

## Preventive Oral Health Knowledge and Practice in Jeddah, Saudi Arabia

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**ABSTRACT.** Three preventive measures which have been recommended by the American Dental Association include that adults should thoroughly brush and floss their teeth at least once a day and get regular oral health check-ups. The purpose of this study is to assess the oral health knowledge and behaviour patterns among the Saudi Arabian population. 500 subjects were asked to complete a questionnaire which addressed many questions on oral health. All respondents were above 18 years of age. Responses showed that 98.5% brushed their teeth regularly, 35.2% used dental floss, and 69.8% visited the dentist. About 27.6% of all respondents used all three preventive measures. Miswak was used by 49.2% of the respondents. The study also showed that television was the most frequently reported source of education for the public on dental hygiene (60.7%). Although 98.5% of respondents used a dental brush daily, only 27.6% of the sample used a combination of the three recommended preventive measures. Therefore, there is an urgent need for a government based effort to reinforce knowledge and implementation on proper dental hygiene.

**Keywords:** Oral Health, Knowledge, Practice, Prevention.

### Introduction

Dental problems such as tooth decay, periodontal disease and tooth loss, constitute a major public health problem in the world today<sup>[1]</sup>. In order to prevent oral health problems, the American Dental Association (ADA) and other organisations recommended that adults thoroughly brush and floss their teeth at least once a day and get regular oral

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health check-ups<sup>[2,3]</sup>. Many surveys in different parts of the world have found brushing to be the best way to maintain oral health<sup>[4,5,6]</sup>. Ninety percent of Americans brush at least twice a day<sup>[7]</sup>, 97% of Koreans brush once a day<sup>[4]</sup>, while in India only 69% of the population brushes their teeth<sup>[8]</sup>.

Other equally important preventive measures apart from brushing include flossing, fluoride, and regular dental visits<sup>[9]</sup>. The need for regular dental check-ups, the use of floss, and fluoride supplements, however, is not appreciated in many parts of the world<sup>[5-11]</sup>. For example, in Singapore only a small portion of the population visits the dentist each year. A similar observation was found among Americans where only 50% of the population visits the dentist annually<sup>[12]</sup>.

Among the factors that were found to greatly influence awareness in using dental preventive measures was the media<sup>[4,12]</sup>. This observation might be even more appreciated in developing countries where television constitutes a major role in the daily life of the population as reported in Korea and other Asian countries<sup>[6]</sup>.

In Saudi Arabia, a study on dental care and knowledge of mothers in the city of Medina reported that 62% brush their teeth twice a day and 41% use miswak<sup>[13]</sup>. In another study in Riyadh, 80% of those aged 65-74 years do not brush their teeth. While over half of all the respondents use Miswak<sup>[14]</sup>, more than two thirds of those aged 65-74 use Miswak. The earlier study emphasized that the relevant causal factors of dental disease are bacteria, sugar, and improper tooth cleaning. Seventy-five percent of these mothers acknowledge the role of regular dental visits in prevention of dental caries. The dentist, television, family, and friends were the most common sources of dental health information<sup>[13]</sup>.

The purpose of this study was to assess the oral health knowledge and behaviour pattern among the population in Jeddah, Saudi Arabia.

### **Materials and Methods**

This study included 500 subjects among patients attending general hospitals in Jeddah, Saudi Arabia. The participants were those who were willing to answer an anonymous questionnaire. They were above 18 years of age, and able to understand and answer the questionnaire. Each participant was asked to answer the questionnaire while waiting for his/her appointment. The participant did not receive guidance from the investigator who was waiting in a separate room. An average of 20 minutes was needed to answer all the questions. The questionnaire included demographic information related to the patient's name, age, sex, marital status, income and education. The questionnaire focused on brushing, flossing, dental visits, and educating the public, as shown in Table 1.

Data were entered in an SPSS file, descriptive statistics were completed, and t-tests were used when applicable. All analyses were done using the SPSS statistical package, and  $\alpha$  was established at 0.05 throughout the study.

TABLE 1. Questionnaire

Item	Question	Responses
Brushing	Do you brush your teeth?	1. Yes 2. No
Brushing Frequency	How many times do you brush your teeth?	1. I don't brush my teeth 2. Less than once a month 3. 1-2 times a month 4. 1-2 times a week 5. Once every 2 days 6. Once a day 7. Twice a day
	What do you use with your tooth brush?	1. Toothpaste 2. Powder 3. Sodium Bicarbonate 4. I don't use anything 5. Others
Flossing	Do you floss?	1. Yes 2. No
Visiting the dentist	Do you visit a dentist?	1. Yes 2. No
	When do you visit a dentist?	1. When I am in pain 2. Every 6 months 3. Regularly for check up 4. I do not go
	Other methods to clean your teeth?	1. Brush 2. Miswak 3. Toothpick 4. Mouthwash 5. Don't use anything
	How to avoid caries?	1. Brush regularly 2. Minimise sweets 3. Visit the dentist 4. Use fluoride 5. All of the above 6. Don't know
	From what source do you get information about your teeth?	1. Dentist 2. Medical Doctor 3. Newspaper 4. Magazine 5. Television 6. Radio 7. Friends & Family 8. Nurses 9. Books 10. Schools 11. Pamphlets

## Results

In the present study, the questionnaire was given to 500 subjects. Of the 500 subjects, 488 responded to questions about age, and 491 to each of the other demographic variables. Demographic characteristics of the sample are presented in Table 2. Approximately 219 (44.6%) were males, 272 (55.4%) were females. Two-hundred and sixty-nine 269 (55.1%) were 18-29 years of age, and Saudi nationality was reported for 295 (60.1%) of the sample. In terms of level of education achieved by respondents, 225 (45.8%) reported high school education, 65 (13.2%) primary school, and the remaining 201 (40.9%) achieved college level education. A total of 463 subjects' questionnaires regarding oral hygiene control were completed, and are used in related statistical analyses.

TABLE 2. Demographic characteristics of the sample

Correlates	Categories	N	Percentage
Age (n=488)	18-29	269	55.1%
	30-39	114	23.4%
	40 or above	105	21.5%
Gender (n=491)	Male	219	44.6%
	Female	272	55.4%
Nationality (n=491)	Saudi	295	60.1%
	Non-Saudi	196	39.9%
Education (n=491)	Primary	65	13.2%
	High School	225	45.8%
	College	201	40.9%

### **Brushing**

Table 3 presents data for use of brushing as an oral hygiene method. Approximately 98.5% of respondents brushed their teeth regularly. This percentage included not only those who brush, but also those who brush and floss and those who visit the dentist in combination with brushing. However, only 36.8% brushed twice a day, 19% once a day and 21% more than two times a day. Approximately 93.7% used toothpaste with the brush, and the remaining 6.3% used other methods of cleaning.

### **Flossing**

Table 3 also presents data for flossing. In this sample no subject used floss as the only means of cleaning but 35.2% of the respondents flossed their teeth using brushing and dental visits as other means of oral health care.

### **Dental Visits**

Approximately 69.8% of the respondents, as seen in Table 3, visit the dentist as a preventive measure. Some of the respondents also use brushing and flossing as other means of prevention. Only 1.5% of the respondents use the dental visit as the only

means of oral health care. From the 69.8% who visit the dentist, only 15% go for regular dental check-ups every six months, while 69% visit the dentist only when they have pain.

### ***Correlation between Brushing, Flossing, and Dental Visits***

Table 3 shows that only 7.6% of the participants brush and floss, and no one reports the use of floss as the only preventive measure. Approximately 27.6% of all respondents use all three preventive measures. The largest groups of subjects (40.6%) brush and visit the dentist.

TABLE 3. Frequency data for methods of oral hygiene control.

<b>Methods of Oral Hygiene</b>	<b>Number</b>	<b>Percentage</b>	<b>Cumulative Percentage</b>
Brush Only	105	22.7	22.7
Floss Only	0	0.0	22.7
Dental Visit Only	7	1.5	24.2
Brush & floss	35	7.6	31.8
Brush & dental visit	188	40.6	72.4
Floss & dental visit	0	0.0	72.4
Brush, floss, & dental visit	128	27.6	100.0
Total	463		

The opinions of the respondents on how to avoid caries were very promising. As seen in Table 4, 36.7% reported that brushing regularly is effective while 54.9% were aware that brushing, minimizing sweets, visiting the dentist and the use of fluoride are all effective means of avoiding caries.

TABLE 4. The percentage of opinions on how to avoid caries based on a sample of 463 subjects.

<b>Correlates</b>	<b>n</b>	<b>Percentage (%)</b>
Brush regularly	170	36.7
Minimise sweets	80	17.3
Visit the dentist	59	12.7
Uses fluoride	20	4.3
All of the above	254	54.9
Don't know	19	4.1

Table 5 shows that the most effective source of dental hygiene was television as reported by 60.7% of the respondents, and 46.7% recorded that the dentist was an influential source.

TABLE 5. The percentage of the effective sources of oral health information in a sample of 463 subjects.

Sources	Numbers	Percentage (%)
Television	281	60.7
Dentist	216	46.7
Magazine	133	28.7
Newspaper	95	20.3
Family & Friends	83	17.9
Radio	41	8.9
Medical Doctor	15	3.2
Nurses, Books, School, Pamphlets	34	7.3

Table 6 shows that the respondents also used other methods of oral hygiene, including miswak (49.2%), toothpick (35.6%), and mouthwash (31.7%), with many of the subjects using a combination of these methods. However, 18.4% reported not using any of the methods for oral hygiene control.

