

Research Paper

Investigate of Tooth Decay and Its Relationship With Knowledge, Attitude and Performance (Kap) in High School Students in Islamabad-E-Gharb City



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ABSTRACT

Background and Aim Oral and dental health plays an important role in people's general health and is affected by various factors such as knowledge and attitude of a person regarding oral and dental health. Improving people's Knowledge and attitude in this regard will lead to more attention towards oral and dental health. therefore, the present study was conducted to determine the rate of tooth decay and its relationship with knowledge, attitude and performance in high school students in the Islamabad-e-Gharb city.

Methods & Materials This study was a cross-sectional study conducted among 348 high school students in Islamabad-e-Gharb. Which were selected through sampling in two stages, cluster and random. Data were collected using clinical examination and standard questionnaire and analyzed using descriptive statistics, independent t-test, one-way analysis of variance, Sheffe post hoc test and Spearman's correlation coefficient at a significance level of less than 0.05 using SPSS software, version 22.

Ethical Considerations This study was approved by the Ethics Committee of the Kermanshah University of Medical Sciences (Code: IR.KUMS.REC.1397.548).

Results The Mean Decay-Missing-Filled Teeth (DMFT) index 6.07 ± 3.47 and Mean teeth decayed were 5.31 ± 2.90 respectively and 96.3 percent of the students had dental carries. Both DMFT index ($r = -0.124$, $P = 0.021$) and teeth decay ($r = -0.131$, $P = 0.015$) had a significant relationship with students' performance regarding oral and dental health. There was no significant difference between DMFT index and the number of teeth decayed with students' knowledge and attitude regarding oral and dental health ($P < 0.05$). No significant relationship were found between either DMFT index ($P = 0.749$) and teeth decay ($P = 0.614$) with gender.

Conclusion In this study, DMFT index and teeth decay were relatively high and this shows the need to design educational interventions in adolescents to prevent teeth decay.

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Extended Abstract

Introduction

Oral and dental health plays an important role in people's general health [1] and is affected by various factors, such as the knowledge and attitude of a person regarding oral and dental health. Improving people's knowledge and attitude in this regard will lead to more attention toward oral and dental health [5]. Tooth decay is a common and pervasive problem in developed and developing countries, and it is believed that it is increasingly spreading, especially in developing countries, and this causes an increase in treatment costs [9]. Knowledge of the level of decayed, missing, and filled teeth or other indicators allows communities to expand their programs in the direction of education, prevention, and treatment. Before planning for oral and dental health programs in schools, it is better first to check the level of tooth decay and related factors. Therefore, the present study was conducted to determine the rate of tooth decay and its relationship with knowledge, attitude, and performance in high school students in Islamabad-e-Gharb city.

Materials & Methods

This study was a cross-sectional study conducted among 348 high school students in Islamabad-e-Gharb using Cochran's formula, 5% error, and 95% confidence level. Students were selected through sampling in two stages, cluster and random. In the first stage, ten schools were selected in different parts of the city. In the second stage, one class was randomly selected from each school for each grade. Data collection was based on clinical examination and using a questionnaire. The equipment used

in this study was a mirror, probe, and flashlight. A dental technician in cooperation with health experts performed the dental examination, and to measure other information, a questionnaire designed to measure knowledge, attitude, and performance (KAP) was used, which was designed by Yavari et al. and implemented in schools in Yazd city [14]. This questionnaire has four parts, measuring demographic information, knowledge, attitude, and performance. Data were analyzed using descriptive statistics, independent t-test, one-way analysis of variance, Scheffe's post hoc test, and Spearman's correlation coefficient at a significance level of less than 0.05 using SPSS 22.

Results

In this study, the mean and standard deviation of the age of first-, second-, and third-grade students was 12.63 ± 1.65 , 13.86 ± 0.58 , and 14.78 ± 0.61 years, respectively (range: 13.78 ± 1.37 years). Also, 348 students participated in this study. Of these, 197 students (56.6%) were girls and 151 students (43.4%) were boys, 113 students (32.47%) were first-grade students, 117 students (33.62%) were second-grade students, and 118 students (33.91%) were third-grade students. In this study, 335 students (96.3%) had decayed teeth. The mean and standard deviation of knowledge were 5.40 ± 1.80 , the attitude was 37.86 ± 5.18 , and performance was 15.71 ± 4.28 . The mean of Decay-Missing-Filled Teeth (DMFT index) was 6.07 ± 3.47 and the mean of decayed teeth was 5.31 ± 2.90 (Table 1). No significant relationship was found between either DMFT index and decayed teeth with gender and parents' occupation ($P > 0.05$), but the analysis of variance results showed that the number of decayed teeth and DMFT index had a significant relationship with the mother's education and educational grade of students so that the number of decayed teeth ($P = 0.023$) and DMFT index ($P = 0.038$) among students whose mothers had a di-

