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Original Research Article

Comparison between dental flosser and water flosser in terms of plaque removal

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ABSTRACT

Aim: Compare plaque removal efficacy between dental flossers and water flossers to inform optimal oral hygiene practices.**Objectives:** 1. Assess effectiveness of both methods; 2. Analyze user preferences; 3. Identify challenges; 4. Provide evidence-based recommendations.**Materials and Methods:** Utilized Google Forms for survey-based data collection from randomly selected participants. Statistical analysis employed for data comparison.**Results:** Survey insights highlighted user preferences and experiences, focusing on plaque removal efficacy and satisfaction.**Conclusion:** This study concludes that the findings contribute to personalized oral hygiene choices, emphasizing the importance of tailored approaches for effective plaque control and overall oral health.This is an Open Access (OA) journal, and articles are distributed under the terms of the [Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License](https://creativecommons.org/licenses/by-nc-sa/4.0/), which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.For reprints contact: reprint@ipinnovative.com

1. Introduction

Dental hygiene is a vital aspect of overall health, and the debate between traditional dental floss and water flossing has garnered significant attention in recent years. Both methods serve the common goal of removing plaque and debris from between teeth and along the gumline, yet they employ different mechanisms to achieve this. Understanding the nuances and effectiveness of each approach is crucial for individuals striving to maintain optimal oral health.¹ Traditional dental floss, a tried-and-true method, has been a staple in oral hygiene routines for generations. Composed of thin strands of nylon or plastic, dental floss is designed to slide between teeth, effectively dislodging plaque and food particles. Its simplicity and portability make it a convenient option for individuals on the go, as it can be easily stowed in a pocket or purse

for use anytime, anywhere. Moreover, dental floss comes in various forms, including waxed, unwaxed, flavored, and even floss picks, catering to different preferences and needs. On the other hand, water flossing, also known as oral irrigation, represents a more modern approach to interdental cleaning. This method utilizes a handheld device that delivers a pressurized stream of water to dislodge plaque and debris from between teeth and along the gumline.^{2,3} Water flossers often come equipped with different pressure settings, allowing users to customize their experience based on sensitivity and personal preference. Additionally, some models feature specialized tips for targeting specific areas of the mouth, such as orthodontic brackets or implants, enhancing their versatility and efficacy. One of the primary advantages of traditional dental floss is its affordability and accessibility. With minimal cost and widespread availability, dental floss remains a cost-effective option for individuals seeking to maintain good oral hygiene without breaking the bank.⁴ Furthermore, its straightforward design makes

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it easy to use for people of all ages, from children to the elderly, fostering lifelong habits of dental care. However, despite its widespread use, dental floss may pose challenges for individuals with limited dexterity or mobility, as maneuvering the thin strand between tightly spaced teeth can be difficult. In contrast, water flossing offers several unique benefits that may appeal to certain individuals. The pulsating action of the water stream can provide a massaging effect on the gums, promoting circulation and gum health. This gentle yet effective cleaning method may be particularly suitable for individuals with sensitive gums or those prone to gingivitis.⁵ Moreover, water flossers can reach areas that traditional floss may struggle to access, such as deep gum pockets or around dental appliances like braces or bridges. For individuals with orthodontic devices or dental implants, water flossing may offer a more thorough and comfortable cleaning experience.⁶ Despite their respective strengths, both dental floss and water flossing have limitations that should be considered. Traditional dental floss requires proper technique and consistency to be effective, and improper use may result in injury or inadequate cleaning. Additionally, some individuals may find flossing to be uncomfortable or time-consuming, leading to inconsistent adherence to oral hygiene routines. On the other hand, water flossing requires an initial investment in purchasing the device, which may deter budget-conscious consumers.^{7,8} Furthermore, water flossers rely on a constant supply of water and electricity, making them less portable and suitable for travel compared to traditional floss.

2. Materials and Methods

2.1. Study design and population

This study utilized a questionnaire-based approach facilitated through Google Forms to investigate the comparative effectiveness of dental flossers and water flossers. Randomized sampling was employed to recruit participants with diverse oral health backgrounds. The questionnaire encompassed queries regarding plaque removal efficacy, gum health, and user preferences, enabling participants to express their choices between dental flossers and water flossers. Plaque removal efficacy was self-assessed by participants, while indicators of gum health were derived from reported symptoms of inflammation or bleeding. User preferences, including satisfaction and ease of use, were gauged through specific questions tailored to each flossing method. Identification of challenges associated with each method relied on participants detailing difficulties in the questionnaire responses.

