Knowledge, Attitude and Practices regarding Self-perceived Halitosis among Undergraduate Dental Students - A Cross-sectional Study

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Abstract

Introduction: Unpleasant odor emitted from the oral cavity of a person is called halitosis. The other common terminologies that are used to refer to halitosis are fetor oris, oral malodor, or bad breath.

Materials and Method: An online survey was conducted, with a set of 15 questions among dental undergraduate students of Saveetha Dental College to assess their knowledge, attitude and practices regarding self-perceived halitosis. Google forms were used to conduct the survey. The results of the survey were collected and tabulated. SPSS by IBM was used to analyze the data, the frequency and percentage of each question was extracted. The statistical test used was Chi Square test.

Results: 84.5% of the study participants did not have any feeling of bad breath. 82% of them were aware that systemic diseases and conditions could cause oral malodor. 78.7% of them knew it may be attributed to gum disease. 60.5% of them brushed only once a day, 70.7% of them used mouthwash regularly, 83.9% of them used tongue cleaner and 52.3% of them flossed regularly. 60.3% of them did not go for a professional cleaning or check up.

Conclusion: From the study we conclude that there is a fair amount of knowledge about halitosis and ways to prevent and measures to avoid halitosis. People were also aware of the behavior with people affected from halitosis, there is a need to create awareness on halitosis and ways to avoid halitosis and preventive measures to be taken for halitosis, professional cleaning.

KEY WORDS: Cleaning Aids, Gum Disease, Halitosis, Mouth wash, Oral hygiene, Novel method

1. Introduction

Unpleasant odor emitted from the oral cavity of a person is called halitosis. The other common terminologies that are used to refer to halitosis are fetor oris, oral malodor, or bad breath(1)

Dominic et al 1982 Classified halitosis based on etiology (2) into
i) Local factors of pathological origin
ii) Local factors of non-pathological origin
iii) Systematic factors of non-pathological origin
iv) Systematic factors of pathological origin.

Bogdasarian classified based on cause in the year 1986(3) as
i) Normal breath and physiologic mouth odour
ii) Odours from oral conditions
iii) Odours from nasopharynx, pharynx and lungs.

Glickman in 1894 classified odours excreted via the lungs as
i) Local causes (pathologic, non-pathologic)
ii) Systematic causes

Miyazaki et al classified halitosis based on treatment needs as primary halitosis, and secondary halitosis (4).

The origin of the cause for halitosis can be classified into intra-oral and extra-oral causes (5). Around 80% of the etiological causes of halitosis arise due to intra-oral causes and 20% are due to extra oral causes (5,6). Tongue coating, periodontal infection, dental pathologies, dry mouth etc are the most common intraoral causes while systemic diseases or metabolic disorders are the major extraoral causes(7).

Halitosis is a result of release of volatile sulfur compounds (VSC's) through putrefactive activities of predominantly anaerobic gram-negative oral organisms(8). In majority of the cases, the causative factor is located in the mouth like deep caries lesion, periodontal disease, oral infection, pericoronitis, mucosal ulceration, food impaction, reduced salivary flow, coated tongue(9). Oral manifestation of diabetes includes periodontal diseases, oral candidiasis and dry mouth. Extraoral causes of halitosis could be disturbances in upper and lower respiratory tract, metabolic diseases, medications, etc(9). Also, habits like smoking, tobacco use, alcohol, etc would trigger halitosis(10).

Halitosis causes a major social impact on those who suffer from it, affecting their daily life creating embarrassment, missed employment opportunities and decreased quality of life(11,12). Few methods have been employed for detecting the presence of halitosis either indirectly or directly. Direct tests include organoleptic, gas chromatography. Indirectly it can be assessed by odour producing microorganism or by assessing the byproducts of bad breath in vitro(10) and the BANA (N-benzoyl-DL-arginine-2- naphthylamide) test which uses chemical sensors. Oral breath of an individual can be improved by scaling and root planing and rinsing with mouthwashes like chlorhexidine, essential oils, triclosan, amine-fluoride, H2 O2(2,13).

Though toothbrushing is the most common method of mechanical plaque removal, the efficiency may not be achieved by everyone. In a systematic review conducted by van der Weijden et al. found that, in adults suffering from givitis, self-performed mechanical plaque removal with a manual toothbrush was not much effective (14,15).

