JCHR

Journal of Community Health Research 2026; 15: 1-9.

Investigating the Perception of Self-Care Behaviors of Oral and Dental Health in Adolescent Boys

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ARTICLE INFO

Original Article

Received: 30 Nov 2025
Accepted: 08 Feb 2026

OPEN ACCESS

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ABSTRACT

Background: Correct understanding of the oral and dental health status is one of the most important factors in planning healthcare interventions.Therefore, the present study was conducted with the aim of determining the perception of self-care behaviors of oral and dental health in adolescent boys.

Methods: This study was carried out in a cross-sectional descriptive manner. The sample size included 200 male high school students of Farsan city, Chaharmahal and Bakhtiari province who were selected by stratified random sampling. The instrument of data collection was the standard questionnaire of attitude towards self-care behaviors. The collected data were analyzed with SPSS20 and parametric tests.

Results: The mean score and standard deviation of five areas of perceptions included values 16.61 ± 2.91, emotions 63.47 ± 9.52, social position 18.76 ± 3.24, the influence of parents 19.08 ± 3.78 and the knowledge of caries 11.81 ± 2.00. The overall attitude score was 129.74 ± 16.66 and the average percentage of the maximum was 75.87%, which was at a favorable level. The highest average score was related to the range of values with an average percentage of the maximum of 83.05% and the lowest average of parental influence with an average percentage of the maximum of 73.38%.

Conclusion: The average score of attitude is in a favorable situation, and in the area of parental influence, the situation was at a lower level. Also, it is necessary to consider appropriate intervention and education programs for teenagers with parents of low education and unfavorable economic status, and persuasive methods should be used instead of compulsory methods.

Keywords: Self-Care, Oral Health, Attitude, Adolescent

How to cite this paper:
Karimiankakolaki Z, Mohammadi P, Madadkar Dehkordi Sh. Investigating the Perception of Self-Care Behaviors of Oral and Dental Health in Adolescent Boys. J Community Health Research 2026; 15: 1-9.

[DOI: 10.18502/jchr.v15i1.21384]

Introduction

Oral health refers to all aspects of oral health and function, especially the gums and teeth (1). It is essential to determine various indicators of oral health status at different points in time and across age, gender, and social groups to provide a relatively accurate picture of the current situation (2). The World Health Organization considers oral health to be necessity and part of public health throughout life and states that poor oral health and untreated oral diseases can have a profound impact on quality of life in all countries (1, 2).

In addition to tooth decay, poor oral hygiene can lead to consequences such as gum disease, bad breath, dental irregularities, decreased self-confidence, and poor quality of life (3). Modern humans are most susceptible to tooth decay due to their lifestyle and specific eating habits, with 99% of people suffering from tooth decay during their lifetime and about 37% of teeth being lost due to decay. Therefore, it can be said that among various human diseases, oral diseases, especially tooth decay and gum infection, are the most prevalent and common human diseases, and there are only very few people who do not suffer from it during their lifetime (2). Personal care, which includes brushing, flossing, and using mouthwash, is one of the simple ways to remove plaque and control oral diseases (4).

Oral diseases affect approximately 3.5 billion people worldwide. Overall, it is estimated that 2.3 billion people and more than 530 million children and adolescents suffer from dental caries (5). According to a study by Pakpour et al., the main causes of dental caries are poor oral hygiene and inadequate tooth brushing (6). In a study conducted on 15-year-old students in Tehran, only 26% of them brushed their teeth twice a day (7). 19.3% of 13-18 year-old students in Isfahan brushed their teeth twice a day (8).

Model-based education can lead to the promotion of oral health behaviors by creating favorable attitudes in students (9). Lack of knowledge about home health care is associated with dental caries, but increasing awareness does not always lead to the creation of correct health attitudes and behaviors (10). Research results have shown that dental caries, as a multifactorial infectious disease, is strongly influenced by several factors such as education, economic status, household size, and the level of oral hygiene, and begins immediately after the emergence of teeth in the oral cavity (1, 2, 11). Prevention of dental caries and periodontal diseases emphasize the implementation of oral health self-care behaviors, which include flossing, brushing, and fluoride therapy (3).

