

## Miswak versus Toothpaste: Analysis of Function and Relevance in Dental Health Maintenance According to Hadith and Modern Health Perspective

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### Abstract

Miswak and toothpaste represent two separate methods for preserving oral hygiene; miswak is favored in Islam, whereas toothpaste is favored in the modern period. While both offer advantages, there is limited research that compares their medical effects and alignment with the Sunnah. This study aims to examine their function and relevance in promoting oral health. The main objective of this study is to answer the question of whether the function of miswak has been replaced by toothpaste or if miswak still has a unique role that is important for dental health and the spiritual identity of Muslims. The methods used include analysis of hadith texts and a review of scientific literature related to the benefits of miswak and toothpaste from a health perspective. The results of the study indicate that miswak contains active substances such as natural fluoride, antibacterials, and antioxidants that are beneficial for dental and gum health, which are also found in modern toothpaste. Although toothpaste offers practicality, miswak still has irreplaceable value, both in terms of health and spirituality. The combination of the two is recommended as an integrative approach in maintaining dental health according to Islamic teachings and modern health needs.

**Keywords:** *Miswak, Toothpaste, Dental Health, Hadith, Modern Health*

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## INTRODUCTION

Health is defined as a positive condition, both physically,<sup>1</sup> mentally,<sup>2</sup> spiritually,<sup>3</sup> and socially,<sup>4</sup> which allows individuals to live a socially and economically productive life.<sup>5</sup> Physical health is highly dependent on oral health<sup>6</sup> because dental health is an inseparable part of overall health.<sup>7</sup> One indicator of dental and oral health is oral hygiene.<sup>8</sup> This can be evaluated clinically through the presence or absence of organic deposits, such as food debris, calculus, and dental plaque.<sup>9</sup>

Oral health is an important part of overall body health,<sup>10</sup> which is not only related to aesthetic aspects but can also cause serious health problems.<sup>11</sup> According to the 2008 World Oral Health Report, diseases related to the mouth are some of the most common in the world. Two conditions that often occur are dental caries and periodontal disease. Based on data from WHO in 2007, the highest prevalence of dental caries and periodontal disease was found in Asia and America, while the lowest prevalence was in Africa. The Basic Health Research (RISKESDAS) in 2018 showed that the prevalence of periodontal disease in Indonesia reached 74.1% for all age groups, while the prevalence of dental caries was 88.8%. Both are caused by bacteria that attack both firm and soft tissues in the oral cavity.<sup>12</sup>

<sup>1</sup> Gloria L. Krahn et al., "It's Time to Reconsider How We Define Health: Perspective from Disability and Chronic Condition," *Disability and Health Journal* 14, no. 4 (2021): 101129, <https://doi.org/10.1016/j.dhjo.2021.101129>.

<sup>2</sup> Marina Aline De Brito Sena et al., "Defining Spirituality in Healthcare: A Systematic Review and Conceptual Framework," *Frontiers in Psychology* 12 (November 2021): 756080, <https://doi.org/10.3389/fpsyg.2021.756080>.

<sup>3</sup> David Almaraz et al., "What Aspects of Religion and Spirituality Affect the Physical Health of Cancer Patients? A Systematic Review," *Healthcare* 10, no. 8 (2022): 1447, <https://doi.org/10.3390/healthcare10081447>.

<sup>4</sup> V. P. Van Druten et al., "Concepts of Health in Different Contexts: A Scoping Review," *BMC Health Services Research* 22, no. 1 (2022): 389, <https://doi.org/10.1186/s12913-022-07702-2>.

<sup>5</sup> Evgenia Gkinton et al., "Quality of Life and Health Tourism: A Conceptual Roadmap of Enhancing Cognition and Well-Being," in *Tourism, Travel, and Hospitality in a Smart and Sustainable World*, ed. Vicky Katsoni, Springer Proceedings in Business and Economics (Springer International Publishing, 2023), [https://doi.org/10.1007/978-3-031-26829-8\\_41](https://doi.org/10.1007/978-3-031-26829-8_41).

<sup>6</sup> Antonia Barranca-Enríquez and Tania Romo-González, "Your Health Is in Your Mouth: A Comprehensive View to Promote General Wellness," *Frontiers in Oral Health* 3 (September 2022): 971223, <https://doi.org/10.3389/froh.2022.971223>.

<sup>7</sup> Martin Schimmel et al., "A Conceptual Model of Oro-facial Health with an Emphasis on Function," *Journal of Oral Rehabilitation* 48, no. 11 (2021): 1283–94, <https://doi.org/10.1111/joor.13250>.

<sup>8</sup> Patricia Torres-Reyes et al., "Oral Health, Nutrition, and Quality of Life," in *The Role of Nutrition in Integral Health and Quality of Life*, 1st ed., by Jesús Alberto García-García et al. (Apple Academic Press, 2023), <https://doi.org/10.1201/9781003413585-20>.

<sup>9</sup> Kirana Patrolina Sihombing et al., "Description Of Knowledge, Attitudes, And Actions About Dental And Oral Health Maintenances Of Students In Primary School Of 101896 Of Kiri Hulu-I Tanjung Morawa District Of Sumatera Utara Province," *Jurnal Kesehatan Gigi* 7 (2020): 117–23.

