Research Article

The Effect of Oral and Dental Health Status on the Self-Esteem Levels of Turkish University Youth

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Abstract

Objectives: This study aimed to investigate the impact of oral and dental health status on the self-esteem levels of Turkish university youth.

Methods: This descriptive cross-sectional study included a sample of 962 Turkish university youth, aged 16 - 24, who met all the study criteria during the 2020 - 2021 academic year. Data were collected using a questionnaire and the Rosenberg Self-Esteem Scale (RSES). The data were analyzed with SPSS version 23.0. *T*-tests were used for pairwise comparisons, and one-way ANOVA was used for multiple comparisons.

Results: Among the students who participated in the study, 56.7% were found to have high self-esteem, with a mean RSES score of 1.69 ± 1.62. Statistically significant differences were found between the RSES score and several factors, including decayed teeth ($P < 0.01$), presence of halitosis ($P < 0.01$), tooth color ($P < 0.01$), crooked teeth ($P = 0.045$), and toothache ($P = 0.008$). It was determined that dental crookedness, decayed teeth, bad breath, dark yellow teeth, the presence of tooth fillings, and extracted teeth were negatively associated with self-esteem. However, no statistically significant differences were found between self-esteem and factors such as the presence of tooth fillings, extracted teeth, tooth brushing habits, frequency of dental visits, or snack food consumption ($P > 0.05$).

Conclusions: The results of this study reveal that poor oral care negatively impacts individuals' self-esteem. Issues related to oral and dental health, particularly concerning the appearance and condition of teeth, affect young people's relationships and self-confidence in social environments. It is crucial to develop family and school education programs, as well as national policies, particularly during childhood and university years, when attitudes toward oral and dental health are being established.

Keywords: Students, Youth, Oral Health, Self-Esteem

1. Background

Dental health, a crucial component of overall health, significantly influences facial expressions, as well as the way a person smiles and talks (1). Oral health plays a vital role in an individual's self-esteem. A healthy smile can enhance a person's confidence and self-image, while poor oral health can lead to self-consciousness and low self-esteem (2). According to the American Academy of Pediatric Dentistry (AAPD), adolescents with poor oral health are more likely to experience low self-esteem and a poor self-image compared to those with good oral health (3-5).

Since the youth period, which includes adolescence, is a particularly sensitive time when individuals are susceptible to various influences, oral care habits typically establish during this period. If youths have lower motivation to maintain good oral hygiene, the risk of dental diseases may increase (6). Therefore,

youths are at an increased risk for caries, early periodontal disease, and other oral health issues, making oral care especially important during this time (7, 8). In addition to caries management, dental referrals, and sports injury prevention, youths have specific oral health needs, such as managing the risks associated with oral piercings, increased sugar intake, nicotine initiation, and orthodontic considerations (9).

Youth is also a period of significant physical, intellectual, personality, and psychological development, marking the transition from puberty to adulthood. During this time, self-perceived appearance is heavily influenced by facial features and overall appearance (6). Given that physical appearance impacts communication and social interactions, it is likely that self-esteem is closely linked to the quality of oral health (10, 11). Aesthetic changes can directly influence self-esteem and, consequently, the quality of life among adolescents, as social relationships often depend on physical attractiveness (9, 12). When individuals experience issues such as cavities, gum disease, bad breath, or missing teeth, they may feel embarrassed and avoid smiling or speaking in social situations, which can negatively affect their self-esteem and overall quality of life (13).

Studies on the relationship between oral health behaviors and psychological factors have shown that adolescents with higher self-esteem are more likely to brush their teeth regularly and make more frequent dental visits compared to those with lower self-esteem (14). Preventive behaviors are essential for maintaining oral and dental health, as lifelong self-care behaviors and attitudes contribute to dental health. Good health behaviors are key to maintaining and improving health status (15).

