

Assessing the Awareness of Usage of Mouth Washes among the General Population and Patients Undergoing Orthodontic Treatment-A Questionnaire Study

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Abstract

Introduction: Usage of mouthwashes and its different variants is on the rise due to their ease of use and simplicity as well as the relative comfort it gives the user on maintaining oral hygiene. However this must be balanced with the understanding that mouthwashes are merely adjunctive aids for maintaining oral hygiene and must be balanced with proper brushing and flossing to express its full effects. This study aims to assess the awareness of usage of mouthwashes among the general population and patients undergoing orthodontic treatment and attempts to differentiate between different needs for usage of mouthwashes.

Materials and Methodology: A questionnaire survey containing 16 questions was prepared which contained questions regarding the information about the subject and their knowledge about the usage of mouthwashes, its types, uses and side-effects. The questionnaire was prepared using Google forms and was sent to 149 subjects through mail and by sharing the link of the survey. The subjects included patients from varied age groups as well as the general population and patients undergoing active orthodontic treatment

Results and Conclusion; Most of the subjects who took the test and were using mouthwashes as a part of daily oral hygiene were aware of its usage patterns and conditions. The main reason for using mouthwashes was bad breath followed by prevention of dental caries. Awareness in gargling time, different conditions was higher in orthodontic patients as well as increased care towards their oral hygiene

Keywords: Mouthwashes, General population, Orthodontic treatment, Knowledge

Introduction

As the old saying goes, The oral cavity is the mirror to a person's health. Maintaining good oral hygiene involves adequate brushing with a proper technique and flossing in the interdental regions to remove food debris and plaque⁽¹⁾

Dental health awareness should be stated at a very young age. Children should be taught the importance of

keeping their teeth healthy and clean^(2, 3). Consequences of poor oral hygiene and poor food choices should be explained to effectively remind the children of the need to brush their teeth after every meal and avoid sweet treats as much as possible⁽⁴⁾.

In adults, the dental health awareness should be assessed by their dentists. Awareness about dental health will help them in understanding what practices should they need to reinforce to have a healthy and strong teeth⁽⁵⁾. Different dental treatments are now made available to cosmetically enhance the appearance of teeth, correct orthodontic problems as well as in restoring teeth. Alleviating fear or anxiety related to lack of knowledge regarding the procedure is one of the mitigating factors and this must be resolved as soon as possible⁽⁶⁾.

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A mouthwash or rinse does not replace a regular and proper oral hygiene routine of twice-daily tooth brushing and daily flossing. The main function of most mouthwashes is to freshen breath and that said, some mouthwashes such as fluoride rinses, can help protect the teeth from decay by shielding them from acids produced by plaque bacteria (7). Patients undergoing orthodontic treatment, might have an increased concern and awareness about the status of their teeth and appearance and it would be interesting to note their viewpoints towards usage of mouthwashes, both from a social as well as commercial point of view(8). This study aims in instilling such dental awareness over the use of mouthwashes among adults in the general population as well as patients undergoing orthodontic treatment.

Materials and Methodology

This is a knowledge aptitude practice survey assessing the awareness of general population and patients undergoing orthodontic treatment towards the usage of mouthwashes. The survey was prepared using Google forms and was sent to the participants using the web link of the survey. 149 subjects were included in this study. The survey consisted of sixteen questions out of which 4 were compulsory and 13 were not compulsory. Out of the 149 subjects, 64 were patients undergoing orthodontic treatment and the remaining 85 were from the general population and included varied groups. Since this test was used to check the awareness of mouthwashes among people, subjects who had relatives or friends undergoing orthodontic treatment could also answer questions regarding the usage of braces and its comfort levels.

Results

1) Do you use mouthwashes?

150 responses

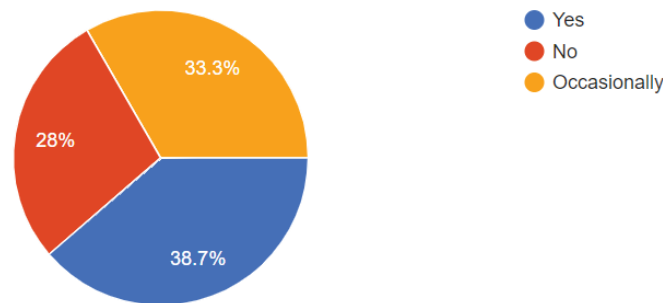


Figure 1: Assessment of usage of mouthwashes

2) Have you used any mouthwash for the below listed conditions?

