

Using Herbal Medicine for Dental Pain in Saudi Arabia: Prevalence and Knowledge Assessment

Comment [NA1]:

ABSTRACT

Background: The dental community has started to use natural plant properties to relieve dental pain. Besides their significant serious side effect, Herb's ingredients should be chosen wisely. However, many studies are conducted to find out the herb's information due to the lack of randomized controlled clinical trials. The aim of this study was to assess the prevalence and the knowledge of the effect of using herbal medicine for dental pain among the Saudi population.

Methodology: An observational cross-sectional study was conducted in Saudi Arabia between September 2020 and October 2021, based on a structured questionnaire among Saudi populations. Structured self-administrated questionnaires in English and Arabic languages were used as a study tool. The Authors collected the information using social media channels through geegleGoogle forms. SPSS 26 was used for data entry and data analysis.

Results: The study included 4213 participants. 25% of the study sample were males and 75% were females. 51.6% aged between 20- 30 years old. 61.8% of all participants used herbs to relieve toothache (82% of them used clove or clove oil and 36% used thyme). Think herbs are safe and free from side effects in treating toothache. 8% noticed side effects or damage while using herbs to relieve dental pain (27% of them experienced swelling, 21% sharp stomach pain, 21% hypersensitive and 17% bleeding).

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Conclusion: The Saudi population shows a relatively good knowledge level and practice towards herbs use in dentistry. The use of herbs to relieve toothache was significantly associated with female gender, age, residence area in western region and average monthly income.

Comment [NA3]: Herbs used/ use of herbs

Keywords: Herbal Medicine, Dental Pain, Natural Plant.

1. INTRODUCTION

Herbal medicine or Traditional medicine (TM) is known as “complementary and alternative medicine” (CAM) in some countries. The World Health Organization (WHO) defines TM as “the knowledge, skills, and practices based on the theories, beliefs, and experiences indigenous to different cultures” [1]. Herbal medicinal products are a common component of CAM [2]. The Knowledge among Arabs relies on centuries of faith, observations, and a wealth of history in medicine [3]. The dental community has started to use natural plant properties to relieve dental pain [4]. Although, their prognosis of medicinal plant could be delayed, but its healing impact is miraculous [5].

On the other hand, traditional home solutions and medical data aid from ~~google~~Google have been used during the COVID 19 pandemic lock-downs at critical times by patients at home for emergency oral problems and dental pain relief [6]. However, there are still limitation in evidence that prove their applications and implication [4]. The history of traditional medicine can be traced back to early civilizations, which were shared with the next generation since they were a significant source of healthcare. Traditional medicine was used to cure medical problems; however, an increasing trend of TM in dentistry was performed to reduce tooth pain, oral mucosal illnesses, and periodontal inflammation [7].

According to the WHO, 80% of people throughout the world depend on their basic health needs on herbal medicine. 25 percent of medical medicinal products are derived from plants in developed countries [8]. The Prevalence of using complementary alternative medicines (CAM) increases. In 1990, this frequency of adults in the US reached 33.8% and years later to 42.1%. ~~As far as individuals are concerned, from 1990 to 1997~~ [9]. Herbs have been often used to control and prevent dental diseases for decades. Herbal extracts are useful as they react inside the body with certain chemical receptors. Herbal medications have minimal adverse effects, but side effects do exist ~~c~~Compared with conventional drugs. The main issue and concern is the shortage of knowledge on the effects of herbal medicine on the oral cavity [10]. In the limited resources region, the prevalence of illness rate has been increased, and that is the reason why the therapeutic methods with their alternative prevention ~~that are considered safe, efficient and affordable~~ are in high demand worldwide for dental disorders ~~that are considered safe, efficient and affordable~~ [11]. Moreover, antibiotic resistance is a result of the frequent consumption of contemporary medications. So, alleviating or suppressing serious disorders by dietary supplements derived from herbs are progressively being integrated to maintain body and dental health [12]. Thus, the studies for substitute options continue, with natural phytochemicals obtained from plants used in traditional medicine being considered excellent substitutes for synthetic compounds [11].

Even though, before CAM product utilization for oral health, dentist consultation should be taken to decrease adverse impact and unpredictable interaction of medication, even if it has a wide range of treatments throughout the world [13]. The reason for conducting this topic is that in the field of dentistry, a favorable outcome manifestation with the herbal medicine usage [14] compared with chemical components drug [15]. Several previous studies in dentistry about the benefit of herbal medicinal products claim that herbal products could be employed as alternative medicinal drug materials. Worldwide, mainly in regions with limited resources, an alternative and herbal remedy can be a beneficial aid to the people [14].