The results of the study by Ostberg et al. showed that gender differences exist in most oral health issues. Boys showed less interest in oral health and perceived their oral health to be lower than girls (12). Furthermore, the use of oral self-care methods among Iranian adolescents is inadequate (6). It seems that despite the need to investigate the attitudes of Iranian adolescents, and especially the perception of male adolescents towards oral health, this issue has not been addressed much. Therefore, this study was conducted to determine the perception of oral health self-care behaviors among male adolescents in 2014.

Methods

This study was conducted as a descriptive cross-sectional study. The target population was all male high school students in Farsan city, Chaharmahal and Bakhtiari province. In order to determine the sample size, considering a confidence level of 0.95 and a power of 80%, a standard deviation of 1.7, and an accuracy of calculating the attitude score equal to 1 based on the study of Asgari (13), 200 people were estimated.

The sample size was estimated as 200 people, and the boys' high schools in Farsan city were selected in a stratified manner according to the differences in different urban areas. The number of students in each grade (first, second, third) was determined. Then, considering the ratio of the total number of students in each grade to the total number of students in the target population, the number of samples in each grade was determined in relation to the sample size (200 people) and the

[DOI: 10.18502/jchr.v15i1.21384]

sampling was carried out randomly.

Data collection was done using a standard questionnaire. Before data collection, the samples were informed about the objectives of the study and included in the study with informed consent. If they were unwilling to cooperate and answer the questionnaire questions, they were excluded from the study. The inclusion criteria for the study included male students in the age range of 13-18 and the ability to answer and understand the questions; the exclusion criteria for the study included expulsion from school or disciplinary case, moving to another city, and unwillingness to continue participating in the study.

Data collection tool

Data collection tool is the Attitudes towards Self-Care Behaviors Questionnaire, which was developed and psychometrically tested by Asgari et al. (13).

In the first part, demographic variables are obtained, and the second part is the standard questionnaire of Attitudes towards Self-Care Behaviors of Oral Health, which contains 40 questions and 5 domains including values, emotions, parental influence, importance of social status, and knowledge of caries. It should be noted that the final structure of the questionnaire with these domains and items was obtained after removing 5 items during the statistical analysis stages in the study by Asghari et al. (13).

The first domain included values (appearance and function), items 28-33-39-40,

The second domain included feelings (positive feelings): items 22-25-34, (negative feelings): items 1-14-16-19-21-24-38, (neutral feelings: giving/not giving, knowing it is the dentist's duty): items 3-5-6-7-9-10-17,

The third domain included parental influence: items 11-12-18-27-29-35,

The fourth domain included the importance of social status: items 23-31-32-36-37, and the fifth domain included knowledge of caries: items 4-8-26. The validity of the questionnaire was approved by an eight-member panel of experts including a child psychologist, an oral health and social dentistry specialist, and a child health and dentistry education specialist, and the reliability has been confirmed with a Cronbach's alpha above 0.7 in the study by Asgari et al. (13).

Analysis

The collected information was analyzed after coding using SPSS 20 software.First, the coding of the questions was corrected. In the questions related to the reasons for brushing teeth and indicating a positive attitude towards personal oral hygiene (questions 18 and 20-40), the options "completely agree to completely disagree" were assigned the numbers 5 to 1, and in the questions related to the reasons for not brushing teeth and indicating a negative attitude towards self-care behaviors (questions 17-1 and question 19), the options "completely agree to completely disagree" were assigned the numbers 1 to 5.

The normality of the averages of the study population areas was examined using the Kolmogorov-Smirnov test, and based on that, analysis was performed with parametric tests including (t-test, ANOVA) and Pearson correlation.

Results

A total of 200 adolescent boys aged 13-18 participated in this study, with a mean age of 16.31±0.75. Details of demographic variables are reported in Table 1.

The mean score and standard deviation of the five perception domains including values, emotions, social status, parental influence, and knowledge of caries are reported in Table 2. The overall attitude score was 129.74 ± 16.66 and the mean percentage of the maximum was 75.87%, which was at a desirable level. The highest mean score was related to the values domain with a mean percentage of the maximum of 83.05%, and the lowest mean was parental influence with a mean percentage of the maximum of 73.38%.

The results of the mean score of the items related to each of the domains of oral health self-care behavior perception are reported in Table 3.