144 responses

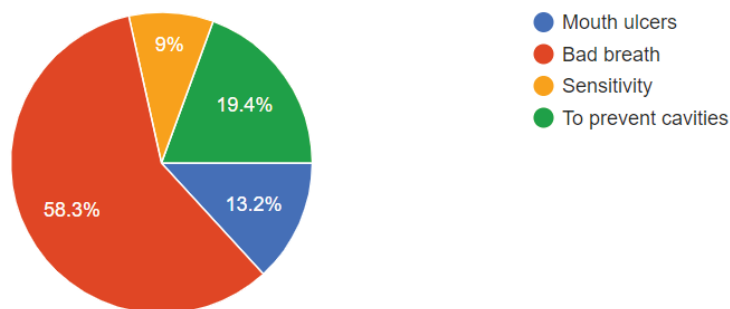


Figure 2: Content-driven mouthwash use(contd)

3) Are you aware of the need for mouthwashes during orthodontic treatment?

129 responses

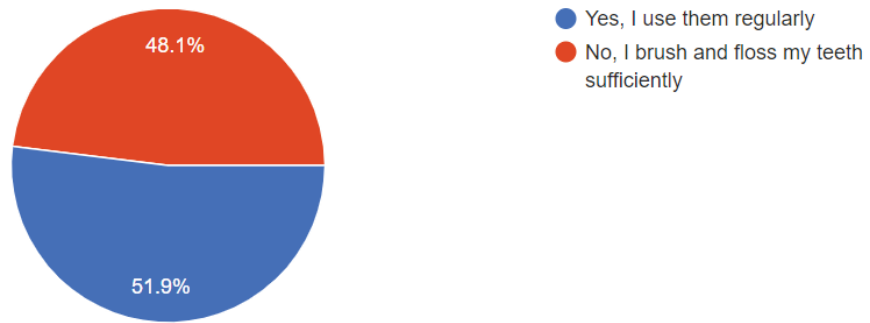


Figure 3: Adjunct with orthodontic treatment

4) Are you aware of the side-effects of improper oral hygiene during orthodontic treatment?

110 responses

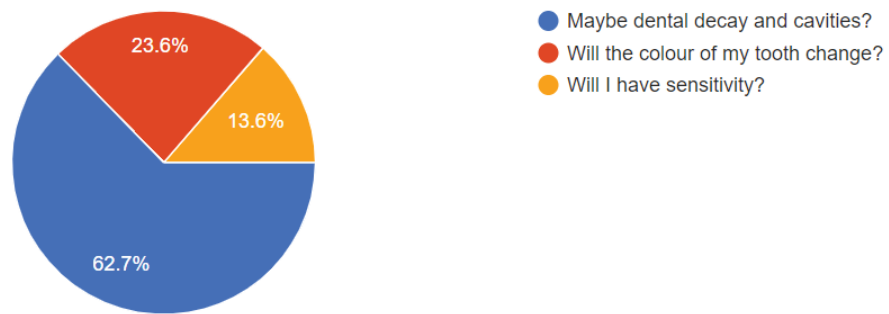


Figure 4: Possible side-effects

5) If yes, then are you aware of

130 responses

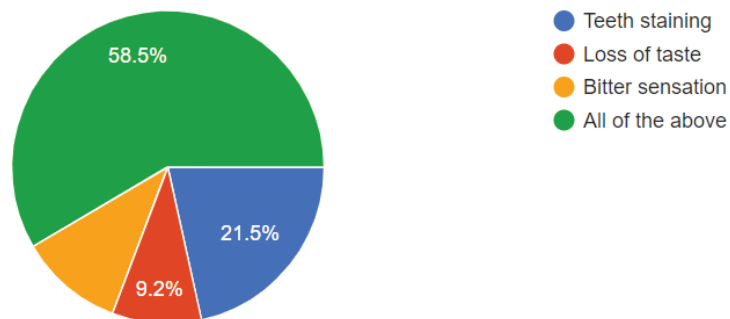


Figure 5: Possible side-effects(contd)

6) Are you aware that usage of tea, coffee, and other beverages must be restricted when using anti-plaque mouthwashes?