Table 2. Variables' descriptive information

Variables	Mean \pm SD	Minimum	Maximum
knowledge	5.4 \pm 1.80	0	10
attitude	37.86 \pm 5.18	13	50
performance	15.71 \pm 4.28	0	25
Number of decayed teeth	5.31 \pm 2.90	0	14
Number of restored teeth	1.23 \pm 0.65	0	9
The number of elongated teeth	0.38 \pm 0.11	0	2
DMFT index	6.07 \pm 3.47	0	21

Table 4. Relationship between educational level and decayed teeth variables, DMFT index, knowledge, attitude, and performance of students

Variables	Grade	No.	Mean±SD	P
decayed teeth	First	113	4.51±2.60	0.001
	Second grade	117	5.46±2.90	
	Third	118	5.88±2.97	
DMFT index	first grade	113	5.14±2.90	0.002
	second grade	117	3.78±6.41	
	third grade	118	3.45±6.59	
knowledge	first grade	113	5.08±1.82	0.034
	second grade	117	5.40±1.74	
	third grade	118	5.70±1.77	
attitude	first grade	113	38.42±5	0.348
	second grade	117	37.44±5.07	
	third grade	118	37.87±5.19	
performance	first grade	113	16.11±4.6	0.490
	second grade	117	15.81±4	
	third grade	118	15.44±4.19	

ploma and university level of literacy were significantly lower than students with literate or low-literate mothers. The rate of decayed teeth in the second-grade ($P=0.012$) and third-grade ($P<0.001$) students was higher than in the first-grade students, and the DMFT index in the first-grade students was higher than in the second- ($p=0.005$) and third-grade ($P<0.001$) students (Table 2). There was no significant difference between the DMFT index and the number of decayed teeth with students' knowledge and attitude regarding

oral and dental health ($P>0.05$). Both the DMFT index ($r=-0.124$, $P=0.021$) and decayed teeth ($r=-0.131$, $P=0.015$) had a significant relationship with students' performance regarding oral and dental health (Table 3).

Discussion

In this study, the prevalence of tooth decay among students and its relationship with their knowledge, attitude, and per-

Table 5. Relationship between decayed teeth, restored teeth, elongated teeth, and DMFT index and knowledge, attitude, and performance

Variables	Knowledge	Attitude	Performance
Decayed teeth	-0.053	0.025	-0.131*
Restored teeth	0.076	0.002	0.053
Elongated teeth	0.041	0.090	-0.116*
DMFT index	0.009	0.056	-0.124*

* Significance level ($p<0.05$)

formance were investigated. The results of the study showed that 96.3% of students had decayed teeth, which shows a relatively high prevalence and indicates the poor oral and dental health status in the study community. Premature tooth decay in children and adolescents in developing countries has been reported more than in developed countries [15]. The findings of the present study showed that the students had an average performance regarding oral and dental health, which is in line with the results of Mirzaei Alavijeh et al.' assessing male and female students in Yazd city [1]. Holding training classes by the school health instructors for students and holding meetings with parents may improve the performance of students, which is recommended. The results of the present study showed that tooth decay had no significant relationship with students' knowledge and attitude, but it had an inverse and significant relationship with students' performance. This means that with the reduction of health behaviors, the average index of tooth decay increased. Consistent with our results, Shokouhinia et al. showed that girls' knowledge and attitude had no significant relationship with DMFT, and only health behavior had an inverse and significant relationship with DMFT [25]. In the interpretation of the mentioned results, it can be said that knowledge and attitude alone do not cause performance, because despite the relatively high level of attitude, no correlation was shown with the decayed teeth and DMFT index, and the students' performance had an inverse and significant relationship with decayed teeth and the DMFT index. It is suggested that future studies focus more on the factors that can improve students' performance, because prevention is better than treatment, and designing educational interventions in adolescents to prevent teeth decay can be useful.

Ethical Considerations

Compliance with ethical guidelines

This study was approved by the Ethics Committee of the Kermanshah University of Medical Sciences (Code: IR.KUMS.REC.1397.548).

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Authors' contributions

Conceptualization: Nooshin Salimi, Ehsan Bakshi, and Elaheh Ezzati[‡] Methodology and data collection: Nooshin Salimi, Ehsan Bakshi, and Faezeh Ezzati[‡] Data analysis:

Nooshin Salimi, Ehsan Bakshi, and Elaheh Ezzati[‡] Editing & review: All authors.

Conflicts of interest

The authors declared no conflict of interest.

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