

## Adaptation of Oral Hygiene Habits in Dental Professionals: A Kap Study

Hanan William,<sup>1</sup> Deema Munir,<sup>2</sup> Rabia Arshad,<sup>3</sup> Shazel William<sup>4</sup>

### Abstract

**Objective:** The present survey was carried out to assess the practice and perception of dental professionals towards their own dental care.

**Methods:** This cross-sectional study was carried from May 2019 to April 2020, in Altamash Institute of Dental Medicine, Karachi. Ethical approval was obtained from institutional review board. A self-administered questionnaire was developed comprising of 20 questions among the dental personnel (Staff and BDS students) of Altamash Institute of Dental Medicine Karachi, Pakistan, to assess their practice and care, regarding their own oral hygiene. Responses were collected through both, the hard copy and an online google form link. Data was evaluated for 176 complete forms. For all the asked questions, a comparison was also made between male and female candidates, and between their academic levels. For all the variable as categorical values, percentages were tabulated using SPSS 21.

**Results:** The results indicated that not all the dental professionals had their same practice to maintain oral hygiene. Not all of them were following the proper theoretical knowledge. From their choices of toothpastes to their habits of flossing and using additional aids for maintaining oral hygiene, majority factors varied individually in spite of the fact that there is well-awareness of consequences of negligence.

**Conclusion:** It was found that not all the dental practitioners follow the proper guidelines to maintain oral hygiene, and not all of them follow the instructions they give to their patients.

**Key Words:** Oral Hygiene, Dental Professionals, Tooth Paste, Mouth Wash, Dentistry, Oral Hygiene Maintenance, Dental practitioners.

### Introduction

The negative effects of abysmal oral health conditions on health and quality of life, cannot be ignored.<sup>1</sup> There can be multiple consequences of poor oral hygiene, the most common of which is bad odor from mouth or Halitosis. Poor oral hygiene can be a major cause for it, which includes, dental plaque and caries, gingivitis, periodontitis, malignancies, dry mouth on the other hand may or may not be a contributing factor.<sup>2-6</sup> The purpose of dentistry is to respond to the patients need and desires so as to restore the

patient's oral health to normal contour, function, comfort, esthetics & speech.<sup>7,8</sup> Dentists with proper knowledge and oral health methods can contribute to the oral education and act as role models for the general community.<sup>9</sup> For transferring proper knowledge and awareness to the patient, a dental practitioner should first practice himself on all the suggestions before he advises to patients.

Due to professional knowledge of the prevention of oral diseases, dentists hold a key position in providing a positive role for oral self-care and to instruct and encourage their patients to maintain good oral health behavior.<sup>10</sup>

It was hypothesized that dentists with better orientation and greater knowledge of preventive care would have better oral hygiene behavior and dental service utilization. When talking about the preventive orientation in dentistry, it is determined by the statement that "Preventive training and practice should be increased both in undergraduate education and in dental practice".<sup>11</sup> Education contributes to improve

1. Hanan William
  2. Deema Munir
  3. Rabia Arshad
  4. Shazel William
- 1,2 Deptt. of Dental Medicine, Altamsh Institute of Dental Medicine  
3. Department of Pharmacology, AIDM  
4. Department of Community Dentistry, AIDM

### Correspondence:

Dr. Rabia Arshad  
Head and Associate Professor, Department of Pharmacology, AIDM ;  
Email: rabs78@gmail.com

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knowledge, and as a level of education increases there is improvement in the level of oral health, awareness, attitude and behavior.<sup>12</sup>

Dentistry as a profession is known to be stressful both physically and mentally thus demanding more responsibility by dentists for their own general and oral health well-being.<sup>10</sup> Health related knowledge, attitudes and beliefs acquired through professional education could therefore be the most significant individual level factors influencing their intermediate and final oral health outcome. In any society, dental professional should thus be a model group regarding oral health.<sup>11</sup>

Thus, the present study was designed and executed among dental practitioners in a dental institute to assess their own oral hygiene awareness, practice and maintenance, with the main objective that whether they put the same efforts in maintaining their oral health or not as they advise their patients.

