

# Prevalence of Utilization of Alternative Medicine among Dental Patients in Riyadh, Saudi Arabia

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## Abstract

**Objectives:** This study assessed the prevalence of complementary/alternative medicine (CAM) use among dental patients in Riyadh. **Methods:** This cross-sectional study surveyed dental patients attending King Saud University Dental Hospital in Riyadh, KSA. The questionnaire included a consent form, questions on demographics, patients' medical status, CAM types used for medical and/or dental conditions, patients' assessment of their effects, and patients' opinion on CAM as a choice of treatment. Use of CAM was compared by gender and by health status. **Results:** There were 373 respondents. More than one-third had tried CAM, with a significant difference between the genders ( $P < 0.001$ ), whereas 43.1% reported use of CAM by their friends and relatives. Statistical significance was found in individuals reporting poor health status with the use of both herbs and wet-cupping (Hejama) ( $P < 0.05$ ). Use of CAM for dental/oral conditions was reported by 31.2%, mainly for dental pain. Use of CAM for oral conditions by males approached statistical significance ( $P = 0.056$ ). Most (83.8%) agreed with the suggestion of combining CAM with conventional medicine in hospital settings. **Conclusions:** Thus, more than one-third of patients attending a university dental clinic used CAM for various reasons and agreed with the suggestion of combining CAM with conventional medicine in hospital settings. It is essential to raise the public's awareness of CAM.

**Keywords:** Awareness, Complementary and Alternative Medicine, Dental patients, Saudi Arabia.

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## I. INTRODUCTION

Over hundreds of years, alternative traditional medicine has been used widely by humans for the prevention and treatment of many conditions [1]. These traditional treatments continue to be used in the current era, as an extension of this history [2]. Complementary or alternative medicine (CAM) refers to all health-related treatments outside of conventional medicine and are usually undertaken without the supervision of a certified physician [2, 3]. The National Center for Complementary and Alternative Medicine (NCCAM) has proposed five domains of CAM: 1) Alternative medical systems, such as Traditional Chinese Medicine and Ayurveda, 2) Mind-body interactions, such as prayer and art therapies, 3) Biologically based therapies, such as dietary supplements and herbs, 4) Manipulative and body-based therapies, such as massage, and 5) Energy medicine, such as bio-electromagnetic-based therapies [4, 5]. Recently, the concept of CAM, particularly mind-body therapies, has gained popularity, not only among the older, but also

among the younger population [6]. CAM is used for a variety of purposes, including prevention, immune boosting, unavailability and unsatisfactory results of prescribed conventional medication [3]. It is reportedly also used by patients with chronic medical conditions, due to the poor response to prescribed medications [7, 8].

Unconventional dentistry, first proposed by Goldstein in 2000, is "a broad set of health care practices that are not readily integrated into the dominant health care model, because they pose challenges to diverse social beliefs and practices (cultural, economic, scientific, medical, and educational) [9]." Only a few studies have investigated the use of CAM for dental issues, such as temporomandibular disorders, toothache, and caries [3, 10-12]. Nevertheless, there has been a focus on studying the effect of CAM in oral conditions. The effect of aloe vera (AV) on oral lichen planus was reported by Choonhakarn *et al.*, in 2008 [13].

Moreover, Spector *et al.* noted the high frequency of use of tea tree oil as a topical herb for oral contact dermatitis [11]. Additionally, use of herbal or natural cleaners for teeth and tongue together with mouthwashes are different approaches of CAM usage in oral hygiene measures [2]. Chewing sticks or miswak is another popular hygiene approach that has been habitually used mostly by Muslim communities [2, 14]. Significantly, a high prevalence (> 70%) of CAM usage has been estimated in the literature of Saudi Arabia [15]. Interestingly, CAM in the form of hypnosis and aroma therapies was even used by dentists themselves for relaxation and stress relief [8].

The uniqueness of the types of CAM used varies according to geographic location [1]. For example, eugenol from clove oil has been used in India for centuries [16]. Before extracting eugenol from clove oil, cloves were used for dental problems in its raw form since the 16<sup>th</sup> century. Eugenol has anti-inflammatory, analgesic, and anti-fungal properties [17, 18]. Therefore, many dental materials contain eugenol as a base, with zinc oxide eugenol being the best known [19]. Furthermore, incorporation of CAM into the curriculum of dental schools would offer a better understanding of the topic and thereby allow more comprehensive treatment [8]. This could result in reducing the financial expenses associated with conventional medication and reducing the potential of resistance to antibiotics that are prescribed excessively by dentists [20].

