

Innovations

Assessing the Knowledge and Awareness on Usage and Effectiveness of Mouthwash among Dental Students – A Questionnaire Survey

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Abstract

Introduction: Mouthwash is a supplemental oral hygiene element and there are plenty of individual products Oral rinses or mouth washes are other names for mouthwash. These are aqueous, liquid formulations used to maintain oral health and prevent, treat, and cure oral diseases. They are beneficial in the reduction of supra gingival plaque levels and prevention of gingivitis. They are used as a supplement to the primary mechanical methods of cleaning, but not regarded as their substitute. **Materials and method:** The survey was done through an online link using google forms. The participants required to fill the questionnaire which included 22 questions related to assessing the knowledge and awareness on usage and effectiveness of mouthwash and it was conducted among dental students. Responses were verified and the analysis was prepared from the results obtained by making suitable pie charts for better understanding and information. **Results and Conclusion:** Most of the dental students have knowledge and awareness on usage and effectiveness of mouthwash. The majority of respondents acknowledge its importance as a supplementary oral hygiene practice, highlighting its potential benefits in promoting overall dental health. As this awareness grows, students are armed to make informed decisions about incorporating mouthwash into their daily routines. Enhanced knowledge not only promotes a deeper understanding of oral care but also entitle dental students to educate their peers and patients, fostering a broader culture of effective preventive dental measures.

Keywords: Mouthwashes, dental plaque, oral hygiene, systemic diseases

Introduction:

The oral cavity is the mirror to a person's health.^(1,2) For maintaining proper oral hygiene it involve adequate tooth brushing and flossing in the interdental regions to remove food debris and plaque.^(1,9) Microorganisms

found in the oral cavity contribute to the onset and advancement of systemic illnesses, including diabetes mellitus and cardiovascular disease.⁽²⁾ Therefore, there is a connection between general health and oral health⁽²⁾. Plaque growth leads to inadequate oral hygiene. Plaque is the primary factor which is responsible for dental diseases, ranging from caries to gum disease.⁽³⁾ A number of variables, including surface roughness, surface tension, wettability, and salivary protein adhesion, all affect the formation of dental biofilms. Hydrophobic and electrostatic interactions, respectively, are responsible for the bacterial biofilm's initial attachment to the tooth surface. Different systemic and local variables alter the gingival inflammation caused by tooth plaque.⁽⁴⁾

Mouthwash is a supplemental oral hygiene element and there are plenty of individual products⁽⁵⁾. Oral rinses or mouth washes are other names for mouthwash. These are aqueous, liquid formulations used to maintain oral health and prevent, treat, and cure oral diseases.⁽⁵⁾ They are beneficial in the reduction of supra gingival plaque levels and prevention of gingivitis.^(3,6) They are used as an supplement to the primary mechanical methods of cleaning, but not regarded as their substitute.⁽⁷⁾ It is an antiseptic solution which is meant to reduce the microbial load in the oral cavity⁽⁸⁾. There are two types of mouthwash applications, therapeutic and preventive application⁽⁵⁾. It is a liquid that is typically held in the mouth passively or swilled around the mouth by moving the top and contracting the peri oral muscles. Additionally, it possesses antibacterial, anti-inflammatory, and anti fungal qualities.^(9,10) It is shown that mouthwash eliminates the bacteria that cause gingivitis, cavities, and foul breath.⁽¹¹⁾ Mouthwash efficiency relies on the patient's ability to rinse properly. The products are therefore not suitable for usage by patients who are mentally retarded or who are physically unable to rinse. For such patients direct application of anti-plaque agents can be practised.⁽¹²⁾ Like toothpaste, they are mixtures of active substances that work to reduce halitosis and reduce oral sensitivity, among other positive effects. Several mouthwashes contain ethanol, which serves as a solvent and preservative.⁽¹²⁾ Normally for rinsing the mouth 10-15 ml of mouthwash twice a day after brushing, in the morning and at night are used for the best results. After about 30 seconds of swishing or gargling it is spat out.⁽¹³⁾ The cheeks, teeth and gums can burn as a result of mouthwash. It has been put forward that use of alcohol-containing mouthwash may increase the risk of oral cancer.⁽¹⁴⁾ It has been proposed that mouthwash use may be more common in individuals with precancerous lesions and oral inflammatory diseases. Additionally, confounding from underreported alcohol and tobacco use may lead to an unnecessarily high odds ratio for mouthwash use.⁽¹⁵⁾