[DOI: 10.18502/jchr.v15i1.21384]

Table 1. Frequency distribution of demographic variables of participants

	Variables	N	%
Adolescent education	First grade of secondary school	74	37
	Second grade of secondary school	81	40.5
	Third grade of secondary school	45	22.5
Mother's education	Reading and writing	31	15.5
	Non-academic	96	48
	Academic	73	36.5
Father's education	Reading and writing	28	14
	Non-academic	90	45
	Academic	82	41
Mother's occupation	Housewife	162	81
	Employee	38	19
Father's occupation	Employee	56	28
	Freelance	111	55.5
	Worker	32	16
	Unemployed	1	0.5
Economic status	Poor	18	9
	Average	103	51.5
	Good	65	32.5
	Excellent	14	7

Table 2. Distribution of mean score and standard deviation of the attitude domains relative to oral health behaviors

Variable	Mean ± standard deviation	Minimum	Maximum	Average percentage of maximum
Values	16.61 ± 2.91	4	20	83.05%
Emotions	63.47 ± 9.52	30	85	74.67%
Parental influence	19.08 ± 3.78	8	26	73.38%
Social status	18.76 ± 3.24	5	25	75.04%
Knowledge of decay	11.81 ± 2.00	3	15	78.73%
Total attitude	129.74 ± 16.66	48	171	75.87%

Table 3. Distribution of mean score and standard deviation of items in the domains of oral health self-care behavior perception

Domains	Item	Mean	SD
Values	I do not like food stuck in my teeth.	4.44	0.97
	If I do not take care of my teeth, I have trouble eating different foods.	3.91	1.13
Emotions	Clean teeth and fresh breath give me confidence.	4.54	0.78
	I can not brush my teeth at night when I am tired and sleepy.	2.61	1.43
Parental influence	My parents insist on me a lot, and I deliberately do not want to brush my teeth.	4.10	1.06
	I brush my teeth because my parents force me.	1.99	1.07
Social status	I maintain my oral hygiene so that others do not get annoyed by my bad breath.	4.44	0.88
	I brush my teeth so that my dentist can compliment me on the condition of my teeth.	2.58	1.26
Knowledge of tooth decay	Teeth that are filled or decayed no longer need to be cleaned.	4.36	0.79
	Most children my age have tooth decay or have had their teeth extracted, and this is normal.	3.33	1.19

[DOI: 10.18502/jchr.v15i1.21384]

The results showed that, overall, the highest mean score was for the item "Clean teeth and fresh breath give me self-confidence", and the lowest mean score was for the item "I brush my teeth because my parents force me."

Pearson's test for correlation between different domains of attitude showed that there was a direct and significant relationship between all domains of attitude with each other and with the overall attitude ($p < 0.05$). Details are reported in Table 4.

Table 4. Results of the correlation test between domains of perception of oral hygiene self-care behavior

Variable	Values	Emotions	Parental influence	Social status	Knowledge of tooth decay	Total attitude
Values	1	0.421 0.000	0.191 0.007	0.587 0.000	0.401 0.000	0.621 0.000
Emotions		1	0.441 0.000	0.467 0.000	0.691 0.000	0.919 0.000
Parental influence			1	0.369 0.000	0.366 0.000	0.628 0.000
Social status				1	0.381 0.000	0.693 0.000
Knowledge of tooth decay					1	0.742 0.000
Total attitude						1

Regarding the relationship between attitude and demographic variables, the ANOVA test showed that the average attitude score was different based on parental education and economic status ($p < 0.05$). The average attitude score was higher in adolescents with educated parents and better economic status. No significant results were observed for other demographic variables ($p < 0.05$).

