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Assessment of Self Perceived Oral Malodor in Smokers of Mehsana District, Gujarat: A Cross-Sectional Study

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A B S T R A C T

Introduction*:** Oral malodor is the term commonly used to refer to any unpleasant smell in exhaled air, regardless of whether the source of the odor is oral or nonoral. The issue of oral malodor is a significant worry for many individuals as it can have negative impacts on both personal and professional aspects of life. ***Objectives*:** To assess the Self-perceived Oral Malodor in Smokers of Mehsana District, Gujarat. ***Methodology*:** A Descriptive cross-sectional study was conducted among 264 study participants with more than 18 years of age. A structured self-administered, close ended Thirteen questionnaire was prepared and was given to participants who are the smokers. Informed consent was obtained from the participants. Statistical analysis was done by using SPSS software version 20.0.Level of significance was set at $p \leq 0.05$. ***Result: The prevalence of oral malodor was 35.2%. Smoking habit seen higher among male study participants compared to female study participants among them younger generation have a higher smoking habit. The utilization of mouth freshener was found to be significantly higher among male participants in the study, in comparison to their female participants ($p \leq 0.05$). Majority female study participants noticed that bad breath interfered with their social life or work place. ***Conclusion*:** It was concluded that study participants demonstrated inadequate oral health awareness and practices, highlighting the need for improvement. Preventing self-perceived halitosis can be achieved through raising awareness, a more economical option compared to costly dental treatments.

Keywords: Self Perceived, Oral Halitosis, Oral Malodor, Smokers, Mehsana.

INTRODUCTION

The term "halitosis" was coined in 1874 by Dr. Joseph William Howe in his book, The Breath and The Diseases Which Give It a Fetid Odor. "Halitosis" comes from the Latin word "halitus" ("breath") and the Greek suffix "-osis," which means a diseased state. The Oxford English Dictionary defines halitosis as, "A condition in which the breath smells unpleasant" [1].

Human breath contains a variety of complex substances with different odors, some of which can lead to unpleasant situations such as halitosis [2]. The majority of halitosis cases, around 80% to 90%, stem from the oral cavity, where anaerobic bacteria break down sulfur-containing amino acids into Volatile Sulfur Compounds (VSCs) like hydrogen sulfide and methyl mercaptan [3]. These VSCs, along with dimethyl sulfide, are primarily responsible for oral malodor and have been linked to the development of periodontal disease due to their harmful effects on oral tissues,

collagen metabolism, protein synthesis in human gingival fibroblasts, and the immune response of periodontal tissues to plaque antigens. This suggests that many patients complaining of oral malodor may also have underlying gingival and periodontal issues. Studies have shown that periodontitis patients with oral malodor tend to have more severe disease compared to those without [4].

Approximately 10 to 20% of cases of halitosis are attributed to non-oral factors [5]. Consequently, halitosis has been categorized into three primary groups: genuine halitosis, which encompasses both physiological and pathological halitosis originating from oral and systemic sources, pseudohalitosis, and halitophobia. Additionally, it is classified based on its underlying causes as either oral or non-oral in nature. Oral cause includes periodontal infections of various etiologies such as smoking, stress, insufficient oral hygiene practice, xerostomia, and tongue coating, also other contributory causes such as dry socket, exposed necrotic pulp, and food impaction. Nonoral cause includes infections from the ear, nose, throat, tonsils, maxillary sinuses, or pulmonary system [3]. Additionally, certain medications, particularly those that decrease saliva production like antidepressants, antipsychotics, narcotics, decongestants, antihistamines, and antihypertensive drugs, play a role in causing non-oral sources of breath odor [6].

Oral malodor poses a significant issue for the public as it can have detrimental effects on personal and professional aspects of life. This problem greatly diminishes quality of life and hinders social interactions, ultimately resulting in decreased self-confidence, feelings of depression, and other mood-related disorders [4].

The growing consciousness of cleanliness within society has sparked a greater fascination with odor. Despite not actually having oral malodor, many individuals experience anxiety or distress related to it [7]. Being multifactorial in origin, it requires an interdisciplinary assessment and treatment from professionals such as dentists, physicians, nutritionists, and psychologists [3]. Hence the present study conducted to assess the Self-perceived Oral Malodor in Smokers of Mehsana District, Gujarat.

