regulated by a health authority. On the other hand, self-assessed familiarity with the risks and benefits of CAM

Table 4. *Relationship between participant characteristics and previous CAM utilization practices.*

	Participants who used any CAM therapies in the past year.	Participants who consulted a healthcare provider prior to CAM utilization.
Gender*		
Male	109 (64.9%)	25 (22.9%)
Female	489 (71.8%)	82 (16.8%)
	X^2 = 3.104 , p-value = 0.078	X^2 = 2.307 , p-value = 0.129
Age*		
18–34 years	417 (69.5%)	66 (15.8%)
35-49 years	122 (69.7%)	25 (20.5%)
≥ 50 years	59 (79.7%)	16 (27.1%)
	X^2 = 3.366 , p-value = 0.186	X^2 = 5.190 , p-value = 0.075
Nationality*		
Saudi	556 (70.3%)	98 (17.6%)
Non-Saudi	42 (72.4%)	9 (21.4%)
	X^2 = 0.117 , p-value = 0.732	X^2 = 0.384 , p-value = 0.535
Educational Level*		
Primary/Intermediate school	14 (63.6%)	5 (35.7%)
High school	128 (67.7%)	25 (19.5%)
College or higher	456 (71.5%)	77 (16.9%)
	X^2 = 1.485 , p-value = 0.476	X^2 = 3.575 , p-value = 0.167
Monthly Income (SAR)*		
< 5,000	364 (69.6%)	57 (15.7%)
5,000-10,000	98 (67.1%)	21 (21.4%)
> 10,000	136 (75.6%)	29 (21.3%)
	X^2 = 3.211, p-value = 0.201	X^2 = 3.159 , p-value = 0.206
Residence*		
Jeddah	50 (74.6%)	12 (24%)
Makkah	24 (58.5%)	5 (20.8%)
Medina	446 (69.9%)	79 (17.7%)
Other region	78 (75.7%)	11 (14.1%)
	X^2 = 4.824 , p-value = 0.185	X^2 = 2.183 , p-value = 0.535
Employment status*		
Unemployed	182 (73.1%)	34 (18.7%)
Student	237 (70.5%)	31 (13.1%)
Employed	157 (67.4%)	36 (22.9%)
Retired	22 (71%)	6 (27.3%)
	X^2 = 1.893 , p-value = 0.595	X^2 = 7.842 , p-value = 0.049
Having chronic diseases*		
Yes	90 (73.2%)	26 (28.9%)
No	508 (70%)	81 (19.9%)
	X^2 = 0.517 , p-value = 0.472	X^2 = 8.719 , p-value = 0.003
Smoking*		
Yes	32 (65.3%)	9 (28.1%)
No	566 (70.8%)	98 (17.3%)
	X^2 = 0.657 , p-value = 0.418	X^2 = 2.409, p-value = 0.121

*Chi-square test.

was reported less, with only 60% familiar with the risks and benefits of CAM (Table 5) (Figure 1).

Relationship between participant characteristics and mean score of their attitude and awareness of CAM

Most sociodemographic factors showed no significant association with perception, attitude, or awareness scores. However, a significant difference in awareness scores was detected across age groups (p = 0.039). The 35-50 age group had the highest awareness score (3.93 ± 0.90). Employment status was significantly associated with attitude (p = 0.032) and not awareness scores (p = 0.129). Employed participants had the highest attitude scores (3.69 ± 0.97), while retired participants had the lowest (3.27 ± 1.10) (Table 6).

