

Self-disclosed oral hygiene habits from students of Bahria University Medical and Dental College, Karachi campus

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ABSTRACT

BACKGROUND & OBJECTIVE: Dental hygiene reflects the overall health and impacts the quality of life. The present study was designed to assess knowledge, attitude, and practices regarding oral hygiene among medical and dental undergraduate students and to compare the oral hygiene habits among male and female students

METHODOLOGY: A cross-sectional study was conducted among medical and dental students of Bahria University Medical and Dental College, Karachi (BUMDC) from December 2018 to January 2019. Ethical approval was taken from the ERC committee of Bahria University Medical and Dental College (ERC/2/2018). Students (n= 332) of MBBS and BDS from first to final year were enrolled by non-probability convenience sampling technique. A self-structured questionnaire was used to obtain data. Percentages were determined for each response. The Chi-Square test was used to check the association of oral hygiene outcomes with respect to gender.

RESULTS: The study comprised 332 male and female students, out of which 189 (56.9%) were dental and 143(43.1%) were medical. The majority of students (71.4%) were female. The mean age of participants was 20.8± 1.3 years, 44.6% used toothbrushes, 33.7% used toothbrush and floss, and 21.4% used toothbrush and miswak, 61.4% of respondents have brushed their teeth twice a day, 5.1% of respondents were reported bad smell from their teeth, 58.1% were complaining sore jaws. Dental hygiene was significantly associated with gender ($p \leq 0.05$). Females have better practices and a positive attitude toward oral hygiene.

CONCLUSION: Female students had better oral hygiene knowledge and practices with more positive attitude as compared to male counterparts.

KEYWORDS: Oral health, Oral hygiene, Knowledge, Attitude, Medical students, Dental students.

INTRODUCTION

Dental hygiene is an important element of the overall health and wellbeing of a person and reflects the positive health behavior towards dental care. Good oral health indicates disease free structures surrounding the oral cavity^[1]. According to American Dental Association (ADA), "oral health is a functional, structural, aesthetic, physiologic, and psychosocial state of well-being and is essential to an individual's general health and quality of life"^[2].

Good dental hygiene shows the quality of health that makes an individual stay confident without any distress and embarrassment^[3]. Poor dental health and oral disease are one of the major concerns in public health that have a significant impact socially as well as contributing the high

prevalence^[4]. In addition, bad oral hygiene practices lead to poor oral health that contributes to an increase in morbidity and mortality; hence good oral hygiene practices are necessary to avoid different oral diseases^[1]. Knowledge and practices regarding preventive dentistry help in maintaining good oral health^[5]. A study conducted in Pakistan among medical and dental students had reported a lack of oral hygiene knowledge among dental students due to a lack of understanding regarding skills of preventive dentistry^[5].

A study conducted in America revealed an increased rate of oral disease in the emergency department since 2006 that can be prevented by basic hygiene measures^[2]. Poor dental hygiene is associated with a number of factors as the use of tobacco, either chewable or smoking, stress, alcohol, and some nutritional deficiencies can

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compromise oral health, resulting in increased frequency of oral diseases [6].

This led to the formulation of a common risk factor approach in the prevention of oral diseases. Being professional students of dentistry, they have to focus on health education and preventive strategies, so it is very important for them to have satisfactory baseline knowledge and practices regarding oral hygiene and health [6]. However, medical students are more focused on their major subjects covering all aspects of the human body as compared to dental students who are more focused on oral health [7]. It is more important for a medical student to have optimal knowledge regarding oral health to give necessary health education of oral hygiene and refer to any dental practitioner when it will be needed [7].

Studies have proposed a great need for health education and promotion programs to educate and motivate the population towards the proper selection of tooth cleaning devices, toothpaste and other tooth cleaning aids like dental floss / floss sticks [8]. The aim of the study was to assess knowledge, attitude, and practices regarding oral hygiene among the MBBS and BDS undergraduate students of Bahria University Medical and Dental College, Karachi campus, and to compare the oral hygiene habits among male and female students.

METHODOLOGY

A cross-sectional study was conducted among MBBS and BDS students of Bahria University Medical and Dental College, Karachi (BUMDC) from December 2018 to January 2019. Ethical approval was taken from the Ethical Review Committee of Bahria University Medical and Dental College (ERC/2/2018). The estimated sample size was 332 calculated from openepi.com. The population size was kept 1 million, design effect being 1 with confidence limit= 5 and anticipated frequency=50% at confidence level 95%. Non-probability convenience sampling techniques was used. Medical and dental students from all years were included in the study, whereas students from allied medicine and physical therapy were excluded from the study. The medical and dental students who refused to participate were also excluded from the study.