Besides their significant serious side effect, Herb's ingredients should be chosen wisely [2]. However, many studies are conducted to find out the herb's information due to the lack of randomized controlled clinical trials [16]. The aim of this study was to assess the prevalence and the knowledge of the effect of using herbal medicine for dental pain among ~~the~~ Saudi population.

2. MATERIAL AND METHODS

This is an observational cross-sectional study ~~that~~ was conducted in Saudi Arabia between September 2020 and October 2021- based on a structured questionnaire among Saudi populations. The study's population consisted of Saudi males and females, ~~who were~~ using herbal medicine ~~and were~~ within the age group ~~of 20-80 years-old~~ and individuals who agree to participate in the study, from all regions of the kingdom of Saudi Arabia. ~~Individuals Adolescence-younger than 20 years-old and older than 80 years-old Saudi males and females~~, the individuals who have psychological disorders and who disagree to participate in the study were excluded. The sample dimensions were calculated with a calculator Qualtrics of 95%, a sample size of 384.

Data collection and tool:

Structured self-administrated questionnaires in English and Arabic languages was used as a study tool. ~~The~~ Authors collected the information using social media channels through ~~google~~Google forms. The questionnaire includes demographic features such as (age, gender, educational level and income status). However, the questions ~~were~~are about assessing the knowledge about herbs, the use of herbal medicine and the source of recommendation to use them. The participants ~~were~~ asked to list any natural herbs they currently use, additional questions about systemic health and if the participant is currently diagnosed with any medical condition, and if they are using over-the-counter medication. The last part aimed at assessing the participant's knowledge about the side effects of some of the most used herbs in Saudi Arabia. This includes clove oil, ginger, garlic, and myrrh, etc.

Statistical analysis:

SPSS 26 was used for data entry and data analysis. Descriptive statistics: Categorical variables including primary variables was described using frequencies and Continuous variables for normally distributed data was described using mean and SD. Inferential statistics: Univariate analysis was conducted for categorical variable using Chi-square test to check for all the possible risk factors The prevalence was given in percentage with 95% confidence level. Tests with a P-value < 0.05 was considered significant.

3. RESULTS

According to table (1); The study included 4213 participants. 25% of study sample were males and 75% were females. 51.6% aged between 20- 30 years old. 32% of all participants were from western region in the kingdom. Only 67% had a university education. 90% live in the city and 10% live in a village. 44.1% had low family income, 16.4% moderate and 16.2% had a high income.

In table (2) ~~describes~~; 61.8% of all participants use herbs to relieve toothache (82% of them use clove or clove oil and 36% use thyme). During the COVID-19 ban period, herbs were used as an emergency solution to relieve dental pain by 39.6% of participants. (Figure 1)

84.2% have Relatives and friends ~~who~~ use herbs for toothache relief. 62.8% Advise relatives and friends to use herbs to relieve toothache. 73.1% of participants reported that Level of pain or inflammation decreased after using herbs while 8.7% reported increased Level of pain or inflammation after using herbs. 54.4% of all participants ~~t~~think herbs are safe and free from side effects in treating toothache. 8% noticed side effects or damage while using

Comment [NA4]: A majority of the participants (51.6%) were aged between 20- 30 years old, and the majority (32%) of all participants were from the western region in the kingdom.

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herbs to relieve dental pain (27% of them experienced swelling, 21% sharp stomach pain, 21% hypersensitive and 17% bleeding).

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Regarding source of information about herbal medicine, 74% reported relatives and friends as source of information, 42% old habits, 23% social media and only 1% reported dentist as source of information.

table (3) describes that the use of herbs to relieve toothache was significantly associated with gender, age, residence area and average monthly income.

Table 1. Sociodemographic characteristics of participants (n=4213)

Parameter	No.	Percent	
Gender	Male	1052	25.0
	Female	3161	75.0
Age	Less than 20	752	17.8
	20 - 30 years old	2176	51.6
	31 - 40 years old	620	14.7
	41 – 50 years old	459	10.9
	51 - 60 years old	175	4.2
	More than 60	31	.7
	Residence area	Southern area	391
Eastern Region		680	16.1
The northern area		877	20.8
Western Region		1354	32.1
Central Region		911	21.6
Education level	uneducated	9	.2
	primary	32	.8
	Middle school	95	2.3
	secondary	1021	24.2
	university	2823	67.0
	advanced studies	233	5.5
Average monthly household income (in Saudi riyals)	less than 5000	1859	44.1
	From 5000 - 10,000	692	16.4
	from 10,000-20,000	681	16.2
	more than 20,000	981	23.3
Accommodation type	village	417	9.9
	City	3796	90.1

Table 2. Knowledge of participants of Herbal Medicine for Dental Pain among study participants (n=4213).

