

## Prevalence of herbal supplement use among adult dental patients in Makkah city, Saudi Arabia

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### Abstract

The use of herbal supplement (HS) is widespread in most population, especially among patients suffering from chronic illness. Herb drug interaction can cause a significant risk during dental. This study aimed at assessing the prevalence of herbal supplement use among adults seeking dental treatment in four governmental dental centers in Makkah City, SA and to report on the demographic of the HS users, their systemic health and the use of other medication alongside HS use.

**Material & Method:** Self-administrated questionnaires used to collect information from adults seeking dental treatment at four governmental hospitals in Makkah city during 2015. The questionnaire collected demographic data and inquired about herbal use, type of herbs most commonly consumed, medical conditions and conventional drug and over the counter prescription use. Descriptive analysis was used for the report of the results.

**Results:** Out of 500 questioners distributed, 300 were completed and included in the analysis. Seventy-nine percent of the responders reported using herbs for treatment or prevention of diseases with mint (*mintha piperita*) being the most frequently consumed. Twenty-seven percent of responders have at least one systemic disease. 81.8% of them, reported consuming both herbs and prescribed medication. By far 90.3% of the respondents with the systemic condition and under prescribed medicine are consuming herbs without informing their dentists. Even though 24.3% of the respondents assume that herbs have side effects, 58.6% of them believe herbal supplements are harmless.

**Conclusion:** The majority of adult dental patients in Makkah city used herbal supplements regularly and a significant portion used prescription medication and herbal supplement concurrently. There was low disclosure of the herbal supplement use to the dentist putting the patients at increased risk of herbal-drug interaction.

**Keywords:** Herbal supplement, Dental treatment, Herb- drug interaction.

### Introduction

Since ancient times, people were exposed to herbs and natural products and used them to treat illness and/or improve health and wellbeing. Herbal supplements (HS) is defined as any form of a plant or plant product, including leaves, flowers, stems, roots and seeds, and they may contain a single herb or combinations of several different herbs that are believed to have complementary effects.<sup>(1)</sup> The use of HS is widespread, and on the rise, the world health organization estimated about 80% of the world population uses HS, most commonly used by patients suffering from chronic illness. In Saudi Arabia, 17 to 37% of medically compromised patients reported the use of HS as part of their treatment.<sup>(2,3)</sup> However, one study found that 91% of the subjects using HS did not consult their physician before purchasing herbal supplement for concurrent use alongside prescription medication.<sup>(4)</sup>

The information on the prevalence of HS use among dental patients is very limited, Abebe et al. (2011) reported that 12.6 % of patients seeking dental treatment in dental school in the USA used at least one form of HS during the one month period prior to their dental visits, and that about 30% of them consumed the HS in addition to over the counter or prescription drug.<sup>(5)</sup>

Although, most users believe HS are safe,<sup>(6)</sup> Serious adverse effects could occur especially with prolong use and large quantities consumption. The effect will be

more significant in the case of patients using many different supplements together<sup>(7)</sup> or with the concurrent use of prescribed medication.<sup>(8)</sup> Interestingly enough, 70% of the users did not disclose their use of HS to their health care provider.<sup>(5)</sup>

The purpose of this study is to assess the prevalence of HS use among adults seeking dental treatment in four governmental dental centers in Makkah city and to report on the demographic of the HS users, their systemic health and the use of other medication.

### Material and Method

A questionnaire-based study including adult patients (<18 years old) who are seeking dental treatment in four governmental dental centers in Makkah city, Saudi Arabia. The questionnaire was developed and administered in Arabic language. Two senior dental students approached patients waiting for their dental appointment, explained the purpose of the study and the questionnaire was given to the patients if they agreed to participate. Participant returned the questionnaire to the students after filling it out.

The questionnaire included three parts. The first part contained questions about demographic data including age, gender, and education level.

The second part included questions about the use of herbal supplements and the source of recommendation to use them. The participants were asked to list any herbs

or dietary supplements they currently use, additional questions about systemic health and if the participant is currently diagnosed with any medical condition, and if they are using prescribed drugs or over the counter medication and to list them.

The third part aimed at assessing the participant knowledge about the side effects of some of the most commonly used herbs in Saudi Arabia. This includes Garlic, Ginger, mint, and green tea.

The questionnaire was pre-tested in a pilot study utilizing 10 subjects and modification in the language and phrasing was done based on the result of the pilot study.

A total of 500 questionnaires were distributed to four governmental dental centers in Makkah, Saudi Arabia. Descriptive data analysis included only completed questionnaires. Fisher exact test statistic is used with significant level set to  $p < 0.05$ .