It is well-documented that problems related to oral and dental structures impact an individual's appearance, personal health, and psychological well-being. Numerous studies have demonstrated a significant relationship between self-esteem and oral health. Our study aims to contribute to the literature by including a wide age range of young people and showing that the oral health behaviors established during this period can persist into adulthood.

2. Objectives

This study seeks to examine the effect of oral and dental health status and behaviors on the self-esteem levels of Turkish university students.

3. Methods

3.1. Design and Sample

This descriptive and cross-sectional study was conducted at Hasan Kalyoncu University during the 2020 - 2021 academic year. The study population consisted of the entire student body (n = 12,053), excluding dentistry students due to their heightened awareness of oral health from their education. The minimum sample size was calculated using the G*Power 3.1.9 program, based on literature from a national electronic database. The required sample size was determined to be N = 391, with 80% statistical power, a 0.2 effect size, and a 0.05 type I error rate (16). To increase reliability, the study was ultimately completed with 962 participants (656 women, 306 men).

3.2. Data Collection

Data were collected using a questionnaire developed by the researchers, which included demographic characteristics and questions on oral and dental health care, as well as the Rosenberg Self-Esteem Scale (RSES). The questionnaire was reviewed and finalized by a panel of five experts, including three specialists in pediatric health and diseases nursing and two dentists. The content validity agreement among the experts was found to be 0.89.

Before data collection, the researcher explained the purpose of the study to the students. Those who agreed to participate were given the survey and scale forms, which were administered using a face-to-face interview method. The surveys were distributed individually to the students in their faculty or college classes and completed in the classroom environment. To maintain standardization and reduce interviewer bias, directions were included in the survey, and the researcher provided no additional instructions to the interviewers. Completing the survey and scale took approximately 15 minutes.

The questionnaire included 30 questions covering the demographic characteristics of the students (such as age, gender, class, and marital status), their oral health conditions, and their oral health behaviors. The students filled out a standardized self-administered questionnaire addressing the daily frequency of toothbrushing, frequency of toothbrush replacement, frequency of dental flossing, use of antibacterial rinse or

other oral hygiene aids, receipt of oral hygiene instruction, and frequency of oral check-ups.

Rosenberg Self-Esteem Scale: The 10-item RSES was developed by Morris Rosenberg in 1963, with its Turkish validity and reliability study conducted by Çuhadaroğlu in 1986 (Cronbach's α = .76). The RSES is designed to measure self-esteem [17]. Each item on the scale is rated on a four-point Likert Scale ranging from "strongly agree" to "strongly disagree." The scale consists of ten items, five of which are negatively worded and five positively worded. Positively worded items (1, 2, 4, 6, 7) are scored as "0" for an affirmative response, while negatively worded items (3, 5, 8, 9, 10) are scored as "1" for a negative response. The total possible score on the scale ranges from 0 to 6, with a score of 0 - 1 indicating high self-esteem, 2 - 4 indicating moderate self-esteem, and 5 - 6 indicating low self-esteem [17]. The Cronbach's α reliability coefficient for the RSES was found to be .88 in the present study.

3.3. Inclusion Criteria

Volunteering to participate in the research; not having undergone any painful procedures, such as tooth extraction, in the last week; no history of systemic disease or psychological disorder; no previous orthodontic treatment.

3.4. Exclusion Criteria

Refusal to answer during the interview; wearing braces or any type of dental splint; experiencing a toothache during the interview.

3.5. Data Analysis

SPSS 23.0 (SPSS for Windows, version 23.0, Chicago, SPSS Inc., Chicago, IL, USA) was used for data analysis. Frequencies and percentages were calculated for descriptive statistics. Pairwise comparisons were conducted using the *t*-test, while multiple comparisons were made using one-way ANOVA. Post-hoc tests were performed to determine the specific differences between groups in the multiple comparisons.

3.6. Ethical Considerations

Approval was obtained from the Clinical Research Ethics Committee (protocol number: 189-2018.02.21-11), along with written permission from the Faculties. The students were informed about the purpose of the study,

and both oral and written informed consent was obtained from them before data collection.