Although the prevalence of CAM use in Saudi Arabia is markedly high [15], there have been no previous reports on the effectiveness of this approach in the field of dentistry. To address this matter, it is first necessary to assess the prevalence of CAM use among dental patients and to study the factors influencing patients' choice of treatment. Therefore, the purpose of this study was to assess the prevalence of CAM use among dental patients attending a dental clinic at King Saud University and to identify the relationship between patients' characteristics and the different

alternative therapies used for various medical and dental conditions.

## II. METHODOLOGY

The study protocol was approved by the Institutional Review Board and ethical clearance was obtained from the institutional ethical committee of King Saud University.

This cross-sectional study was conducted from September 2016 to September 2017. The study included individuals above 20 years of age, attending King Saud University Dental Hospital in Riyadh, Saudi Arabia. A structured self-reporting questionnaire was completed by participants selected by convenience sampling. The questionnaire was handed to willing individuals in the waiting area prior to their dental treatment. Each respondent completed the questionnaire confidentially and anonymously, with sufficient time given for each participant to fill out the questionnaire. For illiterate participants, the questionnaire distributors performed interviews. The questionnaire consisted of 26 questions, divided into five sections: 1) Demographic information, 2) patient's general health and medical status, 3) information on previous use of different CAM types for medical conditions, 4) information on previous use of different CAM types for dental conditions, and 5) individual's opinion of their experience with CAM use.

The collected data were analyzed using SPSS v.22.0 (IBM Corp., Armonk, NY, USA). Statistical analysis consisted of descriptive techniques to summarize and identify trends in CAM usage. The standard chi-square test of independence was used to assess whether the CAM usage differ significantly with demographic data. The t-test was used for continuous data. Repeated measures analysis will be used to determine the frequency of each variable. P-values < 0.05 were considered significant.

## III. RESULTS

In total, 373 survey forms with complete information were analyzed. The demographic data of participants are summarized in Table 1.

**Table 1: Description of the sample by Demographic Data**

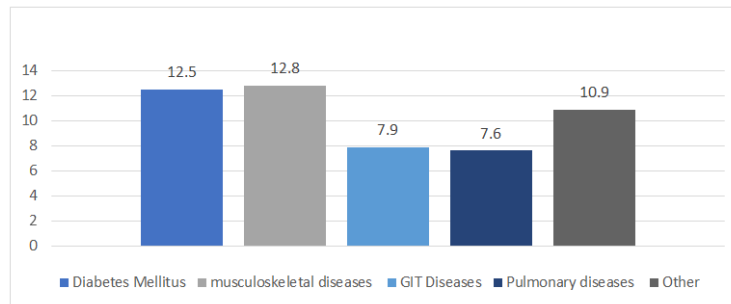
Characteristic	No.	%	
<b>Gender</b>	Male	111	29.8
	Female	262	70.2
<b>Age</b>	20-30	182	48.9
	30-40	89	23.9
	40-50	53	14.2
	50-60	28	7.5
	> 60	19	5.1
<b>Education Level</b>	Illiterate	14	3.8
	> High school	48	12.9
	High school	103	27.8
	College	180	48.6
	Above college	25	6.8
<b>Social Status</b>	Single	151	41.3

Characteristic	No.	%	
	Married	189	51.6
	Other	26	7.1
<b>Occupation</b>	Student	73	21.5
	Housewife	92	27.1
	Work in government	79	23.2
	No job	53	15.6
	Other	43	12.7
<b>Socioeconomic Status</b>	< 5000	127	43.3
	5000 - 10000	107	36.5
	> 10000	59	20.1

More than two-thirds of the participants were females (70.2%). The 20–30-year age group was predominant, followed by the middle-age group (30–40 years), while those above 50 years of age accounted for about one-eighth of the sample. College education was reported by almost half of the sample, followed by about one-quarter with high school level education. More than half of the subjects were married, while about 40% were single. More than one-quarter of the sample reported being housewives, about one-fifth were

students, and about 15% were unemployed. More than two-fifths reported a low monthly income (< 5000 S.R.).

In terms of health status, a similar proportion of subjects had diabetes mellitus and musculoskeletal diseases (12.5% and 12.8%, respectively). A similar percentage of subjects reported having gastrointestinal and pulmonary diseases (7.9% and 7.6%), respectively, as shown in Figure 1.



