

## “ASSESSMENT OF KNOWLEDGE REGARDING HALITOSIS AMONG STUDENTS AND INTERNS OF K.M SHAH DENTAL COLLEGE AND HOSPITAL”- A QUESTIONNAIRE SURVEY

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### **Abstract**

*Oral halitosis is a frequent problem and for many patients may cause emotional and psychological distress. It is associated with both physiological and pathological causes.*

**AIM:** *The aim of this study is to assess the level of knowledge regarding halitosis among the undergraduate students in the K.M Shah Dental College and Hospital. The students were in the 3<sup>rd</sup>, 4<sup>th</sup> and interns of the college. The study was done in 2 month period.*

**Materials and Methods:** *A Questionnaire was distributed on virtual platform among the (161) students including male and female undergraduate (3<sup>rd</sup>, 4<sup>th</sup> and interns) students of the K.M Shah Dental College and Hospital. A questionnaire was designed to assess the knowledge of a student regarding the source of oral breath, volatile compounds, use of diagnostic tools, therapeutic agent in mouthwash are appropriate, best health professional, feel prepare to manage these patients.*

**Result:** *The response rate was 63%. Only (36%) students are aware about the tongue as the most frequent source of bad breath. Around 77% student knows the volatile compound related to halitosis. About 76% students know the oral conditions that are most related and which therapeutic agents in mouth wash are the appropriate ones to treat halitosis (53% approx). Furthermore, 87% students reported that they would prefer to highlight their patient's halitosis on a routine check-up, and that they feel prepared to manage these patients (88%).*

**Conclusion:** *In this study, students lack knowledge regarding the halitosis and insufficient level of education. Moreover, considering the outcomes from the students to inform patients about bad breath and high interest from students in handling the situation.*

**Keywords:** *Halitosis, health professional, volatile compounds*

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## 1. INTRODUCTION

Halitosis is an unpleasant and frequently offensive odour emanating from one's breath. Other terms are used for this condition: bad breath, foul breath, oral malodour and foetor ex-ore. Halitosis is multifactorial and should involve both oral and non-oral conditions. Over 75% of all cases have an oral origin. The foremost frequent are poor hygiene, tongue coating, periodontal disease and decreased salivary rate. The fundamental process is microbial degradation of organic substrates. Non oral aetiologies of halitosis encompass disturbances of the upper and lower respiratory tract, disorders of the alimentary canal and some systemic diseases, metabolic disorders, some medications and food ingestion. Oral halitosis may be quite common problem in dental patients. This problem is transitory, and attributed to physiological causes such as: reduced salivary flow during sleeping, but persistent salivary flow is also indicative of oral diseases such as: (caries, periodontitis and gingivitis), or it may be indicative of systemic disease such as: (hiatus hernia, hepatic-cirrhosis and diabetes mellitus). Even though there is additionally a concern for physical health, the majority of these affected are more worried about the social implications. As a consequence; halitosis usually has relevant psychological effects. When coping with the matter of halitosis or bad breath patients', it is important to differentiate between two terms which are:

(Genuine Halitosis) and (Pseudo Halitosis)  
 (Genuine Halitosis): May be a condition during which the bad breath may be a real problem, this could be diagnosed by either (organoleptic) or (physio-chemical) means.  
 (Pseudo Halitosis): Is another condition within which the malodour doesn't exist, but the patient believes that he or she has it.

Halitosis is because of the presence of odorous gases within the air expelled from the oral cavity. Volatile sulphur compounds (VSCs) like hydrogen sulphide, methyl mercaptan, and dimethyl sulphide are the gases that have demonstrated a high correlation with halitosis. These VSCs are mainly produced through the putrefactive activities of the bacteria that are present in the: saliva, the gingival crevicular fluid, the dorsal surface of the tongue, and

other areas. Also halitosis depends on the salivary flow rate: therefore the bad breath is more within the morning or after a period of sleep called “Morning Breath”.

During the sleep the salivary flow from the main salivary glands is minimal, favouring the stagnation of food, and therefore the formation of halitosis.