TABLE 6. The percentage of other methods used for oral hygiene in a sample of 463 subjects.

Other Methods	n	Percentage (%)
Miswak	228	49.2
Toothpick	165	35.6
Mouthwash	147	31.7
Don't use anything	85	18.4

## Discussion

The main purpose of this study was to assess knowledge and practice of residents in Jeddah towards preventive oral health measures. A majority of the participants were 18-29 year old Saudi females. Brushing was the most commonly used method of teeth cleaning, followed by the toothpick, and miswak methods. A surprisingly small percentage reported using dental floss, whereas visiting the dentist was more common. The importance of regular brushing as oral health prevention is well-documented<sup>[4,5,8]</sup>. In the United States, 90% of a studied group reported brushing their teeth twice a day<sup>[5-16]</sup>. In a study on the Saudi population, a much lower percentage of participants brushed daily (33%) and those were above 40 years old<sup>[14]</sup>. In the same study, 80% of the participants over 65 did not clean their teeth at all. It seems that age plays a major

role in motivation in adopting regular brushing practice. The use of dental floss as an oral hygiene measure varies greatly in different reports<sup>[16-18]</sup>. However, there is generally a failure in the use of dental floss as a preventive tool. The low percentage of participants who use floss in this study emphasizes the urgent need for educating and motivating the public to use this efficient method for oral health care.

Interestingly, 69% of participants reported visiting the dentist only when they have pain. This is another gap in public education regarding the crucial role of regular dental check-ups in preventing and detecting dental diseases. The use of miswak as a means of tooth-cleaning was reported by half of the participants. This rate is probably increased by the high number of Saudis in the study since miswak is locally used on a large scale among Saudis. Miswak in general has shown high potential in removing plaque accumulation on teeth which is one of the causative factors for caries and periodontal disease.

The correlation of knowledge between the three major means of prevention as analyzed in Table 3 showed that a small percentage of the participants perform all three major prevention procedures even though they are aware that brushing, minimizing sweets, visiting the dentist, and fluoride are all together the best methods of avoiding caries.

It appears that the best source of education is television. Our results agreed with Malaysian<sup>[6]</sup> and Korean<sup>[4]</sup> studies which showed television to be the best source of information as it is seen by all the members of the family.

This study showed that the majority of the participants knew about brushing as a primary means of good oral health but they lacked knowledge of the other preventive measures. It is imperative that the media should be utilized to educate and spread knowledge of proper dental care and prevention of dental disease.

In conclusion, the results of this study show limited knowledge on prevention and preventive dental behaviour. Brushing of teeth by almost the entire population is the most commonly practised method, yet only a small percentage used floss, and the dentist is visited primarily for pain relief. A small percentage of subjects brushed their teeth twice a day, and even a smaller percentage performed all three means of prevention to maintain good oral health. The television and the dentist were the two best sources of information for educating the public.

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## الوعي والسلوك للوسائل الوقائية لصحة الفم والأسنان في المجتمع بمدينة جدة المملكة العربية السعودية.

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المستخلص. اعتمد الاتحاد الأمريكي لطب الأسنان ثلاث وسائل وقائية لأسنان البالغين وذلك بإستعمال الفرشاة وخيط الأسنان مرة يومياً على الأقل وكذلك القيام بزيارات فحص دورية لطبيب الأسنان. إن الغرض من هذا البحث هو تقييم مدى الوعي والسلوك المتبع لدى عينة من المجتمع السعودي، وقد تم اختيار خمسمائة عينة عشوائية من الأشخاص من شريحة العمرثمانية عشر عاماً (١٨ عاماً) فما فوق للإجابة على أسئلة الاستبيان. من نتائج البحث وجد أن ٩٨,٥٪ من العينة يستعملون فرشاة الأسنان بانتظام و فقط ٣٦,٥٪ منهم يستعملونها مرتين يومياً. كذلك وجد أن ٣٥,٢٪ من العينة يستعملون خيط تنظيف الأسنان و ٦٩,٨٪ منهم قاموا بزيارات لطبيب الأسنان. كما أن ٢٨,٦٪ من العينة فقط ملتزمون بأداء الوسائل الوقائية الثلاثة مجتمعة، وأن ٤٩,٣٪ من العينة يستخدمون المسواك. كما أظهرت نتائج البحث أيضاً أن ٦٠,٧٪ من العينة يؤكدون أن التلفزيون يعتبر أفضل وسيلة تعليمية بالنسبة لهم.