IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)
e-ISSN: 2279-0853, p-ISSN: 2279-0861.Volume 15, Issue 1 Ver. III (Jan. 2016), PP 78-83
www.iosrjournals.org

Perception towards Halitosis among Dental Students in Panchkula District, Haryana

[1]Dr. Surbhi Jindal, [2]Dr. Nidhi Gupta, [3]Dr, Mohit Bansal, [4]Dr. Preety Gupta

I. Introduction

Halitosis (Latin "halitus": breath, haze)is an unpleasant and offensive odour emanating from one's breath. Besides halitosis, other terms used for this condition are: bad breath, foul breath, oral malodour and fetor ex-ore[1]. Halitosis should not be confused with the generally temporary oral odour caused by intake of certain foods, tobacco, or medications.

Halitosis can be classified into categories of genuine halitosis, pseudohalitosis and halitophobia. Genuine halitosis is diagnosed if obvious malodour with intensity beyond socially acceptable level is perceived. If obvious halitosis is not perceived by others, although the patient stubbornly complains of its existence, it is diagnosed as pseudo- halitosis. If the patient still believes that he or she has halitosis, after treating both genuine and pseudo halitosis resulting in no objectively noticeable foul odour, then it may be termed as halitophobia[2].

Halitosis is multifactorial andsignifies bad odor in the exhaled air that may involve both oral and non-oral conditions which is a common complain in the adult population.[3,4]More than 75% of all cases have oral origin. The most frequent are poor hygiene, tongue coating, periodontal disease and decreased salivary flow rate. Non oral etiology of halitosis includes disturbances of upper and lower respiratory tract, disorders of gastrointestinal tract, some systemic diseases, metabolic disorders, medication and food ingestion[1,5,6].

The basic process is microbial degradation of organic substrates.The main compounds that lead to bad breath emanating from the oral cavity are the volatile sulfide compounds (VSC), especially hydrogen sulfide (H_2S), methyl mercaptan (CH_3SH), and dimethylsulfide [$(CH_3)_2S$].[7] These compounds are produced by the anaerobic Gram-negative microorganisms such as Treponemadenticola, Porphyromonasgingivalis, Porphyromonasendodontalis, Prevotellaintermedia, Bacteroidesloescheii, Enterobacteriaceae,Tannerellaforsythensis, Centipedaperiodontii, Eikenellacorrodens, andFusobacteriumnucleatum that inhabit the oral cavity.[8] The microorganisms interact with the sulfur-containing substances that are present in saliva, gingival crevicular fluid, blood, and cells leading to the production of odiferous products.[9]

Dentists are often asked about bad breath, and they often don't know what to say. This is probably because dental school curricula either do not include the subject in their curriculum altogether, or cover it only in brief. Dentists should know how to treat oral malodor. It is evident that halitosis is something that people in general are concerned about. Although halitosis has been recognized in the past; but it has become a very important social problem in modern societies.[10-13] This situation requires health professionals to have a considerable commitment and training in managing the referred condition, hence an attempt was made to know the perception and ability of dental students to tackle this challenge.

II. Aim

The purpose of this paper is to evaluate, in a school of dentistry, students' level of knowledge, attitude towards halitosis and education received about it.

III. Material And Methods:

Study design, study setting and study population:

The present study was a cross sectional questionnaire study which was conducted in the month of June 2014. The study population comprised of all the dental students (final year and interns) of a Dental college in Panchkula district. The questionnaires were distributed to the students at their work place during the break time and were given sufficient time to complete.

Ethical clearance and Informed consent:

Ethical clearance was taken from the concerned authorities prior to the commencement of the study. The questionnaires were administered to the students who gave written informed consent and volunteered to participate in the study. Before administering the questionnaire students were briefed about the objectives of the study. The surveys reports were kept anonymous.

Pre testing of the proforma:

A prevalidated structured questionnaire was used to collect data based on previous study done among dental students to evaluate their knowledge and attitude towards halitosis. The questionnaire was reviewed by experts and ensured content validity. Pilot study was done to determine the test-retest reliability of the survey questions in the present scenario. Reliability of the questionnaire was found to be acceptable (0.82). Also the content validity was ensured with the help of experts who were active in this field. The respondents were also asked for feedback on clarity of the questions and whether there were difficulty in answering the question or ambiguity as to what sort of answer was required. No modifications were made in the questionnaire based on the results obtained from pilot study as all the questions were easy to understand and were relevant to the present situation. Moreover it covered the topic in the desired manner.

