

Awareness of herbal mouthwash for dental caries among schoolchildren: A cross-sectional study

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ABSTRACT

This study aims to conduct a cross-sectional study on the awareness of herbal mouth for dental caries among the schoolchildren. Dental caries is defined as demineralization of the tooth surface which is caused by bacteria. The main predisposing factors to various orodental diseases are plaque accumulation and oral microorganisms. Considering different side effects related to the conventional modes of the treatment, herbal extracts have been paid particular attention recently. Herbal antimicrobial mouth rinses support good oral health and are among the effective complements to tooth brushing and flossing for patients with regard to providing a clinically significant benefit resulting in reduction of dental plaque. Herbal mouthwashes are a good alternative for the chemical mouthwashes as they are milder, nonirritating, and nontoxic. It is a cross-sectional survey with a questionnaire consisting of 16 questions. The survey is conducted among the high school students in Chennai. The importance of this study is to make the younger generation aware of the herbal mouthwashes in preventing the oral diseases which are more effective and has less significant side effects than the conventional mouthwash.

Keywords: Herbal, questionnaire, mouthwash, survey, cross-sectional

Introduction

Oral health is considered as one of the most important factors which are responsible for general health and well-being. Good oral health knowledge and awareness contribute to good oral health behavior, which in turn results in good oral health status.^[1-3]

Inadequate oral hygiene is one of the main reasons for the formation of plaque growth. Plaque constitutes the primary factor responsible for oral diseases, ranging from caries to gum disease (gingivitis and periodontitis). Brushing the teeth everyday is the main mechanical method of removing plaque and thus reduces the risk of development of dental diseases.^[4]

As a toothbrush cannot access the dental surfaces underneath the contact zone between teeth, interdental brush or floss can be used to supplement toothbrushing to remove the accumulated debris from between the teeth more efficiently.^[5] The interdental area is one of the most frequent sites of plaque accumulation, caries development, and the beginning of periodontitis. The standard of oral hygiene is particularly affected in people who do not possess manual dexterity or motivation for mechanical plaque disruption.^[6] Mouthwashes can help reduce the supragingival plaque levels and prevention of gingivitis and dental caries.

Mouthwashes have been widely used as adjuncts to oral hygiene and can also act as a potential and active agent to the teeth and gums. The ability of mouth rinses to influence plaque formation and dental caries has been extensively studied. Natural products have been extensively used for medicinal purposes for thousands of years. These products have pharmacological properties such as antimicrobial, anti-inflammatory, and cytostatic effects.^[7] In addition, for maintaining oral hygiene, mouthwashes can also be used for many gum disorders.^[8] It has been suggested that mouthwash use might be more prevalent in people with oral inflammatory conditions and precancerous lesions.^[9]

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Herbal medicine is both promotive in its approach and has a lot of beneficial effects. Natural herbs such as triphala, tulsi patra,

jyestiamadh, neem, clove oil, pudina, ajwain, and many more are used either as a whole single herb or in various combinations are scientifically proven to be safe and effective medicine against different oral health problems such as bleeding gums, halitosis, mouth ulcers, and preventing tooth decay. The major advantage of the usage of natural herbs is that their use has not been reported with any side effects till date.^[10]

All the herbal mouth rinses do not contain alcohol and/or sugar, two of the most common ingredients found in most other over-the-counter products. The problem of these ingredients is that the microorganisms which cause bad breath and halitosis usually feed on these ingredients, and release byproducts that can cause halitosis.^[10] Thus, by using a herbal mouthwash, we can avoid using these ingredients and promote better oral hygiene and better health.

Materials and Methods

This is a questionnaire-based survey on the awareness of herbal mouthwash. A total of 80 high schoolchildren in Chennai district undertook the survey. A total of 16 questions were asked to the children. Individuality was assured when the subjects filled the survey. After the data collection, statistical analysis was done.

Statistical analysis

Statistical analysis was done using the SPSS software, and the graphs were obtained using the results.