Materials and Method:

The survey was done through an online link using google forms. The participants required to fill the questionnaire which included 22 questions related to assessing the knowledge and awareness on usage and effectiveness of mouthwash and it was conducted among dental students. Responses were verified and the analysis was prepared from the results obtained by making suitable pie charts for better understanding and information.

Results:

A survey was conducted among 107 respondents. There were 22 questions included in this survey. The data obtained was represented in the form of pie charts. It was found that most of the dental students do use any mouthwash. 55.1% of dental students do use any mouthwash and 44.9% of dental students do not use any mouthwash (Fig 1.1). Most of the dental students mouthwash was self prescribed. 56.1% of dental students mouthwash was self prescribed and 36.4% of dental students mouthwash was prescribed by the dentist (Fig 1.2). Most of the dental students use mouthwash twice a day. 43% of dental students use mouthwash only once a day, 50.5% use mouthwash only twice a day, 1.2% use mouthwash more than 2 times a day and 5.3% use

mouthwash after every meal or snack(Fig 1.3).Most of the dental students felt mouthwash is effective . 87.9% of dental students felt mouthwash is effective and 12.1 % of dental students felt mouthwash is not effective.(Fig 1.4) . Most of the dental students dilute 0.2% mouthwash with water. 67.6% of dental students dilute 0.2 % mouthwash with water and 32.4 % does not dilute 0.2% mouthwash with water (Fig 1.5).Most of the dental students use 15 ml of water to dilute with mouthwash. 58.9% of dental students use 15 ml of water to dilute with mouthwash, 23.4 % of dental students use 20 ml of water to dilute with mouthwash, 9.3% of dental students use 30 ml of water to dilute with mouthwash and 8.4% of dental students use more than 30 ml of water to dilute with mouthwash(Fig 1.6) . Most of the dental students felt mouthwash cause staining. 52.3% of dental students felt mouthwash cause staining and 47.7% of dental students felt mouthwash does not cause staining.(Fig 1.7). Most of the dental students felt after 15 mins of brushing mouthwash can be used . 32.7%of dental students after brushing mouthwash can be used immediately, 36.4% of dental students after 15 mins of brushing mouthwash can be used, 10.3% of dental students after 15-30 mins of brushing mouthwash can be used and 20.6% of dental students felt after more than 30 mins of brushing mouthwash can be used (fig 1.8).Most of the dental students felt mouthwash can be used for bad breath. 87.9% felt mouthwash can be used for bad breath and 12.1% of dental students felt mouthwash cannot be used for bad breath (fig 1.9). Most of the dental students were aware of the difference between gargle and mouthwash. 88.8% dental students were aware of the difference between gargle and mouthwash and 11.2% dental students were aware of the difference between gargle and mouthwash (fig 1.10).

Do you use any mouthwash ?

7 responses

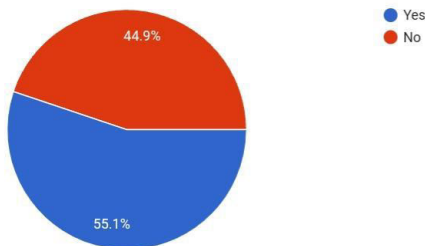


Fig 1.1.

Do you know how often should you use mouthwash in a day ?