Table 5. *Participant attitude and awareness toward CAM.*

		Count	Layer Column N %	Mean	Standard Deviation
I believe CAM is highly effective	Disagree	39	4.6%		
	Somewhat Disagree	48	5.7%		
	Neutral	160	18.8%		
	Somewhat agree	388	45.7%		
	Agree	214	25.2%		
I believe CAM is safer than conventional medicine	Disagree	95	11.2%		
	Somewhat Disagree	138	16.3%		
	Neutral	242	28.5%		
	Somewhat agree	234	27.6%		
	Agree	140	16.5%		
I prefer using CAM alongside conventional medicine	Disagree	65	7.7%		
	Somewhat Disagree	65	7.7%		
	Neutral	175	20.6%		
	Somewhat agree	278	32.7%		
	Agree	266	31.3%		
I am very satisfied with the outcomes of CAM	Disagree	53	6.2%		
	Somewhat Disagree	47	5.5%		
	Neutral	240	28.3%		
	Somewhat agree	294	34.6%		
	Agree	215	25.3%		
I am familiar with the risks and benefits of CAM	Disagree	67	7.9%		
	Somewhat Disagree	88	10.4%		
	Neutral	185	21.8%		
	Somewhat agree	273	32.2%		
	Agree	236	27.8%		
CAM should be regulated by the health authority	Disagree	45	5.3%		
	Somewhat Disagree	43	5.1%		
	Neutral	165	19.4%		
	Somewhat agree	243	28.6%		
	Agree	353	41.6%		
Perceptions and Attitudes (total)				3.61	0.93
Awareness (total)				3.79	0.97

Discussion

Complementary and alternative medicine has gained significant popularity in recent years among diverse groups of people, despite ongoing concerns about its safety, lack of regulation, and limited high-quality clinical evidence. Many people believe that CAM is "natural" and therefore safe; however, the lack of standard practice and strong scientific evidence can make it very dangerous. Based on this, our study aimed to explore how common CAM use is, as well as people's awareness and attitudes toward it, among adults in the western region of Saudi Arabia. In our study, 70.4% of participants reported CAM use in the past year. This finding is similar to studies conducted in Jeddah, where traditional treatments are commonly used by the general population [17]. Studies from Riyadh also reported comparable results, especially with frequent use of herbal medicine and spiritual practices [18,19]. In Jazan, an even higher percentage (80.9%) of adults reported using herbal remedies [20], while research from Asir showed that traditional therapies are widely practiced there as well [21]. International evidence supports these trends: a multinational survey across nine countries found that over half of adults use CAM [22]. Mixed CAM practices were the most common treatments in our sample. Honey, herbal products, ruqyah, and Zamzam water followed. These results are similar to Jeddah, where herbal and spiritual therapies were common [17]. In Riyadh, prophetic medicine and herbal preparations remain most frequent [18,19]. Research from Jazan and Tabuk also showed high use of herbal remedies among adults and healthcare trainees [20,23]. In contrast, practices such as acupuncture and energy-based therapies were less commonly used, which is consistent with findings from international studies [22]. Our study found clear patterns in the use of CAM, similar to findings from previous Saudi studies. Females were more likely to use CAM in our group, which is in line with results from Riyadh-based family medicine studies reporting higher CAM utilization among women [19]. The majority of CAM users in our study were