**Figure-1: Bar Chart representing the Subject's Health Status**

Regular use of CAM was reported by more than one-third of the sample, while more than two-fifths reported that people around them have used CAM. The use of special items recommended in Arabic/Islamic tradition, such as olive oil, black seeds, honey, and roquia were reported by more than two-fifths of the subjects, followed by the use of wet-cupping (Hejama)

among almost one-fifth of the subjects. Use of herbs reported by (17.3%), and physiotherapy/massage (14.7%). Treatment by water/special diet was used by about one-eighth of the sample. Other types of CAM were each used by less than 5% of the subjects (Table 2).

**Table-2: Description of sample by Health status, and Types of CAM used**

Characteristic	No.	%	P-value
<b>Health status:</b>			
Good	261	72.7	-----
Moderate	92	25.6	-----
Not good	6	1.7	0.022 <sup>*1</sup>
<b>Have medical disease:</b>			
Diabetes	46	12.5	0.000 <sup>*2</sup>
Musculoskeletal diseases	47	12.8	0.000 <sup>*2</sup>
CVD	47	12.3	-----
GIT	29	7.9	0.000 <sup>*2</sup>
Pulmonary diseases	28	7.6	0.000 <sup>*2</sup>
Others	40	10.9	-----
<b>Have heard about CAM</b>	281	76.6	-----
<b>Have used CAM</b>	125	34.2	0.000 <sup>*3</sup>
<b>Relatives\Friends used CAM</b>	156	43.1	0.000 <sup>*3</sup>
<b>Most common type of CAM used:</b>			
Arabic/Islamic tradition remedies	132	43.0	0.031 <sup>*4</sup>

Wet Cupping (Hejama)	56	18.2	0.012 <sup>*5</sup>
Herbs	53	17.3	.003 <sup>*6</sup>
Physical therapy and massage	45	14.7	-----
Treatment by water/special diet	37	12.1	-----
Acupuncture	10	3.3	-----

<sup>\*1</sup> Statistically significant with not used CAM

<sup>\*2</sup> Statistically significant with male gender and older age group

<sup>\*3</sup> Statistically significant with male gender and older age group

<sup>\*4</sup> Statistically significant with male gender and older age group

<sup>\*5</sup> Statistically significant with male gender and older age group

<sup>\*6</sup> Statistically significant with age group, occupation and health status

Treatment by CAM for medical diseases was used by about two-fifths of subjects, whereas use of CAM for dental/oral conditions was reported by about one-third of the sample. The treated medical conditions include gastrointestinal tract disturbances, flu and colds, headaches, back and joint pain, and menstrual pain.

Almost one-third of subjects indicated using CAM to control dental pain. Materials such as cloves, garlic, normal saline, murrah, olive oil, and honey were used to treat various dental or oral conditions, as shown in Table 3 and Figure 2.

**Table 3: Description of sample by reasons for using CAM and their experience**

Characteristic	No.	%	P-value
<b>Condition used CAM for:</b>			
Medical	123	40.5	0.002 <sup>*1</sup>
Dental\ oral	94	31.2	0.056 <sup>*2</sup>
<b>Types of dental\oral condition:</b>			
Dental pain	93	32.0	-----
Oral ulcers	25	8.6	-----
Bleeding gum	23	7.9	-----
Teeth Whitening	15	5.2	-----
<b>Results obtained after using CAM:</b>			
Less symptoms	85	29.0	0.003 <sup>*3</sup>
Less pain	58	19.8	0.003 <sup>*3</sup>
Condition cured	24	8.2	-----
No effect	31	10.6	-----
<b>Reasons for using CAM:</b>			
Treatment	88	29.3	-----
Prevention	25	8.3	-----
Both	82	27.3	-----
<b>Experience with use of CAM:</b>			
Positive	156	53.6	0.039 <sup>*4</sup>
Negative	27	9.3	-----
No effect	35	12.0	-----
<b>Opinion after using CAM compared to regular medicine:</b>			
More effective (sometimes)	137	46.0	0.039 <sup>*4</sup>
Natural	146	49.2	0.002 <sup>*5</sup>
Less side effects	66	22.2	0.005 <sup>*5</sup>
Available	55	18.5	0.008 <sup>*5</sup>
No tests required	45	15.2	-----
<b>Medical consultation required to use CAM:</b>			
Yes	39	13.4	-----
Sometimes	88	30.2	-----
<b>Agree for combining CAM with regular medicine in hospitals:</b>			
Yes, agree	244	83.8	0.033 <sup>*6</sup>
Do not agree	47	16.2	0.028 <sup>*7</sup>

