Thi-Qar Medical Journal (TQMJ):Vol.(23),No.(1),2022
Web Site: https://jmed.utq.edu.iq Email: utjmed@utq.edu.iq
ISSN (Print):1992-9218, ISSN (Online):1992-9218

Self-Reported Halitosis in Basrah University Students, a Prospective Study

Dr. Qaysar Abdulwahhab Suker, MBChB, FACMS in Otolaryngology, ThiQar Health Department
Dr. Majid Jalil Radhi, MBChB, FACMS, FICMS in Otolaryngology, ThiQar Health Department
Dr. Qussy Khashan Majid, MBChB, FACMS in Otolaryngology, ThiQar Health Department

Abstract:

Background: The word "Halitosis" refers to the term "bad breath" which can be a result of colonization of bacteria in the mouth or oral cavity, other causes like chronic systemic diseases, dental caries or infections of the throat, mouth tonsils; in addition to bad or insufficient oral hygiene may cause halitosis.

Objectives: This study was aiming to determine how frequently is self-assessed halitosis among a sample of Basra university students and the effect of the habit of oral hygiene and systemic diseases on it.

Material and Methods: The questionnaire−based survey included 590 students from different colleges in Basrah university, (340 females and 250 males), Statistical analysis was done using the $\chi 2$ test.

Results: Among those questioned, 27% suffered from halitosis, 56.2% of whom experienced it every morning. Fifty percent of students suffering from halitosis also suffered from xerostomia,

15.2 % of students discovered that they have mouth bad breaths from mates of a different gender from them, while 3.3% of students were examined and informed by their dentists. Those who smelled bad mouth breaths in others formed 94% of questioned students.

The number of times brushing teeth does not significantly affect the occurrence of mouth bad odor, even up to 3 times per day(p = 0.08). products such as dental floss and mouthwashes were used often by the studied university students. To a larger extent; chewing gum and fresheners of the mouth were also used more often (74.5%) than flosses and mouthwashes(64%).

Chewing gum and breath fresheners were used more often (74.5%) than such additional agents as mouthwash and floss (64%). Subjective halitosis decreased by using additional oral hygiene products (mouthwash and dental floss); as (p = 0.00016).

Conclusions: Using additional oral hygiene agents rather than brushing more frequently reduces the self-assessed halitosis level. Chewing gum or breath fresheners are preferred by 74.5 percent of students over dental floss or mouthwash (64 percent). A substantial percentage of those polled had both halitosis and xerostomia. Almost all of those polled (94%) reported smelling foul breath from others.

Keywords: halitosis, oral hygiene, Basrah university students.

Introduction:

Halitosis is a widespread ailment that affects one-fourth of the population. Bad breath can be caused by a variety of microorganisms, a lack of or poor hygiene regimen, or several somatic disorders. The pathogens are often Gram-negative anaerobic microorganisms that survive in oxygen-depleted environments [1].

Halitosis is described as "malodor with intensity regarded to be above a socially acceptable level" [2,3]. Many people are concerned about it, and it may have a detrimental impact on their quality of life and personal relationships [4].

Halitosis is predicted to affect up to 32% of the population [5]. The bulk of studies on the epidemiology of foul breath are small and focus on self-reported halitosis, limiting the validity of the findings [6]. The majority of those infected are unaware that they have halitosis [7].

Bad breath affects people of all ages, including children, however, it is more frequent in adults [8,9]. Both men and women are affected in the same way.

Furthermore, around 25% of people who see a doctor for a complaint of foul breath do not have actual halitosis (the so-called "halitophobics") [7,10,11].

Porphyromonas gingivalis, Prevotella intermedia, Fusobacterium nucleatum, Treponema denticola, and Tannerella forsythensis are the most prevalent bacteria that cause bad breath [12, 13]. According to some authors, halitosis is equivalent to fetor ex ore [12,14].

Others distinguish the two, claiming that fetor ex ore is caused by local factors such as periodontal disease, caries, lack of or poor oral hygiene, laryngological diseases, or drug use, whereas halitosis is a condition of exhaling fetid substances from deeper parts of the human body as a result of an internal disease, such as bronchitis, gastric, or kidney diseases. It's also possible that it's a part of a neoplastic process [15, 16].

