



ISSN Print: 2394-7489
ISSN Online: 2394-7497
IJADS 2024; 10(4): 68-72
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www.oraljournal.com
Received: 02-08-2024
Accepted: 07-09-2024

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Parental awareness and knowledge toward their children's halitosis due to intra-oral causes attending major children's hospital

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DOI: <https://doi.org/10.22271/oral.2024.v10.i4b.2045>

Abstract

Background: there is a lack of information about the parents' awareness and knowledge regarding their children's halitosis.

The main aim was to assess the parent's awareness and knowledge of their children's halitosis.

Subjects and Methods: The sample included 160 parents who brought their children to the in- and out-patient departments of a children's hospital in Benghazi, Libya. The parents conducted in-person interviews with their kids and produced written questionnaires beforehand. Formal permission was obtained from the institute's ethical community and the paediatric hospital, and informed consent from parents and children was requested. Questions about dental caries, gingivitis, oral hygiene, and treating the mother's oral halitosis. Additionally, the severity of the halitosis, the parents' awareness of it, and getting treatment for it. It took ten to fifteen minutes.

Results: Of the 160 research children, 98 (61.25%) had the complete halitosis. Of the 84 boys, 51 (60.7%) had halitosis, and 47 (61.8%) of the 76 girls had it. Of the 98 individuals with halitosis, 63.3% had dental caries, 86.0% had gingivitis, 79.0% had neglected oral hygiene, and 85.0% had not cleaned their tongue. Of the mothers with halitosis, 37.3% had it detected, 60.20% had it, 20.41% of the parents were unaware of the issue, and 85% did not seek treatment.

Conclusion: Halitosis is a condition that many youngsters encounter but decide not to seek treatment for; as a result, both parents and children who suffer from it need to be educated about halitosis.

Keywords: Halitosis, malodour, dental caries, gingivitis, parent awareness, knowledge

Introduction

Although mouth halitosis, or bad breath or malodour, can occur in people of all ages, its prevalence varies depending on whether a person is a child or an adult [1-4]. The prevalence of halitosis is reported as ranging from 5% to 75% of examined children [3]. Oral odour may be the second most common reason patients visit the dentist, after periodontal disease and tooth cavities. It is an issue with public social health [5]. The perception of halitosis is different in culturally diverse populations. So, dental professionals should be aware of the cultural perceptions of halitosis among racially and culturally diverse populations [6]. There is a need to integrate cultural awareness and knowledge about halitosis among dental professionals for a better understanding of halitosis to treat patients with the social dilemma of halitosis to improve the quality of life and well-being of individuals with the problem. Dental professionals (especially dental hygienists) should be prepared to deliver optimal oral health and hygiene care. Oral malodor diagnosis and management should be incorporated and considered seriously in comprehensive dental care [7]. Halitosis is very common in the general population and nearly more than 50% of the general population have halitosis [8]. Other studies show that between 20 and 60 percent of persons have chronic mouth smells and that about half of these cases progress to the point where the smell becomes embarrassing in both social and personal situations [8-10]. In the general population, halitosis has a prevalence ranging from 50% in the USA, 6% to 23% in China, and India ranging from 21.7% in males to 35.3% in females [11-12].

According to reports, 31% of seniors in America experience recurring or chronic halitosis (N=270) [13]. Additionally, 45% of Indian dentistry students (N=277) reported having halitosis, while more than 80% of them reported having terrible breath in the morning [14]. One study has investigated the prevalence of halitosis in the general Dutch population (N=1,002, >16 years old), and reported that almost 90% of the population was regularly faced with a person having halitosis, 40% at least once a week [15]. In 27.5% of the Chinese population have halitosis (N=2,000, aged 15-64 years) [16]. Halitosis prevalence in a China study that involved more than 2500 participants was assessed above 27.5% [17]. In a Swedish study of 840 men and 841 women, halitosis assessment was only present in around 2.4% with a strong bad smell of the population [18]. Considering that dental caries create cavities in the teeth, it virtually prevents cleaning the environment even if by brushing. In addition, the decay process will accelerate, creating an environment for microbial growth; hence, the accumulation of food in these cavities will cause bad breath. Restorations of decayed teeth are effective in eliminating bad breath [19]. There are several areas in the mouth where food particles are trapped there. The reactions of microorganisms in these areas can cause bad breath. Among these areas, are surfaces of the teeth, grooves, and spaces between the teeth or gums and the surface of the tongue. Ignoring oral hygiene in children is one of the major issues that must be addressed. It may cause decay in between teeth, the tooth surfaces, or even under an old restoration. Neglect of parents to their children's oral health, not brushing during the day, or poor nutrition of sticky and sweet food, is expected that children with these conditions face bad mouth odor. Most children resist brushing their teeth during the day and in this case, show stubbornness. Parents also may be tired of the daily behavior and they easily pass from this issue, therefore they leave the children on their way [20]. Gingivitis is an inflammatory disease that can lead to children's bad breath from the mouth. Lack of dental plaque removal and improper oral hygiene causes inflammation of the gums [21]. Finger-sucking or pacifier use causes a dry mouth, which is a good place for the growth and proliferation of bacteria in the mouth. This function leads to bad breath in the children [21]. The teeth outside of the dental arch, crowded teeth, mal-positioned teeth, and crooked teeth in addition to the formation of early caries, can exacerbate bad breath. For this reason, many children or adults, even though they do not have decayed teeth, experience bad breath [22]. In the presence of poor adaptation amalgam or composite restorations in their walls in normal anatomy cannot be cleaned either by toothbrushes or dental floss in the interdental area. If these restorations are not replaced, it leads to food impaction and bad mouth odor [21].