**Results**

Three hundred questionnaires returned completed with a response rate of 60%.

Of the 300 responders, 74% were females. The majority were in the middle age group with only 3% are more than 60 years old. About 87% had a higher education degree. Saudi nationality accounted for 69% of the responders. (Table 1)

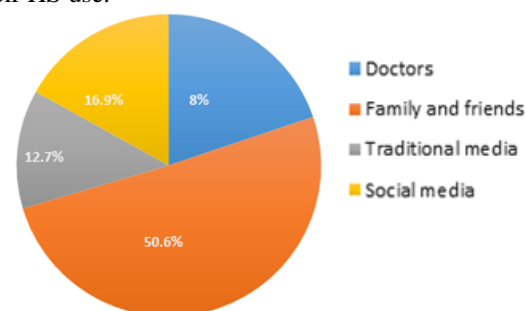
A total 237 (79%) of responders reported regular herbal supplement use. There were more females (75%) using HS compared to males ( $p = .55$ ), and the majority of responders who are using HS reported having a high school degree or higher level of education. However the difference in education level was not significantly related to the HS uses ( $p = 0.33$ ). (Table 1)

**Table 1: Demographic data of the HS users and the non-users among adult patients seeking dental treatment in Makkah City**

Variable		Total N (%)	Use HS N (%)	Don't use HS N (%)
Responders		300	237 (79)	63 (21)
Nationality	Saudi	189 (63)	159 (67.1)	30 (47.6)
	Non saudi	111 (37)	78 (32.9)	33 (52.4)
Gender	Female	223 (74.3)	178 (75)	45 (71.4)
	Male	77 (25.6)	59 (25)	18 (28.6)
Age	18-24 year	38 (12.6)	27 (11.4)	7 (11.1)
	25-60 year	257 (85.6)	202 (85.2)	55 (87.3)
	> 60 year	9 (3)	8 (3.4)	1 (1.6)
Educational level	Higher education	126 (42)	108 (45.5)	18 (28.5)
	High school diploma	136 (45.3)	104 (43.9)	32 (50.8)

Less than high school	38(12.6)	25 (10.5)	13 (16.3)
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Among those who used herbs, mint (*Mintha Piperita*, 80%), ginger (*Zingiber officinale*, 62%), green tea (*Camelia Sinensis*, 54%), cinnamon (*Cinnamomum*, 39%) and garlic (*Allium sativum*, 28%) were the most commonly used ones. Almost half of the responders (50.6%) reported using herbs based on their families and friend's advice. Media has a major influence as 30% of the responders reported following media (traditional or social) advice regarding HS use. Only 8% get advised to use HS by their medical doctors. Fig. 1 However, 86% of herbs consumers didn't inform their dentists about their HS use.



**Fig. 1: Source of advice on HS use**

Regarding systemic health, 26.7% (n=80) of responders reported having at least one systemic medical condition and 13.7% reporting having more than one systemic medical condition. There was not a statistically significant difference in HS use in relation to the systemic medical condition ( $p = 0.26$ ). Cardiovascular disease was the most frequent one (30%) followed by gastrointestinal disorders (29%) and diabetes (19%). Fifty-five percent of those with systemic medical condition are on prescribed medication. Out of the 300 responders, 214 (71%) reported using over the counter medication (OTC), interestingly 18% (n=55) of them reported consuming both OTC and prescribed medication. (Table 2 & 3)

Of those reporting at least one systemic medical condition, 84% are consuming HS, and of those reporting more than one medical condition, 57% are using HS. Moreover, 81% of those who are on prescription medication are using HS. An alarming 72% are using prescribed medication, OTC, and HS simultaneously (Table 2). By far 90.3% of the herbal users with a systemic condition and under a prescribed medicine are consuming herbs without informing their dentists.

Even though, 24.3% of the respondents assume that herbs have side effects the majority (58.6%) believe HS do not cause any harm. When asked about the side effects of some of the common herbs, only 3% identified all accurate side effects. Female responders showed a higher knowledge of the HS side effects compared to

male ( $p= 0.005$ ). However education level did not significantly effect the knowledge about HS side effect.

