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# The Practice of Oral Hygiene Instructions Given by Dentists in Riyadh, Saudi Arabia: Cross-Sectional Study

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## Abstract

**Aim:** The aim of this cross-sectional study was to investigate the practice of oral hygiene instructions (OHI) given by dentists to their patients.

**Subjects and Methods:** A total of 255 subjects were recruited from different governmental and private dental clinics in Riyadh, Saudi Arabia. Self-administered questionnaire was used to gather demographic information of participating subjects, subjects' oral hygiene behavior, and questions evaluated if their dentists explained to them how to clean his/her mouth and maintain a good oral health.

**Results:** Approximately, subjects were recruited equally from government or private dental clinics (45.5% and 55.5% respectively). More than half of the respondents (53.3%) used the toothbrush and toothpaste to clean their teeth. 42.7% of participants clean their teeth two times per day. In response to the frequency of visiting the dentist, more than half of participating subjects (55.1%) reported that they visit the dentist only when they have pain in their teeth. More than half (58.1%) of the subjects' reported that they receive an explanation from dentists on how to clean their teeth and maintain good oral health. Less than half of the subjects reported that dentists gave them OHI on every visit. Subjects received an explanation regarding brushing teeth, flossing teeth and using a mouth-wash (89.1%, 67.4% and 64.1% respectively).

**Conclusion:** Results from this study showed that majority of dentists give their patients OHI. Dentists should consider enforcing the practice of OHI to their patients which may increase patients' OH practice.

***Keywords:*** *Oral Hygiene; Dentists; Riyadh; Saudi Arabia*

## Introduction

Dental diseases are a costly burden to health care services. The treatment of dental caries is exorbitant for governments of both developed and developing countries and costs between 5 and 10% of the total health care spending in industrialized countries exceeding the cost of treating cardiovascular disease, cancer, and osteoporosis [1].

Dental diseases include dental caries and periodontal disease. The initiation and propagation of both diseases are through the accumulation of the commensal oral microbiota (dental plaque) because of poor cleaning of the teeth [2]. Despite a low mortality rate

related to dental diseases, they have a considerable impact on self-esteem, eating ability, nutrition, and health both in childhood and older age. It is, therefore, clear that dental diseases harm the quality of life in both childhood and older age. One of the preventive measures is health education. There are many definitions of health education. World health organization (WHO) defined the health education in the most useful way which is the process by which people are given information to enable them to exercise a greater degree of control over their own health [3]. Oral hygiene instruction and oral hygiene practice are considered as health education given to dental patients.

### Role of Oral hygiene in the prevention of dental diseases

There is growing public awareness of the value of personal oral hygiene. People brush their teeth for a several numbers of reasons: to feel fresh and confident, to have a nice smile, and to avoid bad breath and oral diseases. Oral cleanliness is critical for the preservation of oral health as it removes microbial plaque, preventing it from accumulating on teeth and gingiva [4]. Maintenance of effective plaque control is the cornerstone of any attempt to prevent and control dental diseases. Supragingival plaque is exposed to saliva and the natural self-cleansing mechanisms that exist in the oral cavity. However, although such mechanisms may eliminate food debris, they do not adequately remove dental plaque. Therefore, regular personal oral hygiene is required for proper removal of supragingival plaque [5]. The most common means of actively removing plaque at home is toothbrushing.

There is genuine evidence showing that toothbrushing and other mechanical cleansing procedures can reliably control plaque, provided that cleaning is sufficiently thorough and performed at appropriate intervals. Evidence from large cohort studies has demonstrated that high standards of oral hygiene will confirm the stability of dental tissue support [6,7].

A high number of experimental research and clinical trials in various geographical and social settings have proven that effective removal of dental plaque is vital for dental and periodontal health [8]. Decreasing plaque mass through good oral hygiene will minimize the injurious load on these tissues [9].

Primary prevention of dental disease includes educational interventions for dental disease and related risk factors, as well as regular, self-performed plaque removal and professional mechanical removal of plaque and calculus. As such, optimal oral hygiene requires an appropriate patient motivation, adequate tools, and professional oral hygiene instruction [10].