150 responses

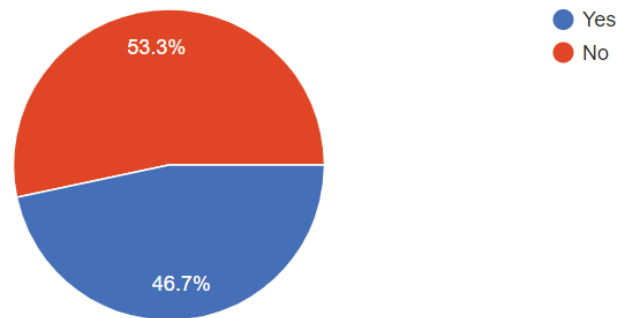


Figure 6: Dietary restrictions

Discussion

The questions were framed in such a way that the initial few questions inquired about the usage of mouthwashes and the subsequent reasons for either using or not using it. Since this survey focused on assessing the awareness regarding mouthwashes, people who did not use mouthwashes too could participate in the survey by answering the other questions. The questions then gradually moved towards assessing the knowledge of subjects in using mouthwashes and the time required to gargle, expectorate etc. The interest of subjects towards their oral hygiene was assessed with some aptitude questions along with a little medical history and then the survey finally moved towards assessing the beneficial effects as well as a few side-effects a few 'must-knows'.

The first question was framed to determine the number of subjects using mouthwashes. 38.9% of the subjects replied yes and 28.2% replied no while 32.9% replied occasionally⁽⁹⁾. The second and third questions focused on why the subjects were either using or not using mouthwashes. 63.7% of the subjects replying no mentioned that they were taking care of their oral hygiene regularly which was a satisfying number. 21.6% saw no need in using mouthwashes while 7.8% considered it to be expensive for daily needs and 6.9% were not aware of mouthwashes and other adjunctive oral hygiene aids which despite being a small number does not portray favorably^(10,11). In patients replying in the affirmative for

usage of mouthwashes, the main reason for using them was for eliminating bad breath as 52.4% would attest to. 35.2% considered it as a part of daily oral health care and hygiene which despite being an encouraging number needs further improvement⁽¹²⁾. 6.7% used it for reducing dental decay and 5.7% used it for cosmetic reasons such as teeth whitening. In the fourth question, 44.2% of the subjects replied that they had used a mouthwash with a doctor's prescription while the remaining 55.8% did not which could also imply that they were not too fond of mouthwashes as well as the fact that they were not active participants in maintaining good oral hygiene⁽¹³⁾. In the fifth question, the awareness towards the ingredients and contents of the mouthwash as well as in using it was questioned with 58.9% replying that they read the instructions given in the label of the mouthwash^(14,15). 25.5% were not too fond of strictly complying with conditions and used it for gargling after brushing. This indicated poor awareness towards compliance methods and also indicated a slight slack in reading instructions and complying to protocol and procedures⁽¹⁶⁾. 15.6% used mouthwashes to their own wishes and did not strictly adhere to any specific timing with convenience being their chief concern. It is important to read the label on any brand of mouthwash. Different brands have different concentrations, and some may recommend dilution with water⁽¹⁷⁾. If the label does not tell you to dilute, then the full benefit of the mouthwash may not be expressed if the ingredients are at a lower level. One

of the keys to using mouthwash correctly is to swish it in your mouth for the correct amount of time⁽¹⁸⁾. Read the product label. Most mouthwashes recommend that you swish the product around in your mouth for 30 seconds to one minute then spit it out. The sixth question focused on whether the subjects read the contents of the mouthwash properly. 72.6% replied yes while 27.4 % replied no. The seventh question lists the conditions for using mouthwashes and bad breath (halitosis) leads the list with 58%. The next condition in the list is preventing dental caries with 19.6%. Fluoride mouth rinses are mostly given for preventing dental caries. Mouth ulcers constitute 13.3% while sensitivity contributes to 9.1%. The eighth question deals with the number of times mouthwash is used in a day. 41.3% use it only once in the morning, while 31.5% use it irregularly and 27.3% use mouthwashes twice a day. The ninth question deals with awareness about different conditions for which mouthwashes can be used. 58.4% replied yes while 41.6% replied no. The absence of an overwhelming majority in this condition is a cause of concern as it indicates lack of awareness about the indications for using a mouthwash and is mostly used as a fad or routine in most cases. The tenth question deals with patients undergoing orthodontic treatment and attempts to understand their opinion on usage of mouthwashes during active appliance therapy. 51.6% replied yes while 48.4% replied no. The lack of a big difference between both the answers is slightly misleading since it could also indicate ignorance on part of the patient or lack of education on part of the orthodontist⁽¹⁹⁾. At any case, mouthwashes are not a must in orthodontic treatment with fluoride rinses being the most commonly prescribed mouthwashes. The eleventh question is revealing on part of the patients for using mouthwashes. 50% of patients have voted for reducing foul odour and freshening up breath with oral hygiene and appearance being the chief concern. 28.3% have answered with maintenance of oral hygiene being easier since it can remove food debris and plaque and prevent accumulation of bacterial load. 15.1% have replied with preventing dental decay⁽²⁰⁾. This could be put down to either awareness about the composition of the mouthwashes they are using which is a positive sign or sheer mental training about the treatment from the part of the orthodontist. 6.6% have replied with mouthwashes giving a psychological effect which could be explained as the placebo therapy. The