Discussion

The present study was conducted with the aim of determining the perception of oral health self-care behaviors in male adolescents. The overall attitude score was 129.74 ± 16.66, and the average percentage of the maximum was 75.87%, which was at a desirable level. According to the results, there was a direct and significant relationship between the domains of attitude towards oral health, and all domains had a direct and significant relationship with the overall attitude score. In the study by Asgari et al., this rate was 112.13 ± 12.1, which is lower than the present study (13). Moreover, in the study by Goodarzi et al., the average knowledge score was 14.53±0.54, and the average attitude score was 18.76±0.64, which was desirable (2). Oral health status in the present study was reported to be desirable, which was almost similar compared to the aforementioned studies. Paying attention to adolescents' perception of self-care behaviors is effective in maintaining their oral health status. The highest average score related to the values domain was at a desirable level with an average percentage of 83.05%. In the same domain, the item "I do not like food stuck in my teeth" had the highest average score and the item "If I don't take care of my teeth, I will have trouble eating different foods" had the lowest average score. A study by Shokohinia et al. showed that the oral health status of male students was poorer than that of female students, which indicates the need for more education and attention to oral health in this group (14). Valuing oral health as a priority, especially in the boys' group who pay less attention to this issue, should be given more attention. Given that the dental care item had a low score for eating different foods, it is necessary to pay more attention to this point in planning educational interventions.

[DOI: 10.18502/jchr.v15i1.21384]

In the area of emotions, the item "Clean teeth and fresh breath give me self-confidence" had the highest average score and the item "I cannot brush my teeth at night when I am tired and sleepy" had the lowest average score. One of the problems caused by poor oral hygiene is bad breath and decreased self-confidence. A study by Mohammadi Zaidi et al. indicated that adolescents may not be able to brush their teeth completely and regularly due to lack of tools to overcome temptation, peer pressure, or lack of motivation. Under these circumstances, another strategy is needed so that the individual can protect this routine from deviations. Persuasion and motivation can be effective in this regard (3). Therefore, it is necessary to use the item "feeling good" and self-confidence caused by fresh breath in planning educational interventions to create more motivation for adolescents' oral health care. In this regard, appropriate planning strategies and life skills can be taught to them so that they can focus more on their healthy lifestyle.

The lowest average was related to the area of parental influence with an average percentage of 73.38% of the maximum, which was in a favorable situation, and the item "My parents insist on me a lot and I deliberately do not want to brush my teeth" had the highest average score, and the item "I brush my teeth because my parents force me" had the lowest average score. Considering the negative consequences of parental insistence and coercion, it is recommended to use persuasive methods in oral health care for adolescents, as persuasion and motivation have been mentioned in the study by Mohammadi Zaidi et al (3). The results also showed that adolescents with educated parents have a higher attitude score. In the study by Goodarzi et al. (2), and Fallahinejad et al. (15), the level of parental education also had a significant and direct effect on the positive attitude of the target group. The study by Karimiankakolaki et al. also mentioned the influence of parents on adolescent behavior (16). Furthermore, according to the results of the studies by Naderifar (17), Mohebbi et al. (18), Noor Elahyan (19), Balaei Meybodi (20), mothers' education had a significant relationship with knowledge. Also in the study by Torabi et al. (21) , and Darout et al. (22), a significant relationship was observed between the level of education of parents and their own level of knowledge, and the study of Van den Branden et al. (23) and Mitrakul et al. (24)also showed that the higher level of education of mothers had a significant relationship with their better attitude towards oral and dental health (24). The study by Shokohini et al. showed that the main source of information about oral and dental health in students was first the dentist and then the parents, so the need to pay attention to education for the target group is of great importance (14). Considering the value of oral and dental health in dental health, parents are of great importance, because they are a role model for their children to adopt health behaviors and inform them, and their education and health literacy are of considerable importance.

In the social status domain, the item "I maintain my oral hygiene so that others do not dislike my bad breath" had the highest average score, and the item "I brush my teeth so that my dentist can compliment me on the condition of my teeth" had the lowest average score. A study by Mohammadi Zaidi et al. indicated that lack of motivation is an obstacle to brushing teeth and is a strategy for encouragement and motivation (3). It is suggested that the mouth odor item be used in educational interventions for adolescents as a strategy to create motivation for oral and dental care.

