



Research Article

# Factors Related to Dentists' Practice of Giving Oral Hygiene Instructions to their Patients

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## Abstract

Oral Hygiene Instructions (OHI) are commonly delivered to patients in dental settings by means of dentists and/or dental hygienists. In our previous study [1], we found variations in the percentages of dentists who give and who do not give OHI to their patients. **Objective:** To investigate possible factors that may have an effect on the dentist's practice to give OHI to their patients. **Materials and Methods:** Subjects and methods were described previously [1]. In brief, a self-administered questionnaire was distributed to dental patients who were recruited from four government hospitals and four private dental clinics, which were randomly selected from a list of dental clinics in Riyadh, Saudi Arabia. From each clinic, patients were selected using a Simple Random Sample (SRS technique) to participate in answering the questionnaire survey. **Statistical Analysis:** Descriptive statistics (frequency and percentage) were described and chi  $\chi^2$  with proportional t-test were used. **Results:** A total of 255 subjects participated in the study. Dentists working in governmental dental clinics give their patients OHI more than those working in private dental clinics ( $P < 0.05$ ). No significant differences were found when subjects' gender, age, or employment status were compared ( $P > 0.05$ ). Subjects' level of education showed significant differences ( $P < 0.05$ ) as dentists tend to give OHI to subjects who have university level or higher more than to subjects with other education level. The method, number and times of cleaning teeth showed significant differences between subjects who received OHI from their dentists and those who did not ( $P < 0.05$ ). The time subjects spend in cleaning their teeth showed no significant differences ( $P = 0.116$ ). **Conclusion:** Results showed variations in the dentists' attitude toward giving OHI to their patients. It is important that more continuous education courses and programs are given to dentists on the importance of patients' education about the oral hygiene.

**Keywords:** OHI; Dentists; Patients; and Practice

## Introduction

Dental diseases such as dental caries, periodontal diseases and further tooth loss are critical health issues affecting humans. Poor oral hygiene leads to the accumulation of the commensal oral microbiota (dental plaque) which causes the initiation and propagation of dental diseases [2]. Furthermore, poor oral health has further effects on the individual's overall health and quality of life [3].

One of the prophylactic measures to reduce dental diseases is 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 [4]. Oral Hygiene Instructions (OHI) and oral hygiene practice are considered as health education given to dental patients. In 2003, WHO indicated that the focus of Oral Health Education (OHE) actions should be on behaviors and conditions that promote oral health or that minimize the risk of oral disease [5]. Oral cleanliness is crucial for the conservation of oral health as it eliminates microbial plaque, avoiding it from accumulating on teeth and gingiva [6,7]. Maintenance of effective plaque control is the cornerstone of any attempt to prevent and control dental diseases. American Dental Association (ADA) has several recommendations for the home oral care [8].

Dentists and dental care professionals have the main role in maintaining the patient's oral health by giving advice to all patients to increase their awareness of oral hygiene. It is important that dental professionals be given oral health program continuous education to increase their knowledge about the importance of giving their patient OHI. Shulman et al. found that 4-hours Continuing Education (CE) program on the oral health knowledge and behaviors of dentists, dental hygienists and dental assistants in providing oral health services to young children have resulted in a significantly increased the participants' knowledge and comfort level for providing oral health care [9]. The dental professionals' application of giving their patients OHI varies. Previous study found that dental hygienists participated in the study did not use enough demonstration methods in order to improve their patients' performance [8]. They recommended that OHI programs should be encouraged in the dental clinics.

Previous studies have shown that effective removal of dental plaque is essential for dental and periodontal health [10,11]. For that, efficient oral hygiene practice by patients requires patient motivation, adequate tools, and professional OHI [12]. The process of giving health education advices includes several steps [10]. These steps ensure 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 [13]. Furthermore, regular dental visits are part of the OHI recommended to promote preventive practices, and thus improve oral health [14]. It has been shown that the odds of pain were higher among those who never visited a dentist or visited only when in pain and lower among those with regular dental checkups [15].

## Rationale of the study

In our previous study [1], we found that more than half (58.1%) of the study subjects reported that they receive an explanation from dentists on how to clean their teeth and maintain good oral health. Furthermore, same study showed that less than half of the subjects reported that dentists gave them OHI on every visit.

As the dental caries is recognized as a major health problem in most developing countries, Saudi Arabia is a developing country with high prevalence of dental caries [16,17].

