ISSN(O): 2320-5407 | ISSN(P): 3107-4928

ISSN NO. 2320-5407

International Journal of Advanced Research

Publisher's Name: Jana Publication and Research LLP

www.journalijar.com

REVIEWER'S REPORT

Manuscript No.: IJAR-59097

Title: Robotics in endodontics: an integrative review of autonomy and translational readiness

Recommendation:

Accept as it is .....

Accept after minor revision...

Accept after major revision .....

Do not accept (*Reasons below*) .....

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

Reviewer's ID: Dr. Sumathi

Detailed Reviewer's Report

1. **Endodontics is a specialized branch of dentistry that focuses on diagnosing, treating, and preventing diseases and injuries of the dental pulp and the tissues inside the roots of a tooth.**
2. **Endodontics is a specialized branch of dentistry focused on diagnosing, treating, and preventing diseases and injuries of the dental pulp and the tissues surrounding the roots of a tooth. The term comes from Greek words meaning "inside the tooth", targeting the soft inner layer containing nerves, blood vessels, and connective tissue.**
3. **Medical robotics is a rapidly evolving branch of biomedical engineering and automation that introduces specialized mechanical platforms into healthcare. These systems extend the capabilities of medical professionals, automate high-volume tasks, and optimize patient care. Far from replacing humans, healthcare robots act as tireless assistants designed to reduce human error, eliminate physical fatigue, and execute procedures with sub-millimeter precision.**
4. **Microrobotics is a highly interdisciplinary field of engineering and materials science focused on designing, manufacturing, and**

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controlling miniature robots that typically measure less than 1 millimeter. Because these machines operate at such miniature scales, the physical laws governing their world are entirely different from those governing traditional robotics. Volumetric forces like gravity and inertia become negligible, while surface tension, adhesion, fluid viscosity, and electrostatic forces dominate.

5. **Endodontic microsurgery is an advanced, minimally invasive dental procedure performed under high magnification to treat persistent infections or structural damage at the tip of a tooth root when standard root canal therapy is not enough. It updates traditional root-end surgery (like an apicoectomy) by utilizing specialized micro-instruments, ultrasonic tips, and surgical operating microscopes.**
6. **Technology readiness levels (TRLs) are a standardized 1-to-9 metric system used to estimate the maturity of a specific technology and evaluate its readiness for real-world deployment or commercial integration.**
7. **Surgical autonomy refers to either a medical robot's ability to perform tasks without direct human control or a surgical resident's progressive independence during training.**
8. **An integrative review of autonomy focuses primarily on how self-determination, independence, and decision-making authority manifest across various professional and caregiving environments. In healthcare contexts—where the majority of integrative reviews on this topic are concentrated—autonomy is identified not as a rigid, all-or-nothing trait, but as a multidimensional continuum that directly influences job satisfaction, health outcomes, and organizational retention.**
9. **Translational readiness is the criteria and benchmarking framework used to determine whether a scientific discovery, medical countermeasure, or software tool is mature enough to transition from a laboratory setting into real-world human clinical application. Unlike raw technical functionality, it evaluates whether an innovation is safe, reproducible, compliant with regulations, and optimized for integration into practical workflows. It is widely used across biotechnology, medical diagnostics, and healthcare artificial intelligence (AI) to ensure that laboratory breakthroughs successfully translate into measurable patient benefits.**

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10. **Key words are excellent.**
11. **Flow chart of significant points are good.**
12. **Result part tables and graphs can be made.**
13. **Summary points also be added.**
14. **References should be with alphabetical order.**
15. **Abstract with meaningful points are very impressive.**
16. **After those changes good to publish in your journal.**