Some food has a certain smell that may be unpleasant for some people but is not associated with microbial activity. Eat some food and vegetables such as garlic, onions and some strong spices are in this category. After digestion and absorption of these vegetables in the body, odorous molecules enter the bloodstream and are excreted gradually through the lungs and breathing [23-24].

High-protein foods such as red meat, fish, and cheese will exacerbate bad breath. On the other hand, a low-carbohydrate diet may also effectively exacerbate this problem [25]. Hard and dry foods like potato chips, snacks, sticky toffee, and chocolate are also trapped in the dental grooves which in turn enhances the proliferation of microorganisms, and activities of dental caries, and therefore, bad breath is the result [20-21]. In

most cases, bad breath is due to food particles stuck between or below these appliances; and cannot be well cleaned. Oral hygiene is more difficult when using removable and fixed orthodontic appliances including space retainers, space maintainers, brackets, and fixed wires on the teeth. If the children do not have enough accuracy in their oral hygiene, they would face complications such as gingivitis, plaque formation, and dental calculus, which lead to halitosis [26].

Subjects and Methods

Permission was taken formally from the ethical community in the institute, and pediatric hospital consent from the parents and the child was obtained. The samples were taken from 160 parents who went to major children's hospitals in Benghazi, Libya, both in and out of departments with their children being treated. 3 Interviewers conducted in-person interviews with both parents and their children to obtain information about their dental caries history, gingivitis, oral hygiene concerns for both the mother and the child, tongue cleaning, mother halitosis, parental awareness of the halitosis, and the parent's perception of the severity of the halitosis. Asking about the persistence of the malodour and whether they sought medical attention is also important. The responses to these questions were also converted into prepared form.

Results

Table 1 shows the total number of children in the study was 160 with a mean age of 6.79 and SD of 2.95, the highest number of children (22) is seen at the age of 7, and the lowest number (9 children) belong to an age of 2. Regarding the distribution of children according to gender; male children were slightly more than half 84 (52.5%), while girls were 67 (47.5%).

Table 2 demonstrates the distribution of the intensity of the halitosis perceived by the parents, Absence of halitosis was seen in 62 (38.8%), more than half of the study group 98 (61.25%) children had halitosis, 55 (34.4%) children with mild halitosis, moderate halitosis was seen 28 (17.4%), moderate halitosis in 28 (17.4%), strong in 11 (6.9), and very strong was in 4 children (2.5%). shows the prevalence of halitosis among male children was 51 (60.71%) while in females was 47 (61.84%). The total halitosis in the study sample was 98 (61.25%) of 160 children.

Table 3 shows a statistically significant difference in the prevalence of dental caries among children with caries (63.3%; n = 62) and children without caries (37.4%; n = 36) among those affected by halitosis. The frequency of halitosis was greater among those.

Children with gingivitis were 86.0% (n=83) compared to 51.3% (n=15) of children without gingivitis. There was a statistically significant difference.

Table 4 presents the prevalence of halitosis among children who practice proper oral hygiene. Among those who don't, the rate is higher at 78.5% (n=77) than it is for those who do. Although children with a clean tongue had a lower prevalence of halitosis (8.16%; n = 8) than did children without a clean tongue (84.7%; n = 82), the difference was statistically significant.

