Evidence-Based Prosthodontics

Fundamental Considerations, Limitations, and Guidelines

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KEYWORDS

• Evidence-based dentistry • Prosthodontics • Guidelines • Systematic reviews
• Randomized controlled clinical trials • Prospective studies • Retrospective studies

KEY POINTS

- Prosthodontics is a unique specialty that offers numerous advantages and disadvantages for application of principles of evidence-based dentistry (EBD).
- An important difference between medical and dental models of care is the level of control a patient has about how, when, and whether it is necessary to treat a dental problem. This is especially true in the discipline of prosthodontics. Hence, an absolute extrapolation of evidence-based concepts from medicine to prosthodontics is not possible.
- Current lack of "strong" evidence for a particular treatment does not necessarily imply that the treatment is "inferior" or "clinically ineffective." Efforts should be targeted, however, to improve the future scientific evidence for such treatments.
- Due to the unique nature of prosthodontics, it is necessary to establish a consensus on guidelines for reporting prosthodontic outcomes. These guidelines can ensure that investigators provide standardized reporting of their studies in order for them to be clear, complete, and transparent and allow integration of their evidence into clinical practice.
- In order to teach and understand evidence-based prosthodontics, academicians and clinicians need to attain new skills pertaining to computer-based knowledge systems. These skills are necessary to use scientific evidence for the 5-step process of asking, acquiring, appraising, applying, and assessing.
- Evidence-based prosthodontics can change the future course of prosthodontics education, patient care, reimbursements, research agendas, and oral health policies that have an impact on prosthodontics.

INTRODUCTION

The traditional model of care in dentistry involves use of individual clinical expertise and patient treatment needs to provide dental care (**Fig. 1**). This model of care has been used for centuries across the world and is primarily based on observations, beliefs, and personal and expert opinions. Although this model has not led to any

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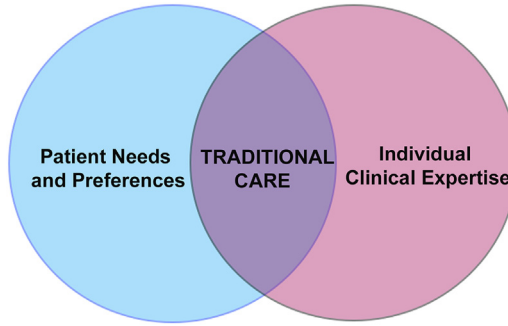

Fig. 1. Traditional model of care in dentistry involves use of individual clinical expertise and patient treatment needs to provide dental care.

devastating effects in dentistry, it precludes systematic assimilation, acceptance, and assessment of new treatment effects. Furthermore, it provides minimal confidence to clinicians for making clinical decisions for new scenarios and new treatments. The term, *evidence-based practice*, is defined as "the conscientious, explicit and judicious use of current best evidence in making decisions about the care of the individual patient. It means integrating individual clinical expertise with the best available external clinical evidence from systematic research."[1] This definition stems from the medical perspective, and dentistry is more familiar with the term, EBD.

Currently, there is no definition for evidence-based prosthodontics but it is understood that it encompasses the application of EBD with respect to prosthodontics. According to the American Dental Association (ADA), EBD is defined as "an approach to oral healthcare that requires the judicious integration of systematic assessments of clinically relevant scientific evidence, relating to the patient's oral and medical condition and history, with the dentist's clinical expertise and the patient's treatment needs and preferences."[2] Therefore, the EBD process is not a rigid methodologic evaluation of scientific evidence that dictates what practitioners should or should not do but also relies on the role of individual professional judgment and patient preference in this process (**Fig. 2**).[3]

NEED FOR EVIDENCE-BASED PROSTHODONTICS

With rapid advancements in dental materials and dental technology and improved understanding of clinical outcomes, a surfeit of research has been published in prosthodontics and dental implant–focused literature (**Box 1**). Furthermore, a surplus amount of published research exists in interdisciplinary fields that are of critical importance to prosthodontics. It is well known that not all published literature is scientifically valid and clinically useful. Therefore, a critical analysis of the quality of published research and consolidation of the excess scientific information is necessary to render them significant and useful. In an extensive analysis of scientific publications between 1966 and 2005, Harwood[4] noted that there were 44,338 published articles in prosthodontics. Of these, there were 955 randomized controlled clinical trials (RCTs) (2%). Nishimura and colleagues[5] identified 10,258 articles on prosthodontic topics between 1990 and 1999 and estimated that to stay current in the year 2002 would require reading and absorbing approximately 8 articles per week, 52 weeks per year, and across 60 different journals. These numbers do not include published articles on implant dentistry. Russo and colleagues[6] identified 4655 articles published between