## Methods

The current cross-sectional study was conducted with informed consent, from March 2019 to February 2020. Ethical approval was obtained from institutional review board. A self-administered questionnaire was developed comprising of 20 questions among the dental personnel of Altamash Institute of Dental Medicine Karachi, Pakistan, to assess their practice and care, regarding their own oral hygiene. Responses were collected through both, the hard copy and an online google form link. Around 200 questionnaires were distributed to get the responses and data was evaluated for 176 completed forms with appropriate answers.

**STATISTICS:** The statistical analysis was done through SPSS version 21. Descriptive analysis was done and Percentages were calculated for all the variables. Chi-square was applied for all the question for comparison between male and females, and also for academic qualifications. The p-value of 0.05 or less was considered significant.

## Results:

The total number of dental personnel targeted were 200, out of which 36.9% males and 18-24 year. For age 60.2 % patients were in 18-24-year age limit, 32.4

% patients were 25-34 year age group whereas 7.4 % patients were above 34 year of age. For academic levels, 40.3 % patients were undergrads, 44.3% patients were graduates whereas 15.3 % are post graduate. Married patients were 15.9% whereas unmarried were 84.1%. 65.3% were the ones who brush twice a day as per recommended by American Dental Association. Only 36.4% said that they brush their teeth before going to bed and after breakfast. Among all the participants, 56.3% brush their teeth for a recommended time of 2 mins and 62.5% used soft tooth brushes. 95.5% of the candidates used tooth brush and toothpaste to maintain their oral hygiene, among which 75% used fluoridated tooth pastes. 25% were the ones who used pea sized quantity of toothpaste. 50.6% used mouth wash and 26.1% used dental floss as an additional aid to clean their teeth. It concludes that 43.2% dental professionals were aware of the right time to change their toothbrush and 40.3% of the dental professionals practice the correct method of brushing. To remove the food debris from the teeth 46.6% of our participants used dental floss.

It was indicated that, 80.7% of the participants believed that oral health is overall health. Taking para-functional habits into view, 20.5% said that they possess para-functional habits, 59.7% said that they do not and 8.5% quit. 34.7% complained of bleeding gums occasionally, 5.7% had bleeding gums while brushing and 52.8% never experienced bleeding gums. 60.8% dental professionals did not have halitosis at all, 27.8% had it occasionally whereas 3.4% had it always.

Considering the eating and drinking habits of our participants, 45.5% were the one who ate sweet products anytime of the day whereas 35.8% had them once a week. 48.9% were the ones who had carbonated drinks once a week and 29.5% had them anytime of the day. 25.6% get their teeth professionally cleaned every 6 months and 40.3% get them cleaned once a year. 60% dentists claimed that they take care of their own oral hygiene as they instruct their patients and 11.4% did not take care in the same way. As shown in Table No.1

When comparison was made between the male and female and for the academic levels, all the variables wither showed non-significant results or chi-square test was not applicable due to decrease

cell count. As shown in Table No. 2

## Discussion

Today, it is well-known that abysmal oral health conditions have a negative effect on overall health and quality of life in people.<sup>3</sup> The purpose of dentistry is to respond to the patients' needs and desires i.e. to restore the patient's oral health to normal contour, function, comfort, esthetics & speech.<sup>9,10</sup> Oral hygiene is the practice of keeping the mouth clean by brushing and flossing to halt tooth and gum diseases. Good oral hygiene has shown to contribute immensely to the prevention of oral diseases.<sup>15</sup>

According to our research carried out among the dental professionals, 65.3% of the participants were the ones who brushed twice daily. Similar results were found out in a research carried out in 2002 by Merchant et al, which demonstrated that 70% of the participants brushed twice daily.<sup>16</sup> In a study carried out among the Mongolian dentists in 2004, it was concluded that 81% of the practitioners brushed twice a day and 62% used fluoridated toothpastes whereas in our study the fluorinated tooth paste utilization is 75%.<sup>13</sup>