Our team has extensive knowledge and research experience that has translate into high quality publications.(16–28),(13,29–32)(33)(34)

MATERIALS AND METHOD

An online questionnaire based survey was conducted, among the undergraduate students of Saveetha Dental College to assess their knowledge, attitude and practices regarding self-perceived halitosis. A total of 174 students participated in the survey. A validated questionnaire with a set of 15 questions was formulated in the English language and circulated using Google forms. The participants did the survey voluntarily. Informed consent from the participants were obtained before their participation. The results of the survey were collected and tabulated. The data was analysed. SPSS by IBM was used to analyse the data, the frequency and percentage of each question was extracted. The Statistical test used was the Chi Square test.

RESULTS

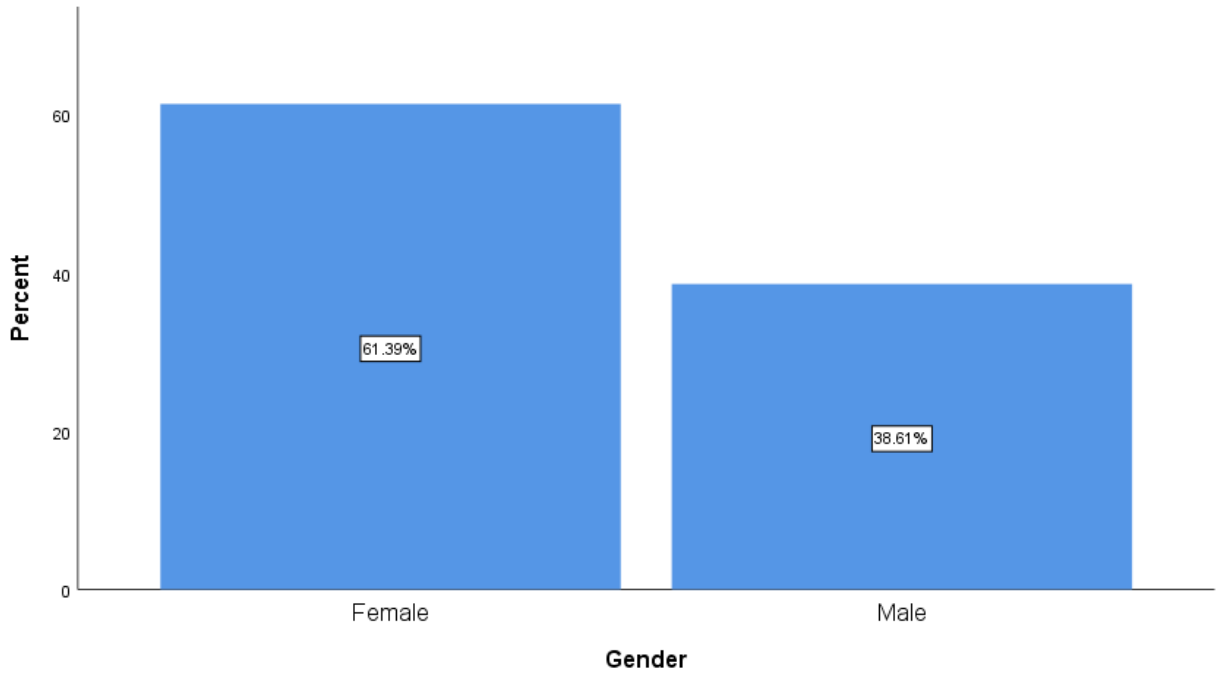
In the present study of 174 participants, 62 were females (61.39%) and 39 were males (38.61%). 35 of the participants were first years (16.1%), 11 were second years (5.0%), 15 were third years (6.9%), 83 were final years (38.1%) and 30 were interns (13.8%). In the present study 84.5% of the participants did not have any self-perceived feeling of bad breath, 2.9% of them had that feeling and 12.6% of them didn't know whether they had a bad breath or not. 82% of the study participants were aware that bad breath could be due to systemic disease like diabetes or liver disorders, while 11.5% of them did not feel systemic disease would cause any halitosis and 6.3% of them were not sure about it. 78.7% of the participants were aware that gum disease could be a cause for halitosis while 14.4% of the participants felt gum disease was not the reason for halitosis, and 6.9% of them were not sure of it. 81.0% of the participants were aware that smoking and alcohol consumption was another main cause of halitosis while 10.9% of them stated it would not cause halitosis and 8.0% of them were not sure about its cause. 62.6% of the participants were aware that maintaining good oral hygiene by brushing daily, using mouthwash and tongue cleaners would reduce bad breath while 12.1% of them did not feel it would help and 25.3% of them were not sure about the extra aids of oral hygiene. 86.8% of the participants were aware that maintaining good gum health by regular dental visits and professional cleaning will help reduce bad breath, 8.0% of them felt it would not help and 5.2% of them were not sure about the professional cleaning. 50.6% of them were aware of the devices used to measure bad breath, 49.4 of them were not aware of it.

38.5% of the participants believed that bad breath decreases confidence and affects your social life. 58.0% of them were not sure if bad breath would not occur in healthy individuals, 23.0% of them believed it would not occur in healthy individuals and 19.0% of them believe it is independent of healthy individuals. 52.9% of them responded they will continue to be friendly with individuals with halitosis, 31.0% of them told they will advise them to visit a dentist, only 5.2% of them told they will avoid such individuals and 10.9% of them told they would do anything from the above option.

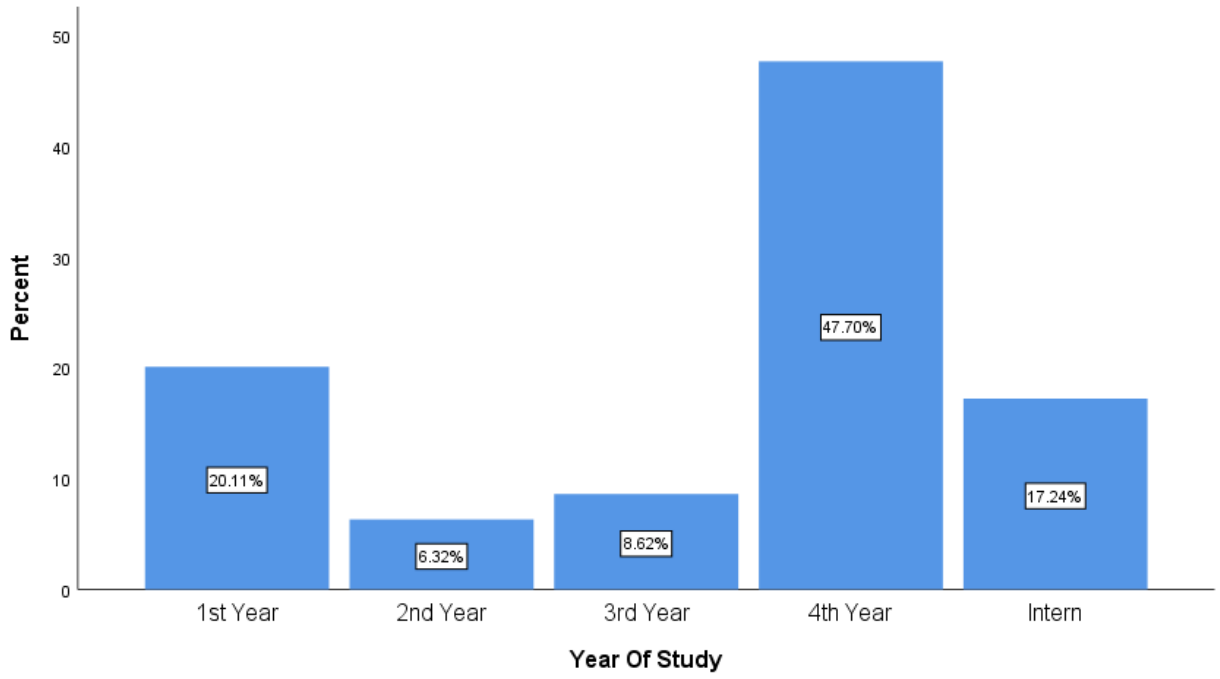
97.7% of the study participants did brush their teeth daily and 2.3% of them did not do it on a daily basis. 60.5% of them brushed only once a day and 39.5% of them brushed twice a day. 70.7% of them used mouthwash regularly, 83.9% of them used tongue cleaner, 52.3% of them flossed regularly. 60.3% of the study participants did not go for a professional cleaning or check up regularly, 20.1% of them went to the professionals for regular cleaning and check up 6 months once and 19.5% of them visited professionals yearly once.

Also in a cross tabulation in relation to Year of study and professional cleaning of the individuals, the p-value was found to be 0.078 which is not significant. Another cross tabulation in relation to

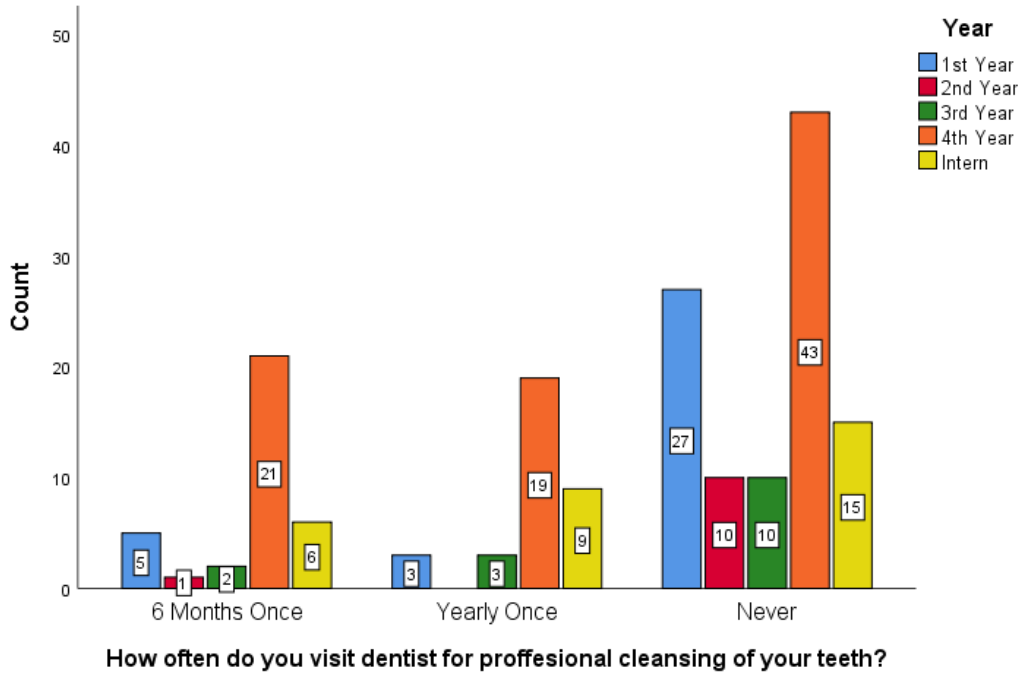
Year of study and opinion of people towards bad breath had the p-value was found to be 0.021 which is significant.



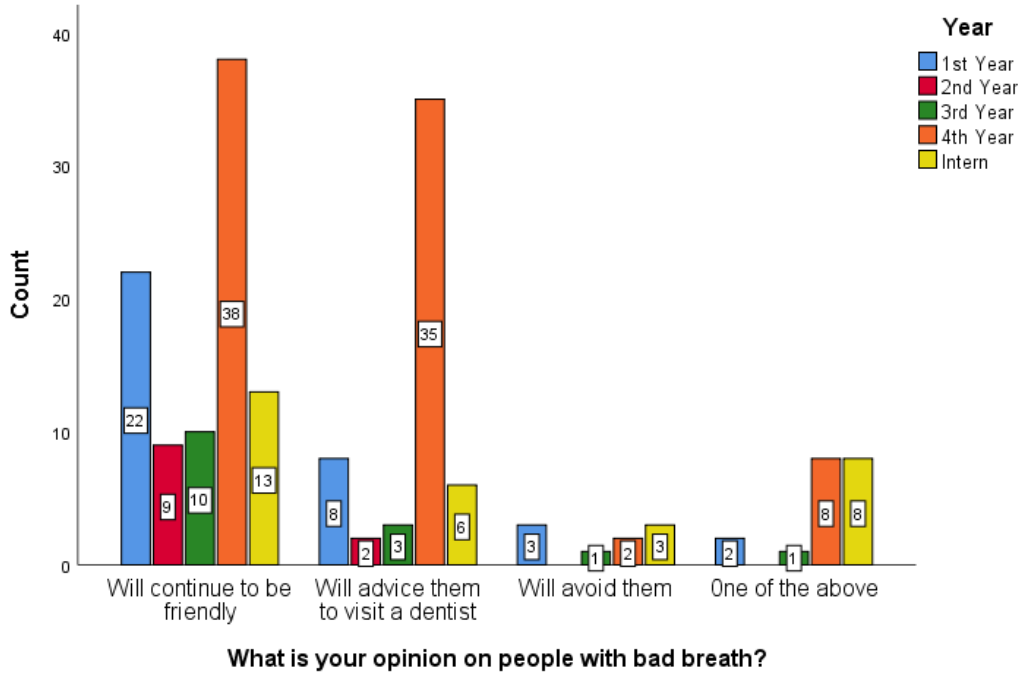
Graph 1: Graph showing gender of participants in the study - 62 of them were female (61.39%) and 39 of them were male (38.61%)



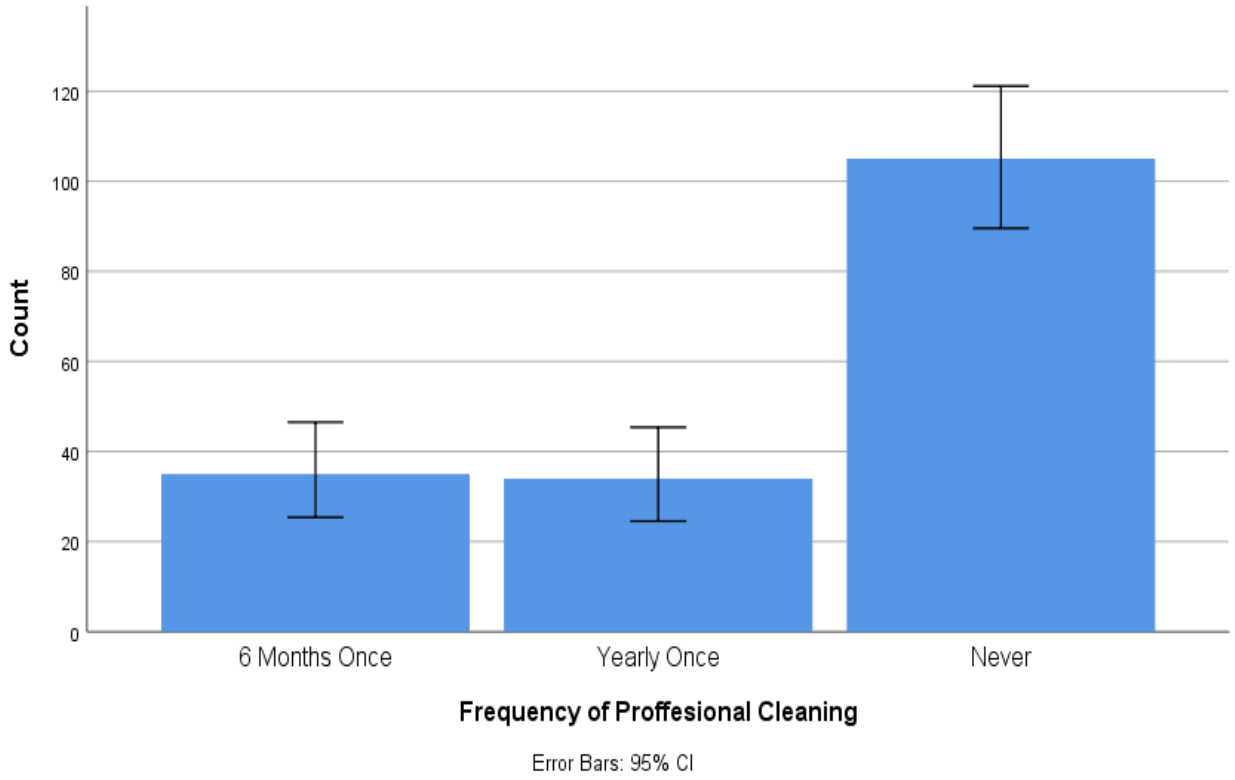
Graph 2: Graph showing the prevalence of years of study in participants of the survey z 35 of them were first years (16.1%), 11 of them were second years (5.0%), 15 of them were third years (6.9%), 83 of them were final years (38.1%) and 30 of them were interns (13.8%).



Graph 3: Graph showing cross tabulation in relation to Year of study and professional cleaning of the individuals in which the p-v-alue was found to be 0.078 which is not significant.



Graph 4: Graph showing cross tabulation in relation to Year of study and opinion of people towards bad breath in which the p-value was found to be 0.021 which is significant with fourth year students having a more positive attitude towards management of halitosis.



Graph 5: Graph showing the error bars for frequency of professional cleaning

DISCUSSION

From our study we see that 84.5% of the study participants did not have any self-perceived feeling of any bad breath. According to a study conducted by Shaili et.al, it was seen that 75% of the study participants suffered from halitosis in the morning. The participants of the present study knew that halitosis/bad breath may be due to systemic activity. In the study of Shaili et. al 17% of students who reported having halitosis had an association with systemic disease (31). Extra-oral halitosis can be due to non-blood-borne halitosis and blood-borne halitosis (35). The majority of patients with extra-oral halitosis have blood-borne halitosis. Blood-borne halitosis is also frequently caused by odorous VSCs, in particular dimethyl sulfide(36,37). A study done by Shuji Awano *et al*. revealed a significant relationship between volatile sulfur compounds, including hydrogen sulphide, methyl mercaptan and dimethyl sulphide, in mouth air of patients and a history of systemic disease such as hypertension as well as respiratory, cerebrovascular and liver diseases(38,39). Most of the participants were aware that halitosis/bad breath may also be attributed to gum disease, smoking and alcohol consumption, which correlated with a similar study conducted by Shaili et. al (26), Al-Atrooshi and Al-Rawi (40,41). Most of the study participants believed maintaining good oral hygiene by brushing daily using mouthwash and tongue cleaners would reduce bad breath (24). Tongue coating has also been proven to be a major cause of halitosis as reported in the studies by Bosy et.al, and Tonzetich et. al, (42)(43). According to a study conducted by Pedrazzi et. al, it is seen that halitosis reduces to 75% within 1 week after using tongue scraper(44). The surface of the tongue is an ideal location for bacterial adhesion and growth occurs. The study participants were aware that maintaining good gum health by regular dental visits and professional cleaning will help reduce bad breathwhile only half of the population were aware of devices used to measure bad breath.

Most of the study participants brushed daily. More than half the population brushed their teeth once daily, less than half of the population bruised twice a day.The study of Shaili et. al, showed inadequate use of basic oral hygiene habits such as brushing teeth twice daily, use of mouthwash

regularly, tongue cleaner will lead to halitosis, a reflection of poor oral health (20). A fair number of the study population were using mouthwash regularly. In similar studies done by Dr. Haroid et. al, and Quirynen M et. al, alcohol free mouthwash proves to have better action against halitosis since alcohol causes dehydration which aggravates halitosis (23). Almost every one of them used tongue cleaner (45). Only half the population used floss as extra cleaning aids. More than half the population did not go for a professional cleaning or check up. Another study done by Annisaa Nur Aulia et. al, showed inadequate use of basic oral hygiene habits such as not brushing teeth twice a day 3.93% and brushing teeth for two minutes 40.19% (16).
Only half the population believed bad breath decreases confidence and affects your social life (18). More than half of them believed bad breath does not occur in healthy individuals. More than half of them said even if their friend had halitosis/bad breath, they will continue to be friendly. In a study conducted by Annisaa Nur Aulia et. al, 29.41% of people suffering from halitosis felt that their bad breath had affected their social life. Halitosis was considered a social-phobic disease (46).

Conclusion

From the study we conclude that there is adequate knowledge about halitosis and ways to prevent and measures to avoid halitosis. People were also aware of the behavior with people affected from halitosis. Still there is a need of creating awareness on halitosis and ways to avoid halitosis and preventive measures to be taken for halitosis. There is also a need to create awareness on professional cleaning. Common people should also know abou extra cleaning aids and directions to use.

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Conflict of interest:

The authors declare that there are no conflicts of interest in the present study.

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