Proforma details:

The questionnaire contained two sections:

1. The first section (question 1-5) was aimed at assessing students' general knowledge about halitosis, focusing on some aspects about etiology, diagnosis and treatment. Only one of the options was considered correct, in conformity with the scientific literature latest findings and experts opinion.
2. The second section (question 6-10) was aimed at assessing who the respondents thought was the health professional best qualified to be the first to see halitosis patients.

IV. Statistical Analysis:

Completed questionnaires were entered in a database using MS Excel (Microsoft Corporation, Redmond, WA, USA). To test the reliability of the survey items, Cronbach's alpha co-efficient was used. Descriptive statistics were generated for all questions. Frequency distributions and percentages were examined for each answer. Mann Whitney U test was used to find association between the study groups for various responses. The statistical significance level was set at $p < 0.05$. The statistical analysis was conducted using SPSS v.17.0 (Chicago,IL).

V. Results

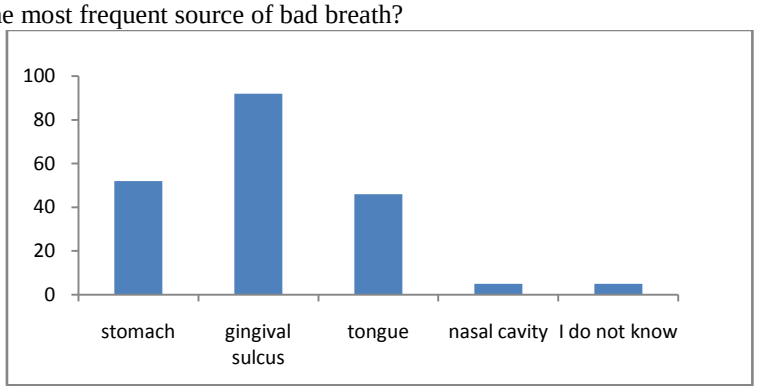
Out of total 208 respondents, 200 responses were included in the final analysis because eight subjects did not return their performas back. There were 162 female (81%) and 38 male (19%) participants (Table 1), of them 119 (59.5%) were final year students and 81 (40.5%) were interns. Regarding the level of knowledge on halitosis 46% of participants pointed gingival sulcus/ periodontal pocket as the most frequent cause of halitosis. Others mentioned stomach and tongue, 26% and 23% respectively. Majority of the participants mentioned sulphur compounds to

Gender	Frequency	Percentage
Female	162	81
Male	38	19
Total	200	100
Year of Study		
Final year	119	59.5
Interns	81	40.5
Total	200	100