Table 5 shows that the prevalence of halitosis was higher in children whose mothers had the condition (63.3%) (n = 62) than in children whose mothers did not have the condition (37.3%) (n = 36). This difference was statistically significant, with a p-value of less than 0.05. Also, it shows that children whose mothers practiced good oral hygiene had a lower prevalence of halitosis (54.1%; n = 59) than did children

whose mothers practiced poor oral hygiene (38.7%; n = 38). This difference was statistically significant.

Table 6 reveals that 58.16% (n=57) did not seek therapy and 20.41% (n=20) were ignorant of halitosis issues.

Discussion

The current study assessed a group of children for the existence of halitosis, or a poor odour, as reported by the parents of patients who were either inpatients or outpatients at Children's Medical Hospital for various ailments. There is a need to integrate cultural awareness and knowledge about halitosis among dental professionals for a better understanding of halitosis. This will help treat patients with the social dilemma of halitosis, improve their quality of life and well-being, and deliver optimal oral health and hygiene care. Diagnosis and treatment need to be a team approach involving the dentist, dental hygienist, periodontic, an ear, nose, and throat specialist, dietitian, pharmacist, internal medicine specialist, and psychologist [13, 15]. Of the 160 participants in the current study, 61.25% had halitosis and 38.75% did not. In another study, 42.6% of participants reported having halitosis, whereas roughly 62% of patients reported having no odour [27]. Approximately 30% of the US population currently suffers from bad breath regularly [28]. Our research found that numerous individuals had unpleasant odours that their parents' thought were coming from them, most of them had a history of dental caries and gingivitis, and most of them did not clean their tongues regularly. Similarly, other research discovered that tongue coating and periodontal disorders are related to halitosis [5, 8, 18-20, 29]. According to reports, 69% of them had gingivitis and 37% had bad dental care [29]. However, the results of our research showed that 78.5% of children had ignored their oral hygiene and 86% had gingivitis. According to the parents, the current study assessed the level of high halitosis and found that it was mild in 43.4%, moderate in 17.5%, strong in 7.87%, and very strong in 2.5% of cases, where the foul odour was detectable from a distance. Due to the complexity of the problem, prolonged foul breath could indicate infections or other more serious health problems. As a result, rather than being classified those with poor breath should receive personalised special treatment [28-30]. Although there is usually a straightforward explanation for oral malodor, there is never a perfect treatment. A multidisciplinary team comprising the dentist, dental hygienist, periodontist, ear, nose, and throat expert, dietician, pharmacist, internal medicine specialist, and psychologist is required for diagnosis and therapy. Some techniques that have demonstrated some degree of success include cleaning the dorso-posterior region of the tongue, mechanically reducing microorganisms through enhanced oral hygiene practices, toothpastes that contain triclosan and a copolymer or sodium bicarbonate, which have been shown to reduce volatile sulfur compound VSC in mouth air, and chewing gum that contains sugar, which has also been demonstrated to reduce VSC in mouth air through an active pH change in the oral cavity [29-32]. According to the current study, 28.57% of the youngsters had persistent halitosis, and 58.16% of them sought therapy. Their mothers claimed that they had halitosis and that the percentage of people who were unaware was 28.57%. Interestingly, 71.43% of study participants did not seek therapy despite the majority of them having halitosis. It was found that most adults and many children suffer from bad breath (Halitosis) occasionally, chronically, or regularly at

specific times of the day. Public awareness and concern for this phenomenon is evidenced by the support of an \$850 million mouthwash industry in the United States despite wide agreement that commercially available products have no significant effect on breath malodor. Physicians and dentists are generally poorly informed about the causes and treatments for halitosis. There is no "stand-alone" product solution for halitosis nor do traditional standards of dental or periodontal care necessarily eliminate the problem [32-34]. Similar to our investigation, it has been demonstrated that individuals with periodontal disease generate higher levels of breath odour compared to those with healthy periodontium [35]. Nevertheless, The tongue and other soft tissue surfaces of the mouth as principal locations of intra-oral bacterial growth and odor production [29, 33, 35-37].