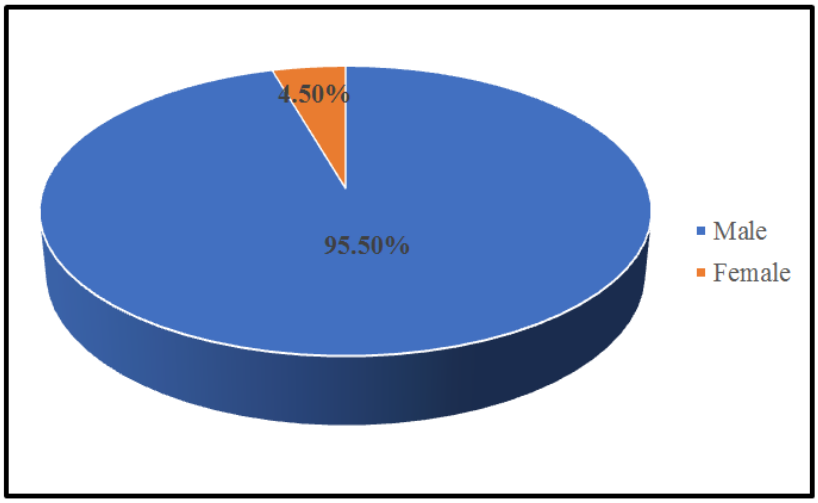
MATERIAL AND METHODS

The study was conducted among Smokers of Mehsana district, Gujarat who have age above 18 years. Random sampling technique was used in this study. Ethical clearance was obtained from the relevant authority. Written informed Consentwas obtained prior to start of study. After obtaining the consent examination was carried out at TOBACCO CESSATION CENTER in Narsinhbhai Patel Dental College and Hospital Visnagar. A pre validated questionnaire was used for the survey. The questionnaire consisted of 2 parts: the first consisted of demographic details of the participants like the age, gender, marital status, address. The second part consisted of 13 questions regarding oral malodor of smokers which were used for analyzed bad breath due to smoking.

Participants who had consuming smoking tobacco and age above 18 years, co-operative and ready to give written consent were included in the study. Individuals who were unwilling to give proper history of smoking were excluded from the study.

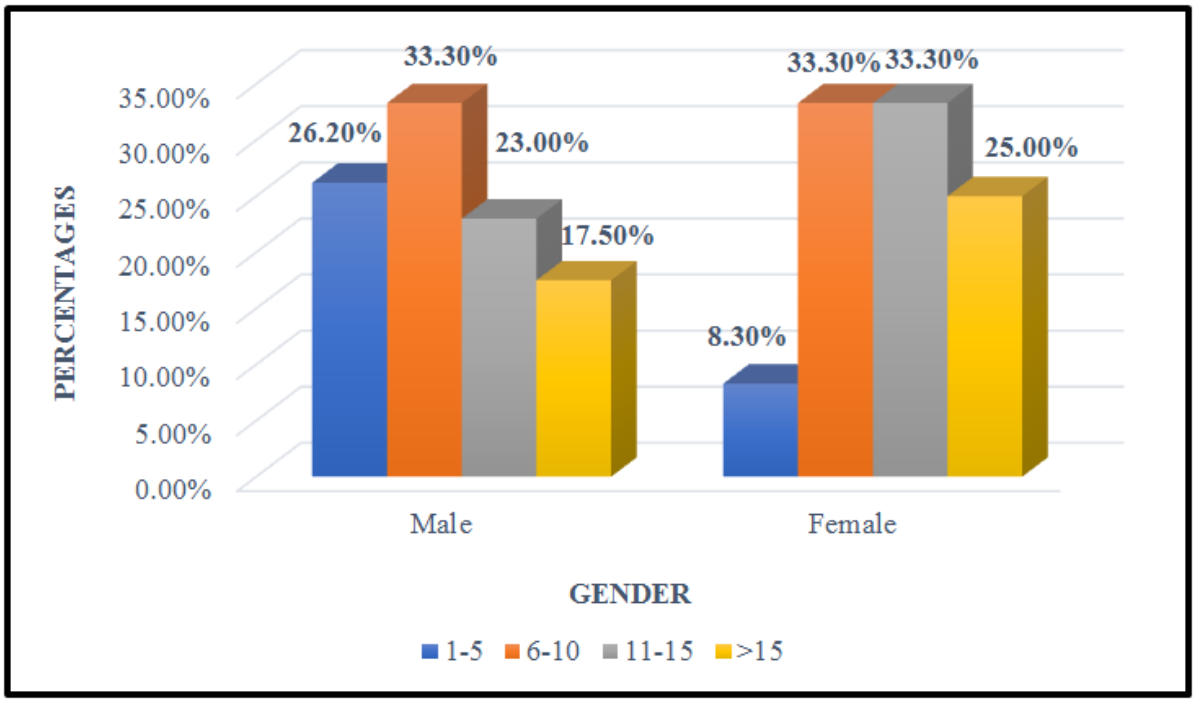
The responses of participants were entered into Microsoft Excel Office 2013. The compiled data was analyzed using Statistical Package for Social Sciences (SPSS) version 20.0. The descriptive values were measured using the Percentages and Chi Square test was applied where applicable. Level of significance was set at $p \leq 0.05$.