4. Results

This section presents the findings related to the comparison of students' descriptive characteristics, oral health status, and oral health behaviors with their scores on the RSES. The majority of the participants were women (68.2%), 49.3% were in the 20 - 22 age group, 34.3% were in their second year of study, 54.2% were staying in a state dormitory, and 50.2% had been living in the city center for an extended period. Of the participants, 75.3% reported having a middle-income level, and 23.6% were smokers (Table 1).

The analysis revealed statistically significant differences in self-esteem levels based on demographic data. Students aged 23 and over had higher self-esteem compared to those in other age groups (P = 0.040). The mean RSES score for male students (X±SD = 1.58 ± 1.53) was lower than that of female students, although the difference was not statistically significant (P > 0.05). A statistically significant difference was found between the place where students had lived for a long time and their self-esteem levels (P = 0.030), with students who had lived in the city for a long time exhibiting higher self-esteem. Additionally, a statistically significant difference was found between students' income levels and self-esteem (P < 0.01), with students who reported having a good income level demonstrating higher self-esteem than those in other income groups.

The results also showed that other demographic characteristics, including gender, grade, residence type, and smoking status, did not show significant differences in RSES scores (P > 0.05) (Table 1).

There was a statistically significant difference in self-esteem scores based on the presence of decayed teeth, bad breath, and tooth color, as assessed by the

Rosenberg Self-Esteem Scale (P < 0.01). Students with decayed teeth, bad breath, and dark yellow teeth had significantly lower self-esteem scores compared to those without these oral health issues. A statistically significant difference was also found between students with skewed teeth and their RSES scores (P = 0.045), with lower self-esteem observed among those with dental crookedness.

Additionally, having experienced a toothache in the last year was associated with a statistically significant difference in RSES scores (P = 0.008), with those who had

Table 1. Comparison of Students' Descriptive Characteristics and Self-Esteem Scale (n = 962) [a]

Variables	No. (%)	X ± SD	Test	P-Value
Age (y)			F [b] = 3.17	0.04
17 - 19	416 (43.3)	1.73 ± 1.59 [A]		
20 - 22	473 (49.3)	1.73 ± 1.67 [A]		
≥ 23	73 (7.4)	1.23 ± 1.39 [B]		
Gender			t [c] = 1.42	0.15
Male	306 (31.8)	1.58 ± 1.53		
Female	656 (68.2)	1.74 ± 1.65		
Class			F [b] = 1.95	0.12
1	253 (26.3)	1.85 ± 1.67		
2	330 (34.3)	1.69 ± 1.66		
3	260 (27.0)	1.65 ± 1.57		
4	119 (12.4)	1.43 ± 1.45		
Residence			F [b] = 1.62	0.20
State dormitory	521 (54.2)	1.69 ± 1.69		
Private dormitory	91 (9.5)	1.42 ± 1.42		
Student house	350 (36.4)	1.76 ± 1.76		
Longest place of living			F [b] = 3.57	0.03
City	483 (50.2)	1.57 ± 1.58 [A]		
County	294 (30.6)	1.72 ± 1.64 [AB]		
Village	185 (19.2)	1.30 ± 1.42 [A]		
Income status			F [b] = 17.40	< 0.01
High	141 (14.6)	1.30 ± 1.42 [A]		
Middle	724 (75.3)	1.65 ± 1.57 [B]		
Low	97 (10.1)	2.52 ± 1.63 [B]		
Smoking			t [c] = -0.13	0.90
Yes	227 (23.6)	1.68 ± 1.63		
No	735 (76.4)	1.69 ± 1.06		

[a] The capital letters indicate statistical differences between groups, there is no statistical differences between groups indicated with the same capital letter.
[b] One-way ANOVA.
[c] Independent *t*-test.

a toothache showing lower self-esteem. However, the presence of tooth fillings and extracted teeth did not result in a statistically significant difference in self-esteem scores (Table 2).

