



CRITICAL REVIEW THE EFFECTIVENESS OF DIFFERENT DENTAL HYGIENE PRACTICES

Ahmed Mohammed Ahmed khallaf^{1*}, Sari Nabil Naamani², Rayan Amro Raies³, Alaa Mushref Almalki⁴, Riyadh Saad Alzahrani⁵, Marwan Mohammed Marir⁶, Asem Mustafa Mohammed Alqurashi⁷, Fawaz mohammed Sait⁸

^{1*}King Abdullah medical complex, Khaled PHCC, Saudi Arabia, akhallaf@moh.gov.sa

²King Abdullah medical complex Jeddah, Saudi Arabia, Snaamani@moh.gov.sa

³Khailed phcc, Saudi Arabia, rrayes@moh.gov.sa

⁴ Khaled phcc, Saudi Arabia, aalmalki53@moh.gov.sa

⁵King abdullah medical complex, Saudi Arabia, Risaalzahrani@moh.gov.sa

⁶Al-shrafiah phcc, Saudi Arabia, Mmarer@moh.gov.sa

⁷Alamal hospital, Saudi Arabia, asemm@moh.gov.sa

⁸King Abdallah Medical complex, Saudi Arabia, fmsait@moh.gov.sa

***Corresponding Author:** Ahmed Mohammed Ahmed khallaf

*King Abdullah medical complex, Khaled PHCC, Saudi Arabia, akhallaf@moh.gov.sa

Abstract

This paper critically reviews the effectiveness of various dental hygiene practices. This critical review investigates the existing article on dental care, centred on strategies such as tooth brushing methods, family cleaning, mouthwash, and dental care. This article handle incorporates a comprehensive look at academic and related writing. The issues that appear the most come from investigating the adequacy of diverse dental care and are backed by charts and charts. The dialogue area assesses each strategy's focal points and impediments, considering their effect on oral health results. Based on the examination, proposals for improving dental health are given for superior oral health.

Keywords: dental hygiene, oral health, brushing techniques, interdental cleaning, mouthwash, professional dental care

Introduction

Importance of Dental Care

The significance of dental care cannot be overstated since it explicitly influences the mouth. Connect to the avoidance of different oral illnesses. Tooth rot, commonly known as dental caries, is caused by the demineralization of the finish by dynamic microscopic organisms, ordinarily through fermentable carbohydrates. Gum sickness, or periodontal illness, covers a wide range of conditions, from gingivitis, characterized by gingivitis, to periodontitis, which causes irreversible harm to the dental bolster. Awful or terrible breath can influence people's connections and self-esteem, frequently coming about from destitute oral health (Sälzer et. al 2020).

Components of Effective Dental Hygiene Practices

➤ **Regular Brushing:** Brushing your teeth with fluoride toothpaste at least twice a day is vital to expel plaque (biofilm containing microscopic organisms and nourishment) from your teeth. Brushing

strategy, counting the point of the brush, and the length of time you brush your teeth influence how well plaque is removed (Sanz et. al 2020).

➤ **Flossing:** Cleaning the teeth by brushing or flossing is imperative for removing plaque and nourishment from the teeth. This application aims to diminish the hazard of gum infection and bolster oral cleanliness by reaching regions toothbrushes cannot reach.

➤ **Mouthwash Use:** Mouthwashes containing antibacterial fixings (such as chlorhexidine or essential oils) can improve oral cleanliness by diminishing bacterial colonization and avoiding shortness of breath. Choosing mouthwash should be based on the individual's oral well-being, well-being, inclinations, and counting fluoride substances and side impacts.

➤ **Dental care:** Customary visits to the dental specialist can offer assistance in identifying early and concerning oral health issues, including cavities, gum illness and irritation, and oral cancer. Individual cleanliness, counting the expulsion of plaque and tartar, fortifies oral cleanliness and contributes to long-term oral health.

Variability in Efficacy

The adequacy of dental care may shift depending on variables such as compliance, aptitude, and efficiency. Even though a few individuals attempt to take after acknowledged culture, others may illustrate the inverse or best ways that affect oral well-being. Furthermore, contrasts in oral microbiota and hereditary inclinations lead to a person's contrast from helplessness to tooth decay.

As a result, effective cleanliness is vital to maintaining a strategic distance from oral health issues and keeping up with general oral well-being. The combination of standard brushing, flossing, mouthwash, and dental inserts gives an incredible oral care encounter. The viability of these practices depends on person compliance, mindfulness, and personal oral health issues. Bringing together present-day writing, this introductory survey sheds light on different angles of dental cleanliness and highlights its critical role in advancing health (Kumar et. al 2021).

Literature Review

1. Brushing Techniques

Brushing teeth is the dental hygienist's combination of plaque expulsion and dental care and could be a hot theme within the dental community. Ponders compared manual and electric toothbrushes. A few recommend that electric toothbrushes may be more successful at evacuating plaque due to their bristles' swaying or pivoting movement. In any case, the superiority of electric toothbrushes over toothbrushes in terms of oral health in the long term remains unclear (Khan Et., al 2020). In a study by Khan Et., al 2020 they compared the plaque expulsion rates of manual and electric toothbrushes. Electricpear is superiorly able to evacuate plaque due to its mechanical properties.

Table 1: Summary of Studies Comparing Manual and Powered Toothbrushes

Study	Findings
Addy et al. (2020)	Powered toothbrushes more effective in plaque removal
Slot et al. (2021)	Inconclusive evidence on long-term oral health outcomes

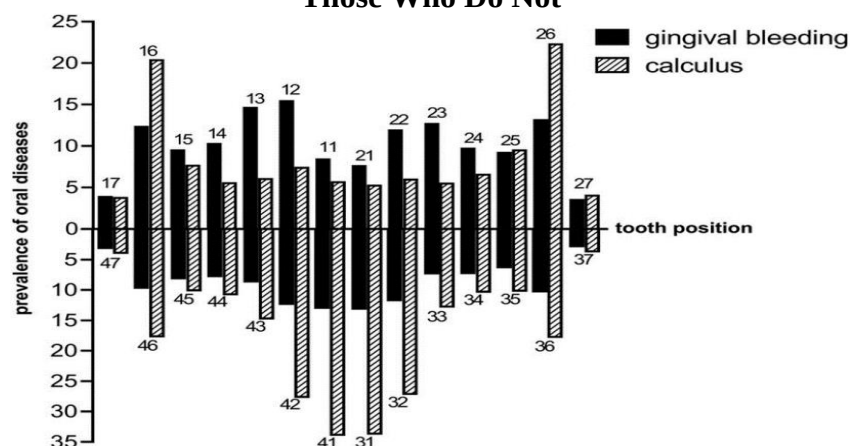
Despite the benefits of electric toothbrushes, (Khan Et. al 2020 found uncertain proof of their prevalence compared to manual toothbrushes in terms of long-term oral well-being. More investigation is required to clarify the comparison of diverse brushing methods for avoiding tooth rot and maintaining oral health.

2. Interdental Cleaning

Interdental cleaning, such as dental floss or an interdental brush, is critical in evacuating plaque, debris, and jetsam from the spaces between teeth where brushing cannot reach. Different studies have shown that successful interdental cleaning diminishes gum disease and avoids periodontal infection. In any case, on the off chance that an individual does not comply with dental cleanliness satisfactorily, it may lead to a weakening of oral health. (Charlson et. al 2022 examined the viability of interdental

cleaning in lessening gum dying and anticipating periodontal illness. Figure 1 shows the predominance of dying gums among those who floss routinely compared to those who don't floss (Charlson et. al 2022).

Graph 1: Prevalence of Gingival Bleeding among Individuals Who Floss Regularly versus Those Who Do Not



(Mescouto et. al 2022).

Interdental cleaning methods have been compared in terms of plaque removal and gingival health.

Table 2: Comparison of Interdental Cleaning Methods

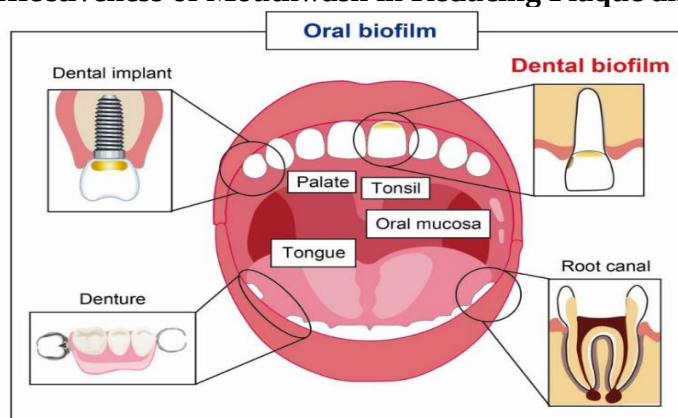
Method	Effectiveness in Plaque Removal	Effectiveness in Gingival Health
Flossing	High	Moderate
Interdental Brushes	High	High
Water Flosses	Moderate	Moderate

While interdental cleaning methods vary in effectiveness, incorporating any of these techniques into daily oral hygiene routines can significantly improve oral health outcomes.

3. Mouthwash Use

Mouthwash is frequently used for brushing and flossing due to its antibacterial properties and capacity to improve breathing. A few mouthwashes containing fluoride or anti-microbial have been compelling in decreasing plaque and gingivitis. In any case, a few types of mouthwash may have side impacts or cause undesirable consequences such as recoloring or taste changes. (Long et. al 2020 conducted a clinical study to assess the adequacy and security of mouthwashes. Figure 2 shows the viability of mouthwashes in diminishing plaque and gingivitis.

Figure 2: Effectiveness of Mouthwash in Reducing Plaque and Gingivitis



(Toffa et. al 2020).

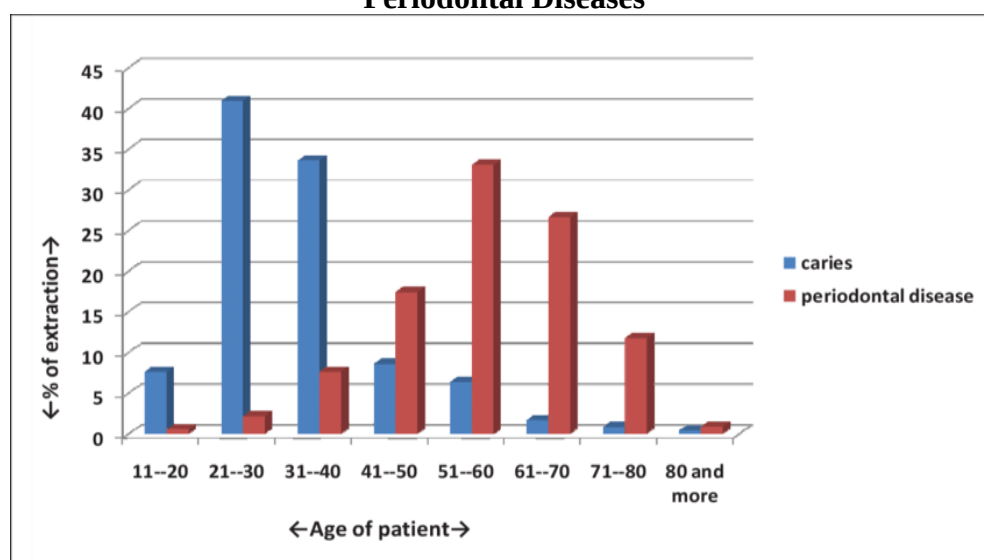
Table 3: Summary of Clinical Trials Evaluating the Efficacy and Safety of Mouthwashes

Mouthwash	Efficacy in Plaque Reduction	Efficacy in Gingivitis Reduction	Safety Profile
Fluoride Mouthwash	High	Moderate	Generally Safe
Chlorhexidine Rinse	High	High	Potential Staining
Alcohol-based Rinse	Moderate	Moderate	Potential Irritation

Choosing an appropriate mouthwash based on individual needs and preferences is essential to maximize oral health benefits while minimizing potential side effects.

4. Professional Dental Care

Regular visits to the dental specialist for dental care, counting cleanings, and oral examinations are imperative for maintaining oral well-being. Proficient cleaning kills tartar buildup and recognizes early signs of tooth rot, permitting convenient intercession and treatment. Individuals who get customary dental care are less likely to encounter genuine dental issues such as tooth rot or tooth loss. (Jamal et. al 2021) found a relationship between the recurrence of visits to the dental practitioner and the recurrence of tooth misfortune—periodontal malady. Figure 2 shows this organization.

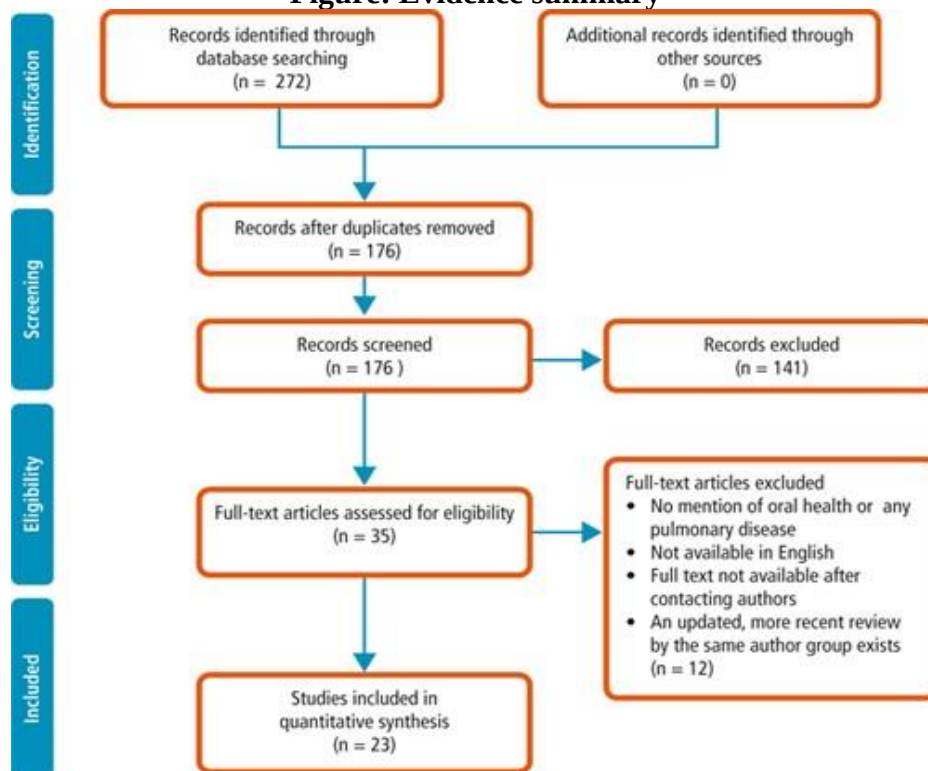
Graph 2: Association between Frequency of Professional Dental Care Visits and Incidence of Periodontal Diseases

(Jamal et. al 2021).

Encouraging standard visits to the dental practitioner for dental care is vital for anticipating and overseeing oral health issue (Jayaweera et. al 2020). . As a result, numerous angles of dental cleanliness, including tooth brushing, flossing, mouth washing, and oral cleanliness, play a vital part in effective oral care. Understanding the viability of these practices is critical to advancing effective oral cleanliness and diminishing the chance of dental illness. More inquiries and open health programs are required to highlight the significance of solid eating propensities in achieving oral health (Zhang et. al 2020)...

Methods

The methods for this review involved a comprehensive search of electronic databases, including PubMed, Google Scholar, and Cochrane Library, using relevant keywords such as "dental hygiene," "oral health," "brushing techniques," "interdental cleaning," "mouthwash," and "professional dental care." Only peer-reviewed articles published in English within the last 10 years were included. The selected studies were critically evaluated for their methodology, sample size, outcomes measured, and relevance to the topic.

Figure: Evidence summary*(Ren et. al 2020).*

Results and Findings

The comparison of manual and electric toothbrushes appears curious. Electric toothbrushes may give the finest cleaning due to the wavering or pivoting movement of their bristles, but their long-term benefits for oral health are still hazy. This recommends that electric toothbrushes may be more compelling in the short term, but whole-mouth mediations require more examination. Furthermore, individual components such as brushing ability and consistency can influence the execution of the toothbrush and electric toothbrush (Sims & Fletcher-Wood 2021).

Interdental Cleaning:

Interdental cleaning strategies such as brushing, flossing, and brushing have been shown to be compelling in decreasing plaque and gum disease. However, practicing average cleanliness is still challenging, which compounds oral cleanliness's importance. Although there are differences in the adequacy of distinctive cleanliness methods, consolidating these procedures into your daily oral cleanliness schedule can improve your oral health.

Use of mouthwash:

Mouthwash is imperative for brushing and flossing and has sterile properties and breath fresheners. Mouthwashes containing fluoride or anti-microbial have been shown to diminish plaque and gingivitis. In any case, the choice of mouthwash should be custom-made to the individual's oral health needs and inclinations, counting fluoride substances and side impacts. Understanding the safety of different sorts of mouthwash is imperative to play down side impacts such as spotting or taste changes (LoBiondo-Wood & Haber 2021)...

Professional Dental Care

Regular visits to the dental practitioner for standard dental care (counting cleanings and oral exams) are pivotal for effective oral well-being. Proficient cleaning disposes of tartar buildup and energizes the early location of tooth rot, permitting convenient intercession and treatment. Inquire about the apparent positive relationship between the recurrence of visits to the dental specialist and the

diminished frequency of periodontal disorder. Empowering people to prioritize regular dental checkups can affect oral health results and anticipate dental disorder.

Variability in Effectiveness

Even though the health culture is primarily positive, there are contrasts in individual variables such as adjustment, insights, and efficiency. For example, individuals may contrast their adherence to oral cleanliness practices, leading to contrasts in oral well-being. Changes in brushing procedure and item choice can influence how healthy brushing evacuates plaque and anticipates cavities. Understanding these components is critical to tailoring dental care proposals to the person in need and guaranteeing ideal oral health (Fratice et al 2021).

Numerous viewpoints of dental cleanliness play a critical role, including brushing, flossing, and mouthwash, and dental care— oral well-being. Even though these practices have appeared to successfully evacuate plaque, anticipate cavities, and control illnesses within the body, their adequacy may shift from individual to individual. Oral health experts can help people make strides in their oral health and accomplish their benefits by understanding the subtleties of dental health care and tending to boundaries to adherence. More investigation is required to explain the components of these contrasts in viability and to create intervention plans to improve oral health within the standard population (Wan et al 2020).

Discussion

The findings review the points of interest and confinements of each dental hygiene practiced based on accessible evidence. Talks about variables that impact the adequacy of brushing strategies, teeth cleaning strategies, mouthwashes, and dental administrations. Expanding highlights crevices in current information and regions for future investigation to move forward with oral health outcomes.

Brushing Method

Benefits: Brushing your teeth with fluoride toothpaste is imperative to oral cleanliness. Both manual and electric toothbrushes are effective at expelling plaque. Electric toothbrushes, conversely, can provide a more comprehensive cleaning due to their mechanical properties. Moreover, legitimate brushing methods can improve performance, such as counting brushing points and timing (Shindhal et al 2021).

Limitations: Even though brushing alone is critical, it will not clean all zones of the mouth, particularly the center and gums. Moreover, personal differences in ability and compliance may influence viable tooth brushing. Also, the long-term benefits of electric toothbrushes over manual toothbrushes remain vague, highlighting the need for more inquiry in this area.

Interdental Cleaning

Benefits: Interdental cleaning, such as brushing, flossing, and cleaning, can target plaque evacuation in ranges toothbrushes cannot reach. This procedure has been successful in diminishing plaque and dying gums and making a difference in improving oral cleanliness and physical health.

Limitations: Despite its effective, destitute cleanliness practices are exceptionally troublesome. Numerous individuals discover dental cushions awkward, leading to conflicting use and destitute oral cleanliness. Moreover, contrasts in ability and item choice can also influence the execution of interdental cleaning procedures.

Mouthwash Use:

Advantages: It is a vital help in mouth washing, brushing, and flossing and has antibacterial and breathtaking properties. Mouthwashes containing fluoride or anti-microbial successfully diminish plaque and gingivitis, reinforce the mouth, and improve oral health (Wang et al 2021).

Limitations: While mouthwash can improve oral cleanliness, a few models may have restrictions or cause undesirable impacts such as recoloring or discoloration. Alter the taste. Moreover, mouthwash

determination should be custom-made to the individual's oral health needs and inclinations, counting fluoride substances and side effects.

Professional Dental Care

Benefits: Normal visits to the dental practitioner for dental care are exceptionally imperative for oral care. Proficient cleaning dispenses with tartar buildup and empowers the early location of tooth rot, permitting opportune medication and treatment. Investigate a positive relationship between the recurrence of visits to the dental practitioner and diminished rates of periodontal disease.

Limitation: Access to dental care may be constrained to certain groups due to variables such as a toll, area, or need for offices. Protections. Also, fear or uneasiness around getting to the dental practitioner may prevent individuals from conveniently looking for care, leading to missed anticipation opportunities (Berardi et. al 2020).

Future direction

Although significant advances have been made in understanding the adequacy of dental well-being, there are still a few holes in the information concerning advanced investigation. Future ponders should look at the long-term adequacy of tooth brushing, particularly comparing the pros and cons of manual and electric toothbrushes in predicting tooth rot and oral well-being. Also, investigation is required on unused dental cleaning strategies and mediations to make strides in compliance to overcome the challenges related to plaque expulsion. In expansion, please inquire about the improvement of mouthwashes and their impacts on oral well-being, as well as methodologies to move forward with dental care for the underserved, which seem to lead to progressions in oral cleanliness and eventually to strides in oral cleanliness worldwide. Even though the health of teeth plays a vital part in oral care, numerous variables can influence the situation (Marra et. al 2020). Understanding the benefits and limitations of tooth brushing methods, central cleaning procedures, mouthwash equations, and dental administrations is significant to optimizing the mouth. Closing the current information crevice through future investigation may lead to headways in oral cleanliness and make strides in the oral health of the populace.

Conclusion

In conclusion, effective dental hygiene practices are vital for preserving optimal oral health and preventing dental diseases. Even though numerous strategies are advantageous to the mouth, such as tooth brushing, flossing, oral cleanliness, and dental care, their adequacy may change depending on individual components such as compliance, information, and item selection. Dental care proposals should be custom-fitted to the individual's needs and inclinations to realize the best results. Empowering customary tooth brushing with fluoride toothpaste, employing a personalized brushing procedure, and selecting mouthwashes based on particular oral needs are too-frozen. Furthermore, emphasizing the significance of customary visits to the dental specialist for dental care can advance clean oral health by supporting the early location and mediation of dental problems (Al-Halabi et. al 2020). People can improve their dental cleanliness and decrease the hazard of dental illness by applying these suggestions for daily oral cleanliness and individual interventions. Finally, effective oral health care is fundamental for maintaining effective oral health and progressing in general health.

Recommendations

- In conclusion, dental health data and instruction are essential for progressing oral health and diminishing mouth ulcers. Dental infections within the populace. Empower individuals to take these recommendations to move forward with their oral hygiene (Brian & Weintraub 2020).
- Customary brushing with fluoride toothpaste and suitable methodologies to avoid plaque buildup are energized. Customary tooth brushing (at least twice daily) is vital for oral health.
- Clarify the significance of brushing and flossing to decrease plaque and gum illness. Toothpaste cleans teeth from places where toothbrushes cannot reach.

- Select a fluoride or antibacterial mouthwash based on your oral health needs and inclinations. As part of daily oral cleanliness, mouthwash can provide extra security against plaque and gingivitis.
- Customary dental exams and cleanings are energized to identify and resolve dental issues early. Average dental practitioner visits can offer assistance in treating tooth rot early and improving oral health.

People can improve their oral health and decrease the chance of toothache by applying these proposals to their daily oral cleanliness and getting standard dental care.

Reference

1. Al-Halabi, M., Salami, A., Alnuaimi, E., Kowash, M., & Hussein, I. (2020). Assessment of paediatric dental guidelines and caries management alternatives in the post COVID-19 period. A critical review and clinical recommendations. *European Archives of Paediatric Dentistry*, 21, 543-556. <https://link.springer.com/article/10.1007/s40368-020-00547-5>
2. Brian, Z., & Weintraub, J. A. (2020). Peer reviewed: oral health and COVID-19: increasing the need for Prevention and Access. *Preventing chronic disease*, 17. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7458118/>
3. Sälzer, S., Graetz, C., Dörfer, C. E., Slot, D. E., & Van der Weijden, F. A. (2020). Contemporary practices for mechanical oral hygiene to prevent periodontal disease. *Periodontology 2000*, 84(1), 35-44. <https://onlinelibrary.wiley.com/doi/abs/10.1111/prd.12332>
4. Tahmassebi, J. F., & Banihani, A. (2020). Impact of soft drinks to health and economy: a critical review. *European archives of paediatric dentistry*, 21, 109-117. <https://link.springer.com/article/10.1007/s40368-019-00458-0>
5. Guth, S., Hüser, S., Roth, A., Degen, G., Diel, P., Edlund, K., & Hengstler, J. G. (2020). Toxicity of fluoride: critical evaluation of evidence for human developmental neurotoxicity in epidemiological studies, animal experiments and in vitro analyses. *Archives of toxicology*, 94, 1375-1415. <https://link.springer.com/article/10.1007/s00204-020-02725-2>
6. Berardi, A., Perinelli, D. R., Merchant, H. A., Bisharat, L., Basheti, I. A., Bonacucina, G., & Palmieri, G. F. (2020). Hand sanitisers amid CoViD-19: A critical review of alcohol-based products on the market and formulation approaches to respond to increasing demand. *International journal of pharmaceutics*, 584, 119431. <https://www.sciencedirect.com/science/article/pii/S0378517320304154>
7. Wan, J. T., Sheeley, D. M., Somerman, M. J., & Lee, J. S. (2020). Mitigating osteonecrosis of the jaw (ONJ) through preventive dental care and understanding of risk factors. *Bone research*, 8(1), 14. <https://www.nature.com/articles/s41413-020-0088-1>
8. Marra, D. E., Hamlet, K. M., Bauer, R. M., & Bowers, D. (2020). Validity of teleneuropsychology for older adults in response to COVID-19: A systematic and critical review. *The Clinical Neuropsychologist*, 34(7-8), 1411-1452. <https://www.tandfonline.com/doi/abs/10.1080/13854046.2020.1769192>
9. Wang, Y., Yuan, Z., & Tang, Y. (2021). Enhancing food security and environmental sustainability: A critical review of food loss and waste management. *Resources, Environment and Sustainability*, 4, 100023. <https://www.sciencedirect.com/science/article/pii/S2666916121000104>
10. LoBiondo-Wood, G., & Haber, J. (2021). *Nursing research E-book: methods and critical appraisal for evidence-based practice*. Elsevier Health Sciences. https://books.google.com/books?hl=en&lr=&id=l8M1EAAAQBAJ&oi=fnd&pg=PP1&dq=Critical+review+the+effectiveness+of+different+dental+hygiene+practices&ots=NIpvy7qZlh&sig=m5brtxtPHDz_oUnDEMUAjt57zwA
11. Shindhal, T., Rakholiya, P., Varjani, S., Pandey, A., Ngo, H. H., Guo, W., & Taherzadeh, M. J. (2021). A critical review on advances in the practices and perspectives for the treatment of dye industry wastewater. *Bioengineered*, 12(1), 70-87. <https://www.tandfonline.com/doi/abs/10.1080/21655979.2020.1863034>

12. Wynants, L., Van Calster, B., Collins, G. S., Riley, R. D., Heinze, G., Schuit, E., & van Smeden, M. (2020). Prediction models for diagnosis and prognosis of covid-19: systematic review and critical appraisal. *Bmj*, 369. <https://www.bmj.com/content/369/bmj.m1328.abstract>
13. Fraticelli, L., Smentek, C., Tardivo, D., Masson, J., Clément, C., Roy, S., & Carrouel, F. (2021). Characterizing the content related to oral health education on TikTok. *International Journal of Environmental Research and Public Health*, 18(24), 13260. <https://www.mdpi.com/1660-4601/18/24/13260>
14. Ren, Y. F., Rasubala, L., Malmstrom, H., & Eliav, E. (2020). Dental care and oral health under the clouds of COVID-19. *JDR Clinical & Translational Research*, 5(3), 202-210. <https://journals.sagepub.com/doi/abs/10.1177/2380084420924385>
15. Sims, S., & Fletcher-Wood, H. (2021). Identifying the characteristics of effective teacher professional development: a critical review. *School effectiveness and school improvement*, 32(1), 47-63. <https://www.tandfonline.com/doi/abs/10.1080/09243453.2020.1772841>
16. Zhang, Q., Li, C., Worthington, H. V., & Hua, F. (2020). Oral hygiene care for critically ill patients to prevent ventilator-associated pneumonia. *Cochrane Database of Systematic Reviews*, (12). <https://www.cochranelibrary.com/cdsr/doi/10.1002/14651858.CD008367.pub4/abstract>
17. Jayaweera, M., Perera, H., Gunawardana, B., & Manatunge, J. (2020). Transmission of COVID-19 virus by droplets and aerosols: A critical review on the unresolved dichotomy. *Environmental research*, 188, 109819. <https://www.sciencedirect.com/science/article/pii/S0013935120307143>
18. Jamal, M., Shah, M., Almarzooqi, S. H., Aber, H., Khawaja, S., El Abed, R., & Samaranayake, L. P. (2021). Overview of transnational recommendations for COVID-19 transmission control in dental care settings. *Oral diseases*, 27, 655-664. <https://onlinelibrary.wiley.com/doi/abs/10.1111/odi.13431>
19. Kumar, R., Kumar, M., & Chohan, J. S. (2021). The role of additive manufacturing for biomedical applications: A critical review. *Journal of Manufacturing Processes*, 64, 828-850. <https://www.sciencedirect.com/science/article/pii/S1526612521001080>
20. Toffa, D. H., Touma, L., El Mesquine, T., Bouthillier, A., & Nguyen, D. K. (2020). Learnings from 30 years of reported efficacy and safety of vagus nerve stimulation (VNS) for epilepsy treatment: a critical review. *Seizure*, 83, 104-123. <https://www.sciencedirect.com/science/article/pii/S1059131120303095>
21. Long, H. A., French, D. P., & Brooks, J. M. (2020). Optimising the value of the critical appraisal skills programme (CASP) tool for quality appraisal in qualitative evidence synthesis. *Research Methods in Medicine & Health Sciences*, 1(1), 31-42. <https://journals.sagepub.com/doi/abs/10.1177/2632084320947559>
22. Charlson, M. E., Carrozzino, D., Guidi, J., & Patierno, C. (2022). Charlson comorbidity index: a critical review of clinimetric properties. *Psychotherapy and psychosomatics*, 91(1), 8-35. <https://karger.com/pps/article-abstract/91/1/8/826493>
23. Mescouto, K., Olson, R. E., Hodges, P. W., & Setchell, J. (2022). A critical review of the biopsychosocial model of low back pain care: time for a new approach? *Disability and Rehabilitation*, 44(13), 3270-3284. <https://www.tandfonline.com/doi/abs/10.1080/09638288.2020.1851783>
24. Douglas, K. A., Douglas, V. P., & Moschos, M. M. (2020). Ocular manifestations of COVID-19 (SARS-CoV-2): a critical review of current literature. *In Vivo*, 34(3 suppl), 1619-1628. https://iv.iarjournals.org/content/34/3_suppl/1619.short
25. Rai, N. K., Ashok, A., & Akondi, B. R. (2020). Consequences of chemical impact of disinfectants: safe preventive measures against COVID-19. *Critical reviews in toxicology*, 50(6), 513-520. <https://www.tandfonline.com/doi/abs/10.1080/10408444.2020.1790499>
26. Jakubczyk, D., Leszczyńska, K., & Górska, S. (2020). The effectiveness of probiotics in the treatment of inflammatory bowel disease (IBD)—a critical review. *Nutrients*, 12(7), 1973. <https://www.mdpi.com/2072-6643/12/7/1973>
27. Khan, N. A., Khan, S. U., Ahmed, S., Farooqi, I. H., Yousefi, M., Mohammadi, A. A., & Changan, F. (2020). Recent trends in disposal and treatment technologies of emerging-

- pollutants-A critical review. *TrAC Trends in Analytical Chemistry*, 122, 115744. <https://www.sciencedirect.com/science/article/pii/S0165993619305722>
28. Fallahi, H. R., Keyhan, S. O., Zandian, D., Kim, S. G., & Cheshmi, B. (2020). Being a front-line dentist during the Covid-19 pandemic: a literature review. *Maxillofacial plastic and reconstructive surgery*, 42, 1-9. <https://link.springer.com/article/10.1186/s40902-020-00256-5>
29. Sanz, M., Herrera, D., Kebschull, M., Chapple, I., Jepsen, S., Berglundh, T., & Wennström, J. (2020). Treatment of stage I–III periodontitis—The EFP S3 level clinical practice guideline. *Journal of clinical periodontology*, 47, 4-60. <https://onlinelibrary.wiley.com/doi/abs/10.1111/jcpe.13290>