## **2. Materials and Methods**

The study was conducted in K.M Shah Dental College and Hospital, Sumandeep Vidyapeeth University, Vadodara. A validated questionnaire was distributed among the undergraduate students on a virtual platform due to pandemic situation. Permission for contact details and email-id of all the participants was taken from the respective data. Participants are evaluated by online Google form questionnaire. The questionnaire is formulated in English language. This study includes 161 dental students. The participants were informed about the study via Whatsapp message and asked to fill the questionnaire after obtaining consent. The questionnaire consisting of two sections: the first section (question 1-5) aims at assessing students general Knowledge about halitosis, also enlightens on some aspects about aetiology, diagnosis and treatment. The second section (question 6-10) aims at assessing the students thought on whom the health professional best was qualified to be the first to see the halitosis patients. It also aims at assessing student’s attitude when confronted with a non-complaining halitosis patient and assessing students evaluation of the education received. The significance level was determined by Chi-square test (the level of significance was set at  $p < 0.05$ ).

## **3. Results**

In total, 101 questionnaires were collected from a total of 161 students, giving an overall response rate of 63%.

The results are presented in below tables (Annexure 1)

Considering the students level of knowledge on halitosis, 64% participants are not aware about the tongue as the most frequent source of bad breath. Around 77% student knows the volatile compound related to halitosis. About 24% student know the oral conditions that are most related and (53%approx) which therapeutic agents in mouth wash are the appropriate ones to treat halitosis. Approximately 48% participants choose appropriate diagnostic tool to consider the gold standard for halitosis.

In next section, on asking the participants which health professional is qualified to manage a complaining halitosis patient, 82% students prefer dentist.

Furthermore, 86% students reported that they would prefer to highlight their patients' halitosis on a routine check-up, and that they feel prepared to manage these patients (88%). On accounting the students report and assessing the level of education given, 50% students stated that, all in all, teaching time spent on the subject of malodour should be under one hour and (56%) student experience enough knowledge given by the faculty.

#### 4. DISCUSSION

The main purpose of the study was to understand the knowledge student have and the awareness about the halitosis among them. The overall response rate achieved was above our expectations. A good number of student showed the interest related to the study.

The first section of the questionnaire was mostly focused on the students' knowledge regarding the halitosis. The result was quite disappointing. Review articles clearly indicate that above 75% of the cases have oral origins. Particularly, the Gram-negative bacteria and alkaline pH conditions are associated with volatile sulphur-containing compounds (VSCs) production, such as hydrogen sulphide ( $H_2S$ ), methyl mercaptan ( $CH_3SH$ ), and dimethyl sulphide [ $(CH_3)_2S$ ], generating oral malodour. Moreover gingival sulcus/periodontal pocket is a common site, tongue coating is referred to as the major site for halitosis production.

The question regarding to which active compounds in a mouthwash they would recommend to control halitosis in case of high VSCs and around 97% students were aware with regards to it. Also, 82% students select dentist as a health professional to be approached first, but only 48% students opt for organoleptic measurement. So it concludes students knows who is best suitable health professional to work out a patient with bad breath but which diagnostic tool is used they are unaware.

Another highlight of this survey was to find out whether the students would inform their patients of their oral malodour. The majority (86%) students answered yes, so that they can offer treatment and 88% students are ready to

tackle such patients with problems of bad breath. When asked about the training or teaching given by the institute is sufficient (50%) and an hour of lecture is sufficient (59%). It is evident that a large section of genuine halitosis patients are not aware of having it. Moreover, halitosis is an indicator of a variety of pathologic conditions, both oral and extra-oral, and its assessment is important to early diagnosis.

Results also show no significant differences between the number of correct answers given about knowledge by students and awareness amongst them.

Students are ready to tackle the situation and offer the treatment to the patients at the right time and make them aware about their bad odour.

This supports the idea that if faculty shows more interest towards this topic on theoretical and practical aspects students can perform better in clinics. And it also seems clear that a period of less than an hour throughout the whole course of studies is not enough to educate and train students to deal with this pathology. The question: "Are dentists being prepared for this challenge?" should be asked in every dental school.