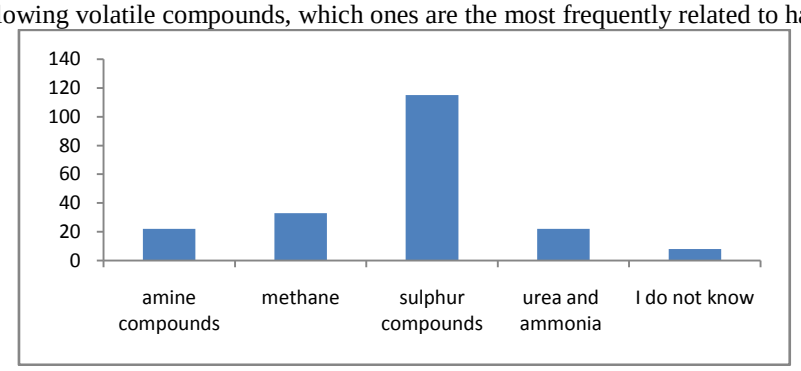
TABLE1. DEMOGRAPHIC DETAILS

Knowledge About Halitosis Among Dental Students

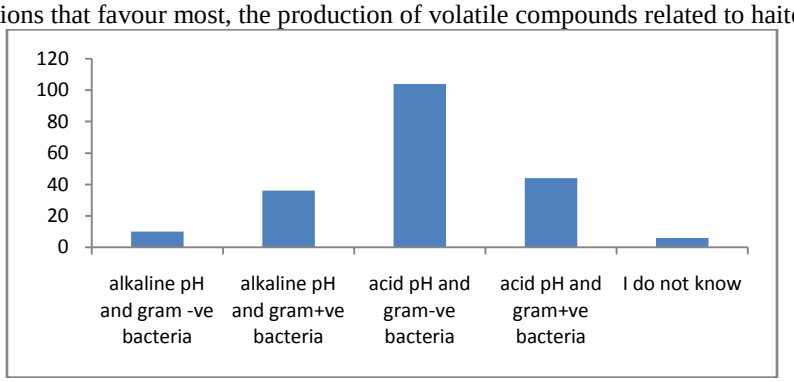
1. Which is the most frequent source of bad breath?



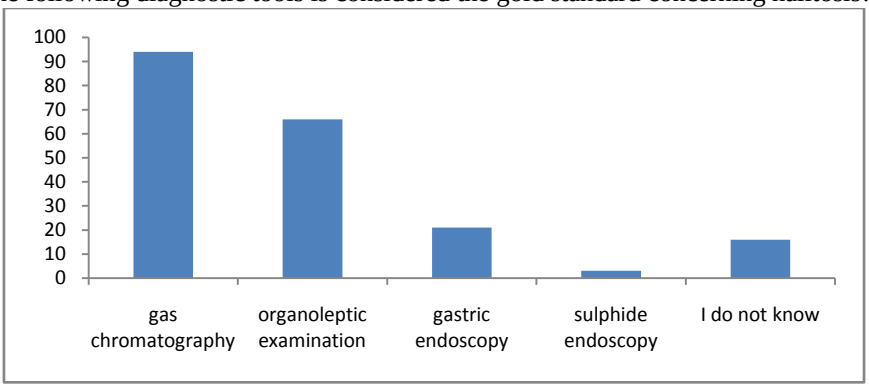
2. Out of the following volatile compounds, which ones are the most frequently related to halitosis?



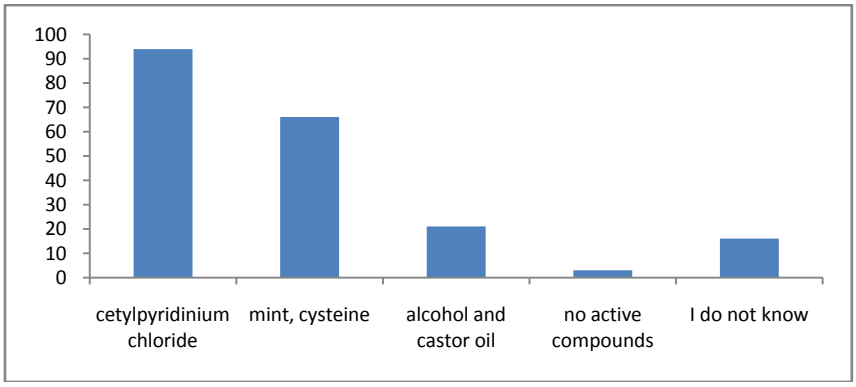
3. The oral conditions that favour most, the production of volatile compounds related to haitosis are:



4. Which of the following diagnostic tools is considered the gold standard concerning halitosis?



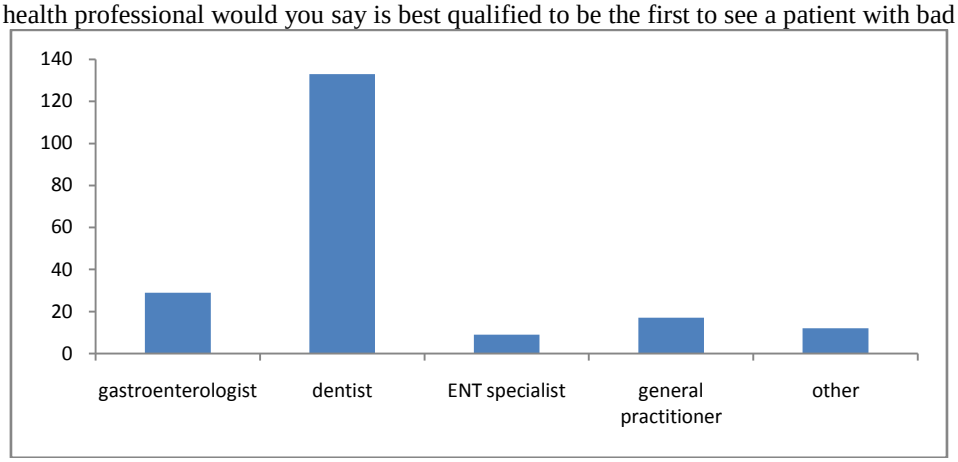
5. Which active compounds in a mouthwash would you recommend to reduce volatile sulphur compounds (VSC)?