twelfth question tries to gain an insight into the patients self awareness about his treatment pattern as well as oral hygiene awareness. 62.4% replied with dental decay and cavities which was a positive sign while 23.9% were concerned with the damaging effects to their teeth and appearance while 13.8% were concerned about its effects to the functioning of the oral cavity with sensitivity being a chief complaint⁽²¹⁾. The thirteenth question asks about the side effects of mouthwashes with 51.7% replying yes and 37.6% replying no which is a damaging number. People who were aware of its side effects were however quite knowledgeable with respect to its signs and were conscious of the limitations of mouthwashes⁽²²⁾. The final question attempts to reveal the mindset of positively-motivated people in using mouthwashes with 50.7% replying with bad breath indicating that halitosis and oral hygiene maintenance awareness is still not up to required standards in most of the population and greater efforts are required to instill a greater sense of awareness among the general population as well as patients undergoing orthodontic treatment.

Conclusion

Orthodontic treatment is widely acknowledged and accepted in everyday dental practice due to the positive effects it has on the dentofacial complex^(3, 4). With fixed orthodontic appliances, clinicians can offer patients the establishment of functional occlusion, improvement of oral health, and esthetic improvement of the dentofacial complex. Anomalies in the development of the face and jaws as well as orthodontic treatment can influence oral health⁽⁷⁾. Deviations from an ideal arrangement and position of teeth (lack of space, tooth rotation or open bite, a deep bite, and cross-bite) facilitate dental plaque accumulation⁽⁸⁾. It has to be pointed out that malocclusion is not a primary etiological factor but an auxiliary factor, which facilitates dental plaque accumulation. The main principle of orthodontic therapy is to correct tooth and jaw position and, thus, indirectly improve the health of the periodontium and durability of teeth⁽¹⁰⁾.

There is a need to incorporate more oral hygiene programs in future. Extra attention should be given in educating and motivating the patients on oral hygiene practices during orthodontic treatment in a proper manner and this could be beneficial in maintaining proper oral hygiene⁽³⁾. Maintaining good oral hygiene

procedures during fixed appliance therapy is important for gingival health and to prevent the development of white spot lesions ⁽⁶⁾. Mouthwashes can only control plaque if the brushing technique employed is efficient. In this study, 28% of males and 52% of females use mouthwash, which has a combined value of 40%. This value is close to a research done by Baheti and Toshniwal, ^[8] in which 57.4% of the population used mouthwash. In the same research, 36% of people used mouthwash after every meal, which is in contrast to our research with 12%. From the above study, it is clearly understood that women understand the usage of mouthwash better compared to men.

All procedures carried out with hydrogen peroxide in the mouth with the purpose of whitening the teeth should be performed directly by a dentist who has been properly trained to prevent the oral mucosa from receiving this product during the procedure ⁽⁷⁾. The time and method of use require caution in order to decrease, to the minimum, the undesirable effects of hydrogen peroxide on tooth tissues and restorations. Whitening strips and other tooth bleaching products are all hydrogen peroxide-based. Should mouth washing with hydrogen peroxide be occasionally done, touching the oral mucosa once a year or every six months, it would cause minor co carcinogenic effects ^(10, 12). However, should it be done every day or every week, as an antiseptic used to help with oral hygiene, it would become a protocol that is highly reckless to health! Websites, blogs and social network profiles that recommend the procedure should be immediately sued by the government! Esthetics comprises harmony between shape, size, position and color ⁽¹⁴⁾. If we take a closer look at some people's smile and notice red gingival and lips with extremely white teeth, the diagnosis of excessive use of hydrogen peroxide is inevitable: artificiality is evident. Extremely white teeth and red gingival and lips create a quite artificial picture from an esthetic standpoint!

Declarations

Ethics approval and consent to participate

Not applicable

Consent for publication

Not applicable

Availability of data and materials

The questionnaire survey was circulated through electronic medium with the help of Google forms. The survey was sent among orthodontists as well as general dentists

Competing Interests: No competing interests were applicable in this manuscript

Funding: Not applicable

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