

Awareness of Halitosis and Oral Hygiene Among Undergraduate Dental Students



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BACKGROUND: Halitosis or oral malodor is characterized by unpleasant odor arising from the oral cavity. The prevalence of halitosis however is not studied extensively.

METHODOLOGY: A structured questionnaire consisting of 15 questions was administered to 220 undergraduate students of Sharif Medical and Dental College, Lahore.

RESULTS: Out of them 212(96.36%) students participated in the study. Among them 90(42.45%) were males and 122(57.55%) were females. Mean age of the students was 20.48±1.63 years. Average age of male was 21.41±1.66 years and of female was 19.79±1.22 years. 89(42.0%) reported halitosis (95% C.I 35.3% to 48.9%), 90(42.5%) have no halitosis and 33(15.6%) did not know about it. Halitosis was reported among 30(33.3%) male and 59(48.4%) female. Present study showed that females have more awareness of malodor than the male students.

CONCLUSION: The results of this study indicate higher prevalence and awareness of halitosis among this population consisting of dental students. The awareness of halitosis as an individual entity should be promoted to the general population and the therapeutic measures should be made available to all.

KEY WORDS: Dental students, halitosis, oral hygiene, oral malodor.

HOW TO CITE: Rana S, Shakoor A, Fahim A. Awareness of Halitosis and Oral Hygiene Among Undergraduate Dental Students. J Pak Dent Assoc 2017;26(4):141-45.

DOI: <https://doi.org/10.25301/JPDA.264.141>

Received: 07 September, 2017, Accepted: 19 December, 2017

INTRODUCTION

Human breath consists of highly complex substances including various odors which might lead to unpleasant situations like halitosis.¹ Root cause of almost 85-90 % of halitosis cases are due to oral cause which commonly includes tongue coatings, deep carious lesions, food impactions, poor oral hygiene, oral infections, mucosal ulcerations, periodontitis, and pericoronitis.² The most frequent reason of visiting a dentist following dental caries and periodontal diseases is halitosis.³ Non-oral causes of halitosis are respiratory and gastrointestinal tract disturbances, metabolic disorders, systemic medications and carcinomas of aero digestive tract.⁴ Anaerobic oral bacteria also play an important role in it as they survive and flourish in an oxygen deficient environment.⁵

The prevalence of halitosis is between 20% to 50%. Almost more than 50% of the general population complains of halitosis.⁶ In a study carried out in Sweden consisting of 840 men, results were that only 2% of the

population complained of halitosis.⁶ However, in China the study of 2500 participants halitosis was assessed above 27.5%.⁷ In children, prevalence of halitosis ranges from 5% to 75% according to literature.^{8,9} The major reason of halitosis in 90% of individuals is oral, 9% is non-oral and in the remaining 1% is diet or drugs.^{10,11}

Increased anxiety and lack of self confidence is seen in individuals complaining of bad breath who use frequent chewing gums, mints and mouth rinses to overcome the problem.¹² Annually over 2 billion dollars are spent.¹³

Irrespective of the consequences of halitosis, dental health professionals usually lack in training and are unable to guide their patients. This is due to inadequate training received in dental schools regarding this topic.¹⁴ There lies a necessity to enhance the knowledge of self-perception of oral and general health among dental students.¹⁵ Therefore, it is essential both from a social and a medical point of view that halitosis is reported and a definitive remedy is given to treat the underlying cause.

The aims of this present study were to evaluate self-perception of oral malodor by male and female dental students studying in Sharif Medical & Dental College, Lahore. The prevalence of oral hygiene habits and awareness of common dental problems were also evaluated.

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METHODOLOGY

It was a cross-sectional study and this study involved 220 dental undergraduate students of Sharif Medical & Dental College, Lahore. The questionnaire included 15 questions which evaluated the presence, self-perception of halitosis, and treatment (self or professional) for halitosis. The questionnaire was anonymous with no column for identification of the individual. The participants were explained about the questions, and clarifications were made. The questionnaire was administered in English language after confirming that all the participants were comfortable in the language. Statistical package for social science version 20 was utilized for statistical analysis. The Chi square test was performed for comparison of responses obtained from males and females. The level of statistical significance was set at a P value less than 0.05.

RESULTS

In this study 220 undergraduate dental students were asked to fill the structured questionnaire. Out of them 212(96.36%) students participated in the study. Among them 90(42.45%) were males and 122(57.55%) were females (Figure 1). Mean age of the students was 20.48±1.63 years. Average age of male was 21.41±1.66 years whereas mean age of female was 19.79±1.22 years.