RESULT



Graph 1: Distribution of study participants based on their Gender

Out of the 264 participants 95.5%were male and 4.5% were female (Graph 1). Majority of the participants were having age from 18 to 27 years and married.



Graph 2: Distribution of study participants based on frequency of Smoking and Gender

	Gender n (%)		Total
	Male	Female	
Prevalence of malodor	34.5%	50.0%	35.2%

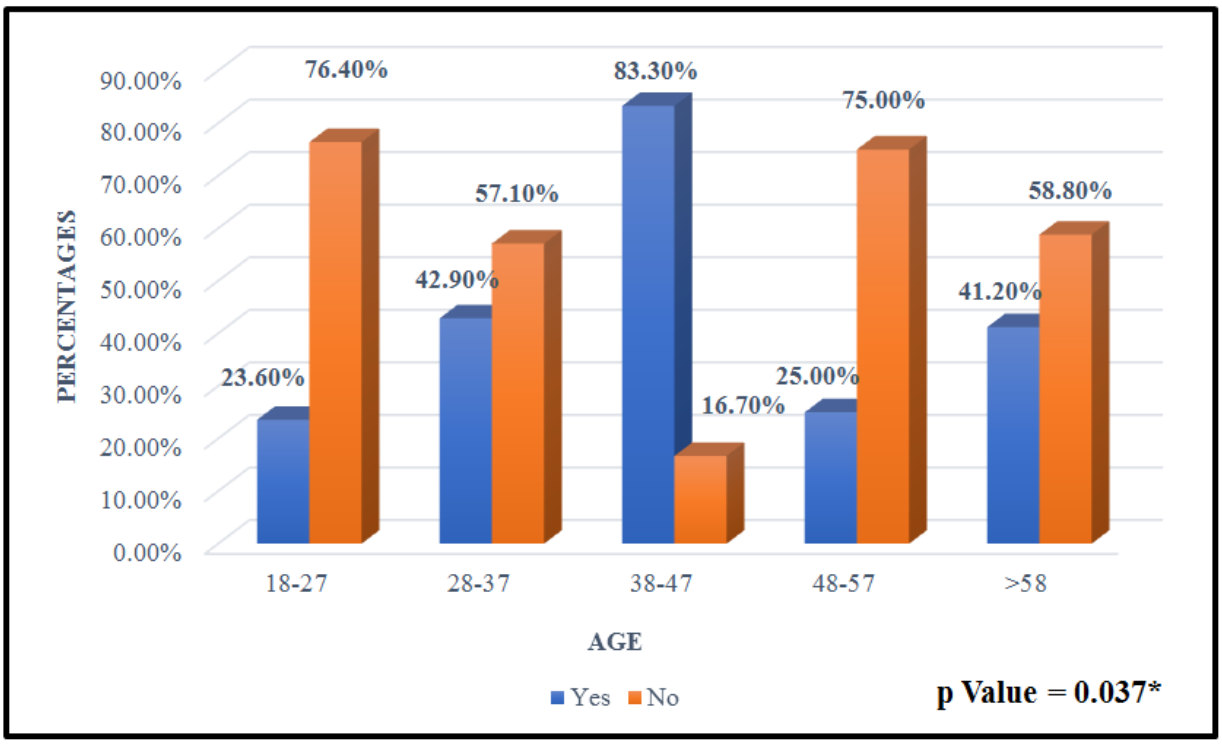
Table 1: Distribution of study subject based on Prevalence of Malodor

