

Systematic Reviews In Dentistry: Is The Evidence Presented Truly Evidence-based?

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Dentists similar to all other health professionals face the daunting task of making every day clinical decisions based on recent perspectives, in the background of the exponential increase in the research base bordering to almost overwhelming information. Evidence-Based Dentistry (EBD) assists the dentists in interpretation and application of the most reliable research evidence into their day to day practice. ADA defines the term “evidence-based dentistry” as “an approach to oral health care 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”.¹

Recently, there is considerable emphasis placed on EBD and its significance in dental practise is continuously being endorsed. This has led to dentists relying considerably on systematic reviews and metaanalysis, as their main sources of evidence. Systematic reviews reduce systematic errors (biases) and random errors (errors that happen by chance) and offer a more objective, thorough view of the literature by adhering to a clear, well-documented scientific methodology. These reviews and meta-analysis are at present times deemed to be the gold standard for making clinical decisions, developing guidelines for practitioners and formulating new policies. They are also crucial for identifying new trial possibilities and avoiding redundant and repetitive research.^{2,3}

Systematic reviews in dentistry date back to 1948 and Holland NWA is credited for the first systematic review on “ Extraoral Pin Control of Fragments of Fractured Mandibles” in British Dental Journal.⁴ Over the years, there has been a dramatic increase in popularity of this genre of articles, consequently leading to mushrooming of systematic reviews in dentistry; so much so that the systematic reviews seem to surpass the number of clinical trials. The reasons for this could be manifold which include; systematic reviews require less resources with no procedures on human participants, do not mandate an ethical clearance beforehand thus ensuring shorter time-lines as compared to conduct of clