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REVIEWER'S REPORT

Manuscript No.: IJAR-58191

Title: Resin Infiltration in Non-Surgical Caries Management: A Contemporary Review

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's ID: JPR-002

Detailed Reviewer's Report

The manuscript entitled “*Resin Infiltration in Non-Surgical Caries Management: A Contemporary Review*” presents a comprehensive narrative overview of resin infiltration and its applications in minimally invasive dentistry. The topic is highly relevant and clinically important, especially considering the global shift toward conservative management of early carious lesions. The authors successfully summarize multiple dimensions of resin infiltration including biological principles, clinical techniques, indications, comparative effectiveness, limitations, and emerging future directions.

The manuscript's major strength lies in its broad coverage of literature and clear clinical orientation. The sections explaining biological rationale, capillary-based infiltration mechanisms, optical masking effects, and clinical procedures are generally informative and readable. The inclusion of future directions such as bioactive infiltrants, AI-assisted diagnosis, and combination therapies adds contemporary relevance and demonstrates awareness of evolving developments in the field.

Despite these strengths, the manuscript currently reads more as an extended descriptive review rather than a critical contemporary review. The authors frequently summarize findings without adequately evaluating the quality, consistency, or limitations of available evidence. Statements such as “superior lesion arrest,” “predictable and safe treatment,” and “significant effectiveness” should be supported with deeper interpretation of study designs, evidence hierarchy, and methodological

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limitations. Greater distinction should be made between evidence originating from randomized clinical trials, systematic reviews, meta-analyses, narrative reviews, and in vitro studies.

A major concern is the absence of a clearly described review methodology. Although this is presented as a contemporary review, the manuscript does not explain literature search strategy, databases searched, inclusion or exclusion criteria, publication timeframe, study selection process, or methods for evidence synthesis. Without methodological transparency, readers cannot assess completeness, reproducibility, or risk of selection bias. The authors should include a dedicated methodology section clarifying whether this is a narrative review, scoping review, or systematic review-style evidence synthesis.

The comparative effectiveness section requires further strengthening. Comparisons between resin infiltration and fluoride therapy, pit and fissure sealants, and silver diamine fluoride are informative but occasionally appear overly favorable toward resin infiltration. The discussion should include clearer acknowledgment of clinical contexts where alternative approaches may remain preferable, including cost-effectiveness, ease of application, long-term outcomes, and patient-related factors. Inclusion of a comparative summary table highlighting indications, advantages, disadvantages, clinical outcomes, and evidence levels would substantially improve readability.

The manuscript also contains some repetitive content across sections. Similar descriptions of lesion arrest mechanisms, optical masking, clinical indications, and preservation of tooth structure recur in multiple sections including Introduction, Clinical Applications, Safety Considerations, and Conclusion. Consolidation of overlapping content would improve flow and reduce redundancy.

The section on limitations is comprehensive but could benefit from stronger linkage to future research priorities. Discussion on long-term durability, operator variability, penetration depth, and cost should be directly connected to proposed solutions and current gaps in evidence. More attention should also be given to patient-centered outcomes such as quality of life, patient satisfaction, and economic considerations.

From a writing perspective, minor language editing is recommended. Several sentences are excessively long and repetitive, reducing readability. Terminology should remain consistent throughout the manuscript (e.g., "white spot lesions," "non-cavitated lesions," and "micro-invasive treatment"). Some sections contain grammatical inconsistencies and could benefit from professional language polishing.

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The reference list is extensive and mostly current, including literature published up to 2026. However, citation formatting should be carefully checked for consistency according to journal style requirements. The authors should also ensure that all references directly support the claims presented and avoid excessive dependence on secondary review sources where primary evidence is available.

Overall, this manuscript addresses an important and clinically meaningful subject with potential value for publication. However, substantial revision is necessary to improve methodological transparency, critical appraisal of evidence, reduction of redundancy, and scientific depth. After major revision and strengthening of analytical discussion, the manuscript may become suitable for publication.

Specific Suggestions for Improvement:

1. Add a dedicated methodology section describing literature search and selection strategy.
2. Strengthen critical evaluation of evidence rather than descriptive summarization.
3. Include a comparative table summarizing treatment modalities and evidence levels.
4. Reduce repetition across Introduction, Applications, and Conclusion sections.
5. Expand discussion on cost-effectiveness and patient-centered outcomes.
6. Improve language clarity and reduce overly long sentences.
7. Standardize citation formatting and verify source relevance.
8. Include a concise clinical decision-making framework for case selection.