Results and Discussion

This study was aimed at creating awareness among the young population about the use of herbal mouthwash for reducing dental caries. From the survey, half the population of students clean their teeth once a day, 10% more than twice a day, and 38.75% of students twice a day. A previous study shows that 95.7% of the students brushed their teeth at least twice a day (Figure 1).^[11]

From the data collected, it can be found that 25% of students use mouthwash once a day, 16% of students twice a day, 25% of students several times a week, and 33.75% of students never use mouthwash at all (Figure 2). From the survey, since the majority of the students do not use mouthwash at all, many of the students are not aware of the beneficial effects of using mouthwash. In this study, the method of cleaning the teeth after eating was assessed. 46.25% of students rinse their mouth after eating, 13.75% use their finger, 7.5% use mouthwash, 7.5% use toothbrush, and finally, 25% of students never clean their mouth after eating (Figure 3). From the study, it was observed that 46.5% of students use mouthwash in the morning, 31.25% use it before going to bed, 8.75% use it in the afternoon, and 12.5% use it at other times (Figure 4). From the survey, it can be assessed that 40.0% of

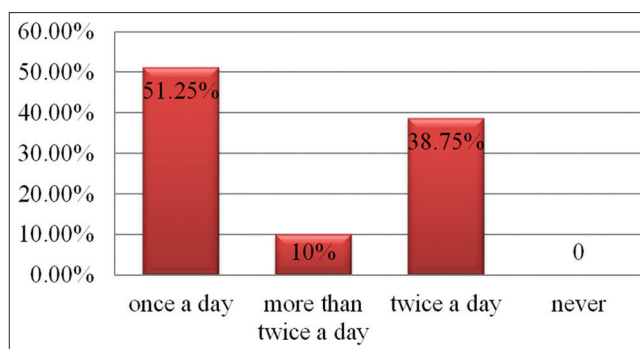


Figure 1: Frequency of tooth cleaning

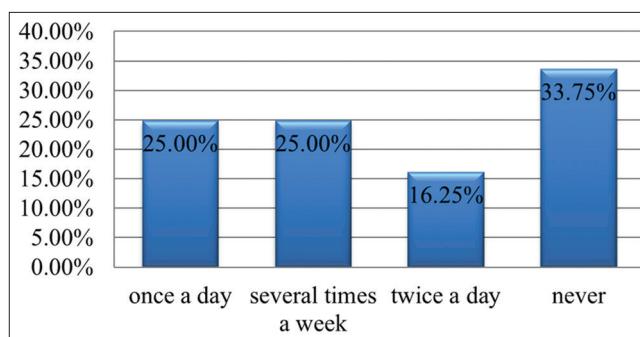


Figure 2: Frequency of using a mouthwash

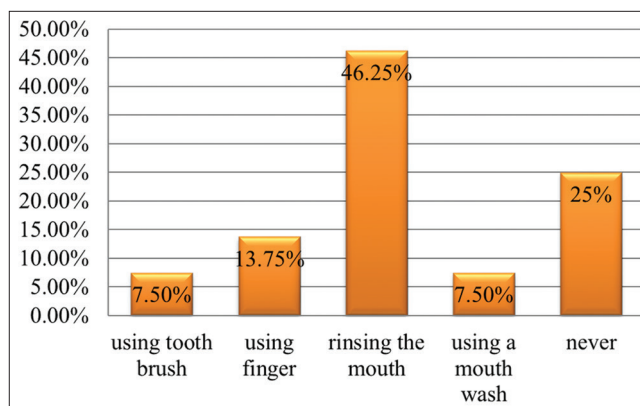


Figure 3: Method of cleaning teeth after eating

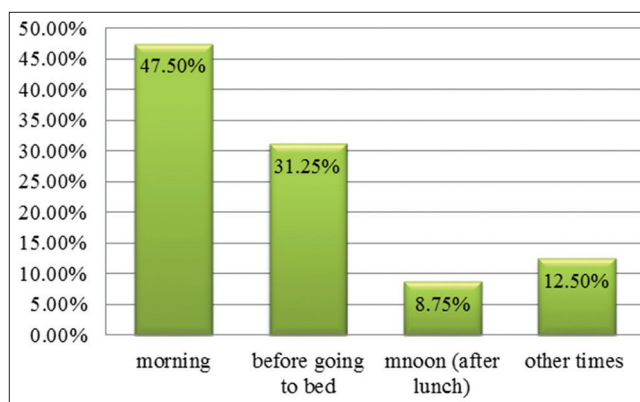


Figure 4: Time of usage of mouthwash

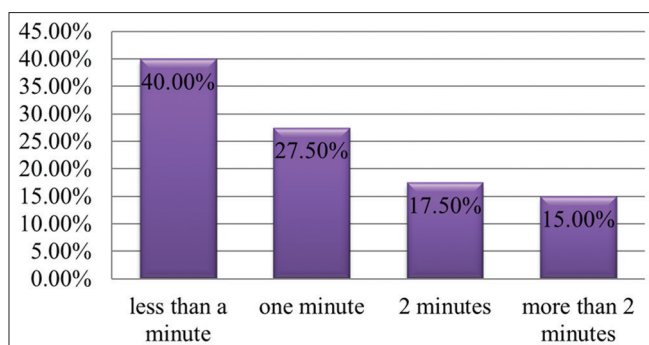


Figure 5: Duration of use of mouthwash

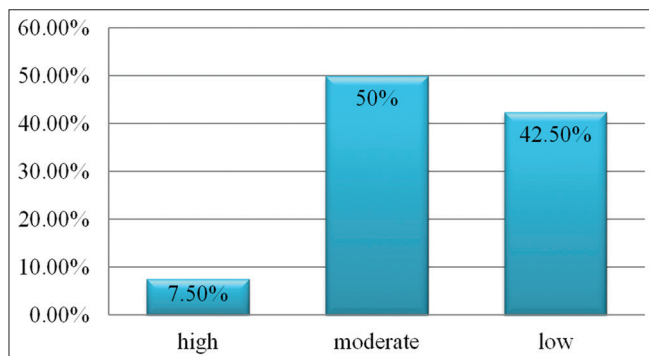


Figure 6: Awareness on the usage of herbal mouthwash

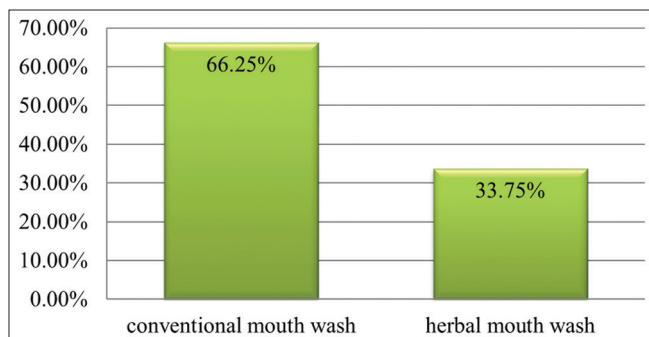


Figure 7: Preference of use

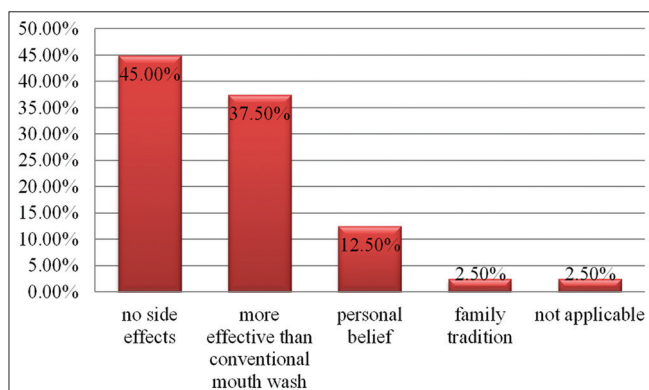


Figure 8: Reason for preference of herbal mouthwash

the students use mouthwash for less than a minute, 27.5% use it for 1 min, 17.5% use it for 2 min, and only 15% of students use it for more than 2 min (Figure 5).

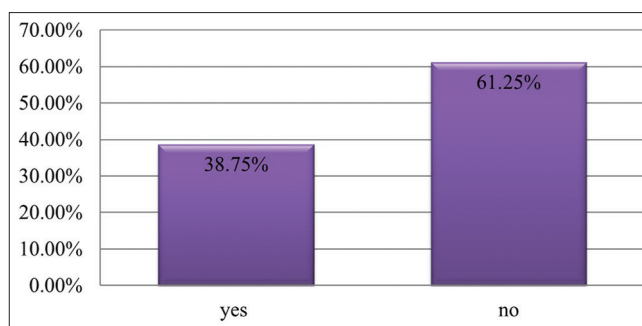


Figure 9: Percentage of students interested in updating their knowledge about herbal mouthwash