### Dentist's role in the patient's oral hygiene education

The dentists and dental care professionals have the biggest role in maintaining the patient's oral health by giving advice to all patients during dental examinations to increase their awareness of dental hygiene. The process of giving health education devices includes several steps. First, the patient should understand all the main causes of the disease. Then, it's very important to distinguish the main causative factors some of them will be beyond personal control like genetics. While other factors can be under personal control and can be changeable by the dentist instructions like the use of fluoride toothpaste and minimize the sugars consumption food and drinks to reduce dental caries [11]. Listening to what the patients' needs and offering tailored advice without judging them if their oral hygiene is poor. Giving the patient or their parent an individually dental care plan by asking the patient: (1) their past and present oral health to measure their risk of poor oral health, (2) their oral hygiene practice and how many times they use fluoride toothpaste, and (3) their attitudes like diet, smoking, alcohol that may affect their oral health. Making sure that the patient or their parent understands the plan very carefully so they can improve oral health. Teaching them the ideal technique of brushing and dental floss [12].

## Aim of the Study

This cross-sectional study aimed to investigate the practice of oral hygiene instructions given by dentists to their patients.

## Materials and Methods

### Subjects

To evaluate the effect of the dentists' explanation to their patients and the directions on how to clean their teeth and maintain good oral health, a cross-section study was carried out from October 2019 to December 2019. Self-administered survey questionnaires were distributed randomly to patients attending dental clinics. The study included Arabic speakers who are ≥ 18 years old, who have visited a dentist at the selected government and private clinics. However, at the level of significance $\alpha = 0.05$ and effect size = 0.4 with a power of 90%, the sample size determined to be at least 219 dental patients. The stratified sampling method was used by dividing the population of dentists into two strata or sectors of government clinics and private clinics. Then, four government hospitals and four private dental clinics were randomly selected from the form list of dental clinics. Patients from each selected clinic were chosen randomly by using a simple random sample (SRS technique) to participate in answering the questionnaire survey. The study was approved by Alfarabi College of Dentistry and Nursing research ethical committee (IRB No. alf.dent-2019009).

### Questionnaire

A self-administered survey questionnaire was distributed randomly to patients attending dental clinics. The questionnaire contained questions that covered three different sections. First, the demographic questions that include sector, age, gender, education level, and employee status. Second section questions evaluated the patients' oral hygiene behavior that includes the method the patients that used to clean his/her teeth, how many times per day he/she cleaned their teeth, how long it took them to clean their teeth and how many times the patients visited their dentists. The third section questions evaluated if the dentists explained to their patients the directions on how to clean his/her mouth and maintain a good oral health. More than that, if the patients responded by yes, then the explanation was evaluated by a patient if it covered or did not cover the following how many times the dentist explained how to maintain good oral health by cleaning teeth using brush, floss, mouth wash, and if the dentist explained the effect of the nutrition system and smoking on oral hygiene.

### Statistical analysis

The collected data was entered and analyzed using the Statistical Package for Social Sciences (SPSS 26) statistical software. Descriptive statistics, tables, n, and percent are presented.

## Results

Table 1 shows the demographic characteristics of participating subjects. A total of 255 dental patients responded to the survey. Approximately, subjects were recruited equally from government or private dental clinics (45.5% and 55.5% respectively). Also, 103 (40.4%) of the respondents were male and 152 (59.6%) were female. Majority of the respondents (70%) aged more than 25 years old. Furthermore, 106 (41.6%) of the respondents have at least a high school diploma or less and, 146 (57.3%) had a university or higher. From the participants, 155 (61%) were employed and 99 (39%) were unemployed.

| Variable | Source of Subject | n | % |
|---|---|---|---|
| | Government | 116 | 45.5 |
| | Private | 139 | 54.5 |
| Gender | Male | 103 | 40.4 |
| | Female | 152 | 59.6 |
| Age | < 20 | 19 | 7.5 |
| | 20 - 25 | 58 | 22.7 |
| | 26 - 50 | 150 | 58.8 |
| | > 50 | 28 | 11.0 |
| Education | Secondary school or less | 18 | 7.1 |
| | High school or diploma | 88 | 34.5 |
| | University or higher | 146 | 57.3 |
| | Others | 3 | 1.2 |
| Employ-ment | Employed | 155 | 61.0 |
| | Unemployed (others) | 100 | 39.0 |