Halitosis may be divided into three groups:

1) genuine halitosis, the malodor intensity is beyond the socially acceptable level,

2) pseudohalitosis, which malodor is not perceived by others but the patient persistently complains of its existence,

3) haliphobia, in which the patient still thinks he suffers from it after curing halitosis.

Genuine halitosis may also be divided into two groups: physiological halitosis, caused by debris and putrefaction, and pathological halitosis, which originates in the oral cavity or from deeper regions of the body as a result of some somatic disease [17].

Although halitosis is thought to affect one-fourth of the population, the true prevalence is unknown and could range from 15 to 50% of the population [1, 14, 18]. Because it is such a widespread disease, halitosis has a significant psychological impact, particularly on people who suffer from it. After cavities and periodontal disease, bad breath is the third most common cause for seeing the dentist [12].

Those who suffer from bad breath also seek help from general practitioners and gastroenterologists. People often try to cover their bad breath by brushing their teeth more frequently or using some additional agents such as mouthwash (especially those with 0.2% aqueous chlorhexidine gluconate) or dental floss. Only by reducing oral flora are we able to decrease the level of bad breath [16, 18].

This study aimed to determine the frequency of halitosis among a sample of Basrah university students, and its correlation with some oral hygiene habits, i.e. the frequency of brushing teeth, the use of additional oral hygiene products, bad habits such as drinking sweet fizzy drinks, cigarette smoking, and accompanying systemic diseases.

It asked if participants were aware of their halitosis and how often they smelt unpleasant breath from other people's mouths. Organoleptic testing, gas chromatography (CG), and sulfide monitoring are the three basic approaches for assessing oral malodor.

Thi-Qar Medical Journal (TQMJ):Vol.(23),No.(1),2022
Web Site: https://jmed.utq.edu.iq Email: utjmed@utq.edu.iq
ISSN (Print):1992-9218, ISSN (Online):1992-9218

Organoleptic measurement is a sensory test that scores a subject's oral malodor based on the examiner's perception. CG is particular for detecting sulfur in mouth air when performed using an apparatus fitted with a flame photometric detector. Because it is selective for volatile sulfur compounds (VSC), the principal cause of oral malodor, CG is regarded the gold standard for measuring oral malodor." [19]

However, because CG equipment is bulky and the method necessitates a skilled operator, it is impracticable for practitioners to set up CG in their offices. The total sulfur content of the subject's oral breath is measured using sulfide monitors. Although portable and simple to use, the smallest sulfide monitors are not VSC-specific. For example, the Halimeter (Interscan Co., Chatsworth, CA) has a high sensitivity for hydrogen sulfide but a poor sensitivity for methyl mercaptan, which is a major contributor to periodontal disease-related halitosis.

Organoleptic measurement is thus the most reliable and feasible method for determining a patient's level of oral malodor."

Patients and Methods:

This is a prospective study done in Basrah university in the period between the first of January 2010 to February 2011.

The anonymous questionnaire–based survey included 590 randomly selected students from different colleges of Basrah University.

There were 340 females and 250 males. All of the responders were between 19 and 28 years of age. The questionnaire contained 16 questions about halitosis, oral hygiene habits (the frequency of brushing teeth and using additional agents), somatic diseases, and bad habits, such as drinking sweetened drinks and smoking cigarettes.

The questionnaire was developed by reviewing the literature on the subject. Statistical analysis was done using the Chi-square test.

Results:

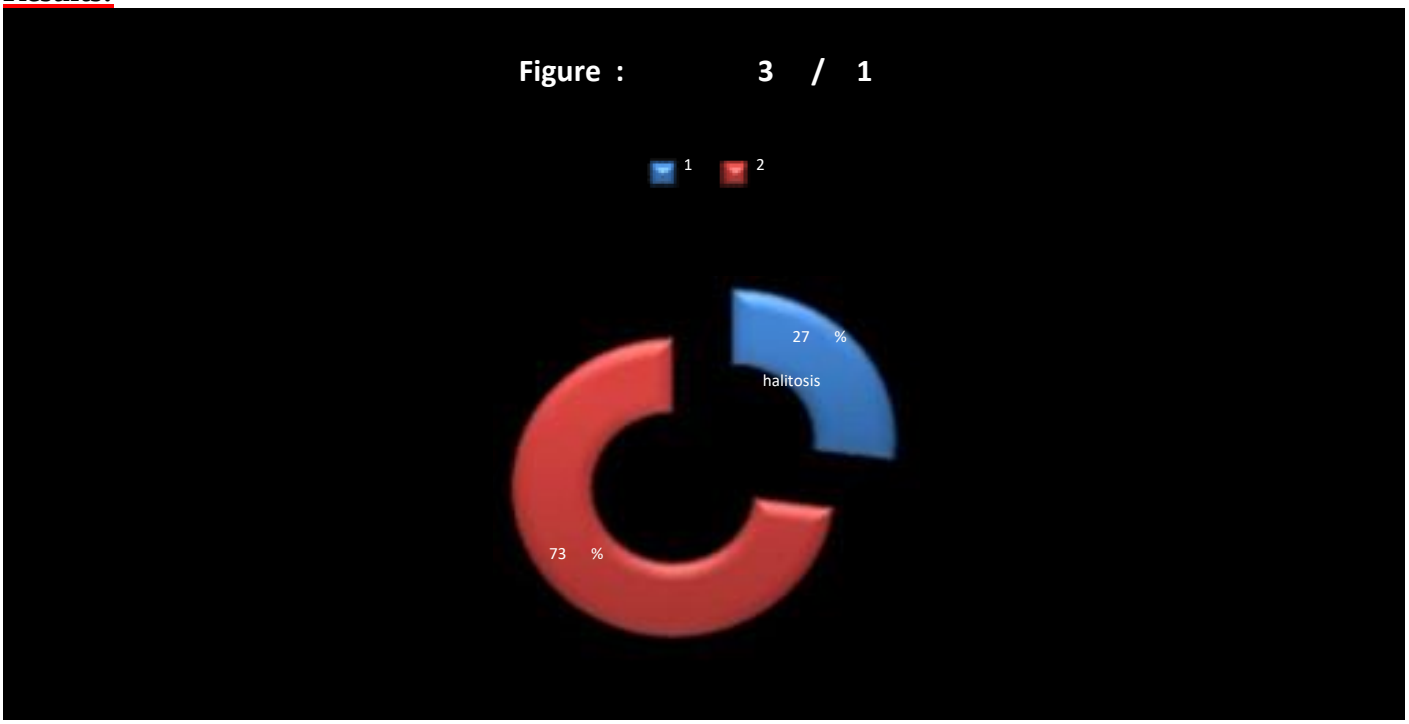

Figure 3/1: The frequency of halitosis among the studied sample.

It is found that (160) represent 27% of the studied students who had halitosis while (430) represent 73% recorded no self-perception halitosis. This is clearly shown in figure 3/1.

Thi-Qar Medical Journal (TQMJ):Vol.(23),No.(1),2022
Web Site: https://jmed.utq.edu.iq Email: utjmed@utq.edu.iq
ISSN (Print):1992-9218, ISSN (Online):1992-9218