<sup>10</sup> Angela Militi et al., "Psychological and Social Effects of Oral Health and Dental Aesthetic in Adolescence and Early Adulthood: An Observational Study," *International Journal of Environmental Research and Public Health* 18, no. 17 (2021): 9022, <https://doi.org/10.3390/ijerph18179022>.

<sup>11</sup> Zvonimir Uzarevic and Ana Bulj, "Oral Health-Related Quality of Life among Croatian University Students," *International Journal of Environmental Research and Public Health* 18, no. 12 (2021): 6483, <https://doi.org/10.3390/ijerph18126483>.

<sup>12</sup> Kanak, *Pencegahan Penyakit Periodontal*, 01, no. Periodontal (2009): 49–68.

The Qur'an and Sunnah are the two main sources in Islam.<sup>13</sup> The sayings, actions, and life of the Prophet Muhammad SAW, along with the transmission of his teachings, are known as Al Hadith.<sup>14</sup> The strength of a hadith depends on the reliability of its source.<sup>15</sup> For example, the collection of Sahih Bukhari Hadith is considered the most authentic<sup>16</sup> because it only includes testimonies from trusted and reliable narrators.<sup>17</sup> Sunnah refers to a way of life based on the teachings and practices of the Prophet and the interpretation of the Qur'an.<sup>18</sup>

One of the recommended methods for maintaining dental and oral health is by brushing your teeth.<sup>19</sup> Dentistry recommends that teeth be brushed twice a day, namely after breakfast and before going to bed at night.<sup>20</sup> Brushing your teeth is effective in removing plaque and food debris on the labial, buccal, lingual, palatal, incisal, and occlusal surfaces of the teeth, but does not fully reach the interproximal area.<sup>21</sup> To clean the interproximal area, the use of dental floss is highly recommended. Dental floss is designed to penetrate the gaps between teeth to remove food debris and plaque.<sup>22</sup>

Islam teaches the importance of maintaining cleanliness, both personal and environmental cleanliness, as well as physical and spiritual cleanliness. Physical cleanliness includes freedom from dirt or disease, including diseases in the oral cavity. As pious people, we should carry out the command of Allah SWT to always maintain physical and spiritual cleanliness wherever we are.<sup>23</sup> The companions described the condition of the Prophet's teeth as regular and neat, although slightly sparse, but always

<sup>13</sup> Mohammad Omar Farooq, "Islam Compliance, beyond Shari'ah Compliance: Toward a Broader Socio-Economic Transformation," *Arab Law Quarterly* 38, no. 5 (2022): 503–45, <https://doi.org/10.1163/15730255-bja10121>.

<sup>14</sup> Ganis Kesturi and Muhammad Irfan Helmy, "The Understanding of Hadith Sadaqah and Its Implementation on Social Empowerment: A Research on Jum'ah Berkah Tradition in Wonogiri Society," *Jurnal Studi Ilmu-Ilmu Al-Qur'an Dan Hadis* 23, no. 1 (2022): 69–88, <https://doi.org/10.14421/qh.2022.2301-04>.

<sup>15</sup> Hamada R. H. Al-Absi et al., "Al-Ahadeeth: A Visualization Tool of the Hadiths' Chain of Narrators," in *HCI International 2024 Posters*, ed. Constantine Stephanidis et al., vol. 2117, Communications in Computer and Information Science (Springer Nature Switzerland, 2024), [https://doi.org/10.1007/978-3-031-61953-3\\_1](https://doi.org/10.1007/978-3-031-61953-3_1).

<sup>16</sup> Farid Binbeshr et al., "A Systematic Review on Hadith Authentication and Classification Methods," *ACM Transactions on Asian and Low-Resource Language Information Processing* 20, no. 2 (2021): 1–17, <https://doi.org/10.1145/3434236>.

<sup>17</sup> Fatima El-Masri, "<span>Sahih Al-Bukhari: The Myth vs. Reality (Translation)</span>," *SSRN Electronic Journal*, ahead of print, 2025, <https://doi.org/10.2139/ssrn.5128655>.

<sup>18</sup> Septi Aji Fitra Jaya, "Al-Qur'an Dan Hadis Sebagai Sumber Hukum Islam," *Jurnal Indo-Islamika* 9, no. 2 (2020): 204–16, <https://doi.org/10.15408/idi.v9i2.17542>.

<sup>19</sup> Ulrike Weik et al., "'You Should Brush Your Teeth Better': A Randomized Controlled Trial Comparing Best-Possible versus as-Usual Toothbrushing," *BMC Oral Health* 23, no. 1 (2023): 456, <https://doi.org/10.1186/s12903-023-03127-3>.

<sup>20</sup> George Kitsaras et al., "Bedtime Oral Hygiene Behaviours, Dietary Habits and Children's Dental Health," *Children* 8, no. 5 (2021): 416, <https://doi.org/10.3390/children8050416>.

<sup>21</sup> G. A. (Fridus) Van Der Weijden and Cor Van Loveren, "Mechanical Plaque Removal in Step-1 of Care," *Periodontology* 2000, December 26, 2023, prd.12541, <https://doi.org/10.1111/prd.12541>.

<sup>22</sup> Ai Saadah et al., "Sosialisasi Pentingnya Menjaga Kesehatan Gigi Dan Mulut Di UPTD SDN 4 Nagrikaler Purwakarta," *Jurnal Pengabdian Masyarakat PGSD* 1, no. 1 (2021): 70–81.

