

## Knowledge and Attitude towards Complementary and Alternative Medicine in Najran City

Ali Almansour<sup>1</sup>, Dawood Alyami<sup>2</sup>, Ali Alrashah<sup>3</sup>, Mansour Hussain Alyami<sup>4</sup>, Hassan Al Hutaylah<sup>5</sup>, Majed Ali Masoud<sup>6</sup>, Abdullah Ali Al Dighrir<sup>7</sup>, Mohammed Hassan Alkhamsan<sup>8</sup>, Abdullah Naji Alalhareth<sup>9</sup>, Ojaim Ali Alyami<sup>10</sup>, Ali Ahmed Mohsen Alrashah<sup>11</sup>, Noura Alfaifi<sup>12</sup>, Huda Mohammed Somaily<sup>13</sup>, Hamad Jameel Alyami<sup>14</sup>, Saleh Mohsen Rajab<sup>15</sup>

### Abstract

*Psychosocial, cultural, and religious factors influence the use of complementary and alternative medicine (CAM); therefore, regular investigation of its prevalence and perceptions is essential. This study assessed the prevalence, demographic variations, knowledge, and perceptions of CAM use in Najran, Saudi Arabia. A cross-sectional survey was conducted in November 2024 targeting residents aged 18 years and older in Najran. The survey explored the types of CAM practiced, sources of information, and participants' perceptions of CAM's safety and efficacy compared with conventional medicine. Perceptions were assessed using a three-point Likert scale: Agree, Neutral, and Disagree. This study included a total of 309 participants. The most used CAMs were herbal medicines (32%), massages (25.6%), and physiotherapy (24.3%). Demographic factors such as age, gender, nationality, and education significantly influenced CAM preferences. Higher educational levels were associated with increased physiotherapy, roqia, and acupuncture use. Male participants used cupping (Hijama) more frequently ( $p = 0.005$ ), whereas aroma therapy was more common among older participants ( $p < 0.001$ ). Camel milk and urine therapy were significantly more prevalent among Saudi nationals ( $p < 0.001$ ). While 62.1% of the participants considered CAM safe, perceptions of its effectiveness relative to conventional medicine were mixed. Most participants (50%) reported improving their condition after using CAM. This study underscores the widespread use of CAM in Saudi Arabia, with herbal medicine, massage, and physiotherapy being the most commonly used modalities. Demographic factors, such as age, gender, nationality, and education, play a significant role in shaping CAM usage. While most participants reported positive experiences, their perceptions of CAM's effectiveness compared with conventional medicine varied. These findings emphasize the need for regulated CAM practices and further research to ensure safe and effective integration into healthcare systems.*

**Keywords:** Knowledge and Attitude, Complementary and Alternative Medicine.

### Introduction

Complementary and alternative medicine (CAM) encompasses many techniques, including traditional therapies and herbal medicine, and has gained widespread recognition in recent years (1). The World Health Organization (WHO) defines CAM as the cumulative knowledge, skills, and traditions derived from various cultures' theories, values, and traditions and employed to maintain health (2).

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<sup>1</sup> Department of Quality, Najran Health Cluster, Najran, Saudi Arabia

<sup>2</sup> Department of Pharmacy, Najran Health Cluster, Najran, Saudi Arabia.

<sup>3</sup> Research Administration, Najran Health Cluster, Najran, Saudi Arabia.

<sup>4</sup> Department of Quality, Najran Health Cluster, Najran, Saudi Arabia.

<sup>5</sup> Health Administration, Najran Health Cluster, Najran, Saudi Arabia

<sup>6</sup> Department of Pharmacy, Najran Health Cluster, Najran, Saudi Arabia.