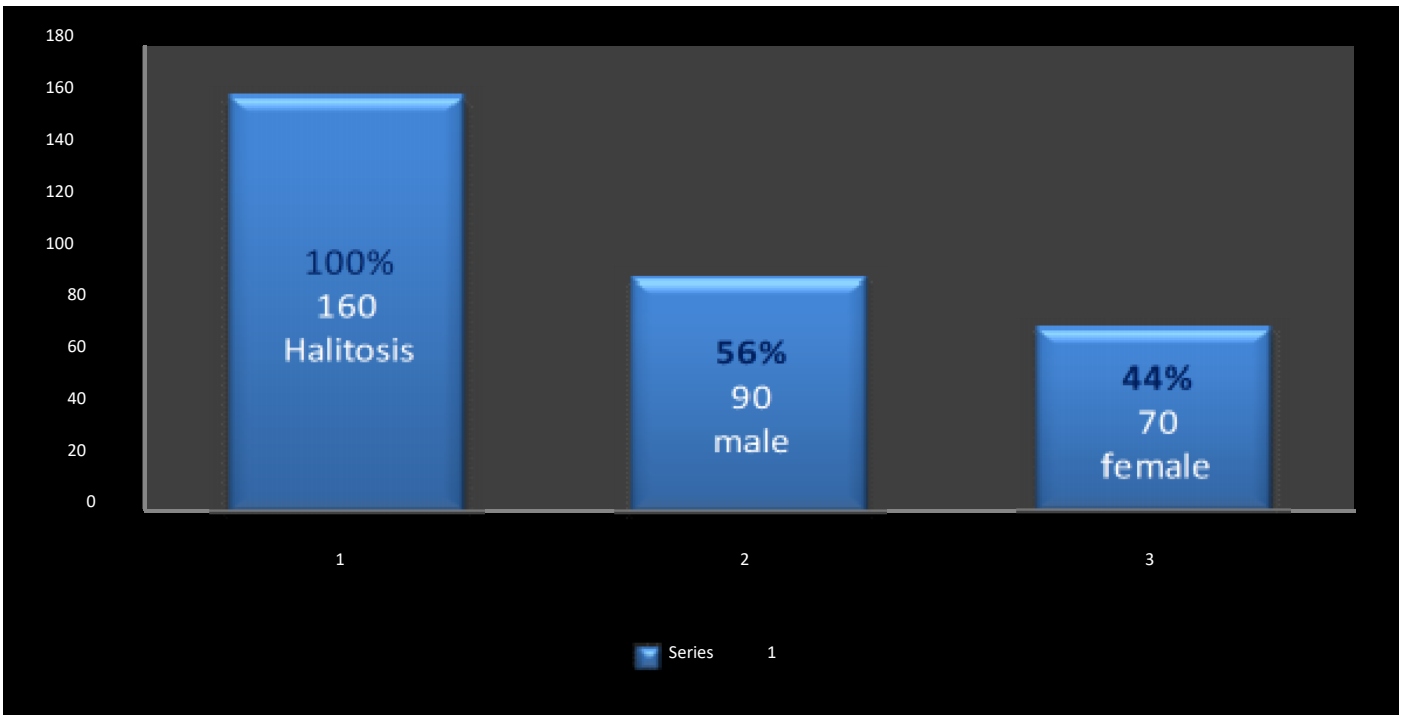

Figure 3/2: Sex distribution of halitotic students

Figure 3/2 displayed that halitosis was reported in 90 male students which comprise (56%), while it was reported in 70 females (44%).

