

## Review

# Implementation of Evidence-Based Dentistry in Restorative Dentistry

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## Abstract

American Dental Association defines evidence-based dentistry as a method of making oral health-care decisions that involve the careful consideration of important clinical scientific evidence relating to the patient's oral health, medical condition, history, as well as the dentist's clinical expertise and the patient needs and preferences. Evidence-based dentistry combines the best information available with clinical competence as well as the requirements and preferences of the patient. The ultimate goal of restorative dentistry has always been optimizing tooth shape. Not only is it necessary to recreate the missing tooth anatomy, but it is also necessary to restore optimal form and function. Patients are increasingly favouring restorative treatment over extractions. The purpose of this research is to review the available information about the implementation of evidence-based dentistry in restorative dentistry. Evidence-based dentistry is beneficial in a variety of ways, and it is quickly becoming an important aspect of patient treatment, dental education, and research. In restorative dentistry, core outcome sets are needed, since they may boost the relevance of measured outcomes for all stakeholders, not only dental researchers, and limit the danger of bias reporting, as well as improve trial comparability, enhancing synthesis. Evidence-based dentistry does have the potential to usher the dental profession into a new age. Field of dentistry must take steps to keep up with the current evidence-based care paradigm. Despite the fact that evidence-based dentistry is widely accepted, its implementation in clinical practice is far behind especially in the field of restorative dentistry.

**Keywords:** *evidence, base, dentistry, restorative, clinical*

## **Introduction**

American Dental Association defines evidence-based dentistry as a method of making oral health-care decisions that involve the careful consideration of important clinical scientific evidence relating to the patient's oral health, medical condition, history, as well as the dentist's clinical expertise and the patient needs and preferences. Evidence-based dentistry is designed to give physicians the tools they need to deliver the most up-to-date care. There are numerous advantages to using an evidence-based approach in practice. Firstly, it has the potential to raise the quality of patient treatment. Modern therapy modalities and their rationale can be found through a methodical search. Second, it can provide high-quality care (1, 2).

The basic aim of evidence-based treatment is to improve healthcare quality. It aids in making a clinical decision based on the most up-to-date and cutting-edge research as well as the best accessible evidence. Evidence-based dentistry combines the best information available with clinical competence as well as the requirements and preferences of the patient. There are, however, numerous obstacles to putting evidence-based knowledge into practice. The main obstacles practitioner may face are information overload, inability to select acceptable evidence, and critically evaluating the evidence. Furthermore, despite the presence of strong results, the patient's requirements and preferences must be considered while making a clinical decision (3).

The ultimate goal of restorative dentistry has always been optimizing tooth shape. Not only is it necessary to recreate the missing tooth anatomy, but it is also necessary to restore optimal form and function. When the supporting tissue surrounding the tooth is healthy and stable, restorative dentistry can be completed successfully; paying particular attention to both hard and soft tissue after and during restorative procedures will considerably increase the likelihood of a successful outcome (4, 5). Patients' attitudes regarding dental health are improving, and there seems to be a higher passion for dental preservation among today's patient population. Patients are increasingly favouring restorative treatment over extractions, as evidenced by increased tooth brushing and the use of supplementary oral hygiene products (6).

When it comes to restorative and prosthetic dentistry, dentists have a lot of different opinions. The strongest evidence available should be used to make these decisions. Evidence-based dentistry guides practitioners

toward the goal of improving oral health outcomes by taking into consideration the best available knowledge, clinical intuition, and patient preferences. Evidence-based dentistry has grown in prominence and popularity to the point where it is now regarded a must for patients' routine therapy. Clinical decisions in restorative dentistry, on the other hand, are frequently subjective to the clinician's point of view or intuition rather than evidence based. This dilemma arises because scientific knowledge is always changing, and doctors must make a concerted effort to keep up with a significant volume of often contradicting material in the scientific literature (7).