The frequency of tooth brushing was found to be statistically significantly associated with the self-esteem of the students participating in the study (P < 0.01). Further analysis revealed that students who brushed their teeth 2 - 3 times a day had higher self-esteem compared to those in other groups. Additionally, the use of dental floss was also statistically significantly associated with self-esteem (P = 0.023), with further analysis showing that students who did not use dental floss had lower self-esteem.

A highly significant difference was found between the frequency of changing toothbrushes and self-esteem (P < 0.01). Further analysis indicated that students who changed their toothbrushes every three to six months had higher self-esteem than those who changed them less frequently. There was also a statistically significant difference between students' education status regarding oral and dental health and their self-esteem (P = 0.043), with students who received education on oral and dental health demonstrating higher self-esteem.

However, no statistically significant differences were found between self-esteem and other factors such as students' overall toothbrushing habits, frequency of

Table 2. Comparison of Students' Oral Health Status and Self-Esteem Scale

Variables	No. (%)	X ± SD [a]	Test	P-Value
Presence of dental filling			t^{b} = 0.48	0.63
Yes	510 (53.0)	1.71 ± 1.68		
No	452 (47.0)	1.66 ± 1.54		
Presence of decayed teeth			F^{c} =11.36	< 0.01
Yes	370 (38.5)	1.93 ± 1.70		
No	521 (54.2)	1.49 ± 1.55		
I do not know	71 (7.4)	1.92 ± 1.48		
Presence of pulled teeth			t^{b} =1.81	0.07
Yes	336 (34.9)	1.82 ± 1.70		
No	626 (65.1)	1.62 ± 1.57		
Presence of crooked teeth			t^{b} = 2.01	0.045
Yes	342 (35.6)	1.84 ± 1.74		
No	620 (64.4)	1.61 ± 1.54		
Presence of halitosis			t^{b} = 5.19	< 0.01
Yes	224 (23.3)	2.21 ± 1.78		
No	738 (76.7)	1.53 ± 1.53		
Toothache within the last year			t^{b} = 2.67	0.008
Yes	467 (48.5)	1.83 ± 1.70		
No	495 (51.5)	1.56 ± 1.52		
Teeth color			F^{c} = 7.71	< 0.01
Pretty white	32 (3.3)	1.50 ± 1.65 [A]		
White	545 (56.7)	1.54 ± 1.54 [A]		
Yellow	374 (38.9)	1.87 ± 1.68 [A]		
Dark yellow/stained	11 (1.1)	3.45 ± 1.63 [B]		

[a] The capital letters indicate statistical differences between groups, there is no statistical differences between groups indicated with the same capital letter.

[b] Independent *t*-test.

[c] One-way ANOVA.

dental visits, or snack food consumption (Table 3 , Figure 1).

It was found that 56.7% of the students had high self-esteem, 29.0% had moderate self-esteem, and 14.3% had low self-esteem. The mean RSES score for the students was 1.69 ± 1.62 (Table 4).

5. Discussion

The human face is often the first feature that people notice, and facial beauty, social interaction, and psychological well-being are significantly influenced by dental appearance, particularly among youths (9). The literature has consistently shown that dental aesthetics can affect an individual's psychological well-being (18). Self-esteem, defined as a personal perception of one's worthiness in relation to the social world, is largely shaped by the reflected appraisal of others and can have

both positive and negative effects. Individuals with low self-esteem often feel helpless and inadequate, while those with high self-esteem feel capable of overcoming adversity and achieving success (19).