7 responses

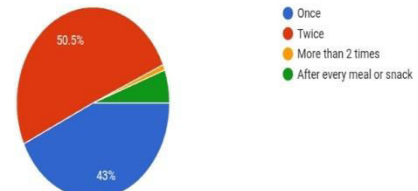


Fig 1.2

Do you think mouthwash is effective ?

7 responses

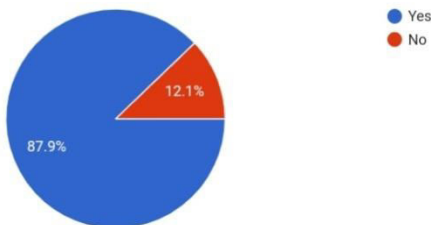


Fig 1.3

Was it prescribed by dentist or self medication ?

7 responses

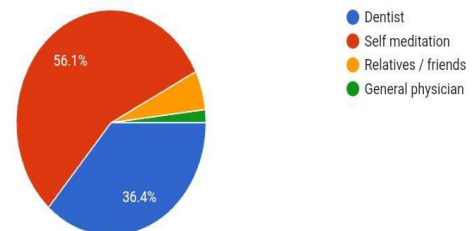


Fig 1.4

Do you dilute 0.2% mouthwash with water ?

responses

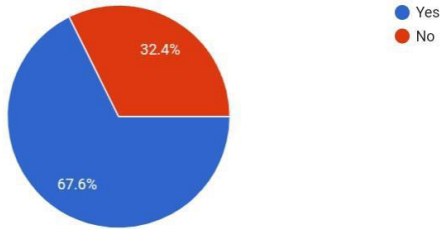


Fig 1.5.

If yes , how many ml of water you dilute with ?

7 responses

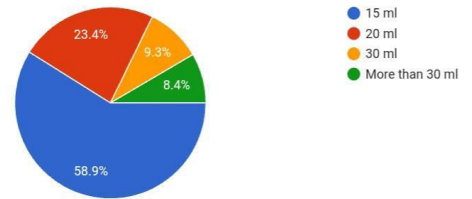


Fig 1.6

Does mouthwash causes staining ?

responses

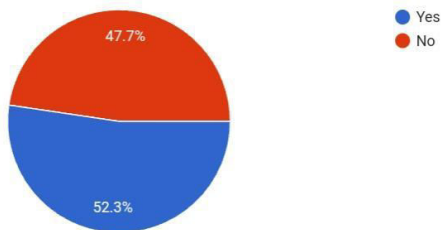


Fig 1.7.

) How many mins after brushing you can use mouthwash ?

responses

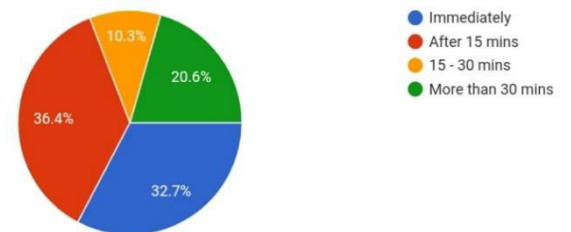


Fig 1.8

Does mouthwash can be used for bad breath ?

responses

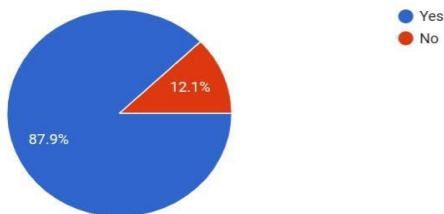


Fig 1.9.

Are you aware of the difference between gargle and mouthwash?

responses

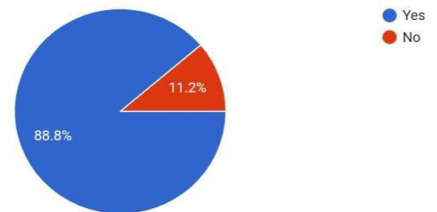


Fig 1.10

Discussion:

This study was conducted among dental students for assessing the knowledge and awareness on usage and effectiveness about mouthwash. 55.1% of dental students do use any mouthwash and 44.9% of dental students do not use any mouthwash. 43% of dental students use mouthwash only once a day, 50.5% use mouthwash only twice a day, 1.2% use mouthwash more than 2 times a day and 5.3% use mouthwash after every meal or snack. 52.3% of dental students felt mouthwash cause staining and 47.7% of dental students felt mouthwash does not cause staining. 32.7% of dental students use mouthwash immediately after brushing, 36.4% of dental students after 15 mins of brushing mouthwash can be used, 10.3% of dental students after 15-30 mins of brushing mouthwash can be used and 20.6% of dental students felt after more than 30 mins of brushing mouthwash can be used. 87.9% felt mouthwash can be used for bad breath and 12.1% of dental students felt mouthwash cannot be used for bad breath.

A similar study was conducted in the year 2020 among the general population and patients undergoing orthodontic treatment in assessment of usage of mouthwashes. 38.7% of subjects use mouthwashes, 28% of subjects do not use mouthwashes and 33.3% subjects use mouthwashes occasionally. 58.3% subjects use mouthwash for bad breath, 19.4% subjects use mouthwash to prevent cavities, 13.2% subjects use mouthwash for mouth ulcers and 9% subjects use mouthwash for sensitivity. 51.9% subjects are aware of the need for mouthwashes during orthodontic treatment and use them regularly and 48.1% are not aware of the need for mouthwashes during orthodontic treatment. Most of the subjects were aware of the possible side effects. 21.5% responded teeth staining, 9.2% responded loss of taste, 10.8% responded bitter sensation and 58.5% responded all of the above. 46.7% respondents were aware that usage of tea, coffee and other beverages must be restricted when using anti plaque mouthwashes and 53.3% were not aware that usage of tea, coffee and other beverages must be restricted when using anti plaque mouthwashes⁽¹⁾.

A related study involving dentistry and medical students at the University of Nairobi was carried out in 2016. 78% of the correspondents used a traditional toothbrush and toothpaste as teeth-cleaning tools, 11% used dental floss, 7% used mouthwash, and 4% utilized all of the aforementioned tools. Of the 80 students, 95% dental students knew mouthwash as an antibacterial, anti-plaque, and oral hygiene product; only 5% said it was a liquid used for mouthwash. 12.5% of medical school students claimed mouthwash is a fluid used for mouthwash, while 87.5% claimed it is an antiseptic, anti-plaque, and oral hygiene product. Just 12.5% of dental students were unaware that using mouthwash can prevent any dental diseases, compared to 87.5% of students who were aware of this information. 32.5% of medical students were unaware of any ailment that can be avoided by using mouthwash, compared to 67.5% who were aware of one. Mouthwash had been advised to 41% of medical students and 32% of dental students. The mouthwash was not highly recommended by 59% of medical students and 68% of dentistry students. Of those, a dentist advised 30% of them, and a doctor recommended 70% of them. Only 9% of respondents used Colgate mouthwash, compared to 41% who used Betadine, 36% who used Listerine, and 14% who used Chlorhexidine. When asked how frequently they used mouthwash, 44% said they did so once a week, 17% said they did so every day, 17% said they did so more than three times a week, and 22% said they did so at other times. Of those who regularly used mouthwash, 43.5% did so after brushing, followed by 21.7% after meals, 21.7% before bed, 8.7% at other times, and 4.3% before brushing their teeth. Of the participants who did not use mouthwash, 47%

claimed it was unnecessary, 27% said it was costly, 24% stated they had insufficient knowledge of mouthwash and brushes, and 2% indicated dental floss would suffice.⁽¹⁶⁾

Conclusion:

In conclusion, the survey among dental students has shown knowledge and awareness on usage and effectiveness of mouthwash. The majority of respondents acknowledge its importance as a supplementary oral hygiene practice, highlighting its potential benefits in promoting overall dental health. As this awareness grows, students are armed to make informed decisions about incorporating mouthwash into their daily routines. Enhanced knowledge not only promotes a deeper understanding of oral care but also entitles dental students to educate their peers and patients, fostering a broader culture of effective preventive dental measures.