<sup>7</sup> Department of Quality, Najran Health Cluster, Najran, Saudi Arabia

<sup>8</sup> Department of Quality, Najran Health Cluster, Najran, Saudi Arabia

<sup>9</sup> Department of Pharmacy, Najran Health Cluster, Najran, Saudi Arabia

<sup>10</sup> Department of Pharmacy, Najran Health Cluster, Najran, Saudi Arabia

<sup>11</sup> Health Administration, Najran Health Cluster, Najran, Saudi Arabia

<sup>12</sup> Department of Nurses, Najran Health Cluster, Saudi Arabia.

<sup>13</sup> Department of Nurses, Jizan Health Cluster, Saudi Arabia.

<sup>14</sup> Health Administration, Najran Health Cluster, Najran, Saudi Arabia

<sup>15</sup> Department of Health administration Najran health Cluster ,SA

Consumers' religious values are closely linked to their CAM practices. Other than Alhijama (cupping), a component of prophetic medicine, the most prevalent practice in Saudi Arabia is Holy Quran therapy, which involves using honey, black seed, and myrrh (3, 4). Established private clinics have recently introduced contemporary practices such as acupuncture in the Saudi community (5, 6). Relaxation techniques, chiropractic, massage, and homeopathy are the most frequently employed CAM practices in the Western world, in contrast to Saudi Arabia (5, 7-9). Some patients have shifted to CAM because they were dissatisfied with conventional medicine, their belief that it has more adverse effects, and their mistrust of it (10, 11). The increased utilization of CAMs has generated growing interest in their study in numerous countries (12, 13). Even though sufficient scientific evidence supports its use, the percentage of inhabitants who use CAM varies between 9 and 70% (Ernst, 2000). The implementation of CAM in patients with diabetes, cancer, and arthritis has been verified previously (14). Medical personnel must acquire knowledge about CAM because of its widespread use (15). Al-Shaar et al. (16) have also advocated for integrating CAM into the conventional medical system to improve the quality of treatment as part of the WHO universal approach to health. The country has established a CAM with the primary objectives of incorporating a reference center for all CAM-related issues, controlling CAM practices within healthcare facilities, and utilizing evidence-based CAM (5).

Saudi Arabia is the leading Arab country in scientific research on integrative and complementary medicine, as highlighted by a 2015 bibliometric analysis (17). The practice of CAM in the region is strongly influenced by psychosocial, cultural, and religious factors (18), making it essential to assess its prevalence and perception regularly. However, there is limited scientific evidence to support many CAM methods. The growing reliance on CAM for managing chronic conditions, such as diabetes and cancer, further underscores the need for healthcare professionals to understand its applications and limitations. Exploring these aspects is crucial for developing evidence-based guidelines, ensuring patient safety, and improving healthcare delivery. Therefore, this study evaluated the prevalence, demographic variations, knowledge, and perceptions of CAM usage in Najran.

## Methods

Following approval from the Institutional Ethical Committee, a cross-sectional survey was conducted in November 2024 among residents aged over 18 in Najran City.

The study employed an electronic survey containing an information document outlining the study's purpose and required informed consent. The survey comprised demographic questions and a self-administered, closed-ended questionnaire. It was disseminated through Google Forms and social media platforms like LinkedIn and WhatsApp. Participation was voluntary, and implied consent was obtained upon survey completion. Respondents were advised that the survey would require approximately 5-10 minutes.

The survey was adopted from a previous study (19) with slight revisions to improve relevance and comprehensiveness. A pilot sample of 10 residents was used to establish the face and content validity of the draft questionnaire. Based on the piloting feedback, we evaluated the questionnaire to ensure it was easy to read and complete. This electronic survey consisted of four sections. Section A captures demographic information, including age, gender, nationality, education level, and employment status. Section B explored participants' use of and sources of information on CAM, including their background knowledge, types of CAM practiced, and primary sources of information. Section C focused on participants' perceptions of CAM, featuring six statements related to its safety, cost, effectiveness, and potential to treat diseases that modern medicine cannot treat, as well as opinions on the need for licensed centers and willingness to recommend CAM. Responses were collected on a 3-point Likert scale (Agree, Neutral, Disagree), except for the question on recommending CAM, which was binary (yes/no). Section D assessed the participants' experiences with CAM and asked about the outcomes they observed after using these therapies.

