



## Prosthodontic Research at Crossroads: Are We Publishing What Matters?

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Today, modern prosthodontics is publishing more science than ever in its history. Our journals are replete with publications on digital workflow, implant macro-designs, AI planning, and biomaterial advancements. However, an uncomfortable reality remains: despite the growth in prosthodontic science, clinical practice appears to evolve at a glacial pace. What the specialty of prosthodontics faces in the modern age of evidence-based practice is no longer a problem of science production; it is a problem of science translation. The gap between prosthodontic publication and clinical practice may be attributed to a variety of structural limitations in outcome selection, research design, innovation development, and translation.

The implant literature of today reports a plethora of studies with high implant survival rates of over 95%, regardless of the indication or prosthetic configuration used<sup>1,2</sup>. While these statistics may be beneficial in providing a sense of security in clinical practice, these statistics offer little guidance in answering critical clinical questions regarding whether a tooth should be saved or whether a particular prosthetic configuration should be used based on its long-term maintenance risks. Recent studies have highlighted the fact that biological complications rather than

mechanical failure are the most common cause of long-term prosthodontic failure, with peri-implant disease and soft tissue instability at the forefront of these complications<sup>3</sup>. While implant survival may be high, clinical decisions remain uncertain because survival does not necessarily equate with success.

The second problem with the research in prosthodontics is the continued dependence on surrogate outcomes. Most studies in prosthodontics have focused on marginal seal, material strength, radiographic bone levels, or implant survival as a primary outcome measure. Systematic evidence mapping studies have shown that survival and structural outcomes remain the most common outcome measure in implant prosthodontic research. However, actual clinical success is equally dependent on speech adaptation, hygiene feasibility, masticatory comfort, esthetic satisfaction, and maintenance burdens. Prosthesis outcome research in clinical practice still reports ceramic chipping, screw loosening, and framework problems despite satisfactory prosthesis survival rates<sup>5</sup>. Prostheses are clinically successful and statistically burdensome.

The current rate of digital transformation in the field of prosthodontics has outstripped traditional clinical validation. Applications in artificial intelligence,

implant planning, prosthetic design, and predictive diagnostics are expanding at an ever-increasing rate, while systematic review evidence suggests that robust clinical validation in these areas remains lacking. Bibliometric studies have also shown that AI-driven prosthodontics is an expanding research field, though not yet supported by standardized clinical outcome frameworks. Meanwhile, augmented reality-based guidance systems are now being integrated into implant procedures and surgical training environments. However, even with high-quality comparative research available, it often results in findings that are scientifically valid yet clinically ambiguous. For example, recent systematic comparisons of tissue-level versus bone-level implant systems have shown potential biological superiority in various parameters; however, these studies have yet to show clear statistically significant superiority in failure rates<sup>9</sup>. As a result of these studies repeatedly showing “no significant difference,” clinicians are likely to revert to training familiarity, financial considerations, in-house support staff, and personal experience. As a result, even high-quality evidence may not be sufficient to drive clinical change if it does not clearly impact clinical decision thresholds.

As recent prosthodontic studies reveal, treatment burden may be determined less by initial prosthesis placement and more by the subsequent maintenance environment. Long-term follow-up studies have shown that prostheses may be successful in the long term yet may need ongoing management of complications, repairs, hygiene interventions, and component part replacement<sup>10</sup>. In the field of craniofacial implant prosthetics, recent research has shown a high degree of success with ongoing, manageable levels of inflammatory complications. A notable observation is that very few investigations in the field of prosthodontics examine the frequency, repairs, financial, and adjustment burden, all of which are more representative of reality.

The biggest problem is not with the research itself but with its presentation structure. Many prosthodontic research articles are clinically irrelevant because they do not include: treatment selection algorithms, workflow diagrams, complication risk modeling and maintenance projections. For research to be used to improve clinical practice, it must be presented in such a manner that its application is obvious. Fortunately, recent international consensus documents on customized implant planning and rehabilitation workflow design demonstrate how such research reporting significantly increases its overall value to clinical practice<sup>12</sup>.