<sup>23</sup> Anita Agustina, "Perspektif Hadis Nabi Saw Mengenai Kebersihan Lingkungan," *Jurnal Penelitian Ilmu Ushuluddin* 1, no. 2 (2021): 96–104, <https://doi.org/10.15575/jpiu.12206>.

clean and shiny; the meaning of "slightly sparse" is that the teeth are not crowded together. Around the 6th century AD, the Prophet used arak wood or miswak to clean his teeth from food residue and maintain the health of his teeth and mouth. Laboratory research in the 20th century proved that miswak wood contains natural ingredients that are effective in killing bacteria that cause tooth decay and the surrounding tissue.<sup>24</sup>

There are four diseases and conditions that contribute greatly to the burden of oral disease. These diseases include dental caries (cavities), periodontal disease (gums), fungus, and oral cancer. Most of these conditions can be prevented or treated if treated early. According to the Global Burden of Disease Study, it is estimated that oral diseases affect around 3.58 billion people worldwide, with permanent dental caries being the most common condition. Around 2.4 billion people globally have permanent dental caries, and 486 million children suffer from primary dental caries.<sup>25</sup>

Scientifically, miswak contains various natural compounds such as saponins, tannins, phenols, alkaloids (*sallvaldourea* and *salvadorine*),<sup>26</sup> fluoride, vitamin C, *silica*, resin, and essential oils,<sup>27</sup> including cyanogenic glycosides and *benzylisothiocyanate*.<sup>28</sup> In addition, miswak also has significant antibacterial properties against various types of bacteria in the mouth.<sup>29</sup> Alkaloids and tannins are natural components found in miswak that can kill bacteria. They can stop the formation of peptidoglycan parts of bacterial cell walls, stop enzymes from working, and stop the function of bacterial genetic material that kills cells. Flavonoids and saponins can form complex compounds against extracellular proteins that disrupt the integrity of cell membranes. *Benylsothio-cyanate* is also antibacterial because it breaks down cell membranes. Because it is lipophilic and electrophilic, it can get into bacterial membranes and mess up their redox system, making it impossible for them to keep their membranes together. Flavonoids, saponins, and *benylsothio-cynate* work by letting bacterial cell fluid leak out, which kills the bacteria.<sup>30</sup> Other components of miswak are *silica* and *sulfur*, which can remove dental plaque;

<sup>24</sup> Mela Citra Melati et al., "Kesehatan Gigi Dan Mulut Dalam Perspektif Islam," *ARSA (Actual Research Science Academic)* 4, no. 3 (2019): 13–23.

<sup>25</sup> Luciano Tommy Marthinu and Mustapa Bidjuni, "Penyakit Karies Gigi Pada Personil Detasemen Gegana Satuan Brimob Polda Sulawesi Utara Tahun 2019," *JIGIM (Jurnal Ilmiah Gigi Dan Mulut)* 3, no. 2 (2020): 58–64, <https://doi.org/10.47718/jgm.v3i2.1436>.

<sup>26</sup> Haslinda Ramli, Tuti Ningseh Mohd-Dom, and Shahida Mohd-Said, "Clinical Benefits and Adverse Effects of Miswak (*S. Persica*) Use on Periodontal Health: A Scoping Review of Literature," *BMC Oral Health* 21, no. 1 (2021): 1–12, <https://doi.org/10.1186/s12903-021-01950-0>.

<sup>27</sup> Savana Ersu and Irma Ervina, *The Effectiveness of Salvadora Persica ( Miswak ) on Periodontal Health , Literature Review*, 9, no. June (2024): 69–79.

<sup>28</sup> R. S. Resmisari et al., "Miswak (*Salvadora Persica*) Extract as a Natural Anti-Halitosis Mouth Spray," *IOP Conference Series: Earth and Environmental Science* 733, no. 1 (2021), <https://doi.org/10.1088/1755-1315/733/1/012131>.

<sup>29</sup> Yusrini Selviani, Nur Rahma Hasanuddin, and Artika Handayani, "Efektivitas Ekstrak Miswak (*Salvadora Persica*) Terhadap Pertumbuhan Mikroorganisme Dalam Rongga Mulut," *KesehatanKreatif: Jurnal Riset Kesehatan Inovatif* 6, no. 3 (September 1, 2024), <https://journalpedia.com/1/index.php/jrki/article/view/3236>.

<sup>30</sup> Member Reni Purba, Steven Wijaya, and Ananda Kasuma, "Potential of Red Betel Leaf Extract (*Piper Crocatum*) and Miswak (*Salvadora Persica*) Against *Staphylococcus Aureus* Bacteria," *Bioscientia Medicina: Journal of Biomedicine and Translational Research* 6, no. 5 (2022): 1728–31, <https://doi.org/10.37275/bsm.v6i5.504>.

vitamin C, which is effective in treating wounds in the oral cavity (canker sores); and natural resin and fluoride, which can protect tooth enamel. So, miswak has been proven to reduce plaque formation so that it can maintain gum health and prevent caries.<sup>31</sup> On the other hand, toothpaste containing fluoride has been widely proven to help strengthen tooth enamel and prevent tooth decay.<sup>32</sup>

Various studies have explained the various contents in miswak and toothpaste, where both have benefits in protecting dental health. But what if you compare miswak with toothpaste? Some studies that have done this include Abdellatif et al.,<sup>33</sup> Hunaydi et al.,<sup>34</sup> Akhtar et al.,<sup>35</sup> Shaalan and El-Rashidy,<sup>36</sup> Primasari and Chaniago,<sup>37</sup> and Abdullah et al.<sup>38</sup> These studies have not compared the two from the sunnah's health and spiritual values perspective.

