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## REVIEWER'S REPORT

Manuscript No.: IJAR 52561 Date: 01/7/2025

**Title: "COMPARATIVE EVALUATION OF THE EFFECT OF DIFFERENT DENTIN DISINFECTION PROTOCOLS ON THE SHEAR BOND STRENGTH OF TWO RESTORATIVE MATERIALS- AN IN VITRO STUDY."**

**Recommendation:**
Accept as it is .....
Accept after minor revision – **YES**
Accept after major revision .....
Do not accept (*Reasons below*) .....

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

Reviewer Name: Dr. Vasudha Kommu **Date:** 01/7/2025

**Reviewer's Comment for Publication.**

(*To be published with the manuscript in the journal*)

*The reviewer is requested to provide a brief comment (3-4 lines) highlighting the significance, strengths, or key insights of the manuscript. This comment will be Displayed in the journal publication alongside with the reviewers name.*

This manuscript titled **"COMPARATIVE EVALUATION OF THE EFFECT OF DIFFERENT DENTIN DISINFECTION PROTOCOLS ON THE SHEAR BOND STRENGTH OF TWO RESTORATIVE MATERIALS- AN IN VITRO STUDY"** effectively compares the impact of different dentin disinfection protocols (2% chlorhexidine and GLUMA® desensitizer) on the shear bond strength of two restorative materials (Resin-Modified Glass Ionomer Cement and Equia Forte). The findings demonstrate that both disinfectants generally improve shear bond strength compared to no disinfection, with GLUMA showing superior results, particularly with Equia Forte. This research provides valuable insights for optimizing restorative protocols and enhancing treatment longevity.

This in vitro study's main limitation is its controlled laboratory setting, which may not fully replicate complex oral conditions like varying moisture levels and masticatory forces, thus affecting the direct clinical applicability of the shear bond strength results.

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Recommendation: Accept with minor revisions

## *Detailed Reviewer's Report*

1. Study Design (In Vitro): This is an in vitro study conducted on extracted human premolars. While this design allows for strict control over variables, it inherently lacks the complexity of the in vivo oral environment, which includes factors like dynamic salivary flow, temperature fluctuations, masticatory forces, and the biological response of pulp tissue. Therefore, the direct clinical applicability and generalizability of the shear bond strength (SBS) results may be limited.
2. Sample Size: A total of 72 extracted premolars were used, divided into 3 groups with 24 specimens each (12 for RMGIC and 12 for glass hybrid within each group). While the sample size is clearly stated, the manuscript does not include any mention of a power analysis to justify this sample size for detecting statistically significant differences. Without a power analysis, it's difficult to ascertain if the study had sufficient power to avoid Type II errors.
3. Randomization: The study states that the extracted premolars "were randomly divided into 3 groups". However, the specific method of randomization (e.g., simple random sampling, stratified randomization) is not described. Providing this detail would enhance the study's methodological rigor and transparency.
4. Statistical Analysis: The study used SPSS version 22.0, with One-way ANOVA for comparing average resistance across groups and the Post hoc Tukey test for pairwise comparisons. A p-value below 0.05 was considered statistically significant. The statistical methods appear appropriate for the study design, and p-values are reported for key comparisons. However, full statistical tables showing all mean, standard deviation, and p-values could enhance transparency.
5. Limited Follow-up: The samples were stored in distilled water for only 24 hours at room temperature prior to SBS measurement. This short duration does not account for the long-term effects of oral fluid exposure, thermal cycling, or occlusal stresses that can influence bond strength in a clinical setting over time.
6. Absence of Clinical Relevance Discussion for CHX: While the study concludes that both GLUMA and CHX do not significantly interfere with adhesion, and CHX showed improved SBS over control, the discussion points out that CHX's interaction with RMGIC "may be less favourable due to its cationic nature possibly interfering with the setting reactions". Further elaboration on the clinical implications of this potential interference, despite the observed SBS values, would be beneficial.