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RESEARCH ARTICLE

EFFECT OF TOOTH LOSS ON SOCIAL APPEARANCE ANXIETY AND ORAL HEALTH-RELATED QUALITY OF LIFE AMONG DENTAL STUDENTS

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ABSTRACT

Purpose: The aim of this study is to assess the level of social appearance anxiety and oral health-related quality of life among dental students with and without tooth loss.
Methods: This case-control, single-center study was conducted on undergraduate dental students (n=205) from 1st to 4th year. The questionnaire that includes the following items: age, sex, number of missing teeth and location, Social Appearance Anxiety Scale (SAAS), and Oral Health Impact Profile -14 (OHIP-14) were distributed to students.
Results: There was no statistically significant relation between the presence of tooth loss and distribution of SAAS scores (p= 0.692). However, there was a statistically significant relation between presence of tooth loss and number of missing teeth, and the OHIP-14 scores (p = 0.002, p = 0.003). Factors of gender and location of missing teeth were not found to be significantly associated with SAAS and OHIP-14 scores (p>0.05). In addition, there was a positive and significant relationship between SAAS and OHIP-14 scores (p<0.001).
Conclusions: The present study showed that level of oral health-related quality of life was lower in dental students with tooth loss. On the other hand tooth loss has no significant association with social appearance anxiety in dental students.
Keywords: Dental students, oral health-related quality of life, oral health impact profile-14, social appearance anxiety, tooth loss

INTRODUCTION

Tooth loss resulting from caries or periodontitis remains a significant public health problem despite technical, pharmacological and surgical advances in the field of dentistry. Effects of tooth loss result in morphological alterations in the maxillofacial region due to the hard and soft tissue changes (1,2).
Besides physical effects, tooth loss is also associated with individuals' quality of life; mostly when it affects their well-being and appearance. Emotional effects of tooth loss on people and their daily lives are well established (3). Several studies report significant associations between tooth loss and the scores of unfavorable oral health-related quality of life (4). Comorbid depression and anxiety are linked to the increased number of tooth loss and it has been suggested that tooth loss may deteriorate depression and anxiety (5).

The decrease in the amount of natural teeth was found to be related to chewing disability which has remarkable influence on oral health-related quality of life (6). Apart from physical and emotional effects, tooth loss also has impact on cognitive abilities as shown in previous studies (7-9). It was reported that lower number of teeth is related to the risk of mild memory impairment (8).

Psychosocial researches have become increasingly popular in medical sciences and the results of these studies support the influence of oral health on quality of life and well-being. Dental students' approaches to the oral health could set as an example for the community and have been examined in several studies (10-15). Despite these distinguished researches addressing socio-behavioral effects among dental students, to our knowledge this is the first study that assesses the effect of tooth loss on social appearance anxiety and oral health-related quality of life simultaneously within this specific group. Results of this study support that the introduction of lectures on dentistry related behavioral sciences to the dental curriculum could be of great importance and could increase individual awareness of the oral health-related quality of life and optimize behavioral skills for self-well-being primarily and later on patient comfort.

MATERIAL AND METHODS

This study was approved by the University of Health Sciences/Gulhane Scientific Research Ethics Committee with the registration number of 2020/372. It was performed in accordance with the guidelines of the Declaration of Helsinki. It was conducted on 205 undergraduate dental students. Informed consents were obtained from dental students. All students were informed about the study protocol at their online lectures and an online survey hosted on Microsoft FormsTM was electronically distributed to the students. In the first part of the questionnaire form, there were basic questions that provided demographic data about age, gender, marital status and the presence/number/location of missing teeth. In the second part, SAAS and OHIP-14 scales were included to determine social appearance anxiety and oral health-related quality of life.

The Social Appearance Anxiety Scale (SAAS) is an scale that measures anxiety about being evaluated by others because of appearance (16). The use of SAAS has been proven as an effectual measure of social appearance anxiety (17). The scale contains 16 items that are related to how individuals feel about their appearance. For each item a score ranging from 1 to 5 is given, and the higher scores represent the higher social appearance anxiety. Reliability and validity of SAAS was previously validated among Turkish university students (18).