As the tendency of giving patients OHI by dentist may be affected by different factors, it is important to know possible factors that affect dentist's practice of giving their patients oral hygiene instructions during their dental visits. Therefore, this study aimed to investigate possible factors that may have an effect on the dentist's practice to give OHI to their patients.

## Materials and Method

The description of the materials and methods was published previously [1]. In brief, this cross-sectional study was carried out from October 2019 to December 2019. Four government hospitals and four private dental clinics were randomly selected from a list of dental clinics in Riyadh, Saudi Arabia. A total of 255 patients were randomly selected from each selected clinics 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 in Riyadh research ethical committee (IRB No. alf.dent-2019009). The self-administered survey questionnaire used contained questions that covered three different sections, namely, demographic, patients' oral hygiene behavior and dentists' practice to give OHI to his/her patients.

## Statistical Analysis

The data was entered and analyzed using IBM-SPSS (version 25). Descriptive statistics (frequency and percentage) were described and chi-square and proportional t-test was used, and level of significance set at 0.05.

## Results

A total of 255 subjects participated in the study. The demographic characteristics of participants are shown in Table 1

[1]. The number (%) of subjects recruited from private dental clinics and governmental dental clinics is 139 (54.5%) and 116 (45.5%) respectively. Most (60%) of the subjects were female. More than half of the subjects (58.8%) were aged between 26 and 50 years. Also, 61% (155) of the subjects were employed and 146 (57.3%) of them has a university or higher degree.

Variable		n	%
Source of Subject	Government	116	45.5
	Private	139	54.5
Gender	Male	103	40.4
	Female	152	59.6
Age (Years)	< 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
Employment	Employed	155	61.0
	Unemployed (others)	100	39.0

\*Alabidi et al., 2019.

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

The effect of the subjects' demographic characteristics on dentist's attitude to give OHI to them is shown in Table 2. The differences between dentists working in governmental or private dental clinics showed significant differences ( $P < 0.05$ ). Dentists working in governmental dental clinics showed higher attitude to give OHI to their patients. No significant differences were found when subjects' gender, age, or employment status were compared ( $P > 0.05$ ). Subjects' level of education showed significant differences ( $P < 0.05$ ). Dentists tend to give OHI to subjects who have university level or higher more than to subjects with other education level.

Factor	Level	Dentist explained OHI		P-value
		Yes: n (%)	No: n (%)	
Place of Clinic	Government	76 (65.5)	40 (34.5)	0.028
	Private	71 (51.8)	66 (48.2)	
Subjects' Gender	Male	59 (57.8)	43 (42.2)	0.945
	Female	88 (58.3)	63 (41.7)	
Subjects' Age (Years)	< 20	11 (57.9)	8 (42.1)	0.532
	20 - 25	32 (56.1)	25 (43.9)	
	26 - 50	91 (61.1)	58 (38.9)	
	> 50	13 (46.4)	15 (53.6)	
Subjects' Education	Less than high school	9 (50.0)	9 (50.0)	0.029
	High school or diploma	42 (47.7)	46 (52.3)	
	University or higher	93 (64.6)	51 (35.4)	
Subjects' Employment	Employed	93 (60.4)	61 (39.6)	0.323
	Unemployed	53 (54.1)	45 (45.9)	

**Table 2:** Association between subjects' demographic variables and the dentists' explanation of the Oral Hygiene Instructions.

The effect of OHI given by the dentists on subjects' oral hygiene behavior was tested (Table 3). The cleaning teeth method showed significant differences between subjects who received OHI from their dentists and those who did not ( $P<0.05$ ). Similarly, number of cleaning teeth per day showed significant differences between subjects who received OHI from their dentists and those who did not ( $P<0.05$ ). Subjects who received OHI from their dentists clean their teeth two or more times per day. The time subjects spend in cleaning their teeth showed no significant differences ( $P=0.116$ ). Furthermore, subjects who received OHI from their dentists tend to clean their teeth in the morning and evening more than subjects who did not receive OHI from their dentists ( $P<0.05$ ). Finally, results showed that more subjects visit dentists twice a year if they receive OHI from their dentists ( $P<0.05$ ).