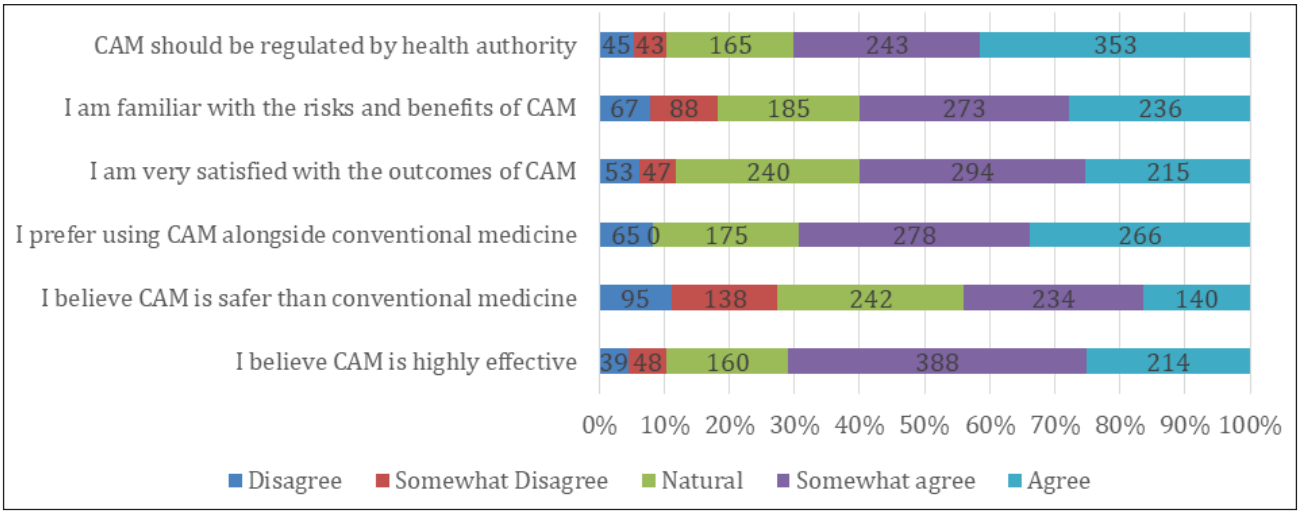


Figure 1. *Participant awareness and attitudes toward CAM.*

Table 6. *Relationship between participant characteristics and mean score of their attitude and awareness of CAM.*

		Perceptions and attitudes		*p*-value	Awareness		*p*-value
		Mean	Standard Deviation		Mean	Standard Deviation	
Gender*	Male	3.59	0.99	0.830	3.76	1.01	0.765
	Female	3.61	0.92		3.80	0.96	
Nationality*	Saudi	3.59	0.93	0.090	3.80	0.96	0.060
	Non-Saudi	3.78	0.91		3.57	1.01	
Age^	18-35	3.61	0.91	0.379	3.77	0.98	0.039
	35-50	3.65	0.98		3.93	0.90	
	50 and more	3.52	0.99		3.60	1.01	
Educational Level^	Primary/Intermediate school	3.46	0.95	0.492	3.85	0.78	0.911
	High school	3.57	0.98		3.76	0.99	
	Diploma	3.79	1.40		3.86	1.49	
	College or higher	3.63	0.91		3.79	0.96	
Monthly Income (SAR) ^	< 5,000	3.64	0.93	0.585	3.78	0.99	0.574
	5,000-10,000	3.55	0.93		3.74	0.97	
	> 10,000	3.57	0.95		3.86	0.90	
Residence^	Jeddah	3.50	0.96	0.551	3.72	1.03	0.075
	Makkah	3.62	0.94		3.50	0.92	
	Medina	3.62	0.94		3.82	0.98	
	Other region	3.57	0.85		3.74	0.89	
Employment status^	Unemployed	3.53	0.89	0.032	3.87	0.93	0.129
	Student	3.64	0.91		3.72	1.01	
	Employed	3.69	0.97		3.85	0.91	
	Retired	3.27	1.10		3.44	1.16	
Having chronic diseases*	Yes	3.45	1.08	0.148	3.82	1.04	0.443
	No	3.63	0.90		3.78	0.96	
Smoking*	Yes	3.41	0.91	0.077	3.61	1.03	0.218
	No	3.62	0.93		3.80	0.96	

*Mann-Whitney U test.
^Kruskal-Wallis test.

young and middle-aged adults, similar to findings from Jazan, where CAM, specifically herbal medicine, was often used among individuals between the ages of 36 and 45 years and was impacted by age-related and cultural factors [20]. Social media and family members were the most frequently referred to sources of CAM knowledge in our study. This pattern is similar to results from other Saudi studies carried out in Riyadh and central regions, where family networks and internet platforms were found to be significant channels for the distribution of