The Oral Health Impact Profile (OHIP) is an index that offers a valid instrument for measurement of the social impact of oral disorders (19). It is a 49-item questionnaire that evaluates people's perceptions of the effect of oral conditions on their well-being. OHIP-14 was developed as the short-form version of OHIP and it has been considered as a well-established measure which has good reliability, validity and precision, and which addresses the aspects of oral health that may affect an individual's physical, social and psychological well-being (20). Reliability, validity, repeatability and intelligibility of the Turkish version of OHIP-14 was also proved (21).

Statistical Analysis

Statistical analysis was performed using Version 23 of IBM-SPSS for Windows (SPSS Inc, Chicago, IL, USA). As descriptive analysis, frequency and percentage were given for qualitative variables and mean, standard deviation, median, minimum and maximum values were given for quantitative variables. Nonparametric statistical methods were used because the normal distribution assumption was not met, and the scores were in discrete numerical data structure. Comparisons between two independent groups were performed using the Mann-Whitney U Test. Relationships between quantitative variables were analyzed using the Spearman correlation coefficient. The level of significance for all tests was set at $p<0.05$.

RESULTS

A total of 205 dental students' data were analyzed. The participants' characteristics are presented in Table 1.

SAAS and OHIP-14 total scores related to gender, presence of tooth loss and location of tooth loss are given in Table 2. There was no statistically significant difference between gender and location of tooth loss in terms of the distribution of SAAS and OHIP-14 scores ($p> 0.05$). There was no significant difference between the students with and without tooth loss in terms of SAAS scores ($p = 0.692$). However, median OHIP-14 score was significantly higher among the students with tooth loss ($p = 0.002$).

Table 1. Values of descriptive statistics

	Descriptive statistics
Gender	
Male	62 (30.2%)
Female	143 (69.8%)
Marital status	
Married	5 (2.4%)
Single	200 (97.6%)
Presence of tooth loss	
Yes	60 (29.3%)
No	145 (70.7%)
Location of tooth loss	
Anterior region	3 (5.0%)
Premolar region	13 (21.7%)
Posterior region	34 (56.7%)
More than one region	10 (16.7%)
Age	20.32 ± 1.707
	20.0 (18.0 - 25.0)
SAAS score	28.01 ± 10.432
	25.0 (16.00 - 72.0)
OHIP-14 score	9.81 ± 6.586
	8.0 (0.0 - 33.0)

Frequency (%) for qualitative variables, mean ± standard deviation and median (minimum-maximum) for quantitative variables were given.

Evaluation of age, number of missing teeth, SAAS and OHIP-14 scores are presented in Table 3. In addition to the significant difference in the distribution of OHIP-14 scores between those with the presence of tooth loss as shown in Table 2, there is also a significant positive correlation between the number of missing teeth and the OHIP-14 score (p=0.003). Besides, there is a positive and significant relationship between the SAAS score and the OHIP-14 score (p<0.001).

DISCUSSION

It has been demonstrated in previous studies that tooth loss is related to emotional and cognitive effects besides tissue alterations in the maxillofacial region. Decrease in the number of natural teeth is associated with chewing disability and deterioration of oral health-related quality of life (6). Tooth loss negatively affects the quality of life mostly when it affects an individual's well-being, appearance and nutritional status (22). Several studies reported that tooth loss is interrelated with different levels of cognitive impairments in the long term among adults (23-25).

Tooth loss causes disorder in the peoples' quality of life, mostly when it affects their well-being and appearance. Oral health-related quality of life is defined as a term that includes a subjective evaluation of individuals' oral health, functional and emotional well-being (26). Takeuchi et al. reported oral health-related quality of life was associated with self-related oral health and symptoms of oral disorders among university students (27).