89(42.0%) reported halitosis (95% C.I 35.3% to 48.9%), 90(42.5%) have no halitosis and 33(15.6%) did not know about it. Halitosis was reported among 30(33.3%) male and 59(48.4%) female. Present study showed that females have more awareness of malodor than the male students. Chi-square value was also significant i.e P- value ≤ 0.05 (Figure 1). The answers to all the questions provided in the

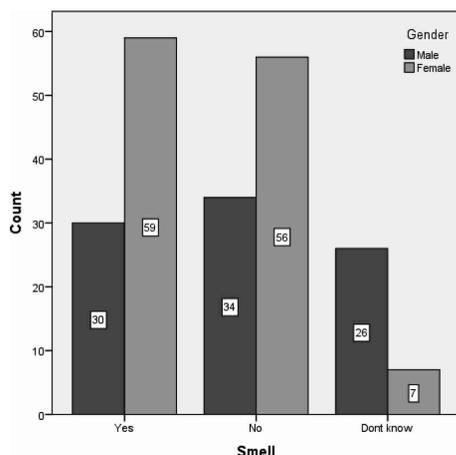


Figure 1: Awareness regarding halitosis and oral hygiene habits among undergraduate dental students in Sharif Medical and Dental College

questionnaire were segregated according to gender and analyzed using the Chi-square test (Table 1). Significant difference was observed for self-perception of halitosis, use of mouth wash, presence of carious teeth, bleeding gums, use of tongue cleaners, smoking, daily brushing, halitosis affecting the socialization at work place, and use of regular dental floss ($P \leq 0.05$).

Table 1: Frequency distribution of response according to Halitosis affecting the socialization at work place

| Questions | Male | Female | χ^2 | P-value | Relative risk |
|-------------------------------------|------------|-------------|----------|---------|---------------|
| | Yes | Yes | | | |
| Self-perception of Halitosis | 30(46.88%) | 59(51.30%) | 21.43 | <0.001* | 0.91 |
| Professional Treatment Received | 4(4.44%) | 13(10.66%) | 2.71 | 0.080 | 0.42 |
| Self-Treatment for Halitosis | 21(23.33%) | 37(30.33%) | 1.28 | 0.165 | 0.77 |
| Interfering with Social Life | 15(16.67%) | 11(9.02%) | 2.82 | 0.072 | 1.85 |
| Daily Brushing Twice | 60(66.67%) | 104(85.25%) | 10.21 | 0.001* | 0.78 |
| Regular use of Mouth wash | 13(14.44%) | 35(28.69%) | 6.00 | 0.010* | 0.50 |
| Dental Carries | 48(53.33%) | 33(27.05%) | 15.16 | 0.001* | 1.97 |
| Bleeding gums after brushing/eating | 43(47.78%) | 33(27.05%) | 16.53 | 0.001* | 1.77 |
| Dryness of mouth | 19(21.11%) | 27(22.13%) | 0.03 | 0.498 | 0.95 |
| Daily Tongue Cleaning | 22(24.44%) | 28(22.95%) | 0.06 | 0.463 | 1.07 |
| Smoking | 30(33.33%) | 0(0.00%) | 47.37 | 0.001* | NA |
| Working vs. Halitosis | 16(17.78%) | 44(36.07%) | 8.54 | 0.002* | 0.49 |
| Use of Dental floss | 7(7.78%) | 25(20.49%) | 6.53 | 0.008* | 0.38 |
| Tongue Coatings | 21(23.33%) | 5(4.10%) | 17.81 | 0.001* | 5.69 |

*p-value significant at 0.05 level of significance

Relative risk of self-perception of halitosis was 0.91 times in males as compared to female.

Relative risk of interfering with social life was 1.85 times higher in males as compared to female.

DISCUSSION

Oral malodor is a common problem among the general population. It can have stressful effect that may become a social handicap and affected person may avoid socializing. Self perception is very important for diagnosing and controlling bad breath by seeking proper dental treatment.¹⁶ In the present study, 33.33% males and 48.4% females were self aware of their malodor. Among the total male students 37.77% males and 50% of females have not self perceived the halitosis and 23.8% males and 6.25% females were totally unaware of malodor (figure 1). The difference in reporting self-perception of halitosis between females and males was found to be statistically significant. Research has indicated that pervasiveness and incidence ratios between the males and the females are the same however women tend to seek treatment more often than men. In two studies conducted in King Saudi University and University of Baghdad, 44% of males and 32% of females, reported the self perception of malodour.^{15,17} In another study 54% of students were aware of halitosis, out of which 88 were males

and 74 were females. Chi square tests showed that males had significantly higher mal odor than females.¹⁸ In another study, among males, 26 (21.7%) reported perceiving halitosis, 77 (64.2%) gave a negative answer, and 17 (14.2%) were not sentient of its presence or absence; where in females, 49 (35.3%) reported self-perception, 51 (36.7%) gave a negative response, and 39 (28.1%) were not sentient of its existence or absence. The difference was found to be significant.¹⁹ All these studies concluded that, there is a significant association in self-perception of halitosis based on gender difference.