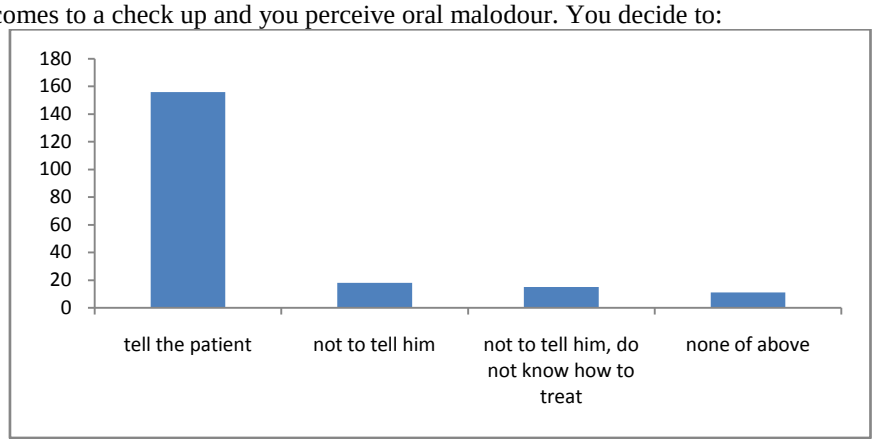
Be the volatile compounds most frequently related to halitosis. 52% of the students mention acidic pH and gram negative bacteria to be the oral condition that favour most the production of volatile compounds. Regarding the diagnostic tools organoleptic examination was chosen by 34% of students. 47% of the students

thought cetylpyredinium chloride, chlorine dioxide, zinc, chlorhexidinedigluconate to be the active ingredient in mouthwash to reduce volatile sulphur compounds.

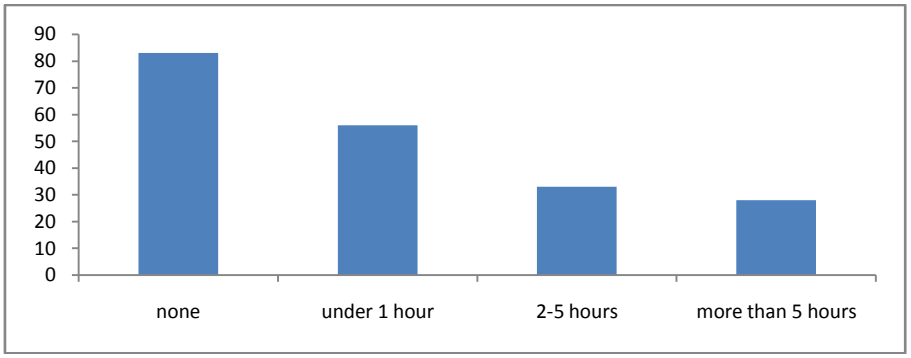
6. Which health professional would you say is best qualified to be the first to see a patient with bad breath?



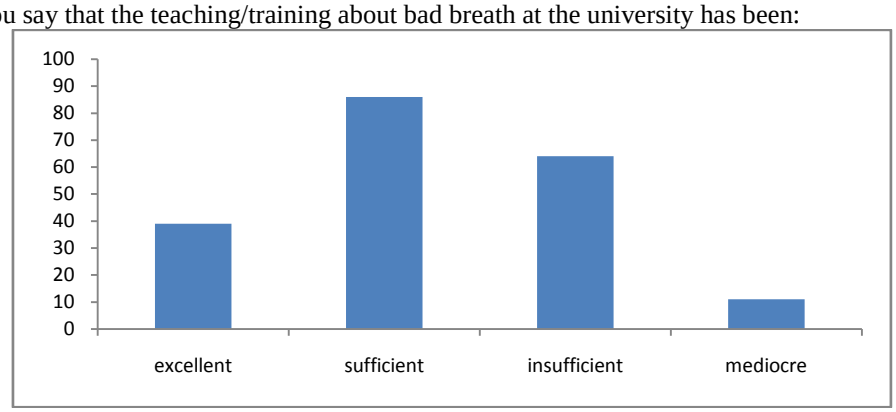
7. A patient comes to a check up and you perceive oral malodour. You decide to:



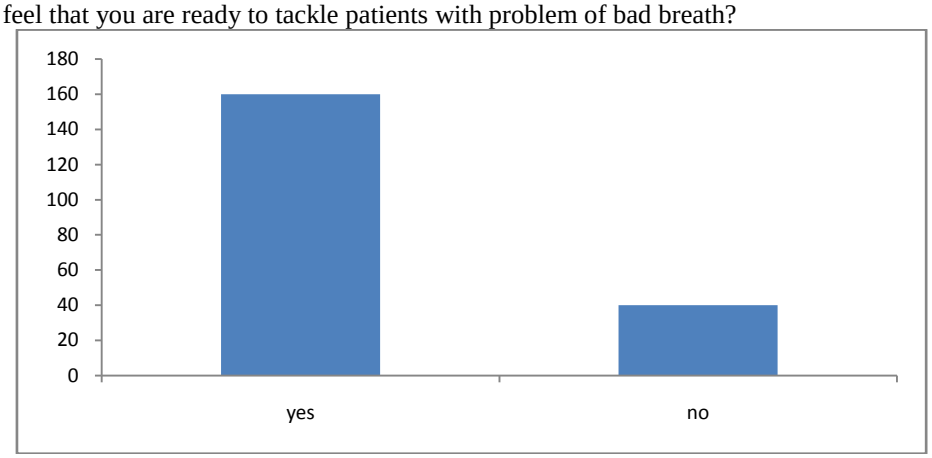
8. In the course of your studies, how many school/ lecture hours have you spent altogether until now on the subject of oral malodour?



9. Would you say that the teaching/training about bad breath at the university has been:



10. Do you feel that you are ready to tackle patients with problem of bad breath?



When asked who should be the first professional to manage a complaining halitosis patient, 66.5% students mainly recommended dentists. Also 78% reported that they would prefer to tell the patients about the bad breath and provide treatment or refer to another health professional.

41.5% and 28% said no education or less than 1 hour education was imparted on the subject of oral malodour. 80% of the students said that they were trained enough to tackle the patients with the problem of halitosis.

A Mann- Whitney U- test was used to test the knowledge and attitude between interns and final year students. A significant difference was found between mean scores of interns and final year students ($p< 0.05$), with interns having better score than final year students.

	MEAN SCORE	**MANN WHITNEY U VALUE**	**P- VALUE**
FINAL YEAR	5 ± 3.72	2752	< 0.001
INTERNS	9 ± 5.64		

VI. Discussion

The management of halitosis is complex and hardly satisfactory. In view of the recent research frontiers on the subject, the unsatisfactory management and non-existenceof studies on the subject, we therefore decided to conduct this study among dental students with the hope that this will form the basis of a future comprehensive study on the subject.Oral malodor seems to affect a large percentage of population and has multifactorial etiology (biological, dental, psychopathological).[1,2]The majority of our dentists in all categories believed that halitosis is caused by intra-oral diseases such as caries, periodontal diseases, poor oral hygiene. This is in agreement with previous studies that showed that over 90% causes of halitosis originate from oral cavity and are attributed to volatile sulphur compounds(VSC) produced by oro-pharyngeal bacteria[1,7]. This study concerning halitosis is internationally unprecedented, so it is not possible to compare these findings with other studies.The knowledge and attitude of (final year and intern) students came out to be good, on a contrary in the study conducted by Nunes J.C et al (2011) among 1st to 4th dental students, the knowledge of dental students was found to be poor, the difference for the better knowledge in our study could be due to higher class students (final year and interns).

