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REVIEWER'S REPORT

Manuscript No.: IJAR 53742 Date: 10/9/2025

Title: "COMPARATIVE EVALUATION OF THREE DIFFERENT IMPLANT ABUTMENT CONNECTION ON STRESS DISTRIBUTION AROUND THREE DIFFERENT IMPLANT SYSTEM UNDER FUNCTIONAL LOAD: A 3-D FINITE ELEMENT ANALYSIS"

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:** 10/9/2025

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 THREE DIFFERENT IMPLANT ABUTMENT CONNECTION ON STRESS DISTRIBUTION AROUND THREE DIFFERENT IMPLANT SYSTEM UNDER FUNCTIONAL LOAD: A 3-D FINITE ELEMENT ANALYSIS"** utilizes 3D finite element analysis to evaluate the stress distribution around three different implant systems under functional loads. The findings provide valuable insights into the biomechanical advantages of internal implant-abutment connections, specifically highlighting that the conical hex connection distributes stress most favorably. The research contributes to understanding how different implant designs influence stress transmission to surrounding bone, which is crucial for long-term implant success.

The primary limitations of this study are its in-vitro nature and simplifying assumptions. The use of a Finite Element Analysis (FEA) model, while a powerful tool, does not fully replicate the complex and dynamic conditions of a clinical setting, such as the non-homogeneous nature of human bone and the presence of micro-movements. The study also assumes a perfect, 100% implant-bone interface, which is not always the case in clinical situations. Additionally, the study does not account for other variables that can influence an abutment's resistance to fracture, such as the number of components, screw length, thread design, and material.

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Recommendation: Accept with minor revisions

Detailed Reviewer's Report

Areas of Improvement

1. **Clarity of Results:**
   The text in the results section needs to be more precise. The statement, "Stress at 200 N, 100 N with 15∘ tilt, was found to be highest in Sample A followed by Sample C and Sample B, and the difference was statistically insignificant" is contradictory to the data in the tables. The text and tables should be synchronized to avoid confusion. Additionally, the statement about the order of stress distribution in the conclusion should be corrected to accurately reflect the data presented in the tables.
2. **Methodological Detail:**
   While the authors state that the models were meshed with tetrahedral and octahedral elements, they could provide details on the number of elements and nodes for each model. The provided table includes these details, so the information is available but not integrated into the text.
3. **Discussion of Assumptions:**
   The discussion could be strengthened by a more in-depth analysis of how the study's assumptions, such as perfect osseointegration and homogeneous bone properties, might affect the clinical outcome.
4. **Referencing Consistency:**
   As noted in the source document, the referencing style has inconsistencies. This should be corrected for professional presentation