Question	Answers	Dentist explained OH*		P-value
		Yes: n (%)	No: n (%)	
What do you use to clean your teeth?	Brush, toothpaste & Dental floss	75 (73.5)	7 (3.5)	0.001
	Brush and toothpaste	65 (48.1)	70 (51.9)	
	Dental floss & Miswak	6 (55.5)	5 (45.5)	
How many times per day do you clean your teeth?	> 2 per day	36 (87.8)	5 (12.2)	0.0001
	2 per day	63 (57.8)	46 (42.2)	
	1 per day	38 (48.7)	40 (51.3)	
	I don't brush my teeth	10 (40)	15 (60)	
How long does it take you to clean your teeth?	2 minutes or more	47 (63.5)	27 (36.5)	0.116
	> 1 minute but < 2 minutes	50 (64.1)	28 (35.9)	
	> 30 seconds but < 1 minute	27 (57.4)	20 (42.6)	
	> 30 seconds or less	9 (42.9)	12 (57.1)	
	I do not know	14 (42.4)	19 (57.6)	
When do you usually clean your teeth?	Morning and evening	103 (65.2)	55 (34.8)	0.001
	Only in the morning	26 (60.5)	17 (39.5)	
	Only in the evening	10 (29.4)	24 (70.6)	
	Other times	8 (44)	10 (56)	
How many times do you visit the dentist?	More than twice a year	27 (81.8)	6 (18.2)	0.0001
	Twice a year	23 (74.2)	8 (25.8)	
	Once a year	20 (74.1)	7 (25.9)	
	Only when I have pain in the teeth	70 (50.4)	69 (49.6)	
	I am not visiting the dentist	3 (16.7)	15 (83.3)	

\*Some cells were margined to satisfy chi-square legibility

**Table 3.** Association between subjects' oral hygiene behavior and the dentists' explanation of the Oral Hygiene Instructions.

## Discussion

Common dental diseases like dental caries and periodontal diseases are preventable by means of practicing good oral hygiene. As with many practices, patients need to be motivated how to practice good oral hygiene. It is the responsibility of dental professionals to educate and teach their patients about oral hygiene practice. Previous study have showed that the dentists are considered as the person major responsible for OHI [18]. In this study, we investigated possible factors that may play a role in dentist' practice to give OHI to their patients.

Results showed that dentists working in governmental dental clinics tend to give OHI to their patients more than those working in private dental clinics. This might be attributed to the financial concerns in private clinics compared to governmental clinics. It is possible that OHI provided in private dental practice is affected by number of patients seen per day. A statistically significant correlation was found between the number of patients consulted per day and the salary paid by the dentist [19]. Hygienists who earn more treat more patients per day, but do not spend less time providing oral hygiene information. Another possible reason for dentist not to give OHI is the absence of dental auxiliary [20].

Other finding was the statistical difference between dentist's tendency to give OHI to their patients based on their education level. Results showed that dentists tend to give OHI to subjects who have university level or higher more than to subjects with other education level. This might be attributed to the perception of patients toward the importance of OHI. Previous study [18] have shown that patients with a higher educational level had more previous information about caries, periodontal diseases, and oral health preventive measures. Similar findings were reported by Márquez-Arrico, et al. [21]. Furthermore, Celeste et al. reported that low educated people have higher probability of non-treated caries lesions in low educated people. This finding emphasizes the importance of continuous preventive dental education (OHI) which includes diet role, dental brushing and flossing [22].

The OHI given by dentists to their patients has an effect on the patients OHI practice, which subsequently results in better plaque control. This has been shown previously by Glavind, et al. [23] who reported a significant improvement in plaque and gingival bleeding scores following the use of the self-instructional manual in oral hygiene. Stein et al. reported that traditional oral health education was effective in reducing plaque accumulation over a short period [24]. It is important that OHI be repeatedly given to patients. Previous study showed that repetition and reinforcement components of dental health education program were of significant value in improving the oral hygiene performance [25]. Furthermore, Shenoy, et al. [26] have concluded that the dental health education program conducted at three-week intervals was more effective

than that conducted at six-week intervals in improving oral health knowledge, practices, oral hygiene status, and gingival health of schoolchildren [27,28].

The study has several limitations such as number of subjects, number of dental clinics and centers, and categorization of dentists' specialties.

## Conclusion

Based on study's findings and within the limitations of the study, it can be concluded that OHI given by dentists to their patients increase the patient's OH practice. It is recommended that dentists need to be updated about the importance of repeatedly giving their patients OHI by different means such as continuous education courses.

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