Regarding the knowledge domain of caries, the item "Teeth that are filled or decayed no longer need to be cleaned" had the highest average score, and the item "Most children my age have tooth decay or have had their teeth pulled, and this is normal" had the lowest average score. Given the low level of knowledge of the study subjects about tooth decay, planning oral health self-care education is necessary. In line with this study, a study by Zafarmand et al. showed that among students, 9.2% of boys and 13% of girls, were familiar with the issue of oral health through school and their teachers, and the relative lack of awareness about the complications of premature loss of milk teeth in

[DOI: 10.18502/jchr.v15i1.21384]

girls and boys was 15% (25). Also, Mohammadi Zaidi et al. showed that motivational interviewing is able to improve psychological well-being and oral self-care behaviors in male students; it also had significant results in changing attitudes and self-efficacy, and can be an effective component of prevention and promotion programs for oral health (3). In this regard, the study by Yavari et al. showed that, given the insufficient knowledge of the students studied about oral health and their low level of performance, especially in cases such as using antibacterial and fluoride-containing mouthwash, brushing teeth after each meal, and eating sweets, providing educational programs to increase students' awareness and performance, especially in the above areas, seems necessary (26), and the study by Hosseinifar et al. showed that the status of students' awareness, attitude, and performance in the field of oral health was at an average level, and designing coherent programs to improve these variables is necessary to improve students' personal and professional performance in this field (27). In addition, a study by Babaei et al. showed that proper education and awareness of adolescents, who are representatives of family health, have a significant impact on the oral health status (28). A study by Shariat et al. pointed out that it is necessary to pursue dental services and prevention programs more seriously, and that health education in the field of promoting oral health can have a positive impact on the oral health index in the community (29). A study by Ezzati et al. also shows the need to design educational interventions in adolescents in order to prevent dental caries (30). A study by Shokohini et al. suggests appropriate educational interventions with more attention to the more vulnerable group of boys to improve their level of awareness and attitude. Numerous studies have pointed out the importance of oral health and its promotion through education and intervention (31-33). Therefore, the need to pay attention to oral health education, especially in the field of dental caries, is of great importance.

The results also showed that adolescents with better economic status have higher attitude scores. Given that people's beliefs are affected by their socio-economic status, it is possible to focus on strengthening it, especially in the weaker segments of society.

Although this study had interesting results, it was also accompanied by some limitations, including the self-report nature of the questionnaires, which needs to be considered in future studies as an objective indicator to evaluate the research variables. Also, the results can not be generalized to adolescent girls, so it is suggested that a study be conducted on adolescent girls for comparison.

Conclusion

According to the results, the average attitude score is in a favorable state, and in the area of parental influence, the situation is at a lower level; therefore, education and intervention are necessary to improve the perception of oral health self-care in the area of parental influence. It is also necessary to consider an appropriate intervention and education program for adolescents with parents with low education and unfavorable economic status to improve the perception of oral health care behaviors, and instead of compulsory methods, persuasive methods should be used.

In addition, to increase the motivation for oral health self-care, educational interventions can include improving self-confidence with good breath and awareness of tooth decay. Therefore with sufficient education and information in this field, in addition to paying attention to the appearance of adolescents and their families, maintaining and promoting oral health and preventing related diseases, it is possible to reduce direct and indirect costs in this regard. Therefore, it is suggested that educational interventions be provided to increase the awareness of the target group in schools and also their parents as role models through health centers and appropriate mass media, in order to improve the performance of this age group and consolidate their health behaviors.

Acknowledgements

The authors would like to express their gratitude to the respected university president and the people

[DOI: 10.18502/jchr.v15i1.21384]

who accompanied the authors in conducting this research.

Conflicts of interest

The authors declared that they have no competing interests.

Funding

This research protocol was funded by the Islamic University, Shahrekord Branch, Shahrekord, Iran.

Ethical considerations

Ethical approval for this study has been obtained by the ethics committee affiliated with Islamic Azad University, Shahrekord Branch, Shahrekord Iran. Reference number was IR.IAU.FALA.REC.1402.018, in compliance with the Helsinki Declaration. Informed consent was obtained from the participants, and they were assured that there was no need to mention their names, and that their information would remain confidential. For participants under 16, informed consent to participate was obtained from each participant's parent or legal guardian.

Code of ethics

IR.IAU.FALA.REC.1402.018

Authors' contributions

All authors were involved in study conception, design, drafting of the manuscript. Z. K, P. M, and Sh. M, were involved in writing and revising the manuscript. All authors have read and approved the final version of the manuscript.

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Availability of data and materials

The datasets generated and/or analysed during the current study are not publicly available due [REASON WHY DATA ARE NOT PUBLIC] but are available from the corresponding author on reasonable request.

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