***Table 1:*** *Demographic characteristics of participating subjects (N = 255).*

Overall, oral hygiene behavior, 136 (53.3%) of the respondents used the toothbrush and toothpaste to clean their teeth (Table 2). Using a toothbrush, toothpaste and dental floss were used by 40% of the subjects. Majority of the subjects (42.7%) clean their teeth two times per day. Subjects varied in the time they spend brushing their teeth. More than half of them (60%) spent more than one minute or more while approximately one quarter (26.6%) spend less than one minute. More than half of the subjects (62.6%) clean their teeth in the morning and evening. Using dental floss by subjects varied. Around 145 (58%) of the respondents don't use or remember using dental floss when around only 107 (42.2%) used it at least once a day.

| Variable | Level | n | % |
|---|---|---|---|
| What do you use to clean your teeth? | Brush and toothpaste + Dental floss | 102 | 40.0 |
| | Brush and toothpaste | 136 | 53.3 |
| | Dental floss | 2 | 0.8 |
| | Use the miswak | 10 | 3.9 |
| | I don't brush my teeth | 5 | 2.0 |
| If you clean your teeth how many times per day do you clean them? | More than twice a day | 42 | 16.5 |
| | Twice a day | 109 | 42.7 |
| | Once a day | 78 | 30.6 |
| | I don't brush my teeth | 26 | 10.2 |
| If you clean your teeth how long does it take you? | Two minutes or more | 75 | 29.4 |
| | > one minute but less than two minutes | 78 | 30.6 |
| | > thirty seconds but less than one minute | 47 | 18.4 |
| | About thirty seconds or less | 21 | 8.2 |
| | I do not know | 34 | 13.3 |
| When do you usually clean your teeth? | Morning and evening | 159 | 62.6 |
| | Only in the morning | 43 | 16.9 |
| | Only in the evening | 34 | 13.4 |
| | Other times | 12 | 4.7 |
| | I can't remember | 6 | 2.4 |
| How many times per day do you use the dental floss? | Three times a day | 20 | 7.9 |
| | Twice a day | 21 | 8.3 |
| | Once a day | 66 | 26.2 |
| | Do not use dental floss | 102 | 40.5 |
| | I do not remember | 43 | 17.1 |

***Table 2:*** *Distribution of oral health of responses (N = 255).*

In response to the frequency of visiting the dentist, more than half of participating subjects (55.1%) reported that they visit the dentist only when they have pain in their teeth. In addition, more than half (58.1%) of the subjects' reported that they receive an explanation from their dentists on how to clean their teeth and maintain good oral health (Table 3).

| Questions | Answers | n | % |
|---|---|---|---|
| How many times do you visit the dentist? | > Twice a year | 33 | 13.0 |
| | Twice a year | 31 | 12.2 |
| | Once a year | 27 | 10.6 |
| | Only when I have pain in the teeth | 140 | 55.1 |
| | I am not visiting the dentist | 18 | 7.1 |
| | Other | 5 | 2.0 |
| Did the dentist explain to you the directions on how to clean your mouth and maintain a good oral health? | Yes | 147 | 58.1 |
| | No | 106 | 41.9 |

***Table 3****: Participants response toward visiting dentists and OHI given by dentists (N = 255).*

Results of the explanation components among those who get OHI from their dentists are shown in table 4. Less than half of the subjects (41.9%) reported that dentists gave them OHI on every visit. Subjects received an explanation regarding brushing teeth, flossing teeth and using a mouthwash (89.1%, 67.4% and 64.1% respectively. Also, 69 (48%) of the patients reported that their dentist did not explain to them the effect of the nutrition system on oral health. Furthermore, 68 (48.6%) answered that their dentist did not explain to them the effect of smoking on their oral hygiene.

