THE CORRELATION OF HALITOSIS, ORAL HYGIENE PRACTICES AND SMOKING HABITS AMONG THE UNDERGRADUATE DENTAL STUDENTS OF KARACHI

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ABSTRACT

The aim of this study was to determine the frequency of oral hygiene practices, self perceived halitosis and smoking habits among undergraduate students at the Dental Institutes of Karachi. A self-administered questionnaire was distributed among all male and female students. The questionnaire was developed to assess the self reported perception of oral breath, awareness of bad breath, timing of bad breath, treatment received for bad breath, oral hygiene practices, caries and bleeding gums, dryness of the mouth, smoking and tea drinking habits, and tongue coating. This study concludes firstly that poor oral hygiene attitude results into the bad breath or halitosis formation and secondly most of the subjects had no hindrance in communication for social relations and social situations due to halitosis though it is a social handicap factor in society.

Key Words: Oral hygiene practice, halitosis, communication, social handicap.

INTRODUCTION

Halitosis is a general term used to describe any disagreeable odour originating from the mouth. It is defined as ‘malodour with intensity beyond a socially acceptable level perceived’.¹ Other terms include bad breath, breath odour, foul smells, foul breath, fetor ex ore, oral malodour and offensive breath.²

Volatile sulphur compounds (VSC) are the most common gases that contribute to oral malodour. These VSCs are produced by the degradation of organic substances by anaerobic bacteria, commonly found on the dorso-posterior surface of the tongue. The 90% source of halitosis is primarily found within the oral cavity.³,⁴,⁵ 85% of oral halitosis is caused by poor oral hygiene and periodontitis.⁶ Other causes include xerostomia, ulceration, stomatitis, peri-implant disease, pericoronitis, deep carious lesions, exposed necrotic tooth pulps, imperfect dental restorations, unclean dentures, and oral carcinoma. Factors such as impacted food and debris, smoking and drinking can also lead to the formation of halitosis.³,⁷,⁸,⁹ Non-oral sources of halitosis are generally related to systemic problems, such as respiratory tract diseases, gastroesophageal pathologies, hepatic or renal insufficiency, diabetes, and it can also be a predictor of stroke.⁶,¹⁰,¹¹,¹²,¹³ Aydin and Woodworth classified halitosis into physiologic halitosis (type 0), potentially present in every healthy individual, and pathologic halitosis (type 1: oral-, type 2: airway-, type 3: gastroesophageal-, type 4: blood borne-, and type 5: subjective halitosis).³

Oral malodour not only marks the sign of poorly maintained oral hygiene, but is also considered a social taboo, causing social and psychological handicap to those suffering from it. This is manifested by shifting degrees of inhibition, lack of confidence, isolation, reduced social contact, problems in relationships, less talking by an unwillingness to speak or by keeping a distance to others.¹⁴
A thorough literature search reveals lack of studies on the topic of halitosis and oral hygiene habits (OHB) in Pakistan. The need to survey the oral health status of the undergraduate dental students becomes all the more important owing to the fact that patients look up to dentists for motivation and guidance in oral hygiene maintenance. It is important to study their current attitude, knowledge and beliefs towards oral health in order to find out how they will practice. World Health Organization (WHO) has expressed health as “A state of complete physical, mental and social well-being and not merely the absence of disease or infirmity”. Therefore it should be viewed as more than just a mere state of physical health. It affects individuals on many levels, socially and psychologically.

Objective of this study was to evaluate self-perception of oral malodour by undergraduate male and female students studying in different dental colleges and institutes of Karachi and its impact on their social relations.

METHODOLOGY

The study was carried out on male and female dental students of Karachi Medical & Dental College, Liaquat College of Medicine and Dentistry, Hamdard Dental University, Altamash Institute of Dental Medicine, OJHA Dental OPD (DUHS), Baqai Dental College in Karachi, Sindh with permission and co-operation of the Heads of the institutes and the respective Heads of the Departments. During the study, several colleges were visited and undergraduate students who were present at the time of the study were invited to voluntarily participate in the study. To reach a target of more than 400 students, the colleges were visited more than once.

A self administered questionnaire previously used with a few modifications was made based on the requirement of the research. The modified structured questionnaire was hand distributed by a group of dental house officers as a part of a research project. It was made sure that the students understood about the research. Informed consent was obtained from the participants before the onset of the study. Questionnaires were filled and returned independently without asking the student in order to avoid any bias. The identity and confidentiality of the students was maintained throughout the period. Ten minutes were provided for the filling up of the questionnaire.

The questionnaire was designed using multiple choice or yes or no format and were divided into three sections:

1. First four questions addressed demographic information, which included age, sex, year of study, university.
2. Dealt with their own oral health practices. Ten questions were asked namely whether they suffer from halitosis or received any treatment professionally. Any interference in their social life, what time of the day halitosis was worst etc and whether they had been taught how to make good oral hygiene etc.
3. Dealt with self-reported dental disease. Three questions addressed tooth decay (dental caries), bleeding gums, dry mouth, smoking behaviours, tea drinking, white or yellow tongue coating.

RESULTS

DISCUSSION

The conclusion of this study suggested that there was reduction in the halitosis and calculus formation due to good oral hygiene practices. This was in accordance with the study done by Sober et al that dental caries and periodontal diseases caused by calculus is equal in both the genders and have been the potential factors contributing to the halitosis. Though halitosis is not age related but men were more than three times at risk of halitosis than women.

In the current study, beside good oral hygiene practices still there was the formation 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 behavioural cause (smoking).