Table 1: Shows the age and gender distribution among the study group

Gender	Number of children	Percent
Male	84	(52.5%)
Female	76	(47.5%)
Total	160	(100%)
The age	Number of children	Percentage
2	9	5.6%
3	18	11.2%
4	16	10.0%
5	20	12.5%
6	12	7.5%
7	22	13.8%
8	13	8.1%
9	12	7.5%
10	16	10.0%
11	12	7.5%
12	10	6.2%
Total	160	100.0%

Table 2: The distribution of presence and intensity of halitosis among the study sample according to gender

The presence of child halitosis	Gender of child		Total N (%)
	Male N (%)	Female N (%)	
Not present halitosis	33(39.29%)	29(38.16%)	62(38.75%)
Present halitosis	51(60.71%)	47(61.84%)	98(61.25%)
Total	84(100%)	76(100%)	160(100%)
The intensity of the halitosis perceived by the parents			
Not present	62	(38.75%)	
Mild	55	(34.38%)	
Moderate	28	(17.5%)	
Strong	11	(6.87%)	
Very strong	4	(2.5%)	
Total	160	(100%)	

Table 3: Score of child halitosis with dental caries and gingival disease in the child perceived by the parents

The child halitosis	Dental caries of child		Total N (%)
	Yes N (%)	No N (%)	
Not present halitosis	18(22.5%)	44(45%)	62(38.75%)
Halitosis	62(63.3%)	36(37.4%)	98(61.25%)
Total	80(100%)	80(100%)	160(100%)
Child halitosis	Complaining of gingivitis		Total
	Yes	No	
Not present halitosis	2(11.76%)	60(41.96%)	62
Present halitosis	83(86.0%)	15(15.3%)	98
Total	85(100%)	75(100%)	160

Table 4: Score of children with halitosis, neglected oral hygiene and cleaning of the tongue perceived by the parents

The presence of child halitosis	Condition of oral hygiene of the child			Total N(%)
	Good N(%)	Neglected N(%)	I don't know	
Not present halitosis	23(54.76%)	39(33.62%)	0(0%)	62(38.75%)
Halitosis	19(19.4%)	77(78.5%)	2(100%)	98(61.25%)
Total	42(100%)	116(100%)	2(100%)	160(100%)
The presence of child halitosis	Tongue cleaning by the child or parent			Total
Child halitosis	Yes, cleaning of the tongue	No, cleaning the tongue	I don't know	
Not present	15(65.22%)	44(34.92%)	3(27.27%)	62(38.75%)
Present	8(8.16%)	82(84.7%)	8(8.16%)	98(61.25%)
Total	23(100%)	126(100%)	11(100%)	160(100%)

Table 5: Score of child halitosis with halitosis in mother and concerning oral hygiene of mother

The presence of mother halitosis	The score of halitosis in the mother		Total N (%)	
	Yes N (%)	No N (%)		
Not present	15(29.41%)	47(43.12%)	62(38.75%)	
Present	62(70.3%)	36(37.3%)	98(61.25%)	
Total	77(100%)	83(100%)	160(100%)	
The history of the mother's oral hygiene	The score oral hygiene mother			Total
	Yes	No	I don't know	
Not present	50 (45.87%)	12 (24%)	0(0%)	62(38.75%)
Present	59 (54.13%)	38 (39%)	1(100%)	98(61.25%)
Total	109 (100%)	50(100%)	1(100%)	160(100%)

Table 6: Score of child halitosis Parental awareness and treatment in halitosis present in children

	Parental awareness		Total N (%)
	Aware N (%)	Unaware N (%)	
Child halitosis awareness	78 (79.59%)	20 (20.41%)	98 (100%)
And treatment	Treatment of halitosis		Total
	Start treatment	Not start treatment	
	41 (41.84%)	57 (58.16%)	98 (100%)

Conclusion

When comparing children with halitosis to those without, the majority of them had a history of dental caries, gingivitis, and poor oral hygiene. Approximately 65.08% of children didn't clean their tongues. Only 41.84% of parents sought treatment despite 79.59% of them being aware of the issue. Children with halitosis had mothers with halitosis of 70.3%, and 38.78% of them practiced appropriate oral hygiene. It's critical to inform parents about the need to promptly seek treatment if their children exhibit halitosis.

Acknowledgments

The authors would like to thank local authorities, all participant children, parents, and medical staff in the children's hospital for their cooperation and for providing the medical history of the patients in this study.

Disclosure of conflict of interest: The authors declare that they have no conflicting interests.

Ethical considerations: Statement of informed consent Informed written consent was taken from the parents to recruit their children in the present study and permission was taken from the hospital administrative authority to carry out the study.

Conflict of Interest

Not available.

Financial Support

Not available.

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How to Cite This Article

Ali FM, Abdulrazig SM, Alamami N, Mohammed AA, Moftah AS, Ahmed AA, *et al.* Parental awareness and knowledge toward their children's halitosis due to intra-oral causes attending major children's hospital. *International Journal of Applied Dental Sciences.* 2024;10(4):68-72.

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