Oral Health Related Knowledge, Attitude and Practices and Their Associated Factors Among 3rd Year Dental Students

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Abstract

Objective: To assess oral health related knowledge, attitude and practices and their associated factors among 3rd year BDS students in public sector dental colleges of Karachi.
Methods: A cross-sectional survey was carried out to assess oral health related knowledge, attitude and practices among 3rd year BDS students from November 2018 to April 2019. 3rd year BDS students of either gender in public sector dental colleges of Karachi were included in the study whereas those refusing to give verbal informed consent were excluded from the study. After checking eligibility, a total of 372 3rd year BDS students from five public sector dental colleges of Karachi were included in the study by using convenience sampling technique. Data were collected by the principal investigator using apre-tested structured questionnaire. Data were entered on Statistical Package for Social Sciences version 19. After checking normality, inferential analysis was carried out using Mann Whitney U test whereas the significance level was set at 0.05.
Results: The study results showed that the knowledge and attitude regarding oral health of dental students was overall satisfactory, however their practices were not found to be satisfactory. Moreover, it was found that the mean rank of knowledge score was significantly different across various categories of age 'p=0.001' whereas the mean rank of practice score was significantly different across various categories of gender 'p=0.005'.
Conclusion: It was concluded that knowledge score wassignificantly different across categories of age while practice score was significantly different across categories of gender of the students. Serious efforts are recommended to be taken by all stakeholders in order to motivate dental students so that they can translate their adequate knowledge and positive attitude regarding oral health into appropriate practices.
Keywords: Oral health, knowledge, attitude, students, dental.
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Introduction

The best and detailed description of the term oral health todate has been as "a multifaceted entity that includes the ability to speak, smile, smell, taste, touch, chew, swallow and conveys a range of emotions through facial expression with confidence and without pain, discomfort and disease of craniofacial complex"[1]. Oral disease is considered as a significant public health issue globally and has been used as a gauge to measure the general health, welfare and wellness of individuals[2]. A relation has been seen between a greater understanding and comprehension of oral hygiene and care and improved oral well-being and health[3].

According to various surveys it has been noticed that about twenty five percent of Pakistani adults complain of bleeding gums while they brush, accompanied by foul breath[4]. Studies have demonstrated that changes to attitude and practice could

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be made possible by giving relevant details, facts and figures, motivation and practices to the people and that evolution and success as well as execution and application of well-structured oral health education program leads to better oral health[4-6]. The World Health Organization has prioritized the promotion of oral health among dental students through teaching and training in the public sector dental colleges[7].

Substandard oral health with measuring buildup and collection of dental plaque and calculus with time has been observed and reported among dental students in developed and developing countries alike. Gingival bleeding has been considered as a foreseeable indicator of oral fitness[8]. The most broadly used and trusted method of preserving absolute oral hygiene is considered to be tooth brushing[5]. Over recent decades, multiple factors such as upgraded oral hygiene practices, effectual use of fluoride, alteration and improvement of dietary habits and the introduction and formation of college based preventive oral care programs in the adults in developed countries have played a great role in the substantial reduction in the prevalence of dental caries[9]. The prevalence and occurrence of dental problems in our country has been on a rise steadily and sadly not slowly either. The massive and serious increase in dental health problems in Pakistani adults is indeed very alarming and something to be concerned about in the future[4-9].

It is important that latest updated, appropriate and relevant data must be made available for relevant authorities, decision makers and health care professionals to be able to apply focused dental health education program and thereby increasing the efficacy of the current program[10]. Moreover, evaluation of knowledge, attitude and practice is essential in order to develop constructive health education. It is hypothesized that the knowledge attitude and practices of oral health among the 3rd year BDS students will be adequate.

Though oral health related knowledge, attitude and practices have been evaluated earlier, to the best of authors' knowledge, the available local data is scarce at best. In the given context, this study was carried out with the objective to assess oral health related knowledge, attitude and practices and their associated factors among 3rd year BDS students in public sector dental colleges of Karachi.