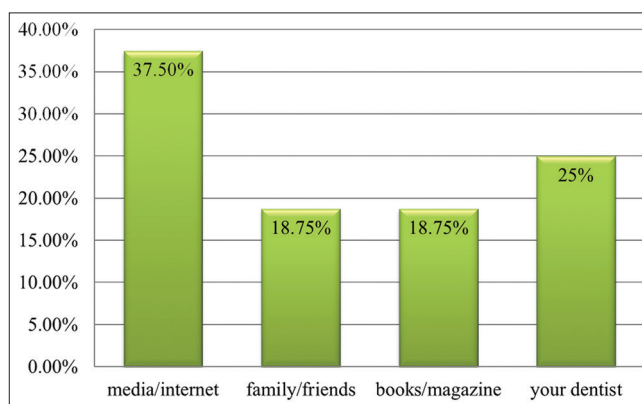


Figure 10: Source of information about herbal mouthwash

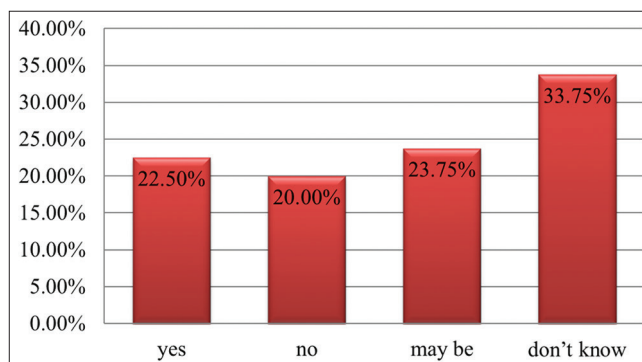


Figure 11: Herbal mouthwash causes less side effects than the conventional one

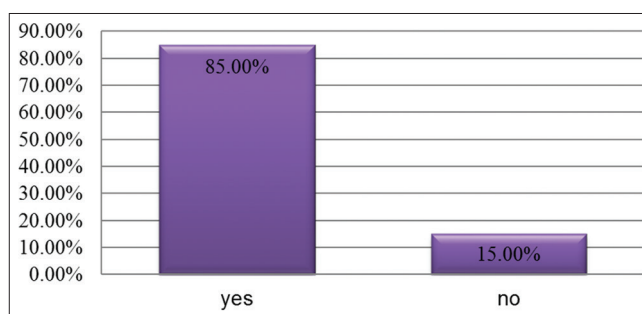


Figure 12: Awareness on the usage of mouthwash in reducing the risk of dental caries

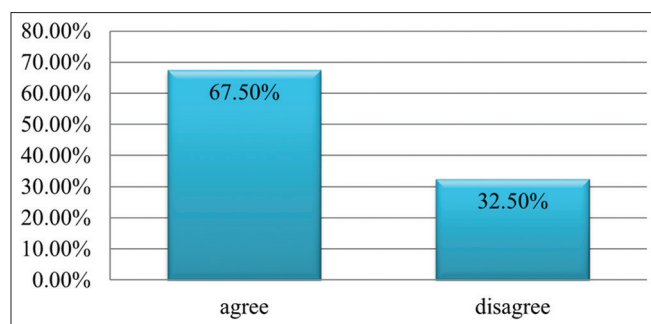


Figure 13: More awareness on herbal mouthwash is necessary

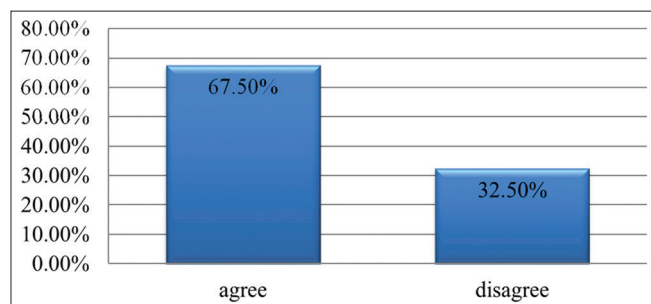


Figure 14: Opinion on herbal mouthwash being less toxic than conventional mouthwash

