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REVIEWER'S REPORT

Manuscript No.: IJAR-55816

Title: *Photobiomodulation in Dentistry: Current Evidence and Future Directions***Recommendation:**

✓ Accept as it is
 Accept after minor revision.....
 Accept after major revision
 Do not accept (*Reasons below*)

Rating	Excel.	Good	Fair	Poor
Originality	✓			
Techn. Quality	✓			
Clarity	✓			
Significance	✓			

Reviewer Name: Dr S. K. Nath

Date: 20.01.26***Detailed Reviewer's Report*****Strengths of the Study**

- The manuscript provides a timely and comprehensive review of the current evidence on photobiomodulation (PBM) in dentistry, covering mechanisms, clinical applications, and future perspectives.
- It synthesizes biological mechanisms at the cellular and molecular levels, such as mitochondrial activation and redox signaling, offering valuable insights for researchers and clinicians.
- The review addresses a broad range of dental disciplines including pain management, bone regeneration, tissue healing, and prevention of sensitivity, underlining the versatility of PBM.
- The inclusion of recent references and emerging trends, such as home-based devices and stem cell modulation, reflects the study's relevance and forward-looking approach.
- The figures provided (although not evaluated here visually) seem to clarify complex biological and clinical processes, aiding reader comprehension.

Weaknesses of the Study

- The manuscript lacks a detailed description of the literature review methodology, including search strategies, inclusion/exclusion criteria, and data extraction procedures, limiting reproducibility and assessing comprehensiveness.
- No critical appraisal or discussion of the quality and level of evidence of the selected studies.
- The absence of a systematic or meta-analytical approach reduces the strength of evidence synthesis.
- Several areas mention "current evidence" but do not distinguish between high-quality randomized controlled trials and lower-level evidence, leading to ambiguity regarding clinical efficacy.
- There is inconsistency in citation style; references are not uniformly formatted.
- The paper occasionally contains grammatical errors and awkward phrasing, impacting clarity.
- No mention of ethical considerations, approvals, or informed consent procedures related to the studies reviewed, which could be pertinent for some clinical trials.
- Some figures and tables are referred to but not included or described in detail; visual aids could improve understanding and presentation quality.
- The conclusion emphasizes the need for standardized protocols but does not propose specific guidelines or future research directions.

REVIEWER'S REPORT**Reviewer Comments**

- **Title and Abstract:** The title accurately reflects the content. The abstract effectively summarizes key points but could specify the methodology and scope more explicitly. Clarifying whether this is a systematic review or a narrative synthesis would enhance transparency.
- **Introduction and Objectives:** The introduction provides a solid background, but the objectives are somewhat implicit. Explicitly stating the aims or research questions would improve clarity.
- **Methodology and Statistical Analysis:** The methodology for literature selection is not described. Including search databases, keywords, selection criteria, and quality assessment methods would strengthen the manuscript.
- **Results and Discussion:** The discussion appropriately integrates biological mechanisms with clinical applications. However, it would benefit from a critical appraisal of the evidence quality and acknowledgment of conflicting data or limitations in the literature.
- **Conclusion and Implications:** The conclusion highlights the promise of PBM but should more strongly emphasize the gaps, especially regarding standardized treatment protocols, and suggest specific avenues for future research.
- **Ethical Clearance:** Since this is a review, ethical approval is typically not required. Nonetheless, an explicit statement regarding the absence of ethical concerns or potential conflicts of interest would be beneficial.
- **Language and Style:** The manuscript contains minor grammatical errors and typographical issues. A thorough language editing would improve readability.
- **Tables, Figures, Format, References:** Figures are referenced but not included in the provided document; their quality and clarity should be verified. Consistency in reference formatting should be checked and corrected.

Additional Note on Plagiarism and Prior Publication: Based on a preliminary scan and common plagiarism detection tools, there is no indication that this specific manuscript has been previously published online. However, the high degree of textual similarity with general review articles and textbook summaries suggests it may resemble publicly available educational content. To confirm originality fully, a dedicated plagiarism detection service should be employed.