<sup>\*1</sup> Statistically significant with male gender, older age and middle socioeconomic status

<sup>\*2</sup> Almost Statistically significant with male gender

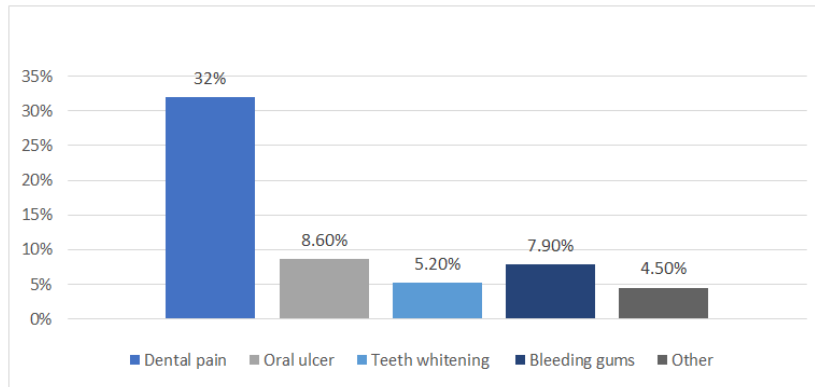
<sup>\*3</sup> Statistically significant with age group

<sup>\*4</sup> Statistically significant with socioeconomic status

<sup>\*5</sup> Statistically significant with gender, age group and education level

<sup>\*6</sup> Statistically significant with middle education level

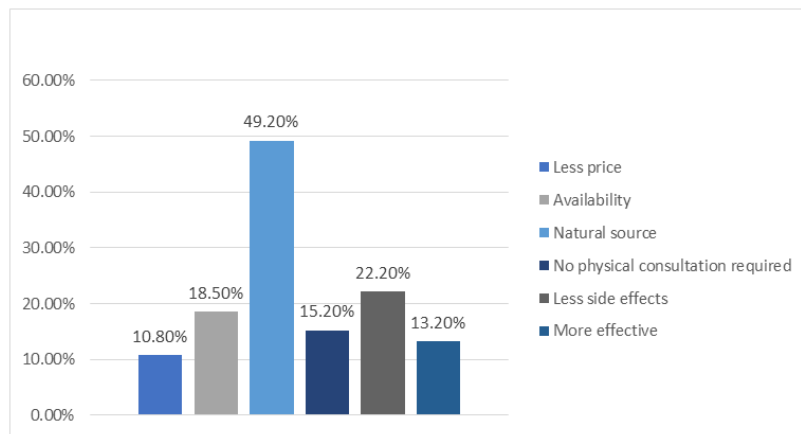
<sup>\*7</sup> Statistically significant with above college education and high socioeconomic status



**Figure 2: Bar Chart representing the Dental and Oral conditions treated by CAM**

A positive effect after use of CAM was indicated by more than half of subjects. These included having fewer symptoms or pain by almost two-thirds and two-fifths of subjects, respectively. The preference for using CAM among about half of subjects was due to

it being a more natural approach, while two-fifths preferred it because it caused fewer side effects. About one-fifth and about one-tenth of subjects preferred CAM because it was available and inexpensive (Figure-3).



**Figure 3: Bar Chart representing the Reasons for using CAM among the Sample**

Only about one-eighth believed that there was a need for medical consultation prior to the use of CAM. More than four-fifths of subjects agreed with the suggestion of combining CAM with conventional medicine in hospitals (Table-3).

#### IV. DISCUSSION

This study investigated the use of CAM among dental patients in Riyadh. We found that more than one-third of patients attending a university dental clinic used CAM for various reasons and agreed with the suggestion of combining CAM with conventional medicine in hospital settings.

The use of CAM varies widely, with different approaches among countries and populations. It can be affected by the traditions and beliefs of people in particular geographic areas. More than one-third (34.2%) of subjects in the present study used CAM. This result is comparable to the results from previous international studies, such as 34% in the United States, 48.5% in Australia, 23% in Denmark, and 49% in

France [4]. Other studies reported a higher prevalence of use among their population, such as the Indian (68.8%) [3] and German (62%) [12] populations, respectively. Al-Faris *et al.*, in 2008, reported a prevalence of 73% of CAM use among households in Riyadh, Saudi Arabia [15].