The city of Najran, with a population of approximately 608,467 (20), was the focal point of this survey. Using the Raosoft sample size calculator (<http://www.raosoft.com>), the minimum estimated sample size

was 384 individuals. IBM SPSS Statistics version 25 (IBM Corp., Armonk, NY, USA) was used for all the statistical analyses. The significance level was set at  $p < 0.05$ .

## Results

### *Demographic Characteristics of Participants*

In total, 309 participants were included in this study. Most participants were aged 31–40 years (51.8%), followed by 18–30 years (36.2%). Most participants were male (70.2%) and Saudi nationals (58.6%). Regarding education, 53.1% held a university degree, and 16.8% had postgraduate qualifications. A majority (60.8%) reported prior knowledge of

CAMs (Table 1).

### *Types and Prevalence of CAM Usage*

Among the participants, herbal medicine was the most frequently used CAM (32.0%), followed by massage therapy (25.6%) and physiotherapy (24.3%). Cupping (Hijama) and Roqia (Recitation of the Holy Quran) were utilized by 16.8% and 12.0% of the participants, respectively. Other CAM modalities included acupuncture (10.7%), camel milk and urine therapy (9.1%), and apitherapy (bee products, stings, and honey) (6.1%). The least utilized modalities were aromatherapy (6.1%) and cauterization (3.9%) (Table 2). Sources of information about CAM varied, with social media being the predominant source (Figure 1).

### *CAM Usage Based on Demographics*

The analysis revealed demographic differences in CAM use. Herbal medicine was more commonly used by participants aged 41–50 (50.0%) and males (30.9%). Cupping (Hijama) was significantly more common among males ( $p = 0.005$ ), whereas aroma therapy was significantly associated with participants aged 51–60 years ( $p < 0.001$ ) (Table 3). Educational background also influenced the choice of CAM; for instance, Roqia and physiotherapy were more prevalent among participants with university or higher education ( $p < 0.01$ ) (Tables 3 and 4). Massage therapy and physiotherapy were notably more commonplace among participants aged 51–60 years, with usage rates of 60.0% and 40.0%, respectively (Table 3). Massage therapy also demonstrated a significant sex disparity, with females using it more frequently (33.7%) than males (22.1%) ( $p = 0.033$ ). Similarly, camel milk and urine therapy usage was significantly higher in males (11.5%) than in females (3.3%) ( $p = 0.021$ ) (Table 3).

The findings in Table 4 highlight that CAM usage varied significantly according to nationality and education level for certain types. Non-Saudis were more likely to use Roqia (14.0% vs. 5.5%,  $p = 0.050$ ) and cupping (18.2% vs. 12.3%,  $p = 0.240$ ), while Saudis reported a higher usage of camel milk and urine therapy (19.2% vs. 5.9%,  $p < 0.001$ ). Higher educational levels were associated with increased use of physiotherapy ( $p < 0.001$ ), Roqia ( $p = 0.009$ ), and acupuncture ( $p = 0.002$ ).

### *Perceptions About Cams*

Perceptions of CAM safety, cost-effectiveness, and efficacy varied among the participants. While 62.1% agreed that CAM is safe, 57.3% remained neutral regarding its comparative effectiveness with modern medicine. CAMs were perceived as less expensive than conventional medicine by 41.7%, and 67.6% emphasized the need for licensed centers for CAM practices (Table 5). Figure 2 summarizes the participants' experiences after using CAM. The majority (50%) reported improvement, followed by 33%, indicating partial improvement. A smaller percentage (15%) experienced no change, whereas 2% reported a worsened condition after CAM use.

## Discussion

The findings of this study provide valuable insights into the demographics, types, usage, and perceptions of CAMs among Saudi Arabian participants.