CAM knowledge and awareness [18,19]. One of the study's main findings was the low level of disclosure of CAM use to healthcare providers, with 82.1% of CAM users reporting not consulting or informing a physician prior to usage. This result is similar to prior research done in Saudi family medical settings, which also found that physicians were not fully informed about their patients' CAM practices [19]. The similarities between our results and previous publications point to an ongoing communication gap that could raise the possibility of herb-drug interactions and other safety-related concerns. In terms of sociodemographic associations, our research showed no statistically significant correlation between the use of CAM and factors such as age, gender, income, education level, or employment status. This result is in contrast to previous research from Riyadh that found that age and educational level affected the use of CAM [18], as well as research from Jazan and Asir that revealed demographic factors influenced the use of herbal medicines and associated attitudes [20, 21]. Our study's lack of such correlations raises the possibility that CAM use is more widely dispersed among sociodemographic groups in our population. Overall, participants in our survey had a good attitude about CAM, seeing it as helpful, beneficial, and suitable when combined with mainstream therapy. Previous research from Lebanon found favorable attitudes regarding CAM, emphasizing its complementary role and opposing its use as a substitute for conventional medical treatments [24], which is consistent with our findings. These data suggest that CAM is generally well-accepted in many healthcare settings, especially when judiciously integrated with mainstream medical care. Previous research among medical students indicated less favorable attitudes about CAM, despite substantial agreement on the significance of asking patients about CAM use [25]. Although there was moderate support for adding CAM to medical curricula, students remained uncertain about its usefulness and discouraged its use as a standalone treatment. In contrast to these findings, participants in our study had more positive sentiments, while nevertheless emphasizing cautious integration rather than substitution. Attitudes toward CAM were likewise comparable to those seen in community-based research. Nearly half of the participants thought herbal therapy was better than conventional medications, whereas the majority preferred physician consultation over relying solely on CAM [18]. Similarly, our participants indicated positive evaluations of CAM effectiveness and satisfaction, but perceptions of safety were less favorable, indicating cautious acceptance rather than enthusiastic approval. In line with these findings, a study conducted in the Qassim region found that more than half of healthcare professionals had a positive attitude toward CAM, despite ongoing concerns about safety and potential public health consequences [26]. A multinational survey demonstrates broad public acceptance of CAM as a complementary approach, which supports these tendencies [22].

Limitations

The study's reliance on self-reported online data raises the possibility of selection and recollection bias, as individuals who chose to participate may differ in motivation or interest from those who did not see or respond to the advertisements. Additionally, online recruitment inherently excludes individuals with limited internet access, low digital literacy, or no smartphones/computers. In terms of the geographic composition of our sample, the sample was mainly from the western region. Consequently, while our community-based sample is relatively large, these results may not be generalizable. Prevalence patterns may have been influenced by the high proportion of female individuals. The cross-sectional design restricts the inference of causality. Furthermore, psychological elements that are known to affect CAM use - such as cultural reasons or healthcare dissatisfaction - were not evaluated.

Implications for future research

Future research should assess the therapeutic results and safety of popular complementary and alternative medicine modalities, especially herbal products that can interfere with traditional treatments. To investigate trends of CAM usage over time and factors influencing nondisclosure to doctors, longitudinal and regional research are required. Additional investigation on how social media shapes CAM awareness could support safer, evidence-based CAM procedures and targeted public health initiatives.

Conclusion

This study provides robust evidence on the high prevalence of CAM use among individuals in the western region of Saudi Arabia, supported by a large and well-characterized sample. The findings demonstrate widespread utilization of CAM, accompanied by positive attitudes toward its complementary role alongside conventional medicine. However, reliance on informal sources such as family networks and social media, combined with low rates of disclosure to healthcare providers, highlights a critical communication gap with potential safety implications. CAM use was broadly distributed across sociodemographic groups, suggesting its integration into routine health practices within the community. While the large sample size strengthens the reliability of the findings, generalizability may be limited by the overrepresentation of female participants and unequal geographic distribution, as the majority of the responses are from Medina. Collectively, these results call for targeted public health interventions, improved patient-physician communication, and strengthened regulatory frameworks to ensure the safe and informed use of CAM.

List of Abbreviation

CAM Complementary alternative medicine

Conflict of interest

The authors declare that there is no conflict of interest regarding the publication of this article.

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Consent to participate

Written informed consent was obtained electronically from all participants before completing the survey questionnaire.

Ethical approval

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Supplementary content (if any) is available online.

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