Social appearance anxiety is defined as the anxiety that an individual feels while others evaluate his/her overall appearance. It has been concluded that the self-perceived image of dental esthetics can significantly affect individuals' social and psychological well-being which can be related to their self-confidence (28). Atik et al. reported higher level of social appearance anxiety scores in individuals with Class II and III malocclusions compared to Class I malocclusions (29). Alignment of teeth and skeletal malformations related to the dentofacial region have also been found to be associated with a higher level of social appearance anxiety (30,31).

In the light of the above-mentioned studies, it can be hypothesized that tooth loss has an impact on

Table 2. SAAS and OHIP-14 total scores related to gender, presence of tooth loss and location of tooth loss

			SAAS			**OHIP-14**		
Variable	**Group**	**n**	**Median (IQR)**	**Z**	**p**	**Median (IQR)**	**Z**	**p**
Gender	Male	62	24.0 (14.0)	-0.971	0.331	8.0 (8.0)	-1.113	0.266
	Female	143	25.0 (13.0)			8.0 (9.0)		
Presence of tooth loss	Yes	60	26.0 (13.5)	-0.396	0.692	11.0 (12.0)	-3.170	0.002*
	No	145	25.0 (13.0)			7.0 (7.0)		
Location of tooth loss	One region	50	26.0 (11.0)	-0.189	0.850	10.5 (12.0)	-0.914	0.361
	More than one region	10	28.5 (27.0)			12.5 (12.0)		

*: p value statistically significant.

Table 3. Comparative evaluation of age, number of missing teeth, SAAS and OHIP-14 scores (n=205)

Variable	SAAS score	OHIP-14 score
Age	r_s = -0.093 p = 0.184	r_s = 0.160 p = 0.022*
Number of missing teeth	r_s = 0.027 p = 0.702	r_s = 0.204 p = 0.003*
SAAS score	-	r_s = 0.260 p < 0.001*

*: p value statistically significant.

individual's quality of life and social appearance perception, mostly when it affects their well-being and appearance. Therefore, we aimed to assess possible effects of tooth loss on dental students in terms of social appearance anxiety and oral health-related quality of life.

The relationship between the oral health-related quality of life and health attitudes was demonstrated among the dental student community and it has been shown that self-reported oral problems such as malocclusion, tooth decay and calculus deteriorated scores of oral health-related quality of life (10).

It has been reported that dental experience and self-reported oral health problems are associated with oral health-related quality of life among dental students (15). The result of the present study supports previous literature stating that the presence of tooth loss and the increased number of missing teeth are significantly related to the oral health-related quality of life. Besides, there is a positive and significant relationship between the SAAS score and the OHIP-14 scores. However, there is no statistically significant difference between the presence of tooth loss in terms of the distribution of SAAS scores. It can be concluded that the results of this study support that tooth loss can deteriorate the oral health-related quality of life in dental students with minimal effects on social appearance anxiety.

Education is a very important component of life and it can be related to our perceptions about life-long health attitudes. It has been previously shown that oral health attitudes, knowledge and behaviors of dental students can be significantly improved by educational level (11,12,14). Results of this study support that the introduction of lectures on dentistry related behavioral sciences to the dental curriculum could be of great importance and increase individual awareness of the oral health-related quality of life and relation with oral conditions that could optimize behavioral skills for self-well-being primarily and later on patient comfort.

There are several limitations to our study. First, due to the restrictions during the pandemic period lectures were given to the students online, therefore, we conducted the study on an online basis. Secondly, the personality traits of participants and the etiology of tooth loss (trauma, caries, orthodontic treatment, or periodontal reasons) were not examined. These factors could influence the perception and anxiety levels of individuals. More comprehensive studies are warranted to investigate the physical/behavioral factors that can be related to oral health-related quality of life and social appearance anxiety among dental students.

CONCLUSION

The results of this study revealed that tooth loss has a clear influence on oral health-related quality of life among dental students. As future dentists, dental students should have access to comprehensive education about bio-social factors that affect oral health-related quality of life and dental attitudes. The curriculum should contain lectures on behavioral sciences that convey comprehensive knowledge about etiology, prevention, measurement and management strategies for all kinds of behavioral factors that could be related to oral health attitudes.

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