Another study by Gopinath in 2010 showed that, 55.9% respondents brushed twice a day and 55.1% of the practitioners used fluoridated toothpastes and

**Table 1:** Participants Characteristics and Oral Hygiene Details (N=176)

variable	Options	Percentage	variable	Options	Percentage	variable	Options	Percentage
<b>Gender</b>	Male	36.9%	<b>Hygiene Methods</b>	Tooth Brush + Tooth Paste	95.5%	<b>Oral Health is Overall Health</b>	Yes	80.7%
	Female	63.1%		Manjun	2.8%		No	10.2%
<b>Age</b>	18-24	60.2%	<b>Kind of Toothpaste</b>	Miswak	1.1%	<b>Para-functional Habits</b>	May be	6.3%
	15-34	32.4%		Tooth Brush + Miswak	0.6%		Don't Know	2.8%
	>34	7.4%		Fluoridated	75%		Yes	20.5%
				Non-fluoridated	5.1%		No	59.7%
<b>Academic Level</b>	Graduate	44.3%	<b>Quality of Toothpaste</b>	Herbal	11.4%	<b>Bleeding Gums</b>	Quit	8.5%
	Post-Graduate	15.3%		Don't Know	8.5%		Never Noticed	11.4%
				Full length of Bristles	34.7%		On brushing	5.7%
<b>Marital Status</b>	Married	15.9%	<b>Additional Aids</b>	Half -length of Bristles	38.1%	<b>Halitosis</b>	Occasionally	34.7%
	Unmarried	84.1%		Pea Sized	25%		Not at all	52.8%
<b>Frequency of Brushing per day</b>	Once	23.9%	<b>Time to Change Brush</b>	Just Peck	2.3%	<b>Frequency of Eating Sweets</b>	Never Noticed	6.8%
	Twice	65.3%		Mouth Wash	50.6%		Always	3.4%
	Thrice	9.7%		Floss	26.1%		Occasionally	27.8%
<b>Preferred time of Brushing</b>	Before Bed + After Breakfast	36.4%	<b>Direction of Brushing</b>	None	16.5%	<b>Use of Carbonated Drinks</b>	Not at all	60.8%
	Before Bed + Before Breakfast	44.9%		Other	6.8%		Never Noticed	8%
	After Every Meal	10.2%		Every Month	13.1%		Anytime	45.5%
	After Breakfast	8.5%		Every 2 Months	34.7%		Frequent intervals	10.2%
<b>Time Duration to Brush</b>	< 1 min	24.4%	<b>Food Debris Removal</b>	Every 3 Months	43.2%	<b>Professional Cleaning</b>	After Dinner	8.5%
	2 min	56.3%		Until Bristles Wear out	9.1%		Once a week	35.8%
	3 min	16.5%		Vertical	9.1%		Anytime	29.5%
<b>Type of Brush</b>	>3 min	2.8%	<b>Food Debris Removal</b>	Horizontal	11.4%	<b>Professional Cleaning</b>	Frequent intervals	9.1%
	Soft	62.5%		Circular	40.3%		Once a day	12.5%
	Hard	4.5%		Combination	39.2%		Once a week	48.9%
	Medium	29%		Floss	46.6%		Every 4 Months	9.15
		Don't Know	4.2%	Tooth-Pick	25%	Every 6 Months	25.6%	

19.6% followed the recommended instructions to maintain oral hygiene, whereas in our research, 75% people used fluoridated toothpastes and 60.2%

