Original Article

Evaluation of the use of a peppermint mouth rinse for halitosis by girls studying in Tehran high schools

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Abstract

Background and Aim: Oral malodor is one of the most common complaints among dental patients. It often creates serious personal and social embarrassment for the afflicted individual. Therefore, a dentist must be able to diagnose the etiology of halitosis and treat it or refer an individual to a specialist. The aim of this study was to evaluate the prevalence of halitosis and the effect of a peppermint mouth rinse on it. **Materials and Methods:** This study was performed in two steps. At the first step, in a cross-sectional study, 504 students who were 14–18 years old were examined to define the students who suffered from halitosis, and then at the second step, the selected 84 students with halitosis were divided into two groups randomly. A total of 43 students in group 1 received a peppermint mouth rinse and 41 students in another group were given placebo. The students in two groups washed their mouth with 15–20 ml of the given solutions three times in a 1-week period (after breakfast, after lunch or on returning to home, before sleeping) and didn't eat anything for 30 min after rinsing. After 1 week, the students were examined again. **Results:** The prevalence of halitosis was 24.4% totally. In the mouth rinse group, after 1 week 23 students didn't exhibit halitosis, and 11 students in the placebo group were halitosis positive. A chi-square test showed that this difference was significant. **Conclusion:** Based on the results of this study, it can be said that a peppermint mouth rinse can reduce halitosis.

Key words: *Halitosis, mouth rinse, organoleptic, peppermint*

INTRODUCTION

Oral malodor, also known as bad breath, is a common complaint among the general population. Ninety percent of bad breath is of internal origin.[1]

The most likely cause of oral malodor is the accumulation of food debris and dental bacterial plaque on the teeth and tongue, resulting from poor oral hygiene, and resultant gingival and periodontal inflammation. Necrotizing ulcerative gingivitis and lack of oral cleansing because of xerostomia can also induce or enhance malodor.[2,3] Transient oral malodor can also arise after someone has eaten volatile foods such as garlic, onion, because of which the breath takes on a different odor that may last several hours. Respiratory tract infections can cause oral malodor as a consequence of nasal or sinus secretions passing into the pharynx; people who breathe predominantly through their mouth my also suffer from bad breath. Tonsillitis may also be a cause of halitosis. Foreign bodies in the nose can likewise produce a striking odor to the breath.[4]

Bronchiectasis and other lung infections, such as cancer, may also cause halitosis. More importantly, some patients complaining of oral malodor yet do not have confirmable halitosis, even with objective testing. This symptom may be attributable to a form of delusion or monosymptomatic hypochondriasis (self-oral malodor, halitophobia). Halitosis is a social and psychological handicap for affected individuals.[5] It often creates serious personal and social embarrassment for the

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afflicted individual.[6]

Some treatment measures have been suggested to alleviate the odor. Different antimicrobial agents have been evaluated: chlorhexidine, chlorine dioxide, metal ions, triclosan, hydrogen peroxide, etc. Peppermint mouth rinse is a safe formulation without any side effect that may be useful in the treatment of malodor. The purpose of this study was to evaluate the effect of using a peppermint mouth rinse on alleviating malodor in high school students in Tehran, Iran.

MATERIALS AND METHODS

This study was a clinical trial. At the first step, in a cross-sectional design, 504 girls studying in Tehran high schools (14–18 years old) in five regions of Tehran (North, South, Central, East, West) were examined to define the persons suffering from halitosis. At the second step, in a clinical trial, 84 students who exhibited malodor, and agreed with the design of this study, were selected. All subjects signed the consent form before the commencement of the study. These students were divided blindly in to two groups. The students in the experimental group were given a peppermint mouth rinse and the students in the control group received placebo. The peppermint mouth rinse that was used in this study had 1% peppermint base, 10% xylisorb, 5% glycerin, 1% Tween 20%, 5% alcohol 96%, 0/18% methyl paraben, and 0/02% propyl paraben. Placebo had all of above ingredients except for the peppermint base. The students in two groups were given instructions on how to use the mouth wash. Students were instructed to swish 15–20 ml of the given solutions (peppermint mouth wash in the experimental group and placebo in the control group) for 30 s and eat nothing for 30 min after the rinse; they were told to repeat the procedure three times in a day (after breakfast, after lunch or after going back to home, and before sleeping at night). These instructions must be performed for 1 week. The samples were examined after 1 week in point view of presence of halitosis. Finally, the data were analyzed with a chi-square test.

RESULTS

This investigation was carried out in 84 high school girls in Tehran with oral malodor (43 cases in the mouthwash group and 41 controls in the placebo group) The prevalence of halitosis in these students was 24.4%. After 1 week, in mouthwash group, oral malodor was not seen in 23 subjects, and in the placebo group 30 subjects exhibited halitosis [Table 1]. The use of a peppermint mouthwash can have an effect on the elimination of halitosis significantly ($P<0/02$).

Table 1: Distribution of students based the use of mouth rinse for halitosis

Usage of the mouth rinse	Does not have halitosis	Have
Placebo	11 (26/8)	30 (73/2)
Peppermint mouth rinse	23 (53/5)	20 (46/5)

DISCUSSION

Bad oral breath is also called halitosis and usually originates from the oral cavity.[5,7] Halitosis is a social and psychological handicap for affected individuals. This condition is a special concern in adolescents, and treatment of this problem is very important. The purpose of this study was to evaluate the effect of the use of a peppermint mouthwash on the elimination of halitosis in high school girls in Tehran.

Results of this study showed that the use of the peppermint mouthwash is more effective than placebo significantly.

This finding is similar to Hur's study, but Hur evaluated halitosis after 5 and 60 min, and we evaluated the effect of the peppermint mouthwash after 1 week.[8]

Results of Lodhia's study revealed that hydrogen sulfur and methyl mercapthan reduce immediately after consumption of green tea.[9]

Lodhia evaluated the effectiveness of some materials in the elimination of halitosis and his evaluation was done through the measurement of volatile sulfur compund; we evaluated the role of the mouth rinse in halitosis organoleptically. The difference in results of these two studies can be related to the methods used in them. Furthermore, in Lodhia's study, the subjects did not eat and drink anything from midnight to the end of the study and did not use any hygienic devicessuch as tooth brush and dental floss which can also affect the results.

One of the drawbacks of this study was to provide the peppermint mouth rinse with a suitable composition and concentration.

We evaluated the effect of the peppermint mouth rinse after 1 week. It is suggested that in other studies, this effect was surveyed after longer time periods.

CONCLUSIONS

Based on the results of this study, it can be said that a peppermint mouth rinse can reduce halitosis.

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