

Knowledge about Oral Hygiene and Miswak Use among Medical Students of Pakistan

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Abstract

Background and Objectives: Chewing sticks are commonly used as affordable oral hygiene tool in various parts of the world due to its antifungal, antimicrobial properties and is recommended by World Health Organization (WHO 1984). The study aimed to disclose knowledge about oral hygiene and miswak use among medical & dental students.

Material and Methods: A valid and credible questionnaire was used to conduct a cross-sectional descriptive study. Related to the knowledge about oral hygiene and use of Miswak. Responses were recorded as frequencies and percentages. Data was analyzed using SPSS version 21. The study was conducted from May to August 2019 at HITEC Institute of Medical Sciences (IMS).

Results: Students rated the use of toothbrush and paste superior {n=90(75%)} to miswak use{n=3(2.5%)} highly significant (p value is <0.05). Forty eight percent of students considered the use of toothbrush to be more beneficial while the knowledge of use of miswak was only 7%(n=6) as per cultural reasons. The frequency of use of miswak was twice a day in 53%(n=47) of students mainly due to religious awareness {n=58(66%)}.
 Conclusion: Medical students have little experience using a miswak, but if they have the right training and information, they would prefer to use both a miswak and a toothbrush.

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Key Words: Oral hygiene, Miswak, Tooth brush, use, frequency

Introduction:

The two most prevalent health issues for people globally continue to be dental decay and oral infections. To maintain and preserve oral and dental hygiene, a range of practices and treatments are available today, such as the usage of Miswak¹. Miswak is prepared as pencil-sized sticks from the twigs, stems or roots of *Salvadora Persica* plant also known as Arak, Miswak or Siwak.¹

Parts of Asia, Africa, the Middle East, and South America have all recorded cases of its use.² Despite the widespread use of toothbrushes and toothpaste, it was also discovered to be a frequent and acceptable teeth cleaning solution, particularly in underdeveloped nations. This is likely due to its accessibility, affordability, and socio-cultural factors. Its use is becoming

more common due to religious motivations.^{2,3} Early Islamic scholars regarded the use of Miswak as a key component of Islamic hygienic regulation. It has been used frequently by the Prophet Mohammad (PBUH) at the time of awakening, following meals, and prior to the recitation of prayers and holy texts.^{4,5}

The Prophet advised that one should "establish a regular practice of miswak; for truly it is the purifying for the mouth and a way of the pleasure of the Lord⁶" and that one should "rinse their mouths three times before each of the five daily Islamic prayers" (p134).

The positive clinical effects of miswak due to its antibacterial activity⁷, plaque reduction⁸, gingival indices⁸, It has been demonstrated in clinical studies and trials⁹, suggested that miswak is a favorable oral health agent.

The World Health Organization (WHO) advises and promotes the use of *Persica* sticks (miswak) as an efficient oral hygiene technique.^{10,11} The aim of this novel study was to assess the knowledge and attitude of medical and dental students regarding oral hygiene methods and miswak use in a private medical and dental college of Punjab, Pakistan.

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Methodology:

This Cross-sectional Descriptive study was planned and conducted during the period from May to August 2019 at HITEC Institute of Medical Sciences (IMS). The study was approved by Ethical Review board of the institution. Students from first year Medical and dental college (148 students) participated in the study.

The sample constituted of (70.8)% female and (29.1)%male candidates. We used a validated and reliable Questionnaire12 comprising of ten questions and different variables related to the knowledge about oral hygiene and use of Miswak.

An informed written consent was obtained by the participants and purpose of the study was told to them. Those questionnaires which were completely filled were separated and data was organized on Microsoft excel sheet.

Results were analyzed statistically by Statistical Package for the Social Sciences version 20.0 software (SPSS 20) Responses were recorded as frequencies and percentages. The statistical test used here was chi-square test and p- value of <0.05 is considered highly significant.

Results:

Total number of students participated in our study was 120. The number of students from MBBS were 75(62.5%) and from dental college were 37.5% (n=45). Number of Female and male participants were 85and 35 respectively. The mean age group is between 19-21years.

The findings on the percentage distribution of study participants by gender, as well as their knowledge and attitudes toward oral hygiene practices, were summarized in Table 1. Students rated the use of toothbrush and paste {n=92(77%)} superior to miswak use {n=3(2.5%)} highly significant (p value is <0.05). [Table 1].

Forty nine percent (n=59) of students considered the use of toothbrush to be more beneficial while 37.5% (n=45) preferred the combination of two methods. Fifty eight percent (n=69) brush their teeth twice a day as compared to 32.5% (n=39) who brush once daily.