followed the recommended instructions.<sup>17</sup>

Mechanical methods of plaque control e.g. the effec-

**Table 2:** Comparison of Male and Female and Academic Levels for all the Variables (N=176)

Toothpaste and Brushing Details	Options	Male n=66	Female n=110	p-value	U/grad n=71	Grad n=78	Post/grad n=27	p-value
Frequency of brushing	Once	23	19	NA	14	18	10	NA
	Twice	33	82		52	51	12	
	Thrice	8	9		5	8	4	
	More	2	0		0	1	1	
Preferred Time to Brush	Before Bed + After Breakfast	22	42	0.54	26	29	9	NA
	Before Bed + Before Breakfast	28	51		35	33	11	
	After Every Meal	9	9		4	11	3	
	After Breakfast	7	8		6	5	4	
Time Duration to Brush	< 1 min	9	34	NA	19	17	7	NA
	2 min	47	52		45	41	13	
	3 min	9	20		6	17	6	
	>3 min	1	4		1	3	1	
Type of Toothbrush	Soft	40	70	NA	50	47	13	NA
	Hard	2	6		3	4	1	
	Medium	20	31		16	24	11	
	Don't know	4	3		2	3	2	
Kind of Toothpaste	Fluoridated	48	84	NA	54	58	20	NA
	Non-fluoridated	2	7		2	5	2	
	Herbal	10	10		9	8	3	
	Don't Know	6	9		6	7	2	
Quantity of Toothpaste	Full length of Bristles	24	37	NA	23	27	11	NA
	Half -length of Bristles	23	44		31	27	9	
	Pea Sized	15	29		17	23	4	
	Just Peck	4	0		0	1	3	
Time to Change Brush	Every Month	11	12	0.087	11	8	4	NA
	Every 2 Months	20	41		22	30	9	
	Every 3 Months	25	51		32	33	11	
	Until Bristles Wear out	10	6		6	7	3	
Direction of Brushing	Vertical	10	6	0.065	5	6	5	NA
	Horizontal	10	10		7	10	3	
	Circular	25	46		29	30	12	
	Combination	21	48		30	32	7	
Duration between Meal and Brushing	5 min	6	9	0.086	7	5	3	NA
	10 min	14	17		11	15	5	
	15 min	24	26		20	23	7	
	I don't brush after meals	22	58		33	35	12	
Food Debris Removal	Floss	29	53	NA	30	43	9	NA
	Tooth-Pick	15	29		21	14	9	
	Nothing	14	23		14	16	7	
	Others	8	5		6	5	2	
Hygiene Methods	Tooth Brush + Tooth Paste	59	109	NA	70	75	23	NA
	Manjun	4	1		1	1	3	
	Miswak	2	0		0	2	0	
	Tooth Brush + Miswak	1	0		0	0	1	
Additional Aids	Mouth Wash	27	62	NA	35	36	18	NA

Chi square test applied, \* statistically significant difference, NA=chi square not applicable due to decreased cell count

tive way of using a toothbrush and dental floss can aid oral health and decrease the incidence of dental discomforts and abnormalities.<sup>18-20</sup> Comparing the genders, in a research carried out in 2019 showed that females were more active in flossing their teeth than men, just like our research showing females to be more proficient in taking extra steps for oral care.<sup>21</sup> A research carried out in 2019 signified that 70% of their participants brushed their teeth only once a day, leading to dental issues. Our research had results in accordance to a study conducted in India in 2014, which stated that their participants had a habit of brushing two times a day.<sup>22,23</sup>

In a study carried out in Brazil and four Asian

countries, it was concluded that majority of the candidates brushed once a day which was dissimilar to our study.<sup>24</sup> Our research revealed that 45.5% of the practitioners could take sugar products anytime of the day unlike the members of the study in 2004, where 52% of the practitioners consumed sugar containing foods for less than once a day.<sup>13</sup>

Taking additional aids for oral hygiene into consideration, 50.6% and 26.1% of our practitioners used mouth wash and dental floss, whereas according to a study in 2002 by Merchant et al. 56.3% of their participants used dental floss on a regular basis.<sup>16</sup> Contrary to this, in a study in 2012 by Baseer et al, less than 50% of the candidates used dental floss and