| Explanation Components | | Level | n (%) |
|---|---|---|---|
| How many times did the dentist explain to you the method? | | Every visit | 54 (36.7) |
| | | 26 (17.3) | |
| Twice or more | | 39 (26.5) | |
| Once only | | 28 (19.0) | |
| I do not remember | | | |
| Did the dentist explain to you | Cleaning the teeth by brush? | Yes | 131 (89.1) |
| | | No | 16 (10.9) |
| | Using the dental floss? | Yes | 97 (67.4) |
| | | No | 47 (32.6) |
| | Using mouthwash? | Yes | 93 (64.1) |
| | | No | 52 (35.9) |
| | The effect of the nutrition system on oral hygiene? | Yes | 73 (51.4) |
| | | No | 69 (48.6) |
| | The effect of smoking on oral hygiene? | Yes | 72 (51.4) |
| | | No | 68 (48.6) |

***Table 4:*** *Distribution of explanation components among those who get OHI from dentist (N = 147).*

## Discussion

Oral hygiene instruction is an intervention that is provided essentially to every patient that visits a dental office, at least on the initial visit. So, this study aimed to explore knowledge, attitude and practice towards oral hygiene instructions given by dentists to their patients.

Findings from this study were from dental patients attending government and private dental clinics. Fewer subjects were from the government's dental clinics, which might be explained by the fact that the working hours of government dental clinics may not be suitable for employed patients. Hence, they preferred private dental clinics. Moreover, according to the employee and educational status, educated employed subjects clinic attendance was the highest percentage than uneducated unemployed subjects, education levels of patients seem to have a significant role in their dental visits.

Educational level was shown to influence the oral conditions and should be considered in assessing risk, and in planning appropriate preventive measures [13]. This result may show a direct relationship between the educational status of the patient and their practice of oral hygiene instructions given by their dentists. Furthermore, higher number of females had a dental visit as compared to males' subjects. This may indicates that females have more tendency to seek dental treatments than males.

It is important to remove plaque from teeth regularly. Most of the subject's responses in the survey were routinely brush their teeth to remove plaque, using toothbrush and toothpaste only. Previous study observed that OHI and practice of efficient toothbrushing reduce plaque and gingival inflammation [14]. Besides, about half of the subjects' responses showed they brush their teeth for two minutes per day. Furthermore, more than the half of the responses indicated that they usually clean their teeth in the morning and evening. It is difficult for toothbrushes to reach into areas between teeth ('interdental'), so interdental cleaning is often recommended as an extra step in personal oral hygiene routines. Different tools can be used to clean interdentally, such as dental floss, interdental brushes, tooth cleaning sticks, and water pressure devices known as oral irrigators. Which a low percent of the responses report that they used the interdental tools in their oral care routine.

Dental pain adversely affects the quality of life, normal functioning, and daily living of people, and most dental visits are aimed at the immediate relief of pain. Hence, the majority of the responses visited the dentist only when they had pain in their teeth, not visiting a dentist regularly, at least once in a year, means that the people have deficient preventive oral health practices and they postponed visiting a dentist until they have an acute serious dental problem. This shows that people do not believe in the value of regular dental visits and they need to be educated toward the preventive aspects of dentistry. This kind of belief that there was no need to visit a dentist unless the pain was present was reported in some other studies also [15,16].

Around half of the responses were the dentists did not explain to them the directions on how to clean their mouth and maintain good oral health. This means that most of the dentists did not specify a special time for their patients in each initial visit for them to explain the oral hygiene instructions and what other perspectives may affect their oral health such as the effect of the nutrition system and smoking on their oral health. It has been reported that oral hygiene improvement is maintained by repeated sessions of oral hygiene instructions [17].

## Limitation of the Study

One limitation of the study is that it was a self-report survey. Therefore, there is a possibility of response bias. Since the study was carried out mainly on patients visiting a private dental clinic where a majority of patients represented moderate or higher economic status and employed deliberate sampling, the results cannot be generalized at the community level. The study may issue an initial step in understanding which variables are important in the utilization or no utilization of oral care since understanding treatment-seeking behavior is a complex process. It is mandatory to do further studies and extend the analysis to a larger sample of individuals at different socio-economical and community levels.

## Conclusion

Results of this study showed that more than half of participants received information on how to clean and maintain a good oral health. It is very important that dentists must spend time explaining the directions on how to clean mouth and maintain good oral health to their patients.

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