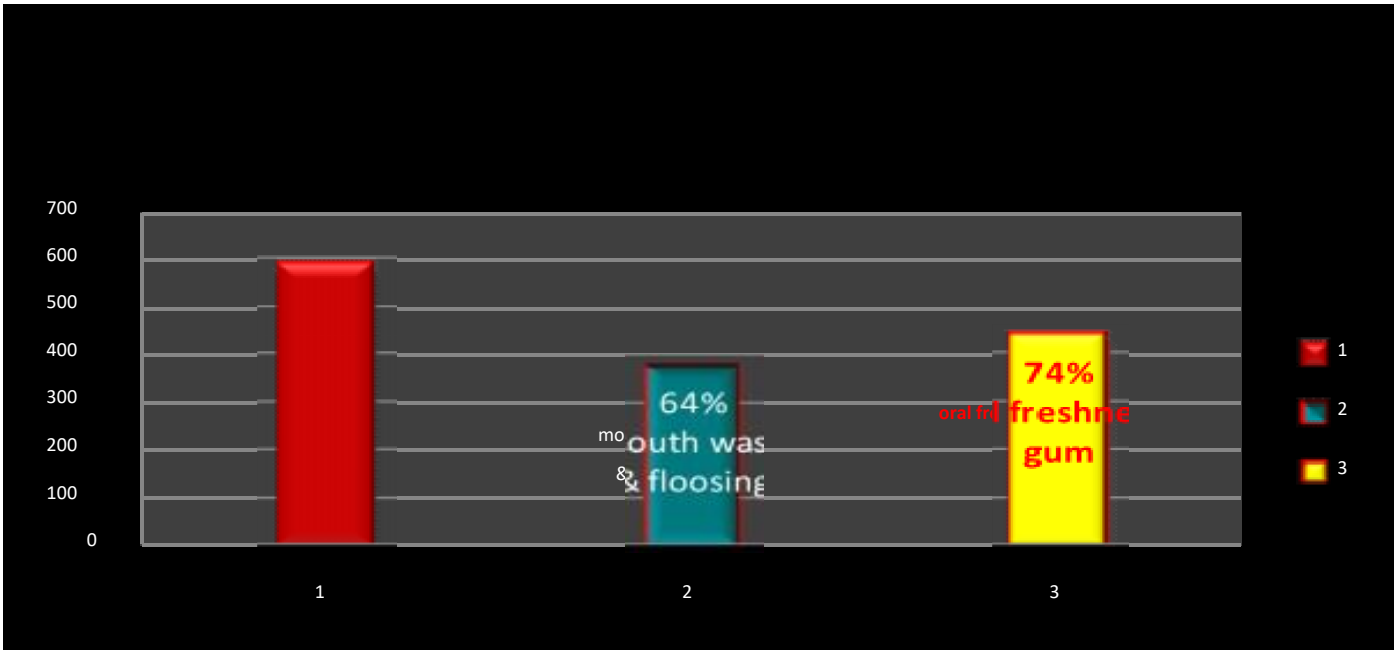

Figure 3/3: mouth hygienic measures among studied sample.

Figure 3/3 showed that (379) students which represent 64% were used mouth wash and dental flossing, while (443) students represent 74% used oral freshener and chewing gum.

Thi-Qar Medical Journal (TQMJ):Vol.(23),No.(1),2022
Web Site: https://jmed.utq.edu.iq Email: utjmed@utq.edu.iq
ISSN (Print):1992-9218, ISSN (Online):1992-9218

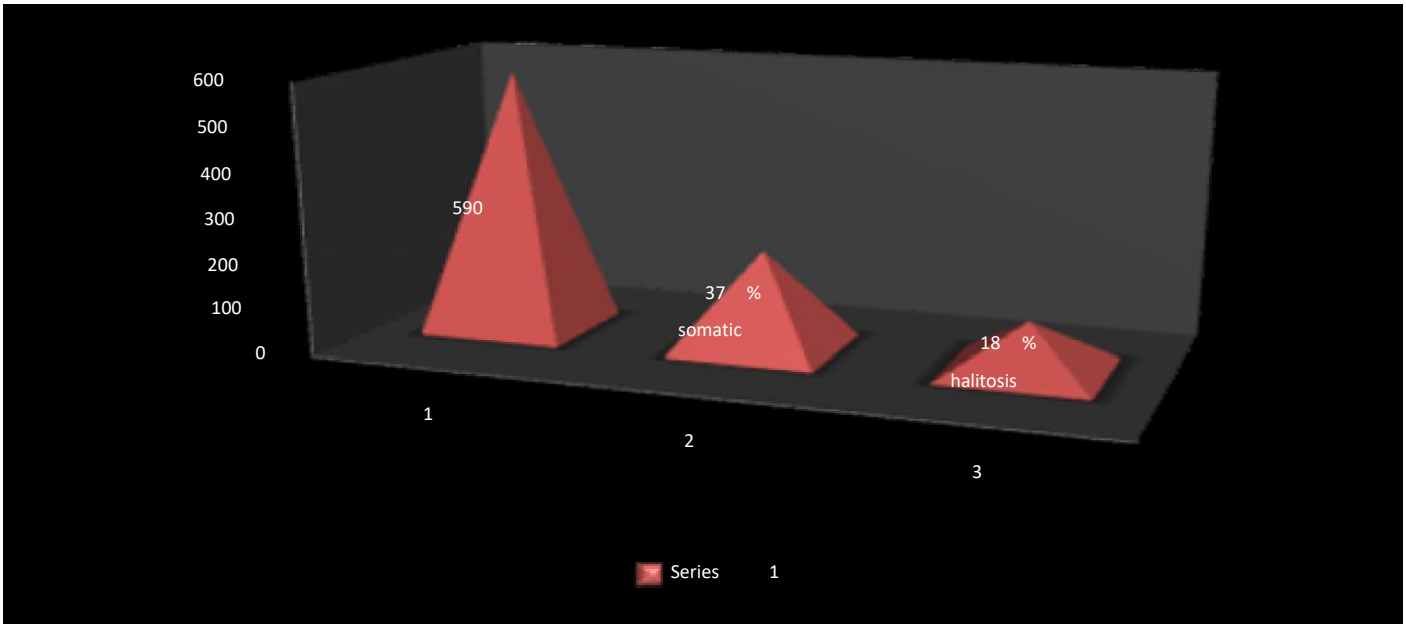

Figure 3/4: Relationship between somatic diseases and halitosis

Figure 3/4, illustrates that (220) students had somatic disease(periodontal disease, disease of the digestive system, disease of the respiratory system, disease of the vascular system,) (37%), but only (107) of them suffered from halitosis which represents (18%)from a total studied sample of students.