Majority of the participants were used 6 to 10 cigarette per day (Graph 2). The Prevalence of malodour was 35.2% (Table 1).

Do you use mouth freshener for bad Odor among smokers?	Sex n (%)		Total
	Male	Female	
Yes	44(50.6%)	0(0.0%)	44(47.3%)
No	43(49.4%)	6(100.0%)	49(52.7%)
Total	87(100.0%)	6(100.0%)	93(100.0%)
p Value = 0.028*			

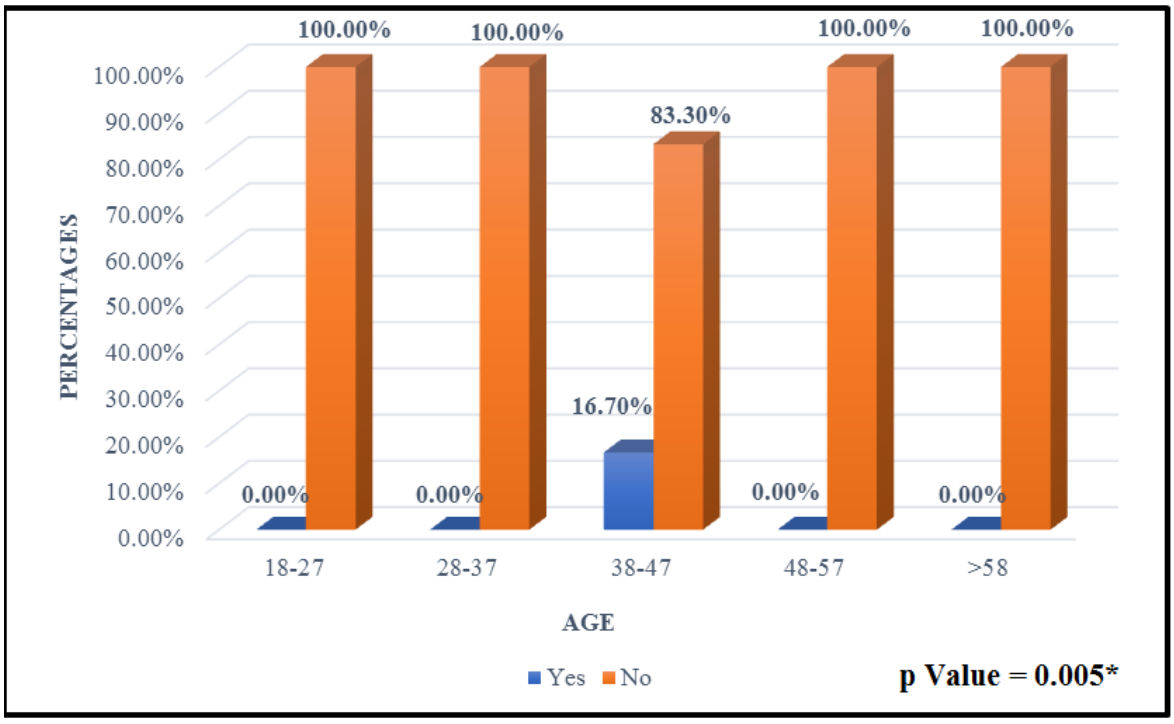
Table 2: Distribution of study participants based on use of mouth freshener for bad breath and Gender

Out of 93 participants who have complained of bad breath due to smoking among them only 47.3% were using mouth freshener and 52.7% were not using mouth freshener for bad breath.A statistically significant difference was observed inuse of mouth freshener for bad breath between male and female study participants ($p < 0.05$) (Table 2).