Freshness and whitening of teeth after toothbrush use was noticed by 73.3% (n=88).The knowledge of use of miswak was only 12% (n=14) as per cultural reasons while 70% (n=84) knew about it on the basis of religious teachings.

Students however have variable knowledge about types of miswak sticks, its usage technique and its storage. Only 30% (n=35) students knew how to use miswak and 36% (n=43) knew how to store it properly.

Even though the use of miswak was 2.5% (n=3) among the students; however if given the choice students preferred to use both methods {n=85(70.83%)} that is a combination of miswak and tooth brushing.

Table 1: Comparison of medical and dental students in terms of attitude and knowledge towards oral hygiene

Question	Dental n (%)	Medical n (%)	Total n (%)	PValue
Primary oral hygiene method use	37 (30.8%)	55(45.8%)	92(76.6)	0.52
1. Tooth brush and paste	1 (.83%)	2 (1.6%)	3 (2.5)	
2. Miswak	8 (6.66%)	17 (14.1%)	25 (20.8)	
3. Both				
Frequency of use of oral hygiene method	14 (11.6%)	25 (20.8%)	39 (32.5%)	57
1. Once a day	28 (23.3%)	41 (34.1%)	69 (57.5%)	
2. Twice a day	4 (3.3%)	9 (7.5%)	12 (10%)	
3. Whenever required				
Reason for preference of selected OHM				56
1. More beneficial	40 (33.3%)	19 (15.8%)	59 (49.1%)	
2. Don't trust other method	8 (6.66%)	5 (4.16%)	13 (10.8%)	
3. Combination is more beneficial	26 (21.6%)	19 (15.8%)	45 (37.5%)	
4. Others	1 (.83%)	3 (2.5%)	3 (2.5%)	
Use miswak due to				49
1. Cultural reasons	5 (4.16%)	9 (7.5%)	14 (11.6%)	
2. Religious reasons	29 (24.1%)	55 (45.8%)	84 (70%)	
3. Easy to use	5(4.16%)	5(4.16%)	10 (8.33%)	
4. Cost effective and availability	1 (.83%)	0 (0%)	1 (.83%)	
5. Scientific reasons	4 (3.33%)	6 (5%)	10 (8.3%)	
6. Others	1(.83%)	0 (0%)	1(.83%)	
Type of miswak used	33 (27.5%)	19 (15.8%)	89 (74.1%)	51
1. Any variety	56 (46.6%)	12 (10%)	31 (25.8%)	
2. Particular variety				
How do you use miswak				01*
1. Chew it for minutes	20 (16.6%)	17 (14.1%)	37 (30.8%)	
2. Chew it until i reach bristles	12 (10%)	23 (19.1%)	35 (29.1%)	
3. Taper it and use as a brush	11 (9.1%)	35 (29.1%)	46 (38.3%)	
4. Any other method	2 (1.6%)	0 (0%)	2 (1.6%)	
After miswak/tooth brush use I feel				22
1. No change	5 (4.1)	11 (9.1)	16 (13.3)	
2. Fresh and teeth are whiter	36 (30)	52 (43.3)	88 (73.3)	
3. Bitterness and mouth acidity increases	3 (2.5)	12 (10)	15 (12.5)	
4. Anyother change noticed	1 (.83)	0 (0)	1 (.83)	
How do you store your miswak				017*
1. Pocket or bag exposed to air	22 (18.3%)	21 (17.5%)	43 (35.8%)	
10 (8.3%)	31 (25.8%)	41 (34.1%)		
2. Cut used end and store in pocket	11 (9.1%)	23 (19.1%)	34 (28.3%)	
3. Single use and discard	2 (1.6%)	0 (0%)	2 (1.6%)	
4. Any other				
If I am told that tooth brushing or any other method is more beneficial				68
1. Still continue with miswak only	5 (4.1%)	11 (9.1%)	16 (13.3%)	
2. Discard miswak and use other method	9 (7.5%)	11 (9.1%)	20 (16.6%)	
3. Use both miswak and other method	31 (25.8%)	53 (44.1%)	84 (70%)	
I will prefer my family to use				161
1. Miswak only	1 (.83%)	6 (5%)	7 (5.8%)	
2. Tooth brushing only	14 (11.6%)	14 (11.6%)	28 (23.3%)	
Combination of miswak and tooth brush	30 (25%)	55 (45.8%)	85 (70.8%)	

Discussion:

In our study, the preferred oral hygiene aids that were used by the participants included tooth brush (76.7%), miswak only (2.5%) and a combination of both (20.8%) showing a trend towards a modern oral hygiene technique. A similar study conducted in Aseer region of Saudi Arabia showed that 46.5% of the participants used tooth brush, 8% used miswak, 44.7% used both tooth brush and miswak and 0.4% did not use any of the mentioned oral hygiene methods.¹²

Another study conducted in Riyadh city showed that 82% of the respondents used tooth brush, 4% miswak while 3% used dental floss on daily basis.¹³ A study in Jeddah revealed that 51.1% of the sample population used tooth brush, 40% miswak and 20% used dental floss.¹⁴ Less gender differences were identified concerning general oral hygiene.

Other studies by Rajeb et al¹⁵ and Darout et al¹⁶ supported our results by revealing that no substantial differences between boys and girls were found regarding knowledge about oral health. According to a study by Farsi et al. measuring behaviour, attitude, and knowledge in respect to dental health, students in private schools favoured using tooth brushes whereas those in government schools tended to use miswaks.¹⁷

In our study, the frequency of using oral hygiene method by either tooth brush or miswak was reported to be highest in the twice daily population (69%), followed by once daily (39%) and then 12% who only used it when required. These results were found to be in accordance with the criteria described in a study to evaluate the degree and aspects of knowledge, attitude, and practices about oral hygiene among pilgrims visiting Madinah.¹⁴

They also depicted the highest percentage of 30.7% in those that brush twice a day, followed by 21.2% of the participants who were brushing once daily, and 8.5% who never brushed at all. In another study conducted in Rijil Alma, Saudi Arabia, it was revealed that 64.3% of the respondents cleaned their teeth once daily.¹⁸

Practice of tooth brushing with tooth paste was found to be the most common form of dental hygiene tool used in industrialized countries whereas miswak was used as a sole method of cleansing in developing countries.¹⁹ People from developed countries showed greater concern to their dental hygiene with studies depicting 16-80% of the boys in 32 countries in Europe and North America practicing tooth brushing more than once daily while girls showed greater compliance (26-89%).²⁰

A survey in India revealed that only 69% of their population brushes their teeth²¹. Similarly a survey conducted a long time ago in Pakistan has revealed that only 36% of the Pakistani people cleaned their teeth daily with whatever method they used while 54% did so on alternate days.²²

Our study provided evidence that students believe that miswak use is due to its religious value. Chewing sticks are a common oral care item, according to Rigg's et al, because they

are easy, readily available, inexpensive, and have cultural and religious values.²³ As numerous studies have conclusively shown the positive effects of miswak use, the proper miswak-use technique should be taught and reinforced.¹⁴

This study has provided evidence that medical students were not using miswak as their favorite oral hygiene tool yet they preferred for themselves and their families a combination of both tooth brushing and miswak whereas another study concluded that secondary school students were using toothbrush and miswak equally.²⁴

These variable trends are evidence that traditional and educational backgrounds do have an impact on the choice of oral hygiene method. Our study does not reveal any considerable differences between the dental and medical students regarding their knowledge about miswak use, its types, storage methods and proper technique yet they preferred to use a combination of both miswak and tooth brushing as a better option for their families and for themselves.

A study conducted in Pakistan²⁵ earlier to compare effectiveness of both tools: chewing stick and manual tooth brushing among dental students; concluded that chewing sticks show greater mechanical and chemical cleansing as compared to tooth-brushing.

Conclusion:

Our results showed that medical students have satisfactory level of knowledge about oral hygiene and they were using tooth brush and paste as a common method. They have little knowledge of miswak's uses since they are unaware of its advantages. The primary motivation for chewing sticks use was religious advice.

Students use miswak and tooth brushes occasionally, but if sufficient instruction and awareness are given, they prefer to use both. Evidence suggests that tooth brushing and Use of miswak can be a cost effective method for maintaining oral hygiene in developing countries. More possibilities should be explored to use miswak in various other forms such as mouth wash and irrigants.

Limitations:

The study has certain limitations as we could have included students from other medical schools as well as other educational institutes in different regions of Pakistan. General public especially the patients visiting dental outdoor department can be included as sample.

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1. Ambreen Gul- Conceptualization, Methodology of study and Manuscript writing
2. Ayesha Haq- Literature review
3. Sadaf Mumtaz- Manuscript review
4. Aashi Ahmad- Data Analysis and data interpretation
5. Alishba Iftikhar - Data collection, literature review
6. Monal Fatima - Drafting, literature review