Discussion:

To measure the actual level of halitosis, a halitometer is used, this tests the presence of volatile sulfur compounds in exhaled air and aids in the diagnosis of oral malodor [20]. Despite the availability of such a professional tester, self-perception of poor breath remains the most important diagnostic sign of halitosis [28]. This could be due to the scarcity of halitometers in clinics, hospitals, and private offices.

In the present study, males suffered from halitosis more often than females (56% *vs. 44* %, respectively), this probably attributed to bad habits like smoking which is considered as an only male habit in our society, especially in the studied age group, or probably that males felt no embarrassment to document their halitosis.

The students of the present study complained of their bad breath especially in the morning (56.2%), which is comparable with the Rosenburg study, which stated that halitosis appears mostly just after sleep when the flow of saliva is reduced [21], this is probably due to disintegration of proteinous materials of saliva leads to evaporation of sulfur compounds.

Some researchers claim we are good judges of the degree of our bad breath, while others say we are unable to smell it [21]. Students usually learned about their bad breath from a member of the opposite sex (15.2%), while the doctor informed them of an unpleasant smell in only 3.3% of those questioned. (in other students this percentage was even lower, e.g. less than 1.5% of those questioned being informed by a doctor [20]),

Significantly, 94% of the students had noted bad breath in other people at least once, which shows how these signs are common and how good we are in judging other people's bad breath and that it may have an effect on our relations with other people and social life.[12]

Some oral hygiene habits influenced the level of halitosis.

Bad breath is caused by dental plaque and bacteria invading the oral cavity [22, 23], and it is the cause of halitosis in 85 percent of people [21]. Dry

mouth, systemic illnesses, upper and lower respiratory tract infections, medicines, and gastrointestinal disorders are some of the other causes of bad breath [21, 22].

Proper oral hygiene may decrease or cure halitosis in certain circumstances [21, 23], but it plays no role in the broad spectra of diseases.

The study found that it was not statistically significant whether a person brushed their teeth once, twice, or three or more times a day ($p = 0.08$).

However, it was shown that using an additional agent decreases the frequency of halitosis significantly ($p = 0.00016$).

Brushing teeth only removes bacteria from some easily accessible areas of the oral cavity, however, it is critical to clean all surfaces that could offer a favorable environment for bacteria to multiply [14–15].

According to the Almas et al [26] study, 33.8 percent of females and 30.5 percent of males utilized extra medications to self-treat foul breath.

Mouthwash and dental floss were observed to be used far more frequently by students in the current study, which could represent their awareness and care.

Recommendations

From this study, it is recommended to

1. -Inform the population that halitosis is not caused by orodental diseases only and it is a feature of a disease and not a disease by itself and they should not be shy in expressing their complaints.

The majority of students (74%) utilized chewing gum and breath fresheners. These help to eliminate or decrease foul breath by reducing bacteria in the mouth [18]. Seed oils and chlorhexidine, which are commonly found in mouthwashes and toothpaste, appear to be the best and most well-known substances for curing or lowering halitosis [25].

Only when the odor originates in the oral cavity and is not linked to any somatic condition are these drugs beneficial [27].

In this study, ingesting sweet fizzy canned drinks did not affect the development of halitosis. Around 72 percent of the students polled admitted to drinking such beverages at least once a week (30.8 percent in the group with halitosis and 69 percent in the group without halitosis).

Conclusion:

Using additional oral hygiene agents rather than brushing more frequently reduces self-reported halitosis levels. Chewing gum or breath fresheners was preferred by 74.5 percent of students over dental floss or mouthwash (64 percent). A substantial percentage of those polled had both halitosis and xerostomia. Almost all of those polled (94%) reported smelling foul breath from others.

2. -Establish a joint clinic in participation with dentists physicians and psychiatrists to evaluate halitotic patients.

