



Possibilities and Future of Research and Development in Dentistry

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Received: March 12, 2022; **Published:** March 29, 2022

The clinical dentistry is undergoing several changes in its scope, technology, materials and methods. Developed nations have already incorporated computer based diagnostic technology, molecular diagnosis, advanced biotechnological devices, gene therapy, nano-biomaterials which in turn improves clinical decision making and accuracy. Gradual increase in overall and oral health awareness, seeking of quality treatment among the developing nations are driving the medical fraternity towards clinical research. The changing concept of dental disease and availability of funding/sponsorship have supplemented an increase in the scope of clinical research. Trained and experienced clinical investigators are crucial to explore unknown etiological factor and etiopathogenesis of disease, improvement of biomaterials and development of newer materials. Overall trend in dentistry is also shifting towards research based education in developing nations also. Focus is increasing towards clinical trials comparing dental therapy, qualitative assessment of dental biomaterials, functioning of newer biomaterials in various fields of dentistry, improvement of oral hygiene device and aids etc. Comparatively newer treatment modalities like LASER based dentistry, Photodynamic therapy, host modulation therapy, dental vaccines, regenerative biomaterials are already in clinical use. Clinicians are conducting multiple studies to show the efficacy of newer therapy, biomaterials and techniques emerging for diagnosis and treatment. Behavioral and social science studies in dental research, are focusing to understand patient attitude, acceptability, motivation and de-addiction therapy. 3D printing is increasing in dental industry with innovative materials, to accelerate the speeds of creation for custom dentures, crowns in minutes instead of in days or weeks. Similarly esthetic and cosmetic dentistry based research, novel biomaterials, minimally invasive techniques have gained immensely. Implant based dental rehabilitation, use of nano-technologically developed bone substitute grafts for bone regenerations or ridge preservation, improvement of implant materials are currently popular and in practice. A recent report published by Grand View Research, Inc. showed that the global clinical

Research industry may reach up to USD 65.2 billion by 2025. Hence, incorporation and emphasis on research based education from dental graduation level may develop interest among students. The future dentistry has a huge scope in research and development field. At the same time researchers should be educated about the protection of patient data, ethical considerations and fair data representation as per international standard. Still some hurdles in dental research are funding, identification and appropriate selection of research topics. Despite all impediment, institution and individual research will ultimately improve the quality of health care, generation of advanced biomaterials and armamentarium.

Volume 5 Issue 4 April 2022

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