Present study shows that only 4% males and 11.6% females took the professional treatment for malodor. These values are in accordance with the studies done in Saudi Arabia and Baghdad.^{15,17} In another study 78% of the students had either self-medicated using chemical plaque control agents like mouthwashes or traditional medication to treat their own bad breath, while only 22.2% of them went for a professional treatment concerning the same.¹⁸

In the current study, alongside good oral hygiene practices still there was the development of halitosis in the subject, this could be because of other confounding factors. This statement was supported by the other studies done by Al-Atrooshi et al, Aylikci et al and Murata et al which stated that factors could be related to systemic disease, drugs and extrinsic behavioral cause (smoking).^{17,20,21} Smoking was reported by 55% of the males and 1% of the female respondents.¹⁸ In another study population, smoking habits ranged from 2-13% among females and males, respectively.¹⁵ In another study among secondary school male students in Riyadh City, 23% of the students were smokers.²² Many people try to conquer their halitosis by smoking.²³ This may result in a strong smoker's breath. A history of smoking has been implicated in worsening in Olfactory Sensitivity.²³ Halitosis patients are asked to stop smoking.²⁴ In present study, 33.3% males were smokers and there was a significant relation between halitosis and smoking, P-value ≤ 0.05 (table 1).

Miyazaki et al²⁵, recommended oral malodor in younger generations could be ascribable mainly to tongue coat deposition. Furthermore, a positive correlation between levels of VSC on the tongue's dorsum surface and whole oral malodor has been established.²⁶ Kishi et al²⁷ indicated several VSC producing bacteria have the aptitude to colonize on the coat of the tongue in periodontally healthy subjects. It was also recommended that oral malodor could be related to not only the amount of tongue coating but also colonization of *P. gingivalis* in the coating.²⁷ However present study showed that 23.3% of male and 4.46% of female students had tongue coatings respectively. And there was significant relation between halitosis and tongue coatings i.e P-value ≤ 0.05 (table 1).

In the present study, there was a significant P-value i.e ≤ 0.05 for the presence of tooth carries, regular use of mouthwashes, regular twice a day tooth brushing, presence of bleeding gums and regular use of dental floss (table 1).

It has been reported an anticipated 10 to 30% of the USA population suffer from bad breath on regular basis.²⁸ An epidemiological survey of the general population of Japan showed 24% of the individuals examined complained about bad breath.²⁹ A Swedish study reported only 2.4% of the subjects had oral malodour.³⁰ In a questionnaire given to 4,815 individuals aged 15 years or older as a representation of the French general population, 22% reported having bad breath.³¹ A recent study of United States dentists reported 41% of the dentists saw six or more patients a week with chronic bad breath.³² The above mentioned studies show oral malodor is a worldwide problem and is perceived in different cultures and societies.

In a recent study on self-perception of breath odor, Eli et al¹⁶ concluded the self-perception of breath odor is a multifactorial, psycho-physiological issue connected closely to one's body image and psychopathological profile. The significance of halitosis is heavily related to its psychological and social impact. Bad breath has been linked with psychiatric symptoms such as phobias, depression, substantial worry, and changes in behavior and can adversely affect self-esteem, self-confidence, and impact on social participation.³³⁻³⁸

RATIONALE

The concept of health has been the subject of intensified significance in recent years.^{39,40} Where the dominating professional aspects have been questioned. In dentistry, Locker⁴¹ has emphasized if oral health is to be actively prejudiced, subjective perspectives need to be added to objective clinical assessment. So, subjective, self-reported information is required to be evaluated by objective clinical diagnostic methods.

There is a need to augment the knowledge of self-perception of oral and general health among dental students, developing healthy dietary and oral hygiene habits and professionalism as they are daily exposed to their patients.

CONCLUSION

Halitosis was prevalent among dental students. Given their responsibilities for diagnosing and improving oral health, they may benefit from increased awareness of the problem and encouragement to improve their own oral hygiene, especially male students. The results of this study indicates higher prevalence of halitosis among this population consisting of dental students. The awareness of halitosis was

also higher among this population. The awareness of halitosis as an individual entity should be promoted to the general population and the therapeutic measures should be made available to all. The role of dental professionals in maintaining good oral health should be emphasized in the community. There is a general lack of knowledge about oral malodor in all its aspects. Thus, greater public awareness and education should be encouraged. Dentists' role in informing and educating their patients concerning oral malodor should be emphasized and dental students should be trained to address this issue effectively.

CONFLICT OF INTEREST

None declared

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