3. Perform a study using air chromatography for accurate assessment of halitosis.

References:

1) Chitaivii N, Mdzeluri T, Dzagnidze G, Chonishivii Kh, Kurashivii N: Unpleasant smell from the mouth – halitosis. Georgian Med News 2006, 141, 26–29.
2) Hughes FJ, McNab R. Oral malodour--a review. Arch Oral Biol 2008; 53 Suppl 1:S1.
3) Yaegaki K, Coil JM. Examination, classification, and treatment of halitosis; clinical perspectives. J Can Dent Assoc 2000; 66:257.
4) Porter SR, Scully C. Oral malodour (halitosis). BMJ 2006; 333:632.
5) Silva MF, Leite FRM, Ferreira LB, et al. Estimated prevalence of halitosis: a systematic review and meta-regression analysis. Clin Oral Investig 2018; 22:47.
6) Slot DE, De Geest S, van der Weijden FA, Quirynen M. Treatment of oral malodour. Medium-term efficacy of mechanical and/or chemical agents: a systematic review. J Clin Periodontol 2015; 42 Suppl 16:S303.
7) Rosenberg M, Kozlovsky A, Gelernter I, et al. Self-estimation of oral malodor. J Dent Res 1995; 74:1577.
8) Villa A, Zollanvari A, Alterovitz G, et al. Prevalence of halitosis in children considering oral hygiene, gender, and age. Int J Dent Hyg 2014; 12:208.
9) Nadanovsky P, Carvalho LB, Ponce de Leon A. Oral malodour and its association with age and sex in a general population in Brazil. Oral Dis 2007; 13:105.
10)Rosenberg M, Knaan T, Cohen D. Association among bad breath, body mass index, and alcohol intake. J Dent Res 2007; 86:997.
11)Falcão DP, Vieira CN, Batista de Amorim RF. Breaking paradigms: a new definition for halitosis in the context of pseudo-halitosis and halitophobia. J Breath Res 2012; 6:017105.
12)John M, Vandana KL: Detection and measurement of oral malodor in periodontitis patients. Indian J Dent Res 2006, 17, 2–6.
13)Lee PPC, Mak WY, Newsome P: The aetiology and treatment of oral halitosis: an update. Hong Kong MedJ 2004 10, 414–418.
14)van Nieuw Amerongen A, Veerman EC, Abraham−Inpijn L, van Steenbergen TJ, van Winkelhoff AJ: Halitosis (*fetor ex ore*). A review. Ned Rijdschr Tandheelkd 1994, 101, 10–14.
15)Herold G: Gastroenterologia – przykry zapach z ust. Medycyna wewnętrzna, repetytorium dla studentów medycyny i lekarzy. Wydawnictwo Lekarskie PZWL, Warszawa 2003, 448.
16)Beers MH, Berkow R, Bogin RM, Fletcher AJ, Bondy PK, Dilts PV Jr, Drossman DA, Faling LJ, FrenkelEP, Gabbard GO, Hoeckelman RA, Mandell GL, Plum F, Rossi GV, Tancer PH: Badanie jamy ustnej.
17)W: The Merck Manual. Podręcznik diagnostyki i terapii. Wydawnictwo Urban & Partner, Wrocław 2001, 881.
18)Kępa−Prokopienko J, Iwanicka−Grzegorek E, Michalik E: Halitosis – etiology, classification and epidemiology on the basis of current literature. Nowa Stom 2005, 31, 41–44.
19)Scully C, Porter S, Greenman J: What to do about halitosis. BMJ 1994, 308, 217–218.
20)Yaegaki K, Sanada K.. Biocheml3. Yaegaki K, Coil JM. Clinical application of the questionnaire for diagnosis and treatment for halitosis. Quintessence Int 1999; 30:302-6.
21)Kozłowski Z, Bruziewicz−Mikłaszewska B, Konopka T, Drulis−Kawa Z, Lewczyk E: Using a halitometer to verify the symptoms of halitosis. Adv Clin Exp Med 2007, 16, 411–416.
22)Rosenberg M: Clinical assessment of bad breath: Current Concepts. JADA 1996, 127, 472– 482.
23)Feller L, Blignaut E: Halitosis: a review. SADJ 2005, 60, 17–19.
24)Bruziewicz−Mikłaszewska B, Urbanowicz I, Owczarek H: Microbiological aspects of halitosis. Dent Med Probl 2003, 40, 117–120.
25)Kaczmarek U, Przywitowska I, Ziętek M, Sułtan E, Malicka B, Pregiel B: Clinical efficiency ofnew manual toothbrush on removal of dental plaque and tongue coating. Dent Med Probl 2006, 43, 548–555.
26)Kowalczyk A, Tuberoso C, Bruziewicz−Mikłaszewska B, Cisowski W: Possible applicaons of some commercial seed oils in the treatment of stomatitis protetica and halitosis. Herba Polonica 2005, 51, 44–49.
27)Almas K, Al−Hawish A, Al−Khamis W: Oral hygiene practices, smoking habits, and self−perceived oral malodor among dental students. J Contemp Dent Pract 2003, 4, 77–90.
28)Quirynen M: Management of oral malodor. J Clin Periodontol 2003, 30, 17–18.