The first section of the questionnaire aimed at assessing student's knowledge, which came out to be good. Review articles indicate that above 75% of the cases has oral origin. Particularly, Gram negative bacteria and alkaline pH conditions are associated with sulphur containing compounds (VSC's) production, such as hydrogen sulphide(H_2S), methyl mercaptan (CH_3SH), and dimethyl sulphide [$(CH_3)_2S$], generating oral malodour[7]. Although gingival sulcus/ periodontal pocket is a common site, tongue coating is referred to as a major site for halitosis production. The stomach is referred to as a rare cause of oral malodour.[10,14,15]The overall response rate was above our expectations. A very high interest regarding this subject was observed from the students.

This study presents certain limitations, main ones are small sample size and its unicentric characteristics.However this research do opens new vistas for creating effective action plan towards management of halitosis as a public health problem, which can be disseminated among young dental professionals.

VII. Conclusion

In this study, students demonstrated a sufficient level of knowledge about halitosis. People in general, give halitosis a great deal of importance and it can be a manifestation of many diseases. Therefore its early diagnosis seems to be a must. The late proliferation of scientific publications and clinical guides about this matter may be of great support to health practitioners. Furthermore, there is a need for constant education and training of dentists in knowledge of aetiology, diagnosis and treatment of halitosis which is increasingly being seen among the patients. Management of halitosis is an interdisciplinary exertion among dental specialists, psychologists/psychiatrists and medical practitioners, a collaborative approach should be encouraged to afford the patients a high success rate.

References

[1]. Van den BroekAM, Feenstra L, De Baat C. A review of thecurrent literature on aetiology and measurement methods of halitosis. J Dent. 2007;35:627–35.
[2]. Yaegaki K, Coil JM. Examination, classification, and treatment of halitosis; clinical perspectives. J Can Dent Assoc. 2000;66:257–61.
[3]. 3.Figueiredo LC, Rosetti EP, Marcantonio E Jr, Aderiana R, Marcantonio C, Salivador SL. The relationship of oral malodor in patients with or without periodontal disease. 2002;73:1338-42.
[4]. Rosenberg M, Christopher AG, Culloch MC. Measurement of oral malodor: current methods and future prospects. J Periodontal 1992;63:776-82.
[5]. Seemann R, Bizhang M, Djamchidi C, Kage A, Nachnani S. The proportion of pseudo-halitosis patients in a multidisciplinary breath malodour consultation.Int Dent J. 2006;56:77–81.
[6]. Quirynen M, Dadamio J, Van den Velde S, De Smit M, Dekeyser C, Van Tornout M, et al. Characteristics of 2000 patients who visited a halitosis clinic. J ClinPeriodontol.2009;36:970–5.
[7]. Tonzetich J. Production and origin of oral malodor: A review of mechanisms and methods of analysis. J Periodontol. 1977;48:13–20. [PubMed]
[8]. Awano S, Gohara K, Kurihara E, Ansai T, Takehara T. The relationship between the presence of periodontopathogenic bacteria in saliva and halitosis. Int Dent J.2002;52:212–6. [PubMed]
[9]. Quirynen M, Zhao H, Soers C, Dekeyser C, Pauwels M, Coucke W, et al. The impact of periodontal therapy and the adjunctive effect of antiseptics on breath odor-related outcome variables: A double-blind randomized study. J Periodontol.2005;76:705–12. [PubMed]
[10]. Scully C, EL Maaytah M, Porter SR, Greenman J. Breath odor: etiopatogenesis and assessment. Euro J of Oral Sciences 1997;105:287-93.
[11]. Henker J, Schuster F, Nissler K. Successful treatment of gut- caused halitosis with a suspension of living non pathogenic Escherichia coli bacteria. Eur J Pediatr 2001;160:592-4.
[12]. Goroll. Primary care medicine. 3rd ed. Lippincott- Raven, 1995:997.
[13]. Sanz M, Roldan S, Herrera D. Fundamentals of breath malodor. J Contemp Dent Pract 2001;15:1-17.
[14]. Baumbach JI, editor. Level of knowledge about halitosis and its influence on diagnosis - a questionnaire survey. 2009. April 28-30.
[15]. Loesche WJ, Kazor C. Microbiology and treatment of halitosis. Periodontol 2000. 2002;28:256–79.