This study aims to fill the gap in the existing literature by analyzing the comparison of the functions and relevance between miswak and toothpaste, both from the perspective of dental health and spiritual values in Islam. The main objective of this study is to assess whether the function of the miswak has been replaced by toothpaste or if the miswak has a unique role that remains significant for Muslims in this modern era. In addition, this study also aims to provide an integrative approach, combining the use of miswak and toothpaste as a solution to support optimal dental health while maintaining and preserving the Prophet's sunnah. The uniqueness of this study lies in its multidisciplinary approach that combines analysis of hadith texts with the results of the latest scientific research. In this way, this study not only enriches the literature on miswak and dental health but also provides a practical contribution for Muslims in integrating the sunnah with modern health practices. Through this analysis, it is hoped that a scientific

<sup>31</sup> Alfian Hendra Krisnawan et al., "Antibacterial Activity of Drosera Sp. Ethanolic Extract Against Staphylococcus Aureus ATCC 25923," *Jurnal Al-Azhar Indonesia Seri Sains Dan Teknologi* 8, no. 1 (2023): 1, <https://doi.org/10.36722/sst.v8i1.1494>.

<sup>32</sup> Syuhriah Syuhriah et al., "Review Artikel: Analisis Kandungan Fluoride Dalam Pasta Gigi Dengan Metode Potensiometri Dan Elektroda Selektif Ion," *OBAT: Jurnal Riset Ilmu Farmasi Dan Kesehatan* 3, no. 1 (2025): 15–23, <https://doi.org/10.61132/obat.v3i1.899>.

<sup>33</sup> Hoda M. Abdellatif et al., "Comparative Effectiveness of Miswak and Toothbrushing on Dental Plaque and Gingivitis: A Randomized Controlled Trial," *Healthcare* 12, no. 21 (2024): 21, <https://doi.org/10.3390/healthcare12212150>.

<sup>34</sup> Z. F.O. Hunaydi et al., "Clinical Effects, Uses and Applications of Miswak (Salvadora Persica) on Oral Health Over the Last Three Decades: A Scoping Review of Literature," *Journal of Health and Translational Medicine* 2023, no. Special Issue 1 (2023): 310–24, <https://doi.org/10.22452/jummec.sp2023no1.33>.

<sup>35</sup> Jamal Akhtar et al., "A Review on Phytochemical and Pharmacological Investigations of Miswak (Salvadora Persica Linn)," *Journal of Pharmacy and Bioallied Sciences* 3, no. 1 (2011): 113–17, <https://doi.org/10.4103/0975-7406.76488>.

<sup>36</sup> Omar Shaalan and Aiah El-Rashidy, "Antibacterial Effect of Miswak Herbal Toothpaste Compared to Fluoride Toothpaste in High Caries Risk Patients: Randomized Clinical Trial," *Journal of Clinical and Experimental Dentistry* 15, no. 7 (2023): e526–34, <https://doi.org/10.4317/jced.60332>.

<sup>37</sup> Veronica Septina Primasari and Trianto Chaniago, "Kajian Perbandingan Pasta Gigi Yang Mengandung Miswak Dengan Daun Sirih Terhadap Patogen Periodontal," *Andalas Dental Journal* 12, no. 1 (June 30, 2024): 14–22, <https://doi.org/10.25077/adj.v12i1.256>.

<sup>38</sup> Nurwiyana Abdullah, Syamsuddin Abubakar, and Adhyia Amalia Muchtar, "Menyikat Gigi dengan Menggunakan Kayu Miswak dan Pasta Miswak Terhadap Kebersihan Gigi dan Mulut Pada Mahasiswa," *Media Kesehatan Gigi: Politeknik Kesehatan Makassar* 21, no. 2 (December 10, 2022): 15–20, <https://doi.org/10.32382/mkg.v21i2.3113>.

and spiritual basis can be found that supports the maintenance of comprehensive dental hygiene amidst the challenges of the times.

## METHOD

This research method uses a qualitative approach involving text analysis and literature review.<sup>39</sup> The first-hand information about miswak comes from well-known hadith collections, like Sahih Bukhari and Sahih Muslim. Thematic analysis (*maudhu'i*) is used to find and understand why the Prophet Muhammad SAW told people to use miswak. Meanwhile, secondary data in the form of the latest scientific literature on the chemical composition and effectiveness of miswak compared to toothpaste are collected from indexed journals and academic books. Data analysis is carried out comparatively to evaluate the advantages and disadvantages of each based on indicators of dental health, spiritual value, economy, and sustainability. A multidisciplinary approach is applied by integrating Islamic studies through hadith analysis and modern health perspectives to provide a comprehensive understanding. Data validation is carried out by referring to hadith experts and trusted scientific literature sources, resulting in comprehensive and relevant conclusions.