Thi-Qar Medical Journal (TQMJ):Vol.(23),No.(1),2022
Web Site: https://jmed.utq.edu.iq Email: utjmed@utq.edu.iq
ISSN (Print):1992-9218, ISSN (Online):1992-9218

رائحة الفم الكريهة المبلغ عنها ذاتيا لدى طلاب جامعة البصرة، دراسة مستقبلية

د. قيصر عبد الوهاب سكر، طبيب أختصاص أنف واذن وحنجرة\ البورد العراقي \دائرة صحة ذي قار
د .ماجد جليل راضي، طبيب أختصاص أنف واذن وحنجرة\ البورد العراقي والعربي\دائرة صحة ذي قار
د قصي خشان ماجد، طبيب أختصاص أنف واذن وحنجرة\ البورد العربي\دائرة صحة ذي قار

الملخص:
الخلفية: قد تنجم رائحة الفم الكريهة عن استعمار البكتيريا في تجويف الفم، والأمراض الجهازية، والتسوس، والحصى، والتهابات تجويف الفم أو الحلق، والتهاب اللوزتين، فضلاً عن عدم كفاية نظافة الفم.
الأهداف:
تهدف هذه الدراسة إلى تحديد وتيرة التقييم الذاتي لرائحة الفم الكريهة بين عينة من طلاب جامعة البصرة وعلاقتها بعادات نظافة الفم والأمراض الجهازية المصاحبة لها.
المرضى والطرق:
شمل المسح القائم على الاستبانة 590 طالبا من مختلف كليات جامعة البصرة (340 من الأناث و 250 ذكور)، وأجري التحليل الإحصائي باستخدام اختبار كاي تربيع ($\chi 2$).
النتائج:
من بين الذين تم استجوابهم، 27٪ يعانون من رائحة الفم الكريهة، 56.2٪ منهم أصيبوا بها كل صباح. خمسون بالمائة من الطلاب الذين يعانون من رائحة الفم الكريهة عانوا أيضًا من جفاف الفم، و15.2 بالمائة علموا برائحة الفم الكريهة من شخص من الجنس الآخر، بينما أبلغ طبيب الأسنان 3.3 بالمائة من الذين تم استجوابهم. ومن الجدير بالذكر أن 94٪ اشتموا رائحة الفم الكريهة لدى الآخرين.
لم يكن مهماً ما إذا كان الشخص ينظف أسنانه مرة أو مرتين أو ثلاث مرات أو أكثر في اليوم (القيمة الاحتمالية P= 0.08). تم استخدام منتجات نظافة الفم التكميلية مثل غسول الفم وخيط تنظيف الأسنان في كثير من الأحيان من قبل الطلاب الذين تمت دراستهم.
تم استخدام العلكة ومعطرات التنفس في كثير من الأحيان (74.5٪) من العوامل الإضافية مثل غسول الفم والخيط (64٪).
أدى استخدام عوامل إضافية (غسول الفم وخيط تنظيف الأسنان) إلى تقليل تواتر رائحة الفم الكريهة الذاتية (القيمة الاحتمالية P = 0.00016).
الاستنتاجات:
استخدام عوامل إضافية لنظافة الفم بدلاً من تنظيف الأسنان بالفرشاة بشكل متكرر يقلل من مستوى رائحة الفم الكريهة ذاتي التقييم. يفضل الطلاب استخدام العلكة أو معطرات التنفس (74.5٪) على خيط تنظيف الأسنان أو غسول الفم (64٪). عانى جزء كبير من الذين تم استجوابهم من رائحة الفم الكريهة وجفاف الفم. تقريبا كل من تم استجوابهم (94٪) اشتموا على رائحة نفس كريهة من أشخاص آخرين.
الكلمات المفتاحية: رائحة الفم الكريهة، نظافة الفم، طلاب جامعة البصرة.