## **5. Conclusions**

In this study, it showed students' have a lack of data on halitosis and reported an insufficient level of education and training on the topic. People normally, give halitosis a good deal of importance and it will be a manifestation of several diseases. Therefore its early diagnosis seems to be a requirement. The late proliferation of scientific publications and clinical guides about this matter could also be of great assistance to health practitioners. Because the bulk of halitosis causes are oral, dentists should be the first health professionals on screening and managing halitosis in complaining patients. Poor education may result in disclaimer and lack of confidence by dental professionals and unsatisfactory response to patients' needs. So as to counter this, dental schools should be committed to present their students a strong emphasis on this condition. Self evaluation examining could also be a start line.

## Annexure 1

**Table 1: No of students participated**

S.N.	Class	No. of students
1	III BDS	29
2	IV BDS	40
3	Intern	32

**Table 2: SECTION A**

QUESTION	CLASS	CORRECT ANSWER	INCORRECT ANSWER
1. Which is the most frequent source of bad breath?	III BDS	8(27.6)	21(72.4)
	IV BDS	18(45)	22(55)
	Intern	11(34.4)	21(65.6)
2. Out of the following volatile compounds, which ones are the most frequently related to halitosis?	III BDS	24(82.8)	05(17.2)
	IV BDS	33(82.5)	07(17.5)
	Intern	21(65.6)	11(34.4)
3. The oral conditions that favour most the production of volatile compounds related to halitosis are	III BDS	04(13.8)	25(86.2)
	IV BDS	10(25)	30(75)
	Intern	11(34.4)	21(65.6)
4. Which of the following diagnostic tools is considered the gold-standard concerning halitosis?	III BDS	14(48.3)	15(86.2)
	IV BDS	20(50)	20(50)
	Intern	15(46.9)	17(53.1)
5. Which active compounds in a mouthwash would you recommend to reduce volatile sulphur compounds (VSCs)?	III BDS	18(62.1)	11(37.9)
	IV BDS	23(57.5)	17(42.5)
	Intern	13(40.6)	19(59.4)

**SECTION B**

<b>Question</b>	<b>Class</b>	<b>A(%)</b>	<b>B (%)</b>	<b>C(%)</b>	<b>D(%)</b>	<b>P Value (Chi square test)</b>
6. Which health professional would you say is best qualified to be the first to see a patient with bad breath?	III BDS	1(3.4)	25 (86.2)	3(10.3)	0(0)	0.046 (Significant)
	IV BDS	1(2.5)	34 (85)	2(2.5)	3(7.5)	
	Intern	4(12.5)	24 (75)	3(9.3)	1(3.1)	
7. A patient comes to a check-up and you perceive oral malodour. You decide to	III BDS	27 (93.1)	1(3.4)	0(0)	1(3.4)	0.021 (Significant)
	IV BDS	33 (82.5)	2(5)	2(5)	3(7.5)	
	Intern	26 (81.3)	2(6.2)	3(9.3)	1(3.1)	
8. In the course of your studies, how many school/lecture hours have you	III BDS	1(3.4)	16 (55.2)	10(34.4)	2(6.8)	0.010 (Significant)
	IV BDS	3(7.5)	15 (37.5)	21(8.4)	1(2.5)	
	Intern	2(6.2)	18 (56.3)	10(31.2)	2(6.2)	
9. Would you say that the teaching/training about bad breath at the university has been	III BDS	9(31)	17 (58.6)	2(6.8)	1(3.4)	0.001 (Significant)
	IV BDS	10(25)	23 (57.5)	3(7.5)	4(10)	
	Intern	11(34.3)	19 (59.4)	1(3.1)	1(3.1)	
10. Do you feel that you are ready to tackle patients with problems of bad breath?	<b>Class</b>	<b>YES</b>			<b>NO</b>	
	III BDS	25(86.2)			4(13.8)	
	IV BDS	34(85)			6(15)	
	Intern	30(93.8)			2(6.26)	

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