In this study on the effect of oral and dental health status on university students' self-esteem, the findings were consistent with the literature. Tuchtenhagen et al. found that high happiness levels among adolescents were influenced by socioeconomic conditions, dental care utilization, the presence of cavitated carious lesions, and oral health-related quality of life (20). Our study is significant because it includes both adolescent and young adult age groups and highlights how self-esteem changes with age. Specifically, our study shows that self-esteem tends to increase as age increases. Similarly, in the study by Pazos et al., older adolescents were found to brush their teeth more frequently and

Table 3. Comparison of Students' Oral Health Behaviors and Self-Esteem Scale

Variables	No. (%)	X ± SD [a]	Test	P-Value
Tooth brushing status			t [b] = -1.44	0.16
Yes	913 (94.9)	1.67 ± 1.60		
No	49 (5.1)	2.06 ± 1.86		
Tooth brushing frequency			F [c] = 7.71	< 0.01
1 time per day	316 (32.8)	1.89 ± 1.69 A		
2 time per day	476 (49.5)	1.53 ± 1.52 B		
3 time per day	62 (6.4)	1.19 ± 1.46 B		
Every other day	29 (3.0)	1.69 ± 1.34 A		
Sometimes	79 (8.2)	2.23 ± 1.85 A		
Flossing			F [c] = 3.80	0.023
Rarely	479 (49.8)	1.57 ± 1.59 C		
Often	198 (20.06)	1.69 ± 1.57 C		
Don't use	285 (29.06)	1.90 ± 1.67 D		
Frequency of visiting the dentist			F [c] = 0.61	0.66
1 time per 6 months	94 (9.8)	1.73 ± 1.63		
1 time per a year	156 (16.2)	1.67 ± 1.67		
More than one year	90 (9.4)	1.46 ± 1.32		
When I have a toothache	528 (54.9)	1.73 ± 1.65		
Another [d]	94 (9.8)	1.66 ± 1.59		
Toothbrush change frequency			F [c] = 7.45	< 0.01
1 time per 3 months	552 (57.4)	1.6 ± 1.55 E		
1 time per 6 months	182 (18.9)	1.44 ± 1.44 E		
1 time per a year	90 (9.4)	2.09 ± 1.86 F		
As it wears out	138 (14.3)	2.13 ± 1.80 F		
Consumption of snack foods			t [b] = 0.10	0.92
Yes	797 (82.8)	1.69 ± 1.59		
No	165 (17.2)	1.68 ± 1.74		
The status of receiving oral health education			t [b] = -2.02	0.043
Yes	361 (37.5)	1.55 ± 1.56		
No	601 (62.5)	1.77 ± 1.65		

[a]X±SD: The letters above (A, B, C, D, E, F) indicate the statistical difference between groups. There is no statistical difference between groups with the same letter.

[b]Independent *t*-test.

[c]One-way ANOVA.

[d] Other: Never go or forget.

have higher self-esteem ([6]). Our findings also indicate that both oral health status and oral health behaviors impact self-esteem.

Regarding oral health status and self-esteem, this study determined that the self-esteem of students with decayed teeth, crooked teeth, bad breath, recent toothaches, and dark yellow or stained teeth was negatively affected. Several studies have emphasized the emotional and psychosocial negative side effects experienced by patients with severe malocclusion ([16],

[21]). Grecu et al. found a statistically significant correlation between the perception of oral health and self-esteem ([11]).