**Table 2: Number and percentage of subjects reporting systemic medical disease and the use of prescribed medication or/and OTC drugs among HS users and non-users**

	Total out of 300 responders	Use HS N (%)	Don't use HS N (%)
Systemic disease	80 (26.6)	67 (83.8)	13 (16.3)
More than one condition	11(3.6)	4 (36.4)	7 (63.6)
Prescription medication use	80 (26.6)	64 (80)	16 (20)
OTC use	214 (71.3)	181 (84.6)	33 (15.4)
Prescription + OTC	51(17)	40 (78.4)	11(21.5)

## Discussion

Our study looked at the utilization of HS among adult dental patients in Makkah city. Among the responders, 79% of them confirm using HS. Which is higher to what was reported by previous studies that looked at the dental patient utilization of HS (ranges between 12.6 to 54%).<sup>(5,6)</sup> The difference in the population studied and the effect of culture and ethnic background could explain the difference in reported HS consumption rate.<sup>(9)</sup> To our knowledge, our study is the first one to evaluate the use of herbal supplement among dental patient in Saudi Arabia.

Similar to other studies, our survey found that HS use is more common among middle age, among women, among those with high school education or more and with current use of OCT or prescription medication.<sup>(5,8)</sup> And friends and family were the main source of advice regarding HS use.<sup>(4,5)</sup>

Of the herbal supplements used, mint was the most commonly used, followed by in descending order ginger, green tea, and garlic. Other herbs has also been reported in the literature to be commonly used among dental patients are including Echinacea, Ginkgo biloba and Ginseng.<sup>(8,10,11)</sup>

Most of the participant believed that HS are safe and do not have side effects which is consistent with other reports.<sup>(4)</sup> And 86 % did not inform their dentist about their use of HS. Moreover, Tam etal reported that 96 % of Herbal user did not have a written documentation about their use of HS in dental records.<sup>(6)</sup> Most HS user thinks herbs are safe and free of side effect; patients also might not see the relation between their use of HS and dental condition and the fact that most medical history

forms don't separate traditional medication from herbal supplement may add to the lack of documentation.

Of particular interest in this study, 72% of the responders are using HS while using prescribed medication and or OTC. Graham etall (2008) reported 1 in every six patients in ambulatory care is using at least one HS in addition to their medication<sup>(8)</sup> and 48% of patients in general practices uses HS in addition to their medication.<sup>(12)</sup> Of those patients potential serious or life threatening herb - drug interaction was found in 11 out 100 patients which account to 25%.<sup>(8)</sup> The severity of the effect is larger dependent on the type and dosage of the herbs/ medication and the duration of use.<sup>(7)</sup> and in elderly patients.<sup>(12)</sup>(Table 3) list the side effect of the herbs most commonly reported to be used by dental patients. Of interest, green tea & garlic both have antiplatelet effect<sup>(13)</sup> which may enhance the risk of bleeding after minor dental procedures. Also, postoperative bleeding may be enhanced if Aspirin or NASDS are used as analgesic with the current use of HS.<sup>(13,14)</sup> Although the interaction of HS with local anesthesia is not studied, American society of a Anesthesiologists (2000) has warned about potential herbs –anesthesia interaction for surgery patients. (American Society of Anesthesiologists. What you should know about herbal use and anesthesia. Park Ridge (IL): ASA; 2000).<sup>(15)</sup>

In our study, 26.7% reported at least one systemic disease with CVD being the most common. Most herbs can alter the bioavailability and the metabolic activity of many medications due to their effect on cytochrome P-450 (CYP),<sup>(10)</sup> thus exacerbate effects, or augment and decrease effects of certain medications.<sup>(16)</sup>

Our study offers the following clinical implication, first, due to the widespread HS consumption and the possibility of complication or drug interaction, dentists should ask patients about their use of HS and it should be a standard part of the medical history questionnaire provided to the patients prior to dental treatment. Secondly, dentists benefit from effective education about the HS use and potential interaction with dental treatment or medication. However, our study has some limitation, being a self-reported questionnaire could be associated with bias and misreporting of information, the sample was obtained from a limited number of dental centers in Makkah city, therefore, cannot be generalized. This questionnaire was not designed to assess the dose and frequency of HS use or to report on any interaction with medication or dental treatment.

**Table 3: Type of reported systemic medical conditions and their HS use**

	<b>Total of responders reporting systemic disease =80</b>	<b>Use HS N (%)</b>	<b>Don't use HS N (%)</b>
Cardiovascular Disease	24 (30)	21 (87.5)	3 (12.5)
Diabetes	15 (18.7)	12 (80)	3 (20)
Gastrointestinal Disease	23 (28.7)	20 (87)	3 (13)
Other conditions	30(37.5)	24 (80)	6 (20)

### Conclusion

The majority of dental patients are using HS, frequently in addition to other prescribed medication or OTC. And many of them don't inform their dentist about HS use. The dentist should be aware of the potential Herbal – drug interaction and the need to modify dental treatment plan accordingly.

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