Although some dentists are hesitant to employ evidence in their practices, the case studies demonstrate how research evidence may also be used to enhance quality of care for patients. The demand for high-quality, relevant research will continue to drive the emphasis of research programs, ensuring that practitioners have access to new information on a regular basis. Evidence-based dentistry can be adopted effectively but choosing on the sort of study needed to support clinical findings can be tricky. Although the randomized controlled trial will be the gold standard, other clinical techniques may only be gold-plated if they are submitted to this type of proof. There is a strong case to be made that cohort studies will yield useful clinical information in everyday practice (8). Accessing the methodological quality and completeness of systematic reviews and meta-analyses reporting is critical for effective implementation of evidence-based practice. However, if the methodological quality assessment is not done adequately, this assumption may be incorrect (9). However, use of evidence-based dentistry in field of restorative dentistry is very limited. The purpose of this research is to review the available information about the implementation of evidence-based dentistry in restorative dentistry.

## **Methodology**

This study is based on a comprehensive literature search conducted on April 7, 2022, in the Medline and Cochrane databases, utilizing the medical topic headings (MeSH) and a combination of all available related terms, according to the database. To prevent missing any possible research, a manual search for publications was conducted through Google Scholar, using the reference lists of the previously listed papers as a starting point. We looked for valuable information in papers that discussed the information about the implementation of evidence-based dentistry in restorative dentistry. There were no

restrictions on date, language, participant age, or type of publication.

## **Discussion**

Evidence-based dentistry refers to a broad set of three distinct skills: the development of skills in students and dentists in assessing literature to directly allow them to read, interpret, and assess clinically relevant original research articles; the development of skills in students and dentists to directly allow them to read, interpret, and assess clinically relevant literature review articles; and the development of problem or population, intervention, comparison group, and outcome skills in students and dentists. Evidence-based patient care has a number of advantages, including but are not limited to supporting practitioners' decision-making processes and increasing community trust in treatment (10).

Identifying and testing new approaches that may improve treatment and prognosis, deciding when to employ those that indicate to improve care, and eliminating old diagnostics and therapies that prove to be unsound are all part of the learning process (11). However, several studies have found that when evidence-based dentistry is only taught in the classroom, it has minimal impact on clinical practitioners' attitudes or behaviours. To put it another way, formal education of evidence-based dentistry received without the opportunity to practice utilizing an evidence-based strategy for patient care decisions may result in no modifications in dental practice. As a result, it is critical to incorporate research into clinical practice, and hence, the notion of evidence-based dentistry can become more practical in dentistry (12).

Evidence-based dentistry is beneficial in a variety of ways, and it is quickly becoming an important aspect of patient treatment, dental education, and research. Dentists, for example, who make clinical decisions based on evidence rather than personal opinions and judgments see a significant gain in their clinical abilities and knowledge. Evidence-based dentistry has grown in popularity and is now considered a requirement in regular clinical practice. This form of education helps dentists grasp basic and applied sciences also while improving their understanding of how to handle difficult patients. Importantly, using evidence-based dentistry helps to bridge the gap between clinical research and everyday dental practice (13).

Findings of a survey conducted in Jordan in 2021 revealed that the majority of dentists 77% treat irreversible pulpitis with root canal therapy rather than

vital pulp therapy. Regardless of the remaining tooth structure, 13.8% commonly insert a post and 23% frequently crown the tooth after root canal therapy. In 72% of cases, badly damaged teeth are repaired with complete crowns. When it comes to achieving a Hollywood smile or a smile makeover, the majority of dentists opt for conservative methods, with implants being the top choice for 93.8% of those surveyed. The author further stated that prosthetic dentistry had a greater rate of evidence-based dentistry implementation in clinical decision-making than endodontics. However, there is a need to bridge the gap between evidence-based data and clinical practice (14).