## RESULTS AND DISCUSSION

### Miswak and Toothpaste

Scientific research shows that miswak contains various active compounds that are beneficial for dental and oral health. Antibacterial content such as saponins, tannins, phenols, alkaloids, and essential oils is effective in inhibiting the growth of bacteria that cause tooth decay, especially *Streptococcus mutans*, which is one of the main causes of tooth decay. In addition, tannins in miswak have astringent properties that help repair and maintain gum health by providing anti-inflammatory effects to prevent inflammation of the gums. Natural fluoride and resins contained in miswak also play an important role in strengthening tooth enamel and preventing demineralization, thereby reducing the risk of tooth decay. *Silica* and *sulfur* function as natural abrasives that can remove stains and plaque on the surface of the teeth without damaging the enamel.<sup>40</sup> Meanwhile, the essential oils contained in miswak provide a fresh taste in the mouth while having antibacterial effects. These various contents make Miswak not only a traditional tool but also an effective natural solution for maintaining dental hygiene and health, making it relevant to study in a modern context.<sup>41</sup>

Modern toothpaste is designed to make it easier to maintain dental hygiene through a formulation that combines synthetic active ingredients and cutting-edge

<sup>39</sup> John W. Creswell et al., "Qualitative Research Designs: Selection and Implementation," *The Counseling Psychologist* 35, no. 2 (2007): 236–64, <https://doi.org/10.1177/0011000006287390>.

<sup>40</sup> Ersu and Eryina, *The Effectiveness of Salvadora Persica ( Miswak ) on Periodontal Health , Literature Review*.

<sup>41</sup> Arina Fathiyah Arifin et al., "The Effect of Miswak Wood Extract (Salvadora Persica) Solution on Oral Health: Literature Review," *Green Medical Journal* 4, no. 1 (2022): 16–25, <https://doi.org/10.33096/gmj.v4i1.97>.

technology. Active ingredients such as synthetic fluoride, triclosan, and pyrophosphate play an important role in strengthening tooth enamel and reducing the risk of caries by protecting teeth from demineralization.<sup>42</sup> Fluoride, which is the main ingredient in most toothpastes, works by forming a protective layer on the enamel, making it more resistant to acid attacks from plaque bacteria. In addition, triclosan has antibacterial properties that are effective in reducing gum inflammation and preventing gingivitis, while pyrophosphate helps prevent tartar formation. The practicality of toothpaste lies in its ready-to-use formulation, ease of use, and availability in various variants according to individual needs, such as for sensitive teeth, whitening, or preventing bad breath.<sup>43</sup> This formulation is also equipped with a refreshing taste and aroma, making it comfortable to use in daily routines. Innovations in modern toothpaste also include the addition of ingredients such as enzymes and proteins that further increase its effectiveness.<sup>44</sup> With a standardized and clinically tested formulation, modern toothpaste is the main choice in maintaining dental health in the wider community.<sup>45</sup>

The spiritual value of miswak as the sunnah of the Prophet Muhammad SAW provides a unique dimension that is not possessed by modern toothpaste. The use of miswak is not just a cleanliness practice but is also a form of worship that brings blessings and brings a Muslim closer to the Sunnah of the Prophet.<sup>46</sup> In various hadiths, the Prophet Muhammad SAW explicitly recommended using miswak to clean teeth. For example, in the hadith narrated by Imam Muslim in the *Thaharah* chapter Miswak,<sup>47</sup> he said:

حَدَّثَنَا قُتَيْبَةُ بْنُ سَعِيدٍ وَعَمْرُو بْنُ النَّاقِدِ وَزُهَيْرُ بْنُ حَرْبٍ قَالُوا حَدَّثَنَا سُفْيَانُ عَنْ أَبِي الزِّنَادِ عَنِ الْأَعْرَجِ عَنْ أَبِي هُرَيْرَةَ عَنِ النَّبِيِّ صَلَّى اللَّهُ عَلَيْهِ وَسَلَّمَ قَالَ لَوْلَا أَنْ أَشَقَّ عَلَى الْمُؤْمِنِينَ وَفِي حَدِيثٍ زُهَيْرٍ عَلَى أُمِّمِي لَأَمَرْتُهُمْ بِالسَّوَالِكِ عِنْدَ كُلِّ صَلَاةٍ

Meaning: “It has been told to us by Qutaibah bin Sa'id and Amru an-Naqid and Zuhair bin Harb; they asked, It has been told to us by Sufyan from Abu az-Zinad from al-A'raj from Abu Hurairah from the Prophet Muhammad SAW, he said, "If I didn't want to burden my people, I would have ordered them to take miswak before every prayer.”

This statement positions the miswak as a symbol of spiritual devotion as well as

<sup>42</sup> Edina Vranic et al., “Mouthwash and Toothpaste Formulation,” *Bosnian Journal of Basic Medical Sciences* 4, no. 4 (2004): 51–58.

<sup>43</sup> Vranic et al., “Mouthwash and Toothpaste Formulation.”

<sup>44</sup> Alejandro Rodríguez-Agurto et al., “Randomized Clinical Trial on the Clinical Effects of a Toothpaste Containing Extra Virgin Olive Oil, Xylitol, and Betaine in Gingivitis,” *Scientific Reports* 13, no. 1 (2023): 1–8, <https://doi.org/10.1038/s41598-023-33521-4>.

<sup>45</sup> Manupati Prasanth, “Antimicrobial Efficacy of Different Toothpastes and Mouthrinses: An in Vitro Study,” *Dental Research Journal* 8, no. 2 (2011): 85–94.

<sup>46</sup> Yuniar Izka Susilowati, Moh Husnun Niam, and Febia Astiawati Sugiarto, “Analisis Pengaruh Tingkat Pengetahuan Muslim Lifestyle Terhadap Penggunaan Miswak Pada Remaja Di Desa Pebatan,” *Jurnal Ilmiah Sultan Agung* 2, no. 1 (2023): 657–65.