References:

- 1) *Assessing the Awareness of Usage of Mouth Washes among the General Population and Patients Undergoing Orthodontic Treatment-A Questionnaire Study* Indian Journal of Public Health Research & Development, July 2020, Vol. 11, No. 7
- 2) *A Survey Based Study on Effectiveness of Oil Pulling and Mouthwash* V. Vamshi Ram, Jothi Priya and Gayathri Devi JPRI, 32(17): 136-147, 2020; Article no. JPRI.59751
- 3) *Mouthwash use in general population : Results from adult dental health survey in Grampian , Scotland* .Tatiana V. Macfarlane , Michal M. Kaweeki, Claudia Cunningham, Iain Bovaird , Rochelle Morgan , Kristin Rhodes , Ray Watkins J Oral Maxillofac Res 2010 (Oct – Dec) vol 1
- 4) *Comparative Effectiveness of a Commercial Mouthwash and an Herbal Infusion in Oral Health Care*. Appl. Sci. 2021, 11(7), 3008;
- 5) *A fresh look at mouthwashes – What is inside and What is it for ?* Int J Environ Res Public Health 2022 Apr;19(7):3926 Dominik Radzki, Marta Wilhelm-Węglarz, Katarzyna Pruska, Aida Kusiak, and Iwona Ordyniec-Kwaśnica
- 6) Moran JM. Home-use oral hygiene products: mouthrinses. Periodontol 2000. 2008;48:42-53. Review. [Medline: 18715355]
- 7) Eley BM. Antibacterial agents in the control of supragingival plaque—a review. Br Dent J. 1999 Mar 27;186(6):286-96. Review.
- 8) Ahmed S, Mostafa M, El-Malt M. 'Effect of coconut oil pulling on streptococcus mutans count in saliva in comparison with chlorhexidine Mouthwash', Al-Azhar Dental Journal for Girls. 2020;7–11.
- 9) Ramamurthy J, Mg V. 'Comparison of effect of hiora mouthwash versus chlorhexidine mouthwash in gingivitis patients: A Clinical trial', Asian Journal of Pharmaceutical and Clinical Research. 2018;84.
- 10) Vadhana VC. et al. 'Effect of sesame oil, ozonated sesame oil, and chlorhexidine mouthwash on oral health status of adolescents: A randomized controlled pilot trial. Journal of the Indian Society of Pedodontics and Preventive Dentistry. 2019;37(4):365–371.
- 11) Zulkepli SZ. Formulation of Natural Non- toxic Mouthwash Lotion from Extraction of Jathropa Curcas Latex; 2012.
- 12) Moran JM. Home-use oral hygiene products: mouthrinses. Periodontol 2000. 2008;48:42-53. Review. [Medline: 18715355]
- 13) Loesche WJ, Kazor C (2002) Microbiology and treatment of halitosis. Periodontol 2000 28:256-279.

- 14) McCullough MJ, Farah CS. *The role of alcohol in oral carcinogenesis with particular reference to alcohol-containing mouthwashes. Aust Dent J.* 2008 Dec;53(4):302-5. Review. [Medline: 19133944]
- 15) Shapiro S, Castellana JV, Sprafka JM. *Alcohol-containing mouthwashes and oropharyngeal cancer: a spurious association due to underascertainment of confounders? Am J Epidemiol.* 1996 Dec 15;144(12):1091-5. Review. [Medline: 8956620]
- 16) *Knowledge, Attitude and Use of Mouthwash among Dental and Medical Students of the University of Nairobi* Simiyu N Benjamin¹, Loice W Gathece² and Evelyn G Wagaiyu²