Subjects and Methods

After taking ethical approval, a cross-sectional knowledge, attitude and practice survey was conducted among the 3rd year BDS students of five public sector dental colleges of Karachi from November 2018 to April 2019. These public sector dental colleges were as follows: Karachi Medical and Dental College, Ishrat-ul-Ibad Institute of Oral Health and Sciences, Dow Dental College, Jinnah Sindh Medical University and Dow International Dental College.

Using the maximum possible frequency of the study outcome i.e. 50%, with 95% confidence interval and 5.5% precision, after a calculation, the least required sample size came out to be 318. 3rd year BDS students of either gender in public sector dental colleges of Karachi were included in the study whereas those refusing to give verbal informed consent were excluded from the study. After checking eligibility, convenience sampling method was used in order to include a total of 372 BDS students in the study.

A single investigator (principal investigator) collected data using a self-administered structured questionnaire. A thorough, detailed literature review was done after which the principal investigator developed a questionnaire specifically for this study. It was pretested on 5% of sample size. This was done for checking face validity, authenticity and reliability. The reliability was checked using Cronbach's alpha which yielded a value around 0.7 indicating an acceptable level of internal consistency. It was then modified accordingly to accurately cater to the needs of the study.

The first step in the questionnaire was that the participants were requested to fill out the demographic information including consent, name, gen-

der, and age and attending institute. It consisted of 23 questions, the purpose of which was to evaluate and judge the students based on the oral health knowledge, attitude and practice of dental students in the private sector dental institutes on Karachi.The questionnaire was divided into two sections for student convenience. The first part of the questionnaire consisted of questions related to the knowledge of oral health of students with Yes/No responses. The second section included questions assessing the attitudes and practices of oral health among BDS students and was focused on the understanding of the cause of tooth decay and its association to brushing, mouth rinsing, fluoride use and sugar intake; and influence of regular dental visits on the development of tooth decay. Practices of students was assessed with regards to their personal use of brushing and its frequency, use of mouth rinse and visiting the dentist in case of bleeding gums.

At the completion of the data collection, all the responses of the students were coded by giving the value of 1 to a correct response and a value of 0 to an incorrect response. By summing up the scores of each respondent, their total knowledge attitude and practice scores were calculated. The computer program SPSS version 20 was used to enter and analyze the data collected. After checking normality, inferential analysis was performed using Mann Whitney U test to compare the knowledge, attitude and practice scores across categories of age and gender of the respondents whereas the significance level was set at 0.05.

Results

A total of 372 participants were included in the study with a response rate of 100%. The mean age of the study participants was 20.85 ± 1.01 years, 61.8% of them were aged 21 years or above whereas 82.2% of them were females. The study finding further revealed that more than 90% of the study participants were aware of the cause of dental caries and gum disease, of the effect of fluoride on teeth, how bad teeth can affect the oral health and that tobacco/pan/chalia can cause oral cancer. They also knew about tooth cleaning/scaling, that toothbrush should be changed frequently, and that tooth grinding can expose the tooth dentine. Moreover, 89.2% knew the different techniques for tooth brushing, 79.6% were aware about oral thrush, 80.1% knew about stomatitis whereas 71.5% knew that there are different types of dental floss to be used (Table 1).

The study results further showed that more than 90% of the students thought that oral health affects them, that it is necessary to brush their teeth in the morning and night to keep them healthy. Also that it is necessary to rinse their mouth with water after every meal to remove accumulated food debris, that sweets/sugary foods and drinks can cause tooth decay, that using fluoride tooth paste strengthens their teeth, and that it is necessary to have dental checkup at least once a year. Moreover, 94.9% of them cleaned their teeth regularly, 65.9% cleaned their teeth twice daily, 10.2% brushed their teeth for more than two minutes, 29.8% used mouth wash daily, 74.7% cleaned their tongue while brushing whereas 51.1% visited dentist in case of bleeding from gums (Table 2).

The mean rank of knowledge score was found to be significantly different across categories of age (p=0.001), where students aged 21 years or above had higher mean rank than students aged up to 20 years. The mean rank of practice score was significantly different across categories of gender (p=0.005) where female students had higher mean rank than male students (Table 3).