Results of a Canadian survey conducted in 2016 depicted that evidence-based literature was cited by 41% of respondents as the most dependable information source for restorative therapy planning, although only 16% used it. They said that obtaining credible information was difficult and that when reviewing several sources, they frequently found contradicting information. Dental students were enthusiastic about the need for improved access to evidence-based literature to aid learning and decision-making in restorative treatment planning, as well as to improve treatment outcomes. Web-based searching takes too much time, even for dentists trained in evidence-based dentistry, and while it can yield information of greater quality than individual intuition, it may not be adequate to select the best available evidence (7). The results of a systematic review conducted in 2020 also revealed that shortage of time was one of the major barriers reported by dentists in implementation of evidence-based dentistry in practice (15).

Dhar V states that it is critical to know that there are a number of obstacles to evidence-based dentistry implementation. An overabundance of information from several websites and journals may easily overwhelm a clinician. Systematic reviews are sometimes insufficient to develop appropriate clinical guidelines due to a lack of evidence. Another roadblock could be patient requirements and preferences, which could push everything else to the back burner. Finally, the clinician's lack of incentive to change what has worked well for the practice for years can be a difficulty. However, it would be in the best interests of practitioners to implement evidence-based dentistry early as possible in order to provide adequate clinical care and satisfy the new understanding of the patient population. It is impossible to overestimate the necessity of offering a balanced combination of science, clinical experience, and patient

requirements in order to enhance patient care in a practice (16).

Randomized controlled trials are still a fundamental pillar in dental material science because they eliminate selection bias and have excellent internal validity. Alternatives such as practice-based or pragmatic controlled trials or observational studies can supplement the evidence base and may be appropriate for addressing specific questions unrelated to the performance of a material such as applicability. In any event, clinical investigations should look for follow-up treatments for longer period of time, as many relevant failures in restorative dentistry happen later, rather than right after a restoration is placed. In restorative dentistry, core outcome sets are needed, since they may boost the relevance of measured outcomes for all stakeholders, not only dental researchers, and limit the danger of bias reporting, as well as improve trial comparability, enhancing synthesis (17). The lack of generic or standard therapeutic interventions in the literature, combined with a large number of contradictory results, makes using evidence-based dentistry to develop a treatment strategy for restorative treatments problematic (14).

Evidence-based dentistry is critical in today's dentistry, and this concept is at the heart of the transition to evidence-based practice. Evidence-based dentistry acts as an intermediary between clinical research and everyday dental practice by giving dentists powerful tools to analyse and use research findings. However, it is crucial to note that evidence-based dentistry does not advocate for complete adoption of clinical evidence, but rather for the integration of clinical data with dentists' clinical knowledge as well as patient needs and preferences. Evidence-based dentistry does not set a standard of care or provide a cookbook for dentists to follow (18). Evidence-based practice is a method for dealing with clinical issues that is both practical and effective. It entails locating the evidence available, assessing its validity, and grading the evidence per its power using rules of evidence and does not imply that dentists should disregard all they learnt in dental school. Evidence-based dentistry straddles the line across clinical research and real-world dental practice by giving dentists effective tools for interpreting and applying research findings (19). However, there is scarcity in research and literature regarding implementation of evidence-based dentistry in restorative dentistry. In future, more research studies should be conducted in field of restorative dentistry regarding the application of evidence-based dentistry.

## Conclusion

Evidence-based dentistry does have the potential to usher the dental profession into a new age. Field of dentistry must take steps to keep up with the current evidence-based care paradigm. Even though evidence-based dentistry is widely accepted, its implementation in clinical practice is far behind especially in the field of restorative dentistry. Awareness and educational training for implementation of evidence-based dentistry is need of hour so in future patients are provided with quality and cost-effective dental care along with the best clinical evidence and judgment.

## Disclosure

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### *Ethical consideration*

Non-applicable.

### *Data availability*

Data that support the findings of this study are embedded within the manuscript.

### *Authors' contribution*

All authors contributed equally to the drafting, writing, sourcing, article screening and final proofreading of the manuscript.

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