Studies conducted by Sober et al in Sweden, Japan and France had reported the prevalence of halitosis and stated that in different cultures and societies this problem was perceived. Dejongh et al and Veerrosa et al stated that in addition for diagnosing and controlling bad breath, a self perception had been an important factor and it could also lead to a social handicap. This was because in present era, social norms highlighted the significance of personal image and interpersonal relationships and halitosis was an important factor in social communication, could lead to social anxiety disorder, social stigma and embarrassment and therefore, might be the origin of concern not only for a possible health condition but also for frequent psychological shift leading to social and personal isolation as concluded by Bsavaraj et al, Zaitsu et al and Kusun et al.
In contrast to this the present study concluded that presence of halitosis was not leading to hindrance in social communication. Assumingly this could be due to the subjects were not aware about presence of their own halitosis. This was supported by the study conducted in a sample of Jordanian population shown only 20% of individuals who were aware of their halitosis. Arinola et al stated that people who were not aware of their bad breath might encountered social and professional rejection without knowing the reason. The social distance to a person suffering from halitosis determined people’s likelihood to draw this person’s attention to his breath malodour as stated by Dejongh et al.20

<table>
<thead>
<tr>
<th>Oral hygiene practices</th>
<th>Good hygiene practices in students</th>
<th>Bad hygiene practices in students</th>
<th>Good hygiene practices in students</th>
<th>Bad hygiene practices in students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plaque &amp; calculus is present</td>
<td>6 (8.5%) 34 (9.8%)</td>
<td>119 (26.4%)</td>
<td>9 (6)</td>
<td>32 (38%) 12 (3.3%)</td>
</tr>
<tr>
<td>Miswak (wooden stick)</td>
<td>12 (8.5%) 28 (8%)</td>
<td>82 (18.2%)</td>
<td>47 (31.3%)</td>
<td>6 (7.1%) 53 (14.8%)</td>
</tr>
<tr>
<td>Tongue cleaning</td>
<td>20 (16.9%) 102 (29.3%)</td>
<td>27 (6%)</td>
<td>20 (13.3%)</td>
<td>13 (15.5) 109 (30.4%)</td>
</tr>
<tr>
<td>Dental floss</td>
<td>9 (12.7%) 37 (10.6%)</td>
<td>92 (20.4%)</td>
<td>31 (20.7%)</td>
<td>8 (9.5) 38 (10.6%)</td>
</tr>
<tr>
<td>No smoking habit</td>
<td>1 (1.4%) 3 (0.9%)</td>
<td>129 (28.7%)</td>
<td>39 (26)</td>
<td>2 (2.4) 2 (0.6%)</td>
</tr>
<tr>
<td>Brushing daily</td>
<td>23 (32.4%) 144 (41.4%)</td>
<td>1 (0.2%)</td>
<td>4 (2.7%)</td>
<td>23 (27.4) 145 (40.4%)</td>
</tr>
<tr>
<td>Mean (average)</td>
<td>12 (16.9%) 58 (83.1%)</td>
<td>75 (75%)</td>
<td>25 (25%)</td>
<td>65 (18.9%) 60 (81%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Variables</th>
<th>Plaque and calculus</th>
<th>Halitosis and communication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brushing</td>
<td>0.000</td>
<td>0.519</td>
</tr>
<tr>
<td>Use of Miswak</td>
<td>0.000</td>
<td>0.618</td>
</tr>
<tr>
<td>Mouthwash</td>
<td>0.000</td>
<td>0.423</td>
</tr>
<tr>
<td>Cleaning of tongue</td>
<td>0.000</td>
<td>0.079</td>
</tr>
<tr>
<td>Use of Dental Floss</td>
<td>0.000</td>
<td>0.597</td>
</tr>
<tr>
<td>Smoking</td>
<td>0.956</td>
<td>0.094</td>
</tr>
<tr>
<td>Brushing</td>
<td>0.000</td>
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</table>
There were lack of studies carried out that measured the awareness of halitosis, it might be assumed that other communities had higher awareness, based on the presence of having halitosis centers in those communities and there was absence of these centers in our communities. This support the assumption of higher awareness of halitosis in those communities as stated in the study by Arinola et al. This fact supported current study that no hindrance in the communication among students could be due to the unawareness about the halitosis as a result of lack of self perception and absence of halitosis centers in our communities.

**CONCLUSION**

This study concludes firstly that poor oral hygiene attitude results into the bad breath or halitosis formation and secondly most of the subjects are having no hindrance in communication assuming due to lack of self perception, lack of awareness about their own halitosis and lack of knowledge about the causes of oral malodor.

**RECOMMENDATIONS**

Halitosis is the reflection of poor oral health. There is room for considerable improvement in oral health behavior of dental students as they are role models for their patients and the public at large. There is a need of providing awareness among students through academic knowledge about possible sources and causes of halitosis for themselves and for delivering information and instructions to the patients. Second, there is also a need of providing knowledge through behavioral science subject in undergraduate level among dental students about different strategies and learning of theories for changing perception and belief in patients and making them committed towards good oral hygiene practices and attitudes for preventing from social stigma and socially compromised life. Third, developing halitosis centers. Fourth further research is required to objectively assess the halitosis by standard procedures clinically.

**LIMITATIONS**

In many studies, including ours, the assessment of malodour relies on the subjects’ self perception. Many professionals do not consider this method to be reliable because it is subjective, and obviously, the method was not standardized among participants. Nevertheless, despite its shortcomings, ADA Council has recommended this method to be the most commonly used organoleptic techniques of evaluating malodour.

**REFERENCES**

Halitosis and oral hygiene practices


CONTRIBUTIONS BY AUTHORS

1 Marium Haroon: Writer, helped in literature providing and data collection
2 Sana Adeeba Islam: Lead in the design, literature review and writer
3 Samia Shiraz: Helped in data analysis
4 Sherish Rahman: Helped in literature providing and data collection
5 Anum Anjum: Helped in literature providing and data collection
6 Gulenoor Mansoor: Helped in literature providing and data collection