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Editorial

Time to redefine oral health research agenda for India

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1. Introduction

Oral diseases such as dental caries, periodontal disease and oral cancer are among the world's most common non-communicable conditions, affecting billions of people. These diseases drive pain, disability, and catastrophic expenditure. Their uniqueness lies in the way they straddle biology, behavior, social determinants and broader health systems like service delivery and insurance. Hence, they call for comprehensive, multilevel research that extends beyond mere prevalence mapping and case reports. As the world's most populous country with a vast dental workforce, India has great potential to make significant contributions to global oral health research. However, much of the current research emerging from India remains predominantly quantitative, largely focusing on prevalence or clinical studies with limited emphasis on generating actionable evidence for prevention or system strengthening. This imbalance between quantification and understanding between a curative focus and preventive inquiry reflects a deeper structural issue.

2. Oral health Research Ecosystem of India

India's oral health research landscape is at a crucial stage. While the country has one of the largest dental education workforces globally, with over 330 dental colleges and thousands of undergraduate and postgraduate students annually, the scope, direction, and diversity of its research output remain limited.[1] Oral health research in India remains predominantly disease-centered, narrowly clinical, and insufficiently contextualized. Other low- and middle-income countries such as Brazil, Kenya, and South Africa have successfully embedded qualitative and implementation research into their oral health systems, producing policy-relevant evidence that guides interventions.[2] Nationally, about 35 active dental journals exists, most supported by non-profit organizations (n=26) or educational institutions (n=9). Around 60% of these journals are indexed in Scopus, with slightly fewer (n=12) in the Web of Science.[3] For example, the Journal of Conservative Dentistry and Endodontics is ranked in the first quartile (Q1) with an SJR of 0.66 and an h-index of 48 under SC Imago.[4] The Indian Journal of Dental Research has an h-index of 56, is classified in quartile Q3, and has had impact factors (Scopus-based) around 0.5-0.9 in recent years.[5] While many journals are indexed in one or another database, impact factors are modest, highlighting the need to improve methodological quality, strengthen the review process, foster international collaboration, and focus on translational research. Nevertheless, this publishing ecosystem provides a vital foundation for promoting innovation and cross-disciplinary research. Indian dental journals can foster methodological inclusivity by dedicating space to translational, mixed-methods, and implementation research. Aligning research priorities with national oral health initiatives can help ensure that findings inform health system reforms directly. Promoting reflexive and ethical research practices where investigators critically examine their positionality, value community voices, and maintain transparency will boost credibility and public trust.

The quantitative tradition in Indian dental academia has undeniably built a valuable repository of baseline data on caries, periodontal diseases, fluorosis, and oral cancer.[6]

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However, it now appears saturated, recycling cross-sectional patterns that seldom translate into meaningful change. Most postgraduate thesis or short projects continue to rely on indices-driven surveys that quantify disease but rarely explore underlying behaviors, inequities, or systemic barriers. Most clinical dental research is constrained by limited methodological rigor and funds. Prevailing methodological preferences have tended to emphasize quantification over contextual understanding, resulting in impressive statistics but limited insight into solutions.[7] The evolving landscape of oral health in India underscores the need for novel, evidence-based, and population-tailored approaches in dental research. Two such approaches are discussed below:

1. Qualitative research is recognized internationally as an essential approach for understanding patient experiences, cultural norms, and barriers to care, but its application within Indian oral health research has been sporadic. Most qualitative studies in India are confined to tobacco cessation or studying behavior of children, with limited exploration in areas such as geriatric oral health, patient–provider communication, or community perceptions of preventive programs.[8] The absence of theoretical frameworks and training in methods such as grounded theory or thematic analysis further restricts interpretive depth. By contrast, such approaches have informed national oral-health policies elsewhere by illuminating "why" interventions succeed or fail, something quantitative methods alone cannot capture.[4]
2. Implementation research is the science of translating evidence into real-world practice. It examines "how" interventions work across diverse settings, identifying barriers and facilitators to their adoption, scaling, and sustainability. In India, this paradigm remains largely absent from dental academia. Postgraduate students seldom receive training in frameworks such as the Consolidated Framework for Implementation Research (CFIR) or RE-AIM (Reach, Effectiveness, Adoption, Implementation, Maintenance).[9] As a result, most projects conclude with publication rather than translation into policy or practice. This reflects a persistent emphasis on curative, hospital-based studies and the chronic underinvestment in community-oriented inquiry.[9]

3. Reimagining India's Oral Health Research Agenda

Reimagining India's oral health research agenda demands a paradigm shift from a narrow focus on achieving statistical significance toward generating evidence that can meaningfully influence real-world outcomes. Strengthening research capacity begins with integrating contemporary research approaches into postgraduate curricula and enhancing opportunities for teachers to upgrade their knowledge.[10] Future research should include a deeper exploration of the bidirectional links between oral and systemic health, particularly in relation to diabetes, cardiovascular diseases, and maternal health, reflecting the global recognition of these interconnected pathways. Equally important is the promotion and funds availability for well-designed, adequately powered, double-blind randomized controlled trials that employ robust methodologies and larger sample sizes to ensure reliability and generalizability of clinical findings. There is a need to improve our understanding into the social and commercial determinants of oral health, including inequities in access, lifestyle influences, and marketing of sugar-rich products which can generate insights to inform preventive policies and community-level strategies. Continued advancement in dental material sciences is also essential, with a focus on innovation, sustainability, and biocompatibility suited to local contexts. Simultaneously, systematic evaluation and adaptation of indigenous oral hygiene practices and traditional Ayurvedic or herbal approaches through modern scientific frameworks can help integrate time-tested knowledge with contemporary evidence-based care.[10]

Emerging global approaches offer promising directions. Teledentistry and digital triage are expanding rapidly worldwide, improving access and enabling remote follow-up, especially for rural populations. Artificial intelligence (AI) is enhancing diagnostic precision in radiographs, caries detection, and implant planning. Salivanomics and biomarker research are evolving as non-invasive tools for early detection of oral cancers and mucosal diseases. Pragmatic and participatory trials, common in high-income countries, are now demonstrating real-world feasibility by testing community or school-based interventions using frameworks like CFIR and RE-AIM. These models can be adapted effectively in India to evaluate oral health interventions under everyday conditions rather than controlled laboratory or clinical settings.

4. Concluding Remarks

For Dentistry in India, the way ahead lies in developing research ecosystems that bridge discovery with delivery. Quantitative methods will always remain vital, but they must be complemented by the depth of qualitative understanding and the pragmatism of implementation science. By fostering a new generation of socially conscious dental researchers, India can move beyond counting diseases to creating solutions that ensure equitable, sustainable, and patient-centered oral health for all.

Conflict of Interest

None.

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