If prosthodontic science is to change clinical practice and not simply increase its literature volume, then future research must be designed to include: multicenter pragmatic clinical trials, five-to-ten-year clinical endpoint data, mandatory patient-reported outcomes, maintenance burden reporting, workflow reproducibility documentation and transparent cost modeling. However, perhaps more important is that future research must be rewarded within our literature by those journals that recognize its clinical decisional impact, not its technical innovation.

The prosthodontic profession is no longer in a place where there is a lack of research or knowledge. Rather, we are in a place where our research is not being used to improve patient outcomes. This is not because our clinical colleagues are unwilling to improve patient care through science. Rather, much of our research does not sufficiently address biological realities, patient needs, technology advancements, or maintenance realities. The challenge to our profession is now out in the open: we must move from publishing prosthodontic research to publishing prosthodontic guidance. Only then will our scientific literature achieve its ultimate purpose: to improve function, longevity, comfort, and quality of life for our patients. Prosthodontics does not lack research—it risks lacking the right research. The true challenge

before the profession is not to publish more studies, but to ensure that the studies we publish are those that clinicians cannot afford to ignore.

## References

1. Göker F, Rai PM, De Santis D, Colombo M, Gornati L, Savoini E, et al. Outcomes of dental implants in routine clinical practice: a retrospective multicenter study. *Int J Dent.* 2025;2025:9930477. doi:10.1155/2025/9930477.
2. Reda R, Zanza A, Testarelli L, Di Nardo D, Galli M, De Angelis F. Long-term survival and complications of full-arch implant-supported prostheses: a systematic review. *J Clin Med.* 2025;14(2):412-420. doi:10.3390/jcm14020412.
3. Bischof FM, Al-Nawas B, Kämmerer PW. Biological complications in implant prosthodontics: a systematic review of peri-implant diseases and prosthetic risk factors. *Clin Oral Investig.* 2024;28(5):2647-2658. doi:10.1007/s00784-024-05467-4.
4. Tobias G, Stumbras A, Linkevičius T. Implant success criteria and survival metrics in implant dentistry: a systematic review. *Clin Implant Dent Relat Res.* 2025;27(1):98-110. doi:10.1111/cid.13352.
5. Kumbhare S, Patil PG, Singh RD. Clinical outcomes and complications of implant-supported fixed dental prostheses: a retrospective cohort study. *J Prosthodont.* 2024;33(6):509-516. doi:10.1111/jopr.13690.
6. Alqutaibi AY, Algabri R, Ibrahim WI, Alhaji MN, Elawady D. Dental implant planning using artificial intelligence: a systematic review and meta-analysis. *J Prosthet Dent.* 2025;134(5):1619-1629. doi:10.1016/j.prosdent.2024.03.032.
7. Hu W, Li Y, Zhang S, Chen Y. Global research trends of artificial intelligence in prosthodontics: a bibliometric analysis. *J Prosthodont Res.* 2025;69(2):234-243. doi:10.2186/jpr.JPR-2024-214.
8. Roşu SN, Popa D, Baciut M, Bran S. Augmented reality in implant dentistry: a scoping review. *Appl Sci.* 2025;15(6):3211. doi:10.3390/app15063211.
9. Atieh MA, Payne AGT, Duncan WJ. Tissue-level versus bone-level dental implants: a systematic review and meta-analysis. *Clin Oral Implants Res.* 2025;36(2):145-156. doi:10.1111/clr.14216.
10. Dahlgren S, Jemt T, Pjetursson BE. Long-term outcomes of tooth-implant-supported prosthetic reconstructions: a systematic review. *Clin Implant Dent Relat Res.* 2024;26(4):732-742. doi:10.1111/cid.13294.
11. Goiato MC, Santos DM, Pesqueira AA, Moreno A, Haddad MF. Clinical outcomes of craniofacial implant-supported prostheses: a systematic review. *J Prosthet Dent.* 2025;133(3):391-398. doi:10.1016/j.prosdent.2024.01.015.
12. Tofé-Povedano Á, Herce-López J, del Canto-Pingarrón M, Seira-Gil R, Rodado-Alonso C, Garrido-Martínez P, et al. Prosthodontic considerations for customized subperiosteal implants: a consensus report. *Appl Sci.* 2025;15(14):7633. doi:10.3390/app15147633.

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