The data collection tool was a self-structured questionnaire. The questionnaire comprised of questions related to oral hygiene was constructed by reviewing related literature. Initially, it was reviewed by senior faculty members and then validated by calculating Cronbach's Alpha(0.86) using SPSS. It was comprised of two sections; Section A has been built to assess awareness about oral hygiene using statements that are to be responded by 'Yes' or 'No'. The information regarding attitudes and practices to attain oral hygiene was explored using section B on the scale-based response of participants (important, minimally important, and not important at all). The medical and dental students from the first year to the final year were approached during and after their routine group / academic sessions. The first part of the questionnaire was comprised of an informed consent form describing the purpose and benefits of the study without any risk.

It was mandatory for all students to sign it before filling questionnaire related to oral hygiene. Structured proforma was distributed among 189 BDS and 143 MBBS students. Total 332 proforma were distributed as per sample size. The confidentiality was assured to all respondents.

Data were stored and analyzed using IBM SPSS version 22.0, frequencies with percentages given for baseline characteristics of studied samples and outcomes on oral hygiene items. Pearson Chi Square test was used to check the association of oral hygiene outcomes with respect to gender. $p \leq 0.05$ was considered significant. Bar charts are also used to give a graphical presentation of data.

RESULTS

Table-I report the baseline characteristics of studied samples. In the present study, there were 332 study participants, of total 189(56.9%) were BDS students and 143 (43.1%) were MBBS students, 71.4% of respondents were female students, and rest were male.

Table-I: Baseline Characteristics of Studied Samples (n=332).

Characteristics	n	%	
Course of Study	Medical	143	43.1
	Dental students	189	56.9
Gender	Male	95	28.6
	Female	237	71.4
Age (years)	Mean \pm SD	20.8 \pm 1.3	
Ethnicity	Balochi	5	1.5
	Hindku	5	1.5
	Kashmiri	10	3.0
	Memoni	1	0.3
	Pashto	28	8.4
	Punjabi	127	38.3
	Sindhi	51	15.4
	Urdu speaking	105	31.6
Living Status	Day scholar	177	53.3
	Hostel resident	155	46.7
Family History	Diabetes	130	39.2
	Hypertension	106	31.9
	Oral Cancer	2	0.6
	Any other	4	1.2
	No	90	27.1
Your tooth cleaning device	Finger	1	0.3
	Tooth Brush	148	44.6
	Toothbrush and Floss	112	33.7
	Toothbrush and Miswak	71	21.4
Frequency of teeth cleaning	Once daily	88	26.5
	Twice daily	204	61.4
	Thrice daily	40	12.0
History of smoking	Yes	37	11.1
Use of pan and chalia	Yes	3	0.9

The mean age of participants was 20.8± 1.3 years, 38.3% were Punjabi, 31.6% were urdu speaking, and 8.4% were Pashto, 53.3% were day scholar, in family history 39.2% had diabetes, 31.9% had hypertension, 44.6% used tooth brush, 33.7% used tooth brush and floss, and 21.4% used tooth brush and miswak, 61.4% said twice a day frequency of teeth cleaning, 11.1% had smoking history and 0.9% had use of pan and chalia.

Table-II: Attitude on Smell, Dental Problems and Dental visits.

Items		n	%
Has someone mentioned to you about bad smell from your mouth	Yes	17	5.1
	No	27	8.1
Do you currently have any of the following?	Dental pain	28	8.4
	Teeth sensitivity	52	15.7
	Bleeding gums	32	9.6
	Pain in jaws	193	58.1
	No	27	8.1
If yes, is the occurrence	Seldom	64	44.8
	Occasionally Sporadic	51	35.7
	Constantly	1	0.7
	No	27	18.9
When was your last visit to the dental clinic?	Last year	52	15.7
	more than a one year	249	75.0
	Never	31	9.3
What was the purpose of your last dental visit?	Emergency care	204	61.4
	Routine care	56	16.9
	Planned treatment	58	17.5
	No	14	4.2

Table-II gives Depicts the responses on smell. dental problems, and dental visits, Students (5.1 %) were informed by someone about the bad smell of their teeth, 58.1% had painful jaws, 44.8% showed seldom occurrence, 75% students visited dental clinic more than a one year and last visit of 61.4% individuals was for emergency care.

Table-III Results for the response of oral hygiene are presented in Table III. Strongly significant response about the dental hygiene practice and general health was 88 % and daily brushing habit (72.3 %). Significant response was observed about the inter-dental cleaning (57,8 %), regular dental visits (57.8%) and fruits and vegetables intake for oral health (61.7%).

Non significant response was about the sugary snacks and drinks effect on teeth (61.7 %), tea and coffee effects on teeth staining (60.7 %) and tobacco and derivatives used for oral hygiene (67.4 %). Considered not significant to tobacco and derivatives used for oral hygiene.

Table-IV reports the association of dental practices with respect to gender, frequency of teeth cleaning, currently have any dental problem, its occurrence and purpose of visits to dental clinic gives significant association with gender (p<0.05).

Table -V reports the association of oral hygiene items with gender, results showed responses on dental hygiene practice and general health, and fruits and vegetable intake for oral health gives significant association with respect to gender (p<0.05). Females had good knowledge, attitude, and practices as compared to males.

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DISCUSSION

Oral health is crucial for the maintenance of overall good general health. Numerous studies have reported a close association between oral diseases and several systemic conditions. Dental and systemic illness can be prevented by upkeeping the oral hygiene, which is a fundamental component of physical as well as mental well-being [9]. It also reflects the social, physiological, and psychological attributes indispensable to the quality of life [9]. Proper awareness of oral health would provide adequate care and would also be influential in preventing diseases. BDS and MBBS students should possess a high level of awareness and attitude concerning oral health care, as they are future dentists and doctors, and they will be responsible for primary health care for patient health, , so their positive attitude can be instilled among patients and the community promoting health equity. College life of the students is the best time to establish lifelong healthy habits, including oral hygiene but might often be undermined because of increased unhealthy dietary and smoking habits associated with the college setting [11].

The positive attitude and behavior of dental and medical students can be improved during their undergraduate studies and is considered an essential factor in promoting the oral self-care habits of their patients and society in general [10]. Health professionals also play a pivotal role in providing knowledge regarding oral health and its significance to the general public [1,12]. Hence the current study was conducted to assess the status of awareness, attitude, and practices of undergraduate dental and medical students. In the present study greater responses were submitted from dental student compared to medical students reflecting their positive attitude toward oral hygiene as compared to medical students. in contrast to the current study by Rashid et al., Karachi have reported more responses from medical students as compared to dental students [5].

Results of the current study concerning healthy practicing for oral hygiene indicates that the majority of the students have daily brushing habits, while less than half of the students recommend intra-dental cleaning using floss, indicating that dental floss use is still underestimated among students. A study from India reported the frequent use of floss reflecting good practice [13]. A recent past study conducted at Peshawar by Khalil et al., is in agreement with current findings, as the majority of their students preferred toothbrushing alone for mouth cleaning [14]. Few students of our study used miswak in addition to toothbrushing for cleaning teeth. Miswak is derived from the *Salvadora persica* tree (arak in Arabic), is

Table-III: Responses on Items regarding Oral Hygiene.

Items	Strongly significant	Significant n (%)	Minimally significant n (%)	Not significant n (%)
Dental hygiene practice and general health	292(88)	33(9.9)	7(2.1)	-
Daily brushing routine	240(72.3)	88(26.5)	4(1.2)	-
Inter-dental cleaning such as flossing	95(28.6)	190(57.2)	41(12.3)	6(1.8)
Regular dental visits	77(23.2)	192(57.8)	40(12)	23(6.9)
Fruits and vegetables intake for oral health	99(29.8)	205(61.7)	25(7.5)	3(0.9)
Sugary snacks and drinks effects teeth	50(15.1)	48(14.5)	20(6)	213(64.4)
Tea and coffee effects on teeth staining	60(18.1)	52(15.7)	18(5.4)	201(60.7)
Tobacco and derivatives use (pan, chalia, and other such items) on oral health	80(24.2)	18(5.4)	10(3)	223(67.4)

Table-IV: Association of Dental Practices with respect to gender.

Items	Gender			p-value
	Male	Female		
Your tooth cleaning device	Tooth Brush	43 (45.3%)	105(44.3%)	
	Tooth brush and Floss	32(33.7%)	80(33.8%)	
	Tooth brush and Miswak	19(20.0%)	52(21.9%)	
Frequency of teeth cleaning	Once daily	35(36.8%)	53(22.4%)	
	Twice daily	56(58.9%)	148(62.4%)	<0.01*
	Thrice daily	4(4.2%)	36(15.2%)	
Do you currently have any of the following?	Dental pain	10(10.5%)	18(7.6%)	
	Teeth sensitivity	15(15.8%)	37(15.6%)	
	Bleeding gingiva	2(2.1%)	30(12.7%)	<0.01*
	painfuljaws	55(57.9%)	138(58.2%)	
	No	13(13.7%)	14(5.9%)	
If yes, is the occurrence	Seldom	13(29.5%)	51(51.5%)	
	Occasionally Sporadic	17(38.6%)	34(34.3%)	0.02*
	Constantly	1(2.3%)	0(0.0%)	
	No	13(29.5%)	14(14.1%)	
When was your last visit to the dental clinic?	Last year	13(13.7%)	39(16.5%)	
	more than a year ago	69(72.6%)	180(75.9%)	0.21
	Never	13(13.7%)	18(7.6%)	
What was the purpose of your last dental visit?	Emergency care	56(58.9%)	148(62.4%)	
	Routine care	10(10.5%)	46(19.4%)	0.03*
	Planned treatment	22(23.2%)	36(15.2%)	
	No	7(7.4%)	7(3.0%)	

*p≤0.05 was considered significant using the Pearson Chi-Square test.

a traditional tooth-cleaning twig alternative to the modern toothbrush, and offers comparatively stronger chemical and mechanical cleaning of oral tissues than a toothbrush. Current results are in agreement with Malaysian study that reported frequent use of miswak among their study participants. However, they documented comparatively higher values of miswak users than the current study [15]. Participants of the current study understood the importance of a healthy diet in dental care, and more than half of them agreed to have a positive impact of fruits and vegetable

consumption on oral health. However, half of the students also have a misconception and they believed that sugary snacks and drinks would not harm teeth, more ever they also misbelieved that use of coffee, tea and tobacco smoking have no impact on staining teethes or any harmful effect on oral hygiene and health. In contrast to our results, a previous study conducted in Karachi reported a lack of awareness concerning the harmful effects of cigarettes consumption among small percentages of students and the majority of students to be aware of the hazardous impact of smoking on general body health [5]. Current results are also justified by a

Table-V: Association of Oral Hygiene Items with Gender.

Items		Gender		p-value
		Male n(%)	Female n(%)	
Dental hygiene practice and general health	Strongly significant	85(89.5%)	207(87.3%)	0.01*
	Significant	5(5.3%)	28(11.8%)	
	Minimally significant	5(5.3%)	2(0.8%)	
Daily brushing routine	Strongly significant	67(70.5%)	173(73.0%)	0.61
	Significant	26(27.4%)	62(26.2%)	
	Minimally significant	2(2.1%)	2(0.8%)	
Interdental cleaning such as flossing	Strongly significant	19(20.0%)	76(32.1%)	0.11
	Significant	61(64.2%)	129(54.4%)	
	Minimally significant	12(12.6%)	29(12.2%)	
Regular dental visits	Not significant	3(3.2%)	3(1.3%)	0.30
	Strongly significant	17(17.9%)	60(25.3%)	
	Significant	55(57.9%)	137(57.8%)	
	Minimally significant	14(14.7%)	26(11.0%)	
Fruits and vegetables intake for oral health	Not significant	9(9.5%)	14(5.9%)	<0.01*
	Strongly significant	18(18.9%)	81(34.2%)	
	Significant	63(66.3%)	142(59.9%)	
	Minimally significant	13(13.7%)	12(5.1%)	
Sugary snacks and drinks effects on teeth	Not significant	1(1.1%)	2(0.8%)	0.50
	Strongly significant	14(14.7%)	36(15.3%)	
	Significant	16(16.8%)	32(13.6%)	
	Minimally significant	3(3.2%)	17(7.2%)	
Tea and coffee effects on teeth staining	Not significant	62(65.3%)	151(64.0%)	0.055
	Strongly significant	20(21.1%)	40(16.9%)	
	Significant	21(22.1%)	31(13.1%)	
	Minimally significant	2(2.1%)	16(6.8%)	
Tobacco and derivatives use, (pan, chalia and other such items) on oral health	Not significant	52(54.7%)	149(63.1%)	0.13
	Strongly significant	29(30.5%)	51(21.6%)	
	Significant	7(7.4%)	11(4.7%)	
	Minimally significant	4(4.2%)	6(2.5%)	
	Not significant	55(57.9%)	168(71.2%)	

***p<0.05 was considered significant using Pearson Chi Square test**

previous study by Alomari et al. that reported healthy dental behaviors in nonsmokers than smokers. This aforementioned study has reported worse dental health attitudes in smokers as they were less bothered about the health of their gums, the color of their teeth, and bad order in a breath^[16].

The current research reports the association of knowledge and dental practices with respect to gender. Frequency of teeth cleaning, the occurrence of dental problems and visits to dental clinics gives a significant association with gender (p<0.05).

The current research evidenced that female student were better than their male counterparts in terms of dental knowledge and practices. This was in line with a previous study conducted in Karachi, documenting females were more conscious about oral hygiene than males^[10]. Similar findings have been reported by Al Tayar et al., and Gopikrishna et

al studies^[15,17]. Contrary to current results, no differences among male and female knowledge, attitude and practice concerning dental hygiene were reported from Kerala, India^[13].

The current study reports the significant difference in consuming healthy diet including intake of fruits and vegetable for better oral health among the gender (p<0.05) we noticed that the females have better practices and attitude and consumes more fruits and vegetables for their general as well as oral health. In line with our study, a previous study conducted by Naseem et al at documented that females students were more conscious about oral hygiene than males students, that's why they consumed fewer soft drinks and a more healthy diet than males^[2].

The positive oral health attitudes of female students are the result of numerous factors, including the importance of

appearance, consciousness about health maintenance, and fitness [2]. Previous studies conducted worldwide showed females were more aware of correct brushing techniques and they were more anxious about having bad breath as compared to males [2]. There is a terrible requisite to spread knowledge about correct teeth cleaning techniques as poor oral hygiene habits can have an injurious effect on the general well-being and excellence of life of people [2]. Healthy habits are fostered by a positive attitude and awareness that is crucial to improve resource efficiency and healthcare standards.

In the current study, a significantly majority of male and female brushed their teeth twice daily while few male and females brushed their teeth thrice daily hence indicating better oral hygiene measures adopted by female students. Results of Rashid et al study from Karachi is in accordance with our results, documenting females were more frequent with brushing as compared to males [10]. Neeraja et al. reported that the majority of the dental students brushed their teeth twice daily [18]. Almost equal numbers of male and females in our study used miswak in addition to the toothbrush, in contrast to current results, Al-Tayar et al reported the frequent use of miswak among males as compared to females [15]. In the current study, female students were reported to frequent teeth sensitivity, bleeding gingiva, and dental pain compared to male counterparts despite having a better understanding and knowledge of dental practice and oral hygiene habits. On the contrary to current findings, a study performed by Kaul et al in India analyzing the awareness and practicing of MBBS and BDS students reported the occurrence of these symptoms more commonly in male students [19].

We further reported that females are mostly aware to visit the dental clinics due to emergency care routine checkups and planned treatment. Our results are endorsed by various studies conducted in Jordan and Malaysia that reported that male students were reluctant and visited the dentist only when they had severe dental pain [10,15]. Al tayar et al also believed that toothache was the main driving factor for students to visit the dentist [15]. Current results reveal that most dental students visited the dentist once in their lifetime, inconsistent with this finding, and previous studies reported that a lesser number of students visited the dental clinic for a checkup in routine [1,18]. It is important to provide the necessary oral health interventions and dental education to college students to make them aware of the importance of oral hygiene to maintain their lifelong health behaviors and self-confidence.

CONCLUSION

The oral health knowledge of female medical and dental students was better compared to male students. Female students had better oral health practices and took better care of their teeth than male students.

FUTURE PERSPECTIVES:

Further emphasis on oral health is necessary for undergraduate training to improve oral health knowledge, attitude, and practice among the male students. These students, who are the future providers of dental and medical care, will act as role models for oral health education among individuals and the community at large.

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Author's Contribution:

Rabiya Ali: Study design and concept, manuscript writing revise and approve the article.

Nadia Khalid: Study design, data collection, manuscript writing, revise and approve the article.

Fareeha: Study design, data collection, data analysis, interpretation of results, writing of results, critically revise the manuscript.

Shireen Jawed: Data analysis, interpretation of results, critically revise the manuscript for all intellectual content and make all necessary revision in manuscript. Check and correct all the references carefully approve the article.

Naila Masood: Study design, help in writing manuscript and revise and approve the article.

Fatima Syed: Study design and data collection, review and approve the article.

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