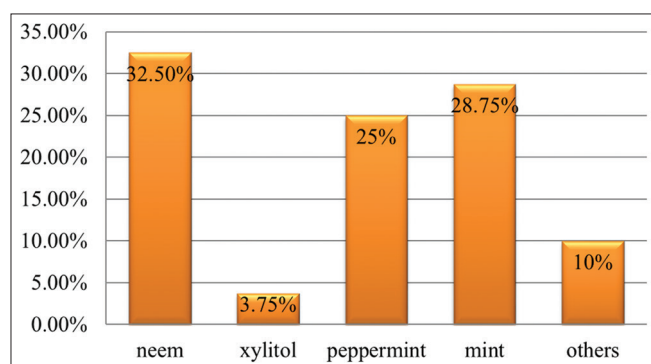


Figure 15: Awareness on the following mouthwash

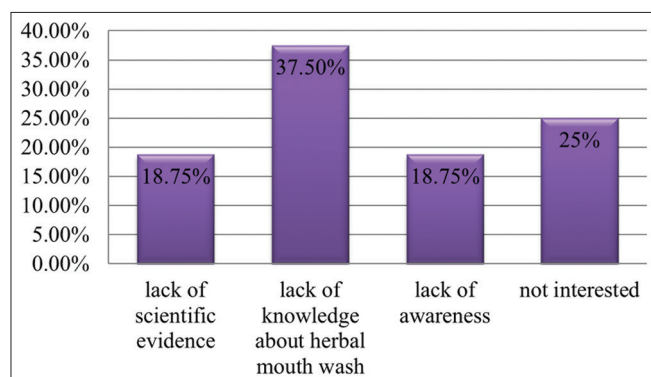


Figure 16: Reason for not using any herbal mouthwash

Only 7.5% of the students are well aware of herbal mouthwash, about 50% have moderate knowledge, and 42.5% of students have poor knowledge on the usage of herbal mouthwash (Figure 6).

When asked about the type of mouthwash, the students prefer to use either conventional or herbal, 66.25% of students prefer conventional mouthwash, whereas 33.75% prefer herbal mouthwash (Figure 7). Among the number of students who preferred herbal mouthwash, 45% of them choose “no side effects” as the reason of preference while 37.5% believe that herbal mouthwash is more effective than conventional mouthwash, 12.5% responded that it is their personal belief, 2.5% of them preferred it because of their family tradition, and rest of the students have varied reasons for preferring herbal mouthwash (Figure 8).

From the survey, it can also be found that only 38.75% of students are interested in updating their knowledge about herbal mouthwash, whereas 61.25% of students are not interested. This indicates their negligence and attitude toward herbal mouthwash (Figure 9).

Regarding the source of information about herbal mouthwash, 37.5% of students are aware of it from media/internet, 18.75% from family/friends, 18.75 from books/magazines, and remaining 25% of students were suggested by their dentist (Figure 10).

About 22.5% of students strongly believe that herbal mouthwash causes less side effects than conventional mouthwash, whereas 20% disagree with it, 23.75% are not sure, and remaining 33.75% have no knowledge about this (Figure 11).

About 85% of students believe that herbal mouthwash can reduce the risk of dental caries and rest of the students disagreed with it. 67.5% of students agree that more awareness on herbal mouthwash is necessary, whereas the remaining students disagree with it. Khalessi *et al.* in their study compared the oral health efficacy of persica mouthwash (herbal mouthwash containing an extract of *Salvadora persica*) with that of a placebo. Plaque accumulation and gingival bleeding were measured and noted before and immediately following the experimental period. They concluded that herbal mouthwash resulted in improved gingival health when compared with pretreatment values (Figures 12 & 13).^[12]

About 67.5% of students agree that herbal mouthwash is less toxic than the conventional one, whereas 32.5% of them disagree with it (Figure 14). 32.5% of students are aware of neem mouthwash, 3.75% - xylitol, 25% - peppermint, and 28.75% about mint mouthwash (Figure 15). Students who were questioned about the possible of reason of not using any herbal mouthwash, 18.75% of them responded that it is due to lack of scientific evidence, 37.5% due to lack of knowledge, 18.75% due to lack of awareness, and the remaining 25% are not interested (Figure 16).

Conclusion

Awareness on herbal mouthwash for general oral health among the high school students in Chennai is still below the satisfactory level. Findings of this study suggest that awareness on the importance and need of mouthwash for maintaining good oral hygiene needs to be enhanced among the schoolchildren. It is clearly evident that majority of the students prefer conventional mouthwash over herbal mouthwash due to the lack of proper knowledge on the favorable effects of herbal mouthwash. A negligible attitude of the students was

also evident from this study. Schools may serve as the best platform for creating awareness and educating the students on developing effective oral hygiene practices.

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