The study found that most participants were male and Saudi nationals, with over half holding university degrees. The prevalence of CAM knowledge (60.8%) aligns with previous findings from Saudi Arabia, where awareness and cultural acceptance of CAM practices are high because of traditional and religious influences (4, 21). Similar demographic trends were observed in overseas studies, where younger and more educated individuals were more likely to use CAM, particularly in Middle Eastern contexts (22). A study conducted in Riyadh in 2020 also highlighted that females and participants aged 51–60 years showed significantly higher CAM use ( $p < 0.05$ ), further supporting the influence of demographic factors on CAM adoption (19).

Herbal medicine, massage therapy, and physiotherapy have emerged as the most frequently used CAM modalities, a trend that is consistent with previous Saudi studies (23, 24). The preference for herbal medicine could be attributed to cultural practices and their perceived safety, echoed in global studies where herbal remedies are widely regarded as accessible and effective (25). Social media, the predominant source of CAM information, emphasizes the growing reliance on digital platforms for health-related decisions (26). This trend was also noted in the Riyadh study, where 51% of the participants reported using social media as their primary source of information about CAM (19).

Significant demographic variations were noted, particularly regarding cupping (Hijama), aroma therapy, and camel milk therapy. Cupping was more commonly used by males, corroborating findings from other Saudi studies linking its popularity to religious practices (27). Aroma therapy, often associated with relaxation, was predominantly used by older adults, highlighting its relevance to stress management in this population. Education level is critical in CAM selection, with higher education positively correlating with physiotherapy, acupuncture, and Roqia. These findings align with global studies suggesting that educated individuals are more likely to integrate CAM practices with conventional medicine (28). Notably, camel milk and urine therapy, rooted in cultural traditions, showed a higher usage among Saudis, reflecting the influence of local customs and beliefs.

Perceptions of CAM safety, cost-effectiveness, and efficacy revealed a nuanced understanding among participants. Although most agreed on its safety, a significant proportion remained neutral regarding its comparative effectiveness with modern medicine. These findings align with earlier reports in Saudi Arabia, highlighting a cautious but positive perception of CAM's role in healthcare (29). Globally, similar ambivalence has been observed, where CAM is appreciated for its holistic approach but critiqued for inconsistent evidence of efficacy (30). A study conducted in Riyadh in 2020 found that 40.7% of participants agreed that CAM was safe, and 54.4% considered it less expensive than conventional medicine, reflecting the general view of CAM as a safer and more affordable alternative (19).

The participants' experiences with CAM were generally positive, with most reporting improvement or partial improvement. These outcomes support the integration of CAM with conventional healthcare, provided that it is evidence-based and regulated. The 2% reporting worsened conditions underscores the need for careful consideration of CAM practices and robust patient education to mitigate potential risks (31). A previous report also emphasized the importance of separately focusing on each CAM practice to gather sufficient evidence of their safety and effectiveness (19).

The study underscores the need for licensed CAM centers, as 67.6% of the participants emphasized. This reflects the broader global trend of integrating CAM into formal healthcare systems, as seen in countries such as Japan and China, where regulations ensure safe and standardized practices (32). A previous study further recommended that physicians advise patients to consult experts in CAM and adopt an integrated approach to improve patient welfare (19).

*Strengths and limitations*

This study thoroughly assesses the prevalence, utilization patterns, and perceptions of CAMs, providing valuable insights into the demographic and cultural factors that influence their adoption. It addresses voids in the limited literature on culturally rooted CAM usage by highlighting culturally specific practices in Saudi Arabia, such as Roqia and camel milk.

The results of this study should be interpreted with caution because of its numerous limitations. Initially, the cross-sectional design impeded the establishment of causal relationships between CAM usage and demographic factors. Second, using self-reported data may introduce recall or social desirability bias, particularly in the context of sensitive or culturally specific CAM practices. Third, the study was conducted in a particular region, which restricts the generalizability of the findings to other areas of Saudi Arabia or globally. Finally, the study did not assess CAM practices' clinical outcomes or safety, which necessitates additional research.