In terms of oral health behaviors and self-esteem, our study found that students who brush their teeth infrequently, do not use dental floss, change their toothbrush only when it wears out, and do not receive education about oral health tend to have lower self-esteem. Other studies have shown that instability in self-esteem, self-confidence, and self-competence is
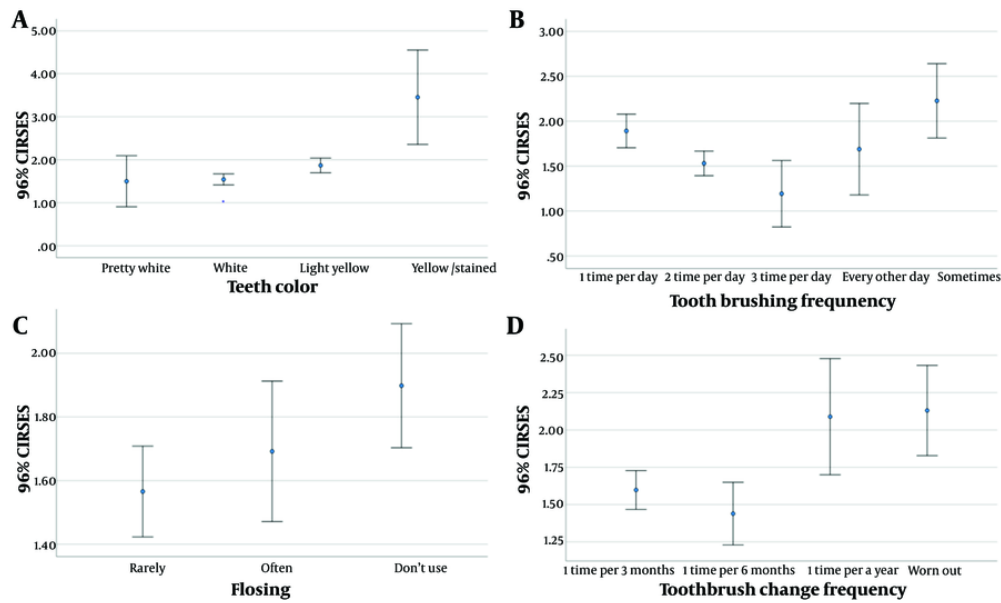
Figure 1. The statistical define simple bar between the oral hygiene behaviors and self-esteems of the students (P < 0.05) summaries for group of cases

Table 4. Self-Esteem Levels of Adolescents, Mean Rosenberg Self-Esteem Scale Score (n = 962) [a]

Variables	Values
High self-esteem	545 (56.7)
Moderate self-esteem	279 (29.0)
Low self-esteem	138 (14.3)
Total	962 (100.0)
RSES	
X ± SD	1.69 ± 1.62
Min-Max	0.0 - 6.0

Abbreviation: RSES, Rosenberg Self-Esteem Scale.

[a] Values are expressed as No (%) unless otherwise indicated.

associated not only with self-rated dental health but also with oral health behaviors (22). Additionally, research has found that positive behaviors regarding oral and dental health, such as visiting the dentist, frequent tooth brushing, and avoiding acidic beverages, can positively impact self-esteem along with psychosocial factors (23-27).

5.1. Strengths and Limitations of the Study

The study includes a large sample group and aims to determine the effect of oral health on self-esteem, contributing to the literature with multifaceted findings related to oral health. However, since the study is primarily based on self-reports from adolescents, responses to the questionnaire may have been influenced by whatever was on the participants' minds at the time the questions were asked. The study was conducted with students from various departments of a public university, limiting the generalizability of the findings to this specific sample group. Consequently, the results cannot be generalized to other populations.

5.2. Conclusions

The study found that various dental disorders, such as halitosis, crooked teeth, toothache, and yellow tooth color, significantly impact the aesthetics and psychosocial behavior of students, thereby affecting their self-esteem. These findings can serve as a guideline for health professionals and policymakers in preventing oral and dental health problems among young people. Implementing dental health education programs in collaboration with schools and dental health services may be beneficial in promoting oral health among adolescents.

Footnotes

Authors' Contribution: Study concept and design, acquisition of data, and drafting of the manuscript, S. Y. A., M. D. A., B. T.; analysis and interpretation of data, G. Ö., A. B. C.; critical revision of the manuscript for important intellectual content and statistical analysis, S. Y. A., G. Ö., M. D. A., B. T., A. B. C. Administrative, technical, and material support, and study supervision. All authors have agreed on the final version of the manuscript.

Conflict of Interests Statement: The authors declare no conflict of interest.

Data Availability: The data used in this study are available upon request from the corresponding author. They are not publicly available due to privacy and ethical concerns.

Ethical Approval: Ethical approval was obtained from the Clinical Research Ethics Committee (protocol number:189-2018.02.21-11) and written permission was obtained from the Faculties where the research will be conducted.

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Informed Consent: Written informed consent was obtained from all participants.

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