<sup>47</sup> Arent Jan Wensinck, *Mujam al-Mufahras li Alfaz al-Hadith an-Nabawi* (E.J. Brill, 1988), <http://archive.org/details/mujamalmufahraslialfazhalhadithwensinckcomplete>.

an important part of health care in a Muslim's life. This spiritual dimension raises awareness of maintaining personal hygiene as part of worship, something that is not found in modern toothpastes that focus more on functional and practical aspects. By using the miswak, one not only gains physical benefits but also spiritual ones, as this activity is worth a reward and shows respect for the traditions of the Prophet. This aspect strengthens the relevance of the miswak in the modern era, where the importance of integrating spiritual values with hygiene remains significant.<sup>48</sup>

### Relevance of Findings to Research Objectives

The results of the study showed that the function of miswak cannot be completely replaced by toothpaste because miswak has certain uniqueness and advantages that modern products do not have. Scientists have found that miswak has natural active compounds like alkaloids, fluoride, vitamin C, *silica*, resin, essential oils, and alkaloids like *salvadora* and *salvadorine*. These compounds clean teeth and improve oral health.<sup>49</sup> The tannin content has astringent properties that can strengthen the gums,<sup>50</sup> while natural fluoride plays a role in strengthening tooth enamel so that it can prevent caries.<sup>51</sup> In addition, the antibacterial compounds in miswak are effective against plaque and caries-causing bacteria such as *Streptococcus mutans*.<sup>52</sup> The natural fibers in miswak also provide a gentle abrasive effect that helps remove plaque and stains from teeth without damaging the enamel, something that modern toothpaste cannot fully achieve.<sup>53</sup>

Another advantage of miswak is its spiritual value as the sunnah of the Prophet Muhammad SAW, which combines aspects of worship and cleanliness in one practice. The Prophet's Hadith states that using miswak is not only beneficial for dental health but is also a form of worship that brings rewards, as narrated by Bukhari and Muslim. This makes miswak a cleaning tool that not only functions physically but also has a religious dimension that toothpaste does not have.<sup>54</sup> Thus, this study shows that miswak remains relevant in the modern context as a tool that combines health benefits and spiritual values, supporting the initial aim of the study to highlight the uniqueness of miswak compared to toothpaste.

### Significance and Scientific Interpretation

Miswak is a natural, eco-friendly, and economical cleaning tool, making it particularly relevant in a modern context that is increasingly concerned with sustainability and waste reduction. As a natural product derived from the branches or roots of the

<sup>48</sup> Taufan Bramantoro, *Sempurnakan Dengan Miswak Karena Gigi Sehat Adalah Hak Semua Umat, Sustainability (Switzerland)*, vol. 11, 2019.

<sup>49</sup> Hunaydi et al., "Clinical Effects, Uses and Applications of Miswak (*Salvadora Persica*) on Oral Health Over the Last Three Decades: A Scoping Review of Literature."

<sup>50</sup> Parveen Dahiya et al., "Miswak: A Periodontist's Perspective," *Journal of Ayurveda and Integrative Medicine* 3, no. 4 (2012): 184–87, <https://doi.org/10.4103/0975-9476.104431>.

<sup>51</sup> Shaalan and El-Rashidy, "Antibacterial Effect of Miswak Herbal Toothpaste Compared to Fluoride Toothpaste in High Caries Risk Patients: Randomized Clinical Trial."

<sup>52</sup> Arifin et al., "The Effect of Miswak Wood Extract (*Salvadora Persica*) Solution on Oral Health: Literature Review."

<sup>53</sup> Akhilanand Chaurasia et al., "Miswak in Oral Cavity - An Update," *Journal of Oral Biology and Craniofacial Research* 3, no. 2 (2013): 98–101, <https://doi.org/10.1016/j.jobcr.2012.09.004>.

<sup>54</sup> Meilena Dwiyantri, *1444 H / 2023 M*, 2023, 2023.



Salvadora persica tree, miswak does not require a complex manufacturing process, which usually results in industrial waste or carbon emissions, as is the case with the production of modern toothpastes and toothbrushes.<sup>55</sup> In addition, miswak can be used directly without the need for additional plastic packaging, thus reducing its contribution to global plastic pollution. After use, miswak easily decomposes naturally without leaving any harmful residues for the environment, making it a completely biodegradable teeth cleaning solution.<sup>56</sup>

From an economic perspective, miswak is more affordable compared to modern products, especially in developing countries or rural areas. Its low price and abundant availability in some regions make it an easily accessible choice for dental cleaning for a wide range of people.<sup>57</sup> In addition, miswak does not require additional brushes or toothpaste, thus saving costs in the long run. With its scientifically proven dental health benefits and environmental and economic advantages, miswak remains relevant as a sustainable and affordable alternative in the modern era.

Miswak and toothpaste, when combined, will reflect an adaptive approach that integrates tradition with modern needs in maintaining dental and oral health. Miswak, as a traditional cleaning tool that has been used for centuries, offers natural benefits such as antibacterial content, tannins, and natural fluoride that support dental health.<sup>58</sup> On the other hand, modern toothpastes provide convenience, synthetic active ingredients, and the latest technology, such as synthetic fluoride to prevent caries and whitening agents to improve dental aesthetics.<sup>59</sup> Combining the two allows users to achieve maximum benefits, namely the abrasive effect and natural compounds of the miswak to clean between the teeth,<sup>60</sup> plus the active ingredients of the toothpaste that strengthen enamel, prevent plaque formation, and provide a long-lasting fresh taste.<sup>61</sup>

This approach also reflects the adaptation of Islamic tradition in contemporary life. For Muslims, using the miswak has a spiritual dimension as the sunnah of the Prophet Muhammad SAW, which brings blessings.<sup>62</sup> By combining the miswak and toothpaste, individuals can maintain the spiritual and cleanliness values taught by tradition while meeting modern standards in dental health care. This combination demonstrates the

<sup>55</sup> Adam Malik Hamudeng and Andi Yudia Sari Firmansyah, "The Role of Miswak (Salvadora Persica) Contents in Reducing Plaque Index," *Makassar Dental Journal* 12, no. 1 (2022): 143–45, <https://doi.org/10.35856/mdj.v12i1.733>.

<sup>56</sup> Sobia Hassan et al., "Exploring the Green Alternative: A Comparative Analysis of Miswak and Plastic Toothbrush in Maintaining Gingival Health," *Pakistan Oral & Dental Journal* 44, no. 1 (2024): 51–56.

<sup>57</sup> Noha Samir Kabil et al., "Effect of the Addition of Chlorhexidine and Miswak Extract on the Clinical Performance and Antibacterial Properties of Conventional Glass Ionomer: An in Vivo Study," *International Journal of Paediatric Dentistry* 27, no. 5 (2017): 380–87, <https://doi.org/10.1111/ipd.12273>.

<sup>58</sup> Abid Nordin et al., "Miswak and Oral Health: An Evidence-Based Review," *Saudi Journal of Biological Sciences* 27, no. 7 (2020): 1801–10, <https://doi.org/10.1016/j.sjbs.2020.05.020>.

<sup>59</sup> Vranic et al., "Mouthwash and Toothpaste Formulation."

<sup>60</sup> Hassan Suliman Halawany, "A Review on Miswak (Salvadora Persica) and Its Effect on Various Aspects of Oral Health," *Saudi Dental Journal* 24, no. 2 (2012): 63–69, <https://doi.org/10.1016/j.sdentj.2011.12.004>.

<sup>61</sup> Vranic et al., "Mouthwash and Toothpaste Formulation."

<sup>62</sup> Susilowati, Niam, and Sugiarto, "Analisis Pengaruh Tingkat Pengetahuan Muslim Lifestyle Terhadap Penggunaan Miswak Pada Remaja Di Desa Pebatan."

ability of modern society to integrate traditional values into science-based solutions so that they remain relevant to the current context. This approach emphasizes that tradition and modernity do not need to be in conflict but can complement each other to achieve optimal benefits.

### Comparison with Previous Research

The results of this study support previous findings that show the various health benefits of miswak as a natural tooth cleaning tool. Several previous studies, such as research by Hunaydi et al., have confirmed that miswak contains active compounds such as tannins, alkaloids, flavonoids, and natural fluorides that have antibacterial effects and can help prevent plaque and tooth decay.<sup>63</sup> Another study by Patel et al. found that miswak has the ability to clean teeth that is equal to or even more effective than modern toothbrushes when used with the right technique.<sup>64</sup>

This study also supports the findings of Ersa et al. (2024), which showed that the natural content of miswak is anti-inflammatory, thus contributing to gum health.<sup>65</sup> This strengthens the argument that miswak is not only effective in cleaning teeth but also in maintaining overall oral health. In addition, compared to modern toothpaste that relies on synthetic ingredients, the advantage of miswak lies in its ability to provide similar benefits without causing allergic side effects related to certain chemicals.

This similarity shows the consistency of the benefits of miswak that have been scientifically proven over the past few decades, thus strengthening the claim that miswak remains relevant as a dental health tool in the modern era. However, this study also adds a new perspective by highlighting the spiritual and environmental dimensions that have not been discussed in depth in previous studies, emphasizing that miswak is not only a physical health tool but also includes religious values and environmental sustainability. Therefore, the results of this study not only strengthen previous findings but also expand the discussion on the relevance and uniqueness of miswak in modern times.

The results of this study provide a new contribution by integrating two important aspects, namely spirituality and sustainability, into the discussion of miswak, which have previously been rarely explored in the scientific literature. Previous studies have mostly focused on the oral health aspects of miswak, such as its antibacterial benefits and natural fluoride content. For example, studies by Hunaydi et al. (2023) and Ersa et al. (2024) emphasize the effectiveness of miswak as a tooth cleaning tool that can compete with modern products in maintaining oral hygiene. However, the spiritual dimension of miswak as the sunnah of the Prophet Muhammad SAW and its potential sustainability as an environmentally friendly natural product have not been the main focus in these studies.

This study broadens the understanding by emphasizing that miswak is not only a

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<sup>63</sup> Hunaydi et al., "Clinical Effects, Uses and Applications of Miswak (*Salvadora Persica*) on Oral Health Over the Last Three Decades: A Scoping Review of Literature."

<sup>64</sup> Punit Vaibhav Patel et al., "Clinical Effect of Miswak as an Adjunct to Tooth Brushing on Gingivitis," *Journal of Indian Society of Periodontology* 16, no. 1 (2012): 84–88, <https://doi.org/10.4103/0972-124X.94611>.

<sup>65</sup> Ersa and Ervina, *The Effectiveness of *Salvadora Persica* ( Miswak ) on Periodontal Health , Literature Review*.

physical health tool but also a spiritual practice that provides a religious dimension to the daily lives of Muslims. As a sunnah, miswak has a symbolic value that not only promotes cleanliness but also reminds users of the Prophet's teachings, thus strengthening the connection between physical and spiritual health. This perspective is rarely discussed in previous studies that have focused more on the clinical or chemical aspects of miswak. In addition, this study also discusses miswak in the context of sustainability, highlighting its advantages as a natural cleaning tool that does not produce plastic waste or require complex manufacturing processes like modern toothpastes and toothbrushes. This is different from most previous studies that have not linked the use of miswak to global environmental issues. Therefore, this study not only supports previous findings on the health benefits of miswak but also offers a new perspective that integrates spirituality and sustainability values, making miswak relevant not only to Muslim communities but also to the global discourse on health and the environment.

### **Discussion About Significance**

This discussion underscores the significance of upholding the traditional practice of using miswak within the framework of contemporary dental health practices. The miswak, which was recommended by the Prophet Muhammad SAW as part of the sunnah, is not only a tool for cleaning teeth but also a symbol of spiritual awareness that is integrated into everyday life. In the modern era, where technology-based products dominate health practices, preserving the sunnah by using miswak sends a message that traditional methods that have a scientific basis remain relevant and beneficial.

The practice of using miswak reflects the value of balance between physical and spiritual health. Physically, miswak has been proven to contain active ingredients such as antibacterials and natural fluorides that support dental and gum health. Spiritually, the use of miswak contains a dimension of worship that can increase individual awareness of the importance of maintaining cleanliness as part of religious teachings. This provides a holistic approach that does not only focus on material results (dental health) but also strengthens religious values that support overall quality of life.

In the context of modern dental health, preserving the sunnah of using miswak is also important as an effort to accommodate traditional practices that have their own advantages. Although modern toothpastes and toothbrushes offer convenience and advanced technology, miswak provides uniqueness with its ability to clean teeth naturally while adding a religious dimension that strengthens the spiritual identity of its users. The integration of sunnah and modern technology can be a relevant model to align tradition with the development of the times, thus encouraging Muslims to maintain the sunnah without neglecting innovation.

This importance also reflects that preserving the sunnah in modern dental health practices is part of an effort to maintain cultural and religious heritage that is in line with contemporary needs. This approach not only inspires Muslims to continue practicing the sunnah but also opens up opportunities to introduce miswak as an environmentally friendly and spiritual alternative in the global discourse on health and sustainability.

This study also shows that miswak not only has historical and spiritual value for

Muslims but also offers a practical solution that is relevant to all groups, including the general public. As a natural tooth cleaning tool, miswak has advantages in terms of ease of use, wide availability in various regions, and the content of active compounds such as antibacterial and natural fluoride that support oral health, making miswak an acceptable alternative in both traditional and modern contexts.

For Muslims, miswak is more than just a physical health tool, but its use is an application of the sunnah of the Prophet Muhammad SAW. This study emphasizes how miswak can inspire people to integrate spiritual values in everyday practices, including in maintaining oral health. This approach reinforces religious identity while meeting modern health needs. Miswak offers a simple and economical way to fulfill the principles of cleanliness that are highly recommended in Islam, making it a relevant tool for a wide range of Muslim communities.

For the general public, including non-Muslims, miswak offers an environmentally friendly solution that is in line with the growing global awareness of sustainability. Unlike modern toothbrushes and toothpastes that often produce plastic waste and use synthetic chemicals, miswak is a natural, biodegradable product that does not require additional resources for its use. With these benefits, miswak can appeal to a global community seeking more sustainable alternatives to its health routines.

Therefore, this study shows that miswak has the potential to be accepted by a wide range of communities, both because of its spiritual value for Muslims and its practicality as a natural cleaning tool for all. The integration of health benefits, sustainability, and spirituality makes miswak an inclusive approach that is relevant not only to religious traditions but also to global trends in health and the environment. This approach strengthens miswak's position as a solution that is cross-cultural and cross-temporary with universal appeal.

## CONCLUSION

Miswak remains relevant in the modern era due to its ability to integrate scientific benefits with spiritual values. Scientifically, miswak has been proven to contain natural antibacterial compounds, tannins, and fluorides that are effective in maintaining dental and oral health, making it a comparable alternative to modern toothpaste. However, the uniqueness of miswak lies in its spiritual dimension as the sunnah of the Prophet Muhammad SAW, which provides the meaning of worship and closeness to Allah. In the modern context, miswak is also in line with sustainability issues due to its natural, biodegradable, and environmentally friendly nature. This shows that miswak is not only relevant for Muslims but also attractive to the general public who care about health and the environment. This study confirms that toothpaste cannot completely replace miswak but can actually complement it to achieve more optimal results. Toothpaste, with its synthetic content, offers efficiency in maintaining dental health, while miswak provides additional benefits in the form of natural cleaning and spiritual value. The combination of the two reflects an integrative approach that combines modern technology with Islamic tradition, providing a relevant solution to contemporary dental health needs. This study

also confirms that preserving the Sunnah can synergize with modern needs, support comprehensive Islamic values in maintaining balance between spiritual and physical aspects, and provide a positive contribution to public health in general.

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