2.2. Questionnaire

A comprehensive questionnaire consisting of 10 questions was designed and administered through Google Forms to collect data on comparison between dental flossers and water flossers in terms of plaque removal. Participants aged 15 and above were randomly sampled, ensuring a diverse representation. The questionnaire focused on aspects such as flossing methods, experience during flossing and any difficulties during flossing. Data collection was conducted through online responses.

2.3. Statistical analysis

Collected data underwent rigorous quantitative analysis using statistical tools. Descriptive statistics were employed to characterize the demographic profile of respondents, while inferential statistics were utilized to draw associations and identify patterns related to bur sterilization practices. The analysis aimed to provide a comprehensive overview of the current landscape, highlighting areas of strength and potential improvement in sterilization awareness and implementation.

3. Result

Research comparing traditional dental floss and water flossers indicates that both methods contribute to effective oral hygiene but come with distinct advantages and considerations. Traditional dental floss, such as string floss or dental tape, has long been a staple in oral care routines. Studies suggest that it efficiently removes plaque and debris from between teeth, promoting gum health. However, some individuals find traditional flossing challenging or uncomfortable, leading to inconsistent usage. On the other hand, water flossers, also known as oral irrigators, use a pressurized stream of water to clean between teeth and along the gumline. Research suggests that water flossers can be particularly beneficial for individuals with braces, implants, or dental work, as they offer a gentler alternative to traditional flossing in these cases. They can also be more accessible for people with dexterity issues. However, water flossers might not be as effective at removing certain types of plaque as traditional floss. Choosing between traditional floss and a water flosser often depends on individual preferences and oral health needs. Some people may prefer the ease of use and comfort of a water flosser, while others may stick to the familiarity of traditional floss. It's essential to consider factors such as personal comfort, dental conditions, and consistency in use. Ultimately, consulting with a dental professional can help tailor an oral care routine that aligns with individual needs, ensuring optimal gum and dental health.

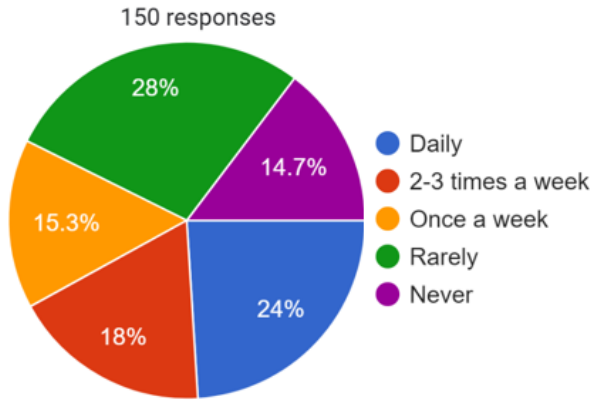


Figure 1: How often do you floss your teeth?

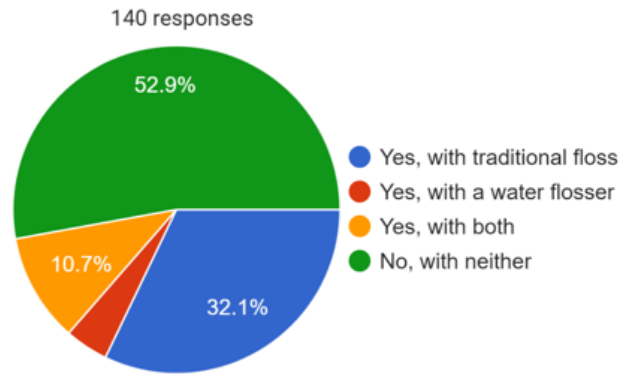


Figure 4: Have you ever experienced bleeding gums while flossing

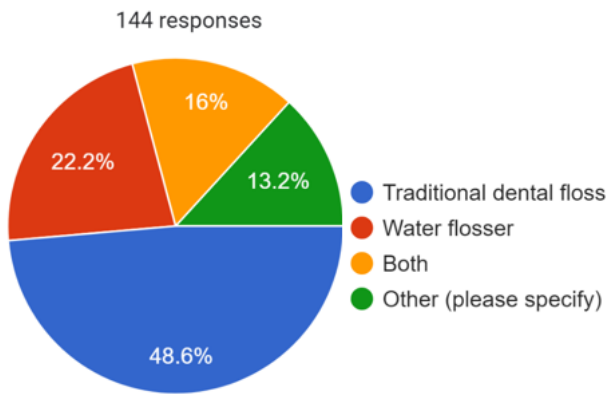


Figure 2: Which type of flossing method do you primarily use?