Graph 3: Distribution of study subject based on Age groups and Viscosity of Mouth

Out of 93 participants higher viscosity was found in 38 to 47 year age group and lower viscosity found in 18 to 27 year age group. A statistically significant difference was observed in viscosity of mouth among study participants with various age group ($p < 0.05$) (Graph 3).



Graph 4: Distribution of study subject based on Age groups and Past examination by Dentist

Out of 93 participants only 16.70% participants were examined by dentist in past from 38 to 47-year age group. A statistically significant difference was observed in examined by dentist in past among study participants with various age group ($p < 0.05$) (Graph 4).

DISCUSSION

Halitosis, also referred to as oral malodor, is a prevalent and intricate concern with a multifactorial cause that demands a multidisciplinary approach to management [4]. Bad breath, also known as oral malodor, is a prevalent issue affecting a large portion of the population. Studies indicate that it accounts for approximately 85% of cases of halitosis [3].

In our study prevalence of oral malodor was 35.2%. Similar or nearly similar prevalencewas found in a study conducted by Chakraborty [2], Kumar [8], Löesche [9], Al-Ansari [10], Struch [11], Nadanovsky [12], and Settineri [13]. This could possibly be attributed to the fact that halitosis is a concern that is recognized across various cultures and societies worldwide [6]. Bornstein [14], Iwanicka-Grzegorek [15] and Soder [16] reported contradictory results in their study, showing a significantly higher prevalence compared to the findings of our study.

In our study 25.4% participants smoke less than 5 cigarettes, 33.3% participants smoke 6-10 cigarettes and 41.3% participants smoke more than 10 cigarettes per day. The conflicting outcome was revealed a study conducted by Kasapila [17] and Shah [18] in which 64.5% participants smoke fewer than 5 cigarettes, 22.5% participants smoke 5-10 cigarettes and 13% participants smokes more than 10 cigarettes per day.

In our study usage of mouth freshener higher among males when compared with females. The conflicting outcome was revealed a study conducted by Almas [5].In our study Higher viscosity found in 38 to 47 year age group and lower viscosity found in 18 to 27 year age group similar result was found in a study conducted by Kameyama [7].In our study only 16.70% participants were examined by dentist in past from 38 to 47-year age group.

CONCLUSION

It was concluded that the knowledge among the study participants regarding oral malodor and oral hygiene habits was inadequate. Furthermore, study participants were unaware regarding the effect of smoking. Preventing self-perceived halitosis can be achieved through raising awareness, which is a more cost-effective approach compared to expensive dental procedures. It is essential to implement regular oral health awareness programs in educational institutions and communities, with Public Health Dentists playing a crucial role in educating individuals and families. Collaboration between dental professionals, marketing agencies, media, and the government is vital in enhancing knowledge, attitudes, behaviors, and practices related to oral hygiene among the public.

LIMITATION

We had included patients who had visited Tobacco Cessation Center (TCC) of our college from Mehsana District.The cross-sectional study design does not allow assessment of causality between the study variables.Biases inherent in self-reporting questionnaire studies such as response bias and social desirability bias might be found in this study.Moreover, a small sample size may limit the generalizability of data.

RECOMMENDATIONS

Dental camps and regular checkups should be carried out to spread awareness about halitosis and oral hygiene habits.Smokers should be encouraged to refrain from smoking, suggesting good oral hygiene maintenance.It is essential for the patient's primary healthcare provider, family, and friends to offer ongoing support and motivation. Patients who recognize their positive clinical progress often experience a better quality of life.

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

Ethical clearance was obtained from the Institutional Ethics Committee. Written informed consentwas obtained from the participantsprior to start of study.

DATA AVAILABILITY

Data was collected from the TOBACCO CESSATION CENTER in Narsinhbhai Patel Dental College and Hospital Visnagar.

CONFLICT OF INTEREST: No any Conflict of Interest

FUNDING STATEMENT: Self-funded

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