Discussion

The main job of dentists as healthcare professionals is oral health promotion and education as it is their main field of expertise. The first step in developing a pragmatic oral health habit is to impart consequential knowledge to the patients in order to raise their awareness about ways to improve oral health. Self-awareness regarding the students' own oral hygiene plays a pivotal role in motivating their

Table 1. Knowledge Profile

Variables (n=372)	Frequency(%)
Do you know the cause of dental caries and gum bleeding?	
Yes	363(97.6)
No	9(2.4)
Do you know about the effect of fluoride on teeth?	
Yes	361 (97.0)
No	11(3.0)
Do you know bad teeth can affect your oral health?	
Yes	368(98.9)
No	4(1.1)
Do you know that tobacco/ pan/chalia can cause oral cancer?	
Yes	370(99.5)
No	2 (0.5)
Do you have any awareness/knowledge about tooth cleaning/scaling?	
Yes	325 (94.6)
No	20(5.4)
Are you aware that tooth brush should be changed frequently?	
Yes	361 (97.0)
No	11(3.0)
Do you know the different techniques for tooth brushing?	
Yes	332(89.2)
No	40(10.8)
Do you know tooth grinding can expose the tooth dentine?	
Yes	352(94.6)
No	20(5.4)
Do you know about oral thrush?	
Yes	296(79.6)
No	76 (20.4)
Do you know what stomatitis is?	
Yes	298(80.1)
No	74(19.9)
Do you know that there are different types of dental floss to be used?	
Yes	266(71.5)
No	106(28.5)

Table 2. Attitude and Practice Profile

Variable (n=372)	Frequency(%)
Do you think oral health affects yourself?	
Yes	366(98.4)
No	6(1.6)
Do you think it is necessary to brush your teeth in the morning and night to keep them healthy?	
Yes	365 (98.1)
No	6(1.6)
Do you think it is necessary to rinse your mouth with water after every meal to remove accumulated food debris?	
Yes	362(97.3)
No	10(2.7)
Do you think that sweets/sugary foods and drinks can cause tooth decay?	
Yes	365(98.1)
No	7(1.9)
Do you think using fluoride tooth paste strengthens your teeth?	
Yes	358(96.2)
No	14(3.8)
Do you think that it is necessary to have dental checkup at least once a year?	
Yes	347(93.3)
No	25(6.7)
Do you clean your teeth regularly?	
No	19(5.1)
Yes	353(94.9)
How often do you clean your teeth?	
Occasionally	9(2.4)
Once daily	96(25.8)
Twice daily	245 (65.9)
More than twice	22(5.9)
How long do you brush your teeth?	
Less than 1 minute	54(14.5)
For 1 minute	140(37.6)
For 2 minutes	140(37.6)
More than two minutes	38(10.2)
Do you use mouthwash regularly?	
Yes 111 (29.8)	
No 261 (70.2)	
Do you clean your tongue while brushing?	
Yes 278(74.7)	
No 94(25.3)	
Do you visit dentist in case of bleeding from gums?	
Yes 190(51.1)	
No 182(48.9)	

Table 3. Association between Demographic Characteristics and Knowledge, Attitude and Practice Scores

Variables (n=372)	Knowledge Score Mean Rank	Attitude Score Mean Rank	Practice Score Mean Rank
Age in Years			
Up to 20	150.62	181.59	191.15
21 or Above	208.65	189.53	183.63
P	0.001	0.242	0.497
Gender			
Male	194.18	178.45	153.38
Female	184.9	188.17	193.38
P	0.491	0.266	0.005

patients and spreading awareness among the general population[11].

The study results revealed that a high percentage (97.6%) of the students were aware of the cause of dental caries and gum disease that is better than the result reported by Al-Jawfi etal., in 2018 i.e. 84%[12]. Moreover, 97.0% of the study participants were aware of the effect of fluoride on teeth whichis higher than the result reported by Al-Jawfi et al., in 2018 i.e. 85%[12].

98.9% of the respondents knew that bad teeth can affect the oral health. These findings were higher than that reported by Anwar Khan MA etal., in 2015 i.e. 82.2%[13]. Furthermore, 97.0% of the participants were aware that tooth brush should be changed. Bashir R et al. reported similar results i.e. 82.4%, in 2016[14]. In present study 89.2% knew the different techniques for tooth brushing. This result is better than that reported by Aljrais M etal.,in 2018 i.e. 62.6%[15].

In the present study 94.6% of students replied that tooth grinding can expose the tooth dentine, 79.6% were aware of oral thrush while 80.1% knew about stomatitis. Similar findings were reported by Aljrais M etal., in 2018 where these percentages were 86.7%, 54.0% and 86.0% respectively[15]. Furthermore, 71.5% of respondents replied that they knew that there are different types of dental floss to be used. This finding was higher than that reported by Aljrais M etal., in 2018 i.e. 42.6%[15].

The study result further revealed that 98.4% participants of the present study thought that oral health affects them. Similar results were reported by Al-Jawfi etal., in 2018 i.e. 85.6%[12]. Moreover, 99% of the participants thought that it is necessary to brush their teeth in the morning and night to keep them healthy. This percentage was reported to be 76.7% by Aljrais M etal., in 2018[15]. Furthermore, 98.1% of the participants thought that sweets/sugary foods and drinks can cause tooth decay, 96.2% thought that using fluoride tooth paste strengthens their teeth whereas 93.3% thought that it is necessary to have dental checkup at least once a year. Aljrais M et al., in 2018 though reported these percentages to be 66%, 53.3% and 58% respectively[15], a difference that could be attributed to different population characteristics of the two studies.

In the present study 94.9% of the participants reported that they cleaned their teeth regularly. These findings are in concordance with that reported by Sidra M et al., in 2015 i.e. 93.6%[16] and Bashir R etal., in 2016 i.e. 96.7%[14]. Moreover, 65.9% of the participants reported that they cleaned their teeth twice daily. Likewise,Sidra M etal., in 2015 reported 57.5% of the respondents to clean their teeth twice daily[16]. Interestingly though, Pradhan D et al., in 2016 reported 100% of dental students interviewed to practice twice daily brushing[17].

In the present study 10.2% of the respondents stated that they brushed their teeth for more than two minutes, a percentage much lower than that reported by Bashir R et al., in 2016 i.e. 33.8%[14]. As the later study was conducted in a school, it could be hypothesized that with advancing age the time an individual spends on brushing tends to decrease. Moreover, 70.2% of the participants did not use mouth wash daily, a finding similar to that reported by Bashir R et al., in 2016[14]. It was further seen that 75.2% of the students brushed their teeth for 1-2 minutes daily. Singh S & Pottapinjara S in 2017 found 52% of the dental undergraduates interviewed to brush their teeth for 1-2 minutes daily[18].

Furthermore, 74.7% of the respondents cleaned their tongue while brushing. Likewise, Halawany HS et al., in 2015 reported 74% of the dental students interviewed to clean their tongue while brushing daily[19]. Bashir R etal., in 2016 though reported this percentage to be only 28.4%[14], a difference that could be attributed to different age and qualification of both study populations.

The study findings did not show knowledge scores to differ significantly across categories of gender. Similar findings were reported by Ahamed S et al., in 2015[20]. Moreover, the study results did not show attitude scores to differ significantly on the basis of gender, though females had higher scores than males. Vangipuram S et al., in 2015 also reported females to have significantly better attitude towards oral health than males[21]. Similar findings were reported by Halboub ES et al., in 2016[22].

It is acknowledged that use of convenience sampling method was the prime limitation of the study that might affect the generalization of the study findings. Moreover, reliance on self-reported practices instead of observed ones was another limitation of this study.

Conclusion

It was concluded that the knowledge and attitude of dental students regarding oral health was overall satisfactory. However, their practices were not. Moreover, knowledge score was found to be significantly different across categories of age while practice score was significantly different across categories of gender of the students. In light of the study findings, serious efforts are recommended by all stakeholders to motivate dental students to translate their adequate knowledge and positive attitude into appropriate practices.

Conflict of Interests

Authors have no conflict of interests and received no grant/funding from any organization.

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