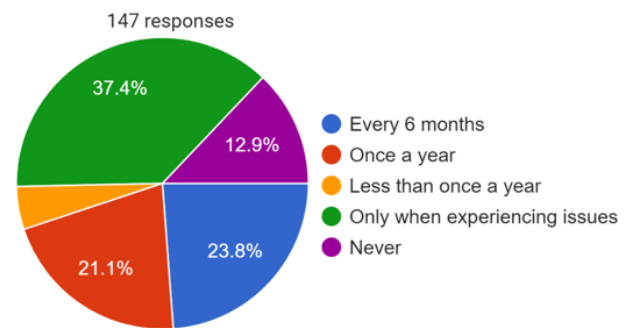


Figure 5: How often do you visit the dentist for regular check-ups?

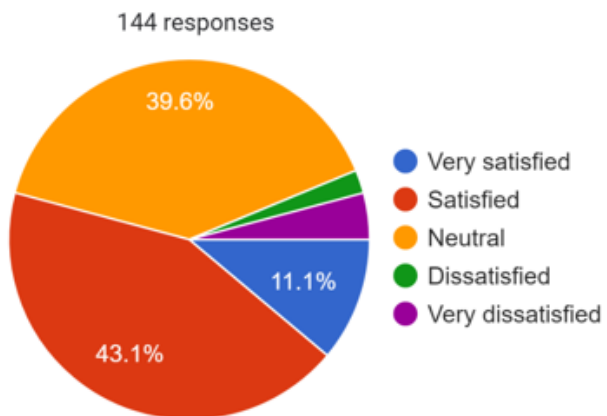


Figure 3: How satisfied are you with current flossing method in terms of ease of use?

4. Discussion

A survey comparing water flossers and dental flossers provides valuable insights into the preferences, perceptions, and experiences of individuals regarding these two interdental cleaning methods. Such research serves to elucidate the factors influencing individuals' choices and sheds light on the effectiveness and user satisfaction associated with each approach.⁹ The survey methodology typically involves gathering responses from a diverse sample of participants, encompassing various demographics, including age, gender, socioeconomic status, and oral health habits. Participants may be asked to rate their familiarity with both water flossers and dental flossers, as well as their frequency of use and satisfaction with each method. Additionally, they may be queried about perceived benefits, drawbacks, and preferences regarding ease of use, effectiveness, comfort, and overall oral hygiene outcomes.¹⁰ One of the key findings of the survey may revolve around user satisfaction and perceived effectiveness. Participants may report higher levels of satisfaction and perceived effectiveness with one method over the other, influenced by factors such as ease of use, comfort, and the sensation of cleanliness achieved. Those who prefer water flossers may cite the convenience of the

device, the massaging sensation of the water stream, and the ability to reach difficult-to-access areas as reasons for their preference.¹¹ Conversely, individuals who favor dental flossers may appreciate the portability, affordability, and tactile feedback provided by traditional flossing. Moreover, the survey may uncover insights into the reasons behind individuals' preferences and usage patterns. For instance, participants may indicate specific oral health concerns or conditions that influence their choice of interdental cleaning method.¹² Those with orthodontic appliances, such as braces or dental implants, may express a preference for water flossers due to their ability to effectively clean around such devices. Similarly, individuals with sensitive gums or a history of gum disease may prefer the gentle yet thorough cleaning action provided by water flossers.¹³ Furthermore, the survey results may highlight areas for improvement or innovation in both water flossers and dental flossers. Participants may offer suggestions for enhancing the design, functionality, or ergonomics of these devices to better meet their needs and preferences.¹⁴ Additionally, the survey findings may underscore the importance of education and awareness campaigns to promote the benefits of interdental cleaning and encourage consistent oral hygiene practices among the general population.¹⁵

5. Conclusion

In conclusion, the survey comparing water flossers and dental flossers has provided valuable insights into the preferences, perceptions, and experiences of individuals regarding these two interdental cleaning methods. The findings underscore the multifaceted nature of oral hygiene habits, influenced by factors such as ease of use, effectiveness, comfort, and specific oral health concerns. While some participants express a preference for the convenience and thorough cleaning action of water flossers, others favor the portability and affordability of traditional dental floss. These divergent preferences highlight the importance of offering a range of interdental cleaning options to accommodate the diverse needs and preferences of consumers. Overall, the survey findings contribute to our understanding of the factors influencing individuals' choices and behaviors related to interdental cleaning. By addressing consumer preferences and concerns, oral hygiene product manufacturers and oral health professionals can work together to develop effective, user-friendly solutions that empower individuals to take control of their oral health and achieve healthier smiles. Through continued research and collaboration, we can strive towards a future where everyone has access to the tools and knowledge necessary to maintain a lifetime of good oral hygiene habits.

6. Source of Funding

None.

7. Conflicts of Interest

There are no conflicts of interest.

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