Saudi Arabia holds a rich Arabic/Islamic heritage that greatly influences the lifestyle of its community [21]. This was reflected by the reasonably high percentage of Arabic/Islamic-recommended remedies used in this study population (43%), which showed a statistically significant association ( $P = 0.031$ ) with male gender and older age groups. Similarly, Hejama ( $P = 0.012$ ), also known as wet-cupping therapy, is one of the traditional treatments recommended in the Arabic/Islamic culture [22, 23]. Use of Hejama was significantly more commonly reported among both older and young individuals ( $P = 0.007$ ) in the present study. The use of Hejama by older individuals was not surprising, as it reflects their respect for and admiration of tradition and culture.



Nevertheless, it seems that traditional therapies are also gaining some popularity among the younger generation and hence their use of Hejama [6]. In contrast, physiotherapy and massage were less commonly used in this study (14.7%) than in other studies. In Western countries [7, 11] previous similar studies reported 18.1% and 18.7% rates of massage use as a CAM in the United States. The reason behind this variation is possibly the unpopularity of massage therapy in Saudi Arabia. This was also consistent with a previous study conducted by Al-Faris *et al.*, among a Saudi Arabian population [15].

Use of herbs among the study sample showed a statistically significant association with older age ( $P = 0.024$ ), male gender ( $P = 0.031$ ), lower educational level ( $P = 0.003$ ), occupation ( $P = 0.014$ ), and social status ( $P = 0.034$ ). However, no statistically significant association ( $P > 0.05$ ) of physiotherapy with any demographic parameter was found.

In this study, males used CAM significantly more often than females ( $P < .001$ ). This finding can be justified by the increase in periodontal bleeding and the fewer oral hygiene measures performed by men [26]. The use of CAM among individuals working in private sectors was significantly higher than among those working in government sectors. This may be because these individuals receive lower salaries and thus may not be able to afford the expenses associated with some conventional medications [23]. Another significant finding is that CAM usage was reported more commonly among the 20–40-year age group than among older age groups. This can be attributed to their economic status, as they might not be as financially stable as older individuals and thus may not be able to bear the costs of the prescribed conventional medications. Al-Faris *et al.*, explained the wide usage of CAM among patients with systemic diseases by multiple factors, such as the favorable outcomes of CAM in treating diseases, the lack of success of conventional medical treatment, as well as the patient's disapproval of their physician's diagnosis. This was similar to our findings, where participants justified the increase in CAM use by their belief in its beneficial effects.

Previous studies have verified the efficacy of a number of these agents [25] and recommended combining CAM with the conventional healthcare [24]. Most of the study participants (83.8%) of the study participants agreed that CAM should be combined with conventional medicine in hospital settings, and this was statistically significantly associated with a middle education level ( $P = 0.033$ ). Interestingly, participants with above college education and a high socioeconomic status rejected this suggestion ( $P = 0.028$ ).

CAM was widely used by participants in our study as a primary and supplementary treatment for

multiple oral problems by patients living in Riyadh, Saudi Arabia. The popularity of CAM must be acknowledged and educational programs must be implemented to enhance the dentists' knowledge about its correct application, potential side effects, and its contraindications [24]. Since only 13% of the participants believed in seeking medical consultation prior to the use of these agents, awareness campaigns are essential to educate the public about the risks and to ensure that patients will seek medical consultation before utilizing these agents. This indicates the need for further studies regarding physician and dentist knowledge on CAM therapy and its interactions with modern medicine. It is also essential to raise the public's awareness of CAM.

## V. CONCLUSION

As with the majority of studies, our study also has some limitations which should be addressed in future studies. First, the lack of male participants in comparison to the female participants. Second, the lack of ability to gain access to other regions of Saudi Arabia to include them in the study sample. Furthermore, we suggest raising the public's awareness regarding the risks and benefits of CAM through educational programs.

And combining it with conventional therapies. Furthermore, incorporation of CAM into the curriculum of dental schools would offer a better understanding of the topic and thereby provide a more comprehensive treatment [8]. This could result in lowering the financial expenses of the conventional medications and reducing the potential of antibiotics resistance that are prescribed excessively by dentists [20].

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