

Editorial

Special Issue on Current Concepts and Challenges in Oral Health: Implications for the Global Population

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1. Introduction

Oral health is an important dimension in the overall health of an individual. Its association with systemic health is a well-known concept. Most systemic diseases, such as diabetes mellitus and chronic renal failure, have a significant manifestation in the oral cavity. They also influence the treatment approach adopted for oral–dental diseases in individuals with such underlying systemic diseases. In a reciprocal association, the status of oral diseases makes a significant impact on systemic health and diseases. For instance, periodontal health in pregnancy is linked with the weight of the baby. In recent years, with individuals' changes in their lifestyle and environment, there has been not only the emergence of new conditions, but also a change in the presentation of diseases has been observed. At the same time, thanks to advancements in technology such as genetic sequencing and artificial intelligence, we are more equipped to deal with diagnostic and therapeutic modalities. Furthermore, with the usage of advanced diagnostic methods, there has been a paradigm shift in the concept of few conditions. Thus, a complete understanding of the current status of the etiopathogenesis of oral diseases and challenges in their treatment is of utmost importance.

2. Current Concepts in Diagnostics & Treatment

Considering the changing concepts of oral disease and the advancements in their treatment approaches, this Special Issue was introduced. We had an overwhelming response, with the receipt of a total of 25 submission from eminent researchers across the globe, out of which 12 articles were published. A wide range of papers were published, including three systematic reviews and meta-analysis (SRMA), three randomized controlled trials, one prospective clinical study, two retrospective clinical studies, one retrospective audit study, and two questionnaire-based studies, where one study explored the psychological burnout of dental interns, and the other assessed the knowledge and awareness of the general population regarding oral cancer. One of the systematic reviews published in the Special Issue was by Janani et al., in which the review detailed randomized studies comparing the efficiency of conventional over physics forceps for dental extraction [1]. After a rigorous literature search, a total of five studies were considered for the systematic review. However, the heterogeneity in the studies limited the meta-analysis for the topic. Various parameters influencing the outcome of extraction were assessed, along with the



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risk of bias. The intensive review concluded that there is a lack of high-quality evidence to support the superiority of physics forceps over its conventional counterpart. Another intensive systemic review and meta-analysis was published by Alam et al. where two therapeutic approaches for the treatment of Class III malocclusion, namely orthognathic and camouflage treatment, were studied [2]. A total of six articles were included for the systematic review; out of which, only three qualified to be included in the meta-analysis. Primarily due to publication bias and heterogenicity, no clear conclusion was drawn in favor of either modality, and further research was advised. The third SRMA was authored by alswairki et al. who studied the effect of various surgical movements conducted in order to correct skeletal malocclusion on the dimensions of the upper airway [3]. Based on the strict inclusion and exclusion criteria, a total of twenty-nine studies were included in the SRMA. The authors concluded that there was a statistically significant increase in the volume of the upper airway observed after an intervention, namely rapid maxillary expansion and a surgical advancement procedure, conducted for the correction of Class II.

Another category of studies published were randomized control trials (RCTs). Alhazmi et al. presented the results of a non-blind RCT assessing the efficacy of two methods, namely auditory distraction and brief relaxation, in the reduction in anxiety levels in patients undergoing dental extraction [4]. A total of 76 subjects were recruited with 32 patients each receiving either of the interventions; the remaining 10 patients made up the control group. Individually, both intervention methods were effective in reducing anxiety; however, only brief relaxation methods managed to significantly reduce anxiety in comparison to the control group. Another interesting RCT by Alam et al. compared the efficacy of nano bio-fusion gel, a nanotechnology-based product in reducing the perception of pain among fixed orthodontic patients suffering from treatment-induced gingivitis [5]. A total of 32 patients were randomly allocated to the case and control group, and the measurement of the perception of pain was performed over 3 time intervals, including the baseline, 7th day, and 28th day. The study concluded that there was a significant reduction in the perception of pain after the application of gel in contrast to the placebo.

A prospective clinical study by Hassan et al. was published, where twenty-six subjects in their adolescence with class III malocclusion were recruited [6]. Instead of surgical correction, they were treated with active skeletonized sutural distractor, and its effects on skeletal, dental, and soft tissue were assessed before and after the treatment using radiographic and dental cast. Various parameters, such as the mandibular plan angle and SNB angle, were assessed. The prospective study concluded that there was a significant betterment observed in skeletal, dental, and soft tissues.

One of the retrospective studies published in the Special Issue was by Alam et al., where artificial intelligence-based software known as WebCeph was employed to read the lateral cephalogram of a total of 123 individuals [7]. The objective of the study was to compare the lip morphology and nasolabial angle in non-syndrome-associated cleft patients with non-cleft patients. To assess these parameters, multiple points/landmarks on the lip and nasolabial area were identified. Out of 123 patients, 92 patients had a non-syndrome-associated cleft lip/palate of varying types, including unilateral and bilateral, whereas only 31 non-cleft patients were included. No significant variation was observed with regard to gender or the side of the jaw. However, significant dimensional changes were observed in two parameters between the two study groups.

Another significant audit study was published by Mousa et al., where the archived data from the radiology department were screened for the quality of root canal treatment performed from the interns and undergraduate students [8]. A total of 566 root canals were treated in 322 teeth, including anterior and posterior teeth. The results showed that the majority of shortcomings in RCT were in regard to short obturation followed by the absence of the apical seal. Perforation was the least common type of error reported in the study. Overall, an acceptable quality of RCT was observed, with no significant difference between the two group of students.

Lastly, a questionnaire-based study was published by Firinciogullari et al. which evaluated the knowledge and awareness of the general population visiting the dental outpatient clinic in North Cyprus [9]. A total of 250 subjects received a self-administered questionnaire containing questions about the different aspects of oral cancer. The study reported that the population had acceptable knowledge about oral cancer, especially the symptoms and most common presentation, which is an oral ulcer. Additionally, the subjects displayed a good awareness about tobacco being the most common risk factor. However, they appeared to be comparatively less informed about other risk factors, including alcohol and HPV. Furthermore, awareness about “quitting tobacco” being the most efficient prevention was observed.

3. Future Prospects in Diagnostics and Treatment

This Special Issue is now closed for receiving new submissions, but there is still a need for more research on oral health and its impact on the global population. Because this is a dynamic area, we expect that more AI-based diagnostic tools and algorithms will be available for the early identification of oral diseases so that an intervention can be conducted at the initial stage.

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