**Table 3:** Comparison of Male and Female and Academic Levels for all the Variables (contd)

Health and Habits	Options	Male n=66	Female n=110	p- value	U/grad n=71	Grad n=78	Post/grad n=27	p- value
Oral Health is Overall Health	Yes	52	90	NA	56	66	20	NA
	No	8	10		8	5	5	
	May be	4	7		6	5	0	
	Don't Know	2	3		1	2	2	
Bleeding from Gums	On Every Brushing	7	3	NA	4	2	4	NA
	Occasionally	17	44		26	26	9	
	Not at all	35	58		35	47	11	
	Never Noticed	7	5		6	3	3	
Para-functional Habits	Yes	13	23	0.143	15	16	5	NA
	No	34	71		37	51	17	
	Quit	8	7		8	5	2	
	Never Noticed	11	9		11	6	3	
Halitosis	Always	4	2	NA	3	1	2	NA
	Occasionally	18	31		18	23	8	
	Not at all	36	71		46	48	13	
	Never Noticed	8	6		4	6	4	
Frequency of eating sweets	Anytime	34	46	0.600	37	31	12	NA
	Frequent Intervals	5	13		6	10	2	
	After Dinner	5	10		7	3	5	
	Once a week	22	41		21	34	8	
Use of Carbonated Drinks	Anytime	22	30	0.341	23	16	13	NA
	Frequent Intervals	6	10		8	6	2	
	Once a day	11	11		10	8	4	
	Once a week	27	59		30	48	8	
Professional Cleaning	Every 4 Months	8	8	0.374	6	3	7	NA
	Every 6 Months	13	32		19	23	3	
	Once a Year	26	45		24	34	13	
	Never	19	25		22	18	4	
Oral Care as Instructed	Yes	41	65	0.174	38	51	17	0.650
	No	9	11		11	7	2	
	Occasionally	11	31		18	18	6	
	Never Noticed	5	3		4	2	2	

Chi square test applied, \* statistically significant difference, NA=chi square not applicable due to decreased cell count

mouth wash and less than 10% used Miswak and toothpick for their oral hygiene.<sup>25</sup> In the same manner our research indicates least use of additional aids i.e. 1.1% of our candidates used Miswak and 0.6% used toothbrush + Miswak, though 25% were using toothpick as part of their routine oral hygiene.

A research published in 2008 concluded that 79.6% of their participants brushed twice out of which 73.8% brushed in circular motion. On the other hand, our survey showed that 40.3% were the ones brushing in circular motions.<sup>26</sup> An analytical study in Saudi Arabia in 2020 declared that 57% of the women were doing brush in circular motion just like our study where majority of the women were doing the correct strokes of toothbrush. It's a well-known fact to use a brush with soft bristles for normal healthy teeth, 54% of the male candidates for this study expressed that they used soft type of toothbrush, unlike the study we conducted where more females used soft type of toothbrushes.<sup>27</sup>

Para-functional habit can be one of the major causes of poor oral conditions. A prevalence of these habits in a study in Rehman College of Dentistry, Peshawar, showed that 30% of the undergraduates had and 70% of them had no para-functional habits, similar to our survey where majority of the undergraduates had no such habits.<sup>28</sup> Another research held 2017 in Lahore revealed that 38.3% of the undergraduates consumed carbonated drinks on daily basis, whereas 5.28% (10 out of 176) of the undergraduates in our study unveiled that they consumed carbonated drinks at least once a day.<sup>29</sup>

The current research we carried out clearly states that not all the dental professionals take proper measures to maintain a better oral hygiene, regardless the amount of knowledge they have through their theoretical and clinical experiences. This research was carried out on a limited number of candidates and in a limited environment. Further researches can be done on a vast majority of people giving more data about the title.

## Conclusion

There is lack of practice towards oral hygiene maintenance by dental practitioners and it is found that not all of them follow proper guidelines and instructions as given to their patients. Further research would be

needed for assessment. Also, there is need of improvement in practitioner's knowledge, behavior and attitude towards prevention to enable them to provide their patients and reinforce positive attitude for the same.

## Author's Contribution

**HW:** Idea, Research Work

**DM:** Data Collection, write up

**RA:** Supervision, proof reading the manuscript

**SW:** Data evaluation, statistical work of study

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