Parameter	No.	Percent	
Use herbs to relieve toothache	Yes	2602	61.8
	No	1611	38.2
If the answer is (yes), what is it?	Clove or clove oil	2143	0.82
	time	946	0.36
	go air	146	0.05
	turmeric	86	0.03
	thyme	47	0.01
	Rinse with salt and water	2	0.00
	chamomile	112	0.04
	Peppermint oil	94	0.03
	ginger	138	0.05
	the salt	22	0.00
	the Garlic	181	0.06
	kabo	1	0.00
	smoke	1	0.00
	screw	10	0.00
	loan	4	0.00
Other	16	0.00	
Source of information about the use of herbs to relieve toothache	Relatives and family	3119	0.74
	old habits	1783	0.42
	Social media	990	0.23
	Dentists	432	0.10
	Use without any information	149	0.03
Relatives and friends use herbs for toothache relief	Yes	3548	84.2
	No	665	15.8
Advise relatives and friends to use herbs to relieve toothache	Yes	2646	62.8
	No	1567	37.2

Level of pain or inflammation decreased after using herbs	Yes	3081	73.1
	No	1132	26.9
Pain or inflammation increased after using the herbs	Yes	365	8.7
	No	3848	91.3
Co-morbidities	diabetes	4	0.04
	heart disease	63	0.01
	Digestive disorders	221	0.05
	Hypertension	158	0.03
	other	225	0.05
	nothing	3509	0.83
If yes for a previous disease, is there side effects when using herbs	Yes	97	2.3
	No	2292	54.4
Use over-the-counter (OTC) medications and natural herbs simultaneously for toothache relief	Yes	1393	33.1
	No	2820	66.9
Inform dentist when using herbs to relieve toothache	Yes	2106	50.0
	No	2107	50.0
Think herbs are safe and free from side effects in treating toothache	Yes	2293	54.4
	No	1920	45.6
Think herbs can harm dental health	Yes	1844	43.8
	No	2369	56.2
If use herbs and medicines together, noticed any side effects or damages while using herbs to relieve dental pain	Yes	337	8.0
	No	3876	92.0
If the answer is (yes), what is it?	swelling	91	0.27
	sharp stomach pain	72	0.21
	inflammation	116	0.34
	sensitive	72	0.21

	bleeding	58	0.17
	other	66	0.19
Main reason for using of herbs	the pain	3540	0.84
	output	617	0.14
	periodontal infections	1216	0.28

Figure.1 During the COVID-19 ban period, which caused the closure of dental clinics, herbs were used as an emergency solution to relieve dental pain:

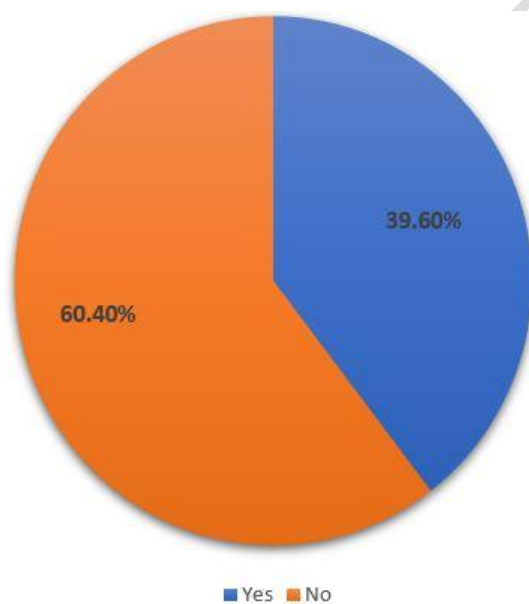


Table 3. Association between herbs use for toothache with sociodemographic characters of participants (n= 4213)

Variables		Using herbs to relieve toothache		Total (N=4213)	P value
		Yes	No		
Gender	Male	554	498	1052	0.001
		21.3%	30.9%	25.0%	
	Female	2048	1113	3161	
		78.7%	69.1%	75.0%	
Age	Less than 20	436	316	752	0.001
		16.8%	19.6%	17.8%	
	20 - 30 years old	1225	951	2176	
		47.1%	59.0%	51.6%	
	31 - 40 years old	455	165	620	
		17.5%	10.2%	14.7%	
	41 - 50 years old	336	123	459	
		12.9%	7.6%	10.9%	
	51 - 60 years old	121	54	175	
		4.7%	3.4%	4.2%	
More than 60	29	2	31		
	1.1%	0.1%	0.7%		
Residence area	Southern area	259	132	391	0.001
		10.0%	8.2%	9.3%	
	Eastern Region	325	355	680	
		12.5%	22.0%	16.1%	
	The northern area	596	281	877	
		22.9%	17.4%	20.8%	
	Western Region	884	470	1354	
		34.0%	29.2%	32.1%	
	Central Region	538	373	911	
		20.7%	23.2%	21.6%	
Accommodation type	village	283	134	417	0.007
		10.9%	8.3%	9.9%	
	City	2319	1477	3796	
				90.1%	