*Implications for Practice and Research*

These results offer insights into the demographic and cultural factors influencing CAM use in Saudi Arabia. Healthcare providers should be vigilant of the high prevalence of CAM use and consider it when developing patient-centered care plans. To enhance health outcomes and safety, informing the public about integrating evidence-based CAM practices with modern medicine is imperative. The necessity of regulatory frameworks to guarantee standardized practices is emphasized by robust support for licensed CAM centers from a policy perspective. Future research should concentrate on longitudinal studies to investigate CAM practices' long-term effects and safety, as well as qualitative studies to comprehend patients' expectations and motivations regarding CAM.

**Conclusion**

This study highlights the prevalent utilization of CAMs in Saudi Arabia, with herbal medicine, massage, and physiotherapy being the predominant modalities. Demographic variables such as age, sex, nationality, and education affected CAM preferences. Although many individuals shared favorable experiences, the perceived efficacy of CAM relative to conventional care is mixed. These results underscore the necessity for regulated CAM practices and additional research to guarantee their safe and effective incorporation into healthcare.

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**Table 1. Demographic Characteristics of the Study Participants**

Demographic variables		n	%
Age	18-30	112	36.2%
	31-40	160	51.8%
	41-50	26	8.4%
	51-60	10	3.2%
	>60	1	.3%
	Total	309	100.0%
Gender	Male	217	70.2%
	Female	92	29.8%
	Total	309	100.0%
Nationality	Saudi	181	58.6%
	Non-Saudi	128	41.4%
	Total	309	100.0%
Education level	Primary	49	15.9%
	Intermediate	20	6.5%
	Secondary	24	7.8%
	University	164	53.1%
	Postgraduate	52	16.8%
	Total	309	100.0%
Background knowledge of CAMs	Yes	188	60.8%

	No	121	39.20%
	Total	309	100.0%

Table 2. Various Sources of CAM And Their Usage by Study Participants

Types	n	%
Herbal Medicine	99	32.0%
Massage	79	25.6%
Physiotherapy	75	24.3%
Cupping (Hijama)	52	16.8%
Roqia (Recitation of Holy Quran)	37	12.0%
Acupuncture	33	10.7%
Camel milk and urine therapy	28	9.1%
Apitherapy (Bee product, bee stings and honey)	19	6.1%
Aroma therapy	19	6.1%
Cauterization	12	3.9%

Table 3: Various types of CAMS and their usage by study Participants based on Demographic Profiles

		Age					p value	Gender		p value
		18-30	31-40	41-50	51-60	>60		Male	Female	
Herbal Medicine	Yes	25.9%	33.8%	50.0%	30.0%	0.0%	0.165	30.9%	34.8%	0.501
	No	74.1%	66.3%	50.0%	70.0%	100.0%		69.1%	65.2%	
Cupping (Hijama)	Yes	13.4%	18.1%	23.1%	10.0%	100.0%	0.129	20.7%	7.6%	0.005*
	No	86.6%	81.9%	76.9%	90.0%	0.0%		79.3%	92.4%	
Roqia (Recitation of Holy Quran)	Yes	11.6%	11.9%	19.2%	0.0%	0.0%	0.59	14.3%	6.5%	0.055*
	No	88.4%	88.1%	80.8%	100.0%	100.0%		85.7%	93.5%	
Apitherapy (Bee product, bee stings and honey)	Yes	8.9%	4.4%	7.7%	0.0%	0.0%	0.525	78.9%	21.1%	0.391
	No	91.1%	95.6%	92.3%	100.0%	100.0%		93.1%	95.7%	
Physiotherapy	Yes	23.2%	26.9%	19.2%	10.0%	0.0%	0.654	21.2%	31.5%	0.053*
	No	76.8%	73.1%	80.8%	90.0%	100.0%		78.8%	68.5%	
Acupuncture	Yes	90.2%	88.8%	88.5%	90.0%	100.0%	0.991	7.4%	18.5%	0.004
	No	9.8%	11.3%	11.5%	10.0%	0.0%		92.6%	81.5%	
Massage	Yes	22.3%	24.4%	34.6%	60.0%	0.0%	0.77	22.1%	33.7%	0.033*



	No	77.7 %	75.6 %	65.4 %	40.0%	100.0 %		77.9 %	66.3%	
Aroma therapy	Yes	7.1%	3.8%	3.8%	40.0%	0.0%	0.000* *	6.5%	5.4%	0.734
	No	92.9 %	96.3 %	96.2 %	60.0%	100.0 %		93.5 %	94.6%	
Cauterization	Yes	4.5%	3.8%	3.8%	0.0%	0.0%	0.968	4.6%	2.2%	0.311
	No	95.5 %	96.3 %	96.2 %	100.0 %	100.0 %		95.4 %	97.8%	
Camel milk and urine therapy	Yes	13.4 %	6.9%	7.7%	0.0%	0.0%	0.327	11.5 %	3.3%	0.021*
	No	86.6 %	93.1 %	92.3 %	100.0 %	100.0 %		88.5 %	96.7%	
I have never used CAM	Yes	29.5 %	19.4 %	19.2 %	30.0%	0.0%	0.336	21.2 %	28.3%	0.179
	No	70.5 %	80.6 %	80.8 %	70.0%	100.0 %		78.8 %	71.7%	

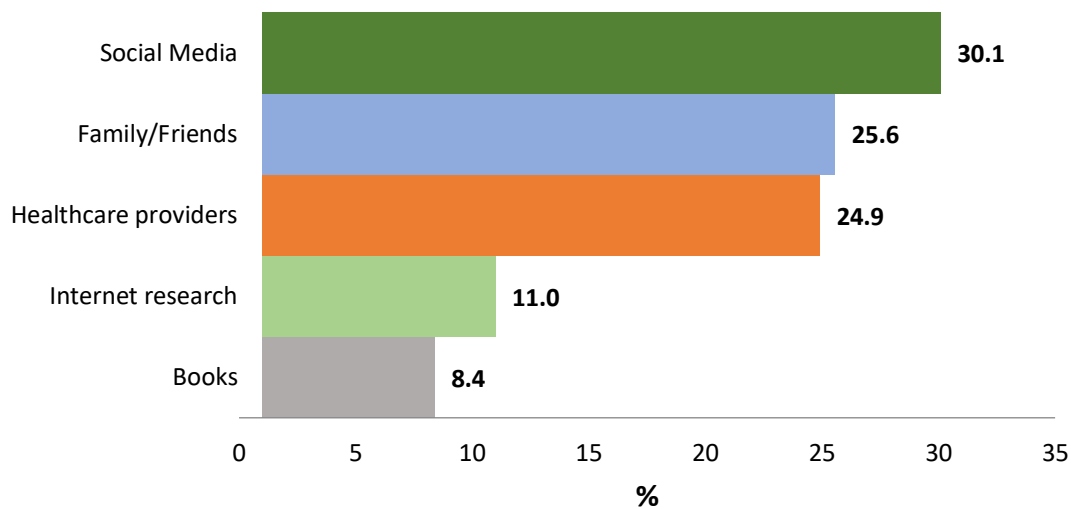


Figure 1. Source of Information from Various Media

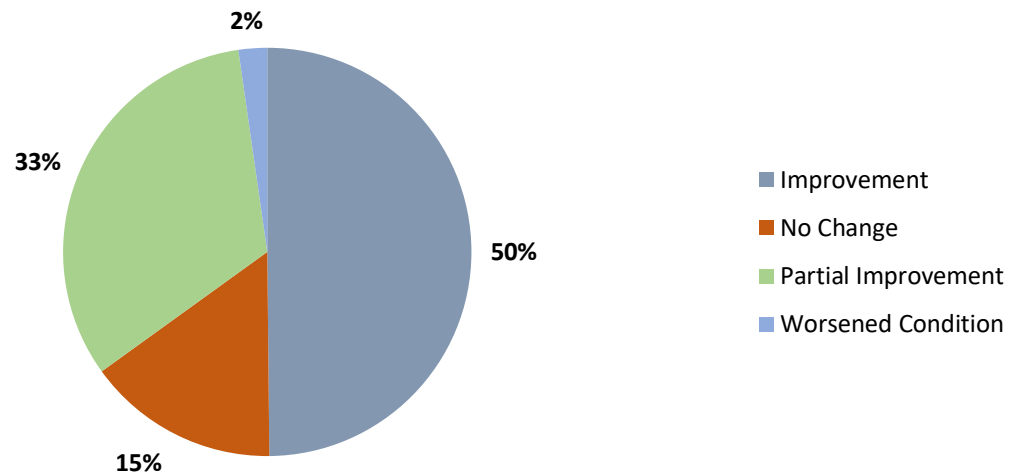


Figure 2. Personal Experiences with CAM

Table 4: Various Types of CAMs And Their Usage by Study Participants Based on Nationality, And Education

Types of CAMs		Nationality			Education		
		Saudi	Non-Saudi	p-value	≤ Secondary	University	p-value
Herbal Medicine	Yes	28.8	33.1	.493	29.7	33.7	.456
	No	71.2	66.9		70.3	66.3	
Cupping (Hijama)	Yes	12.3	18.2	.240	10.2	21.5	.008
	No	87.7	81.8		89.8	78.5	
Roqia (Recitation of Holy Quran)	Yes	5.5	14.0	.050	6.3	16.0	.009
	No	94.5	86.0		93.8	84.0	
Apitherapy (Bee product, bee stings and honey)	Yes	9.6	5.1	.161	7.8	5.0	.306
	No	90.4	94.9		92.2	95.0	
Physiotherapy	Yes	23.3	24.6	.822	34.4	17.1	<.001
	No	76.7	75.4		65.6	82.9	
Acupuncture	Yes	13.7	9.7	.339	17.2	6.1	.002
	No	86.3	90.3		82.8	93.9	
Massage	Yes	21.9	26.7	.414	29.7	22.7	.163
	No	78.1	73.3		70.3	77.3	
Aroma therapy	Yes	11.0	4.7	.050	9.4	3.9	.047
	No	89.0	95.3		90.6	96.1	
Cauterization	Yes	4.1	3.8	.909	2.3	5.0	.239
	No	95.9	96.2		97.7	95.0	
Camel milk and urine therapy	Yes	19.2	5.9	<.001	11.7	7.2	.171
	No	80.8	94.1		88.3	92.8	
I have never used CAM	Yes	17.8	25.0	.204	25.8	21.5	.386
	No	82.2	75.0		74.2	78.5	

Table 5. Perception About CAMS Among Study Participants and Demographic Profile

Perception about CAMS	Categories	Overall		Age p	Gender p	Nationality p	Education p
		n	%				
Is it safe to use alternative medicine?	Agree	192	62.1	.049	.013	.922	.011
	Disagree	16	5.2				
	Neutral	101	32.7				
Less expensive than modern medicine	Agree	129	41.7	.035	.436	.027	.030
	Disagree	30	9.7				
	Neutral	150	48.5				
CAMS more effective than modern medicine	Agree	85	27.5	<.001	.083	<.001	.901
	Disagree	47	15.2				
	Neutral	177	57.3				
Able to treat diseases of inability to treat by medicine	Agree	90	29.1	.048	.001	<.001	<.001
	Disagree	80	25.9				
	Neutral	139	45.0				
Need for licensed centers or clinics	Agree	209	67.6	.413	.192	.371	.045
	Disagree	19	6.1				
	Neutral	81	26.2				
Recommended to use	Yes	240	77.7	.112	.664	.661	.158
	No	69	22.3				