Education level	uneducated	8	1	9	0.006
		0.3%	0.1%	0.2%	
	primary	23	9	32	
		0.9%	0.6%	0.8%	
	Middle school	72	23	95	
		2.8%	1.4%	2.3%	
	secondary	610	411	1021	
		23.4%	25.5%	24.2%	
university	1734	1089	2823		
	66.6%	67.6%	67.0%		
advanced studies	155	78	233		
	6.0%	4.8%	5.5%		
Average monthly household income (in Saudi riyals)	less than 5000	1130	729	1859	0.001
		43.4%	45.3%	44.1%	
	From 5000 - 10,000	667	314	981	
		25.6%	19.5%	23.3%	
	from 10,000- 15,000	422	259	681	
		16.2%	16.1%	16.2%	
	more than 15,000	309	383	692	
		19.2%	14.7%	16.4%	

4. DISCUSSION:

Dental health is integral to general well-being and relates to the standard of life that extends beyond the functions of the craniofacial complex. Systemic conditions can modulate the connection between biofilm and the inflammatory response and may alter the progression and severity of the periodontal disease. This process may ultimately end in the loss of the diseased teeth. Oral hygiene plays an important role within the prevention of oral diseases, including periodontitis, cavity and oral candidiasis [17, 18].

Herbal medicine with medical properties has been used for an extended period to prevent and treat various diseases of dental disease. Herbal medicine is useful in preventing cavity, toothache, gingivitis, mouth ulcers, swollen tonsil, oral thrush and hairy tongue [19]. The natural photochemical could offer an effective alternative to antibiotics and represent a promising approach to prevention and therapeutic strategies for various oral infections. The herbal remedies have an edge over conventional antibiotic treatment that suffer the limitation of low benefit to high risk as compared to herbal treatment that possess high benefit to low-risk ratio [20].

Herbal extracts are effective because they interact with specific chemical receptors within the body and are in a pharmacodynamic sense, drugs themselves. They can vary in potency. Therefore, care must be taken in selecting herbs, with consideration about the effect of herbs in oral tissues, the mechanism of action, and side effects [21].

The literature shows that several herbal formulations have the capacity to control the production of proinflammatory mediators, thereby managing many inflammatory processes. The use of such herbal anti-inflammatory formulations for a longer period of time was found to be safer than that of chemical anti-inflammatory drugs [22]. In our study, 61.8% of all participants use herbs to relieve toothache (82% of them use clove or clove oil and 36% use thyme). 73.1% of participants reported that Level of pain or inflammation decreased after using herbs while 8.7% reported increased Level of pain or inflammation after using herbs. In India, more than 70% of the population uses herbal drugs and this constitutes mostly the rural population who depends solely upon herbal-based products [23].

A few of herbs as dietary supplements and as a treatment modality in dentistry possess antibacterial, antimycosal, and antiviral properties. When used in appropriate concentrations, herbal drugs do not interrupt or alter the natural flora. Herbal derivatives form an important constituent of toothpastes wherein they inhibit plaque formation and bacterial adherence to the pellicle, which can be attributed to their antibacterial properties [24].

Plants such as miswak have been used as chewing sticks in many parts of the world in various cultures with different names. Some other plant parts are also used to maintain oral hygiene such as eucalyptus leaves, which are used to mask bad mouth odor in the mouth; onion and lime juices are used as gargles as well as to relieve toothache [25]. The other dental treatment modalities, which make use of anti-inflammatory and antibacterial properties of the herbal parts include aerosols, gels, various mouth-rinsing solutions, and medicaments such as infusions or decoctions [26].

5. LIMITATIONS OF THE STUDY

The main limitation of the study was lack of previous studies with similar or relative objective to compare our results along with.

6. CONCLUSION

The Saudi population show relatively good knowledge level and practice towards herbs use in dentistry. The use of herbs to relieve toothache was significantly associated with female gender, age, residence area in western region and average monthly income. It is important for the health of consumers to scientifically demonstrate the real effects of natural medicine, as well as clarify and establish their possible therapeutic applications.

Comment [NA7]: Much plagiarism detected

CONSENT

Informed consent was obtained from all Participants included in the study.

NOTE:

THE STUDY HIGHLIGHTS THE EFFICACY OF "HERBAL MEDICINE " WHICH IS AN ANCIENT TRADITION, USED IN SOME PARTS OF INDIA. THIS ANCIENT CONCEPT SHOULD BE CAREFULLY EVALUATED IN THE LIGHT OF MODERN MEDICAL SCIENCE AND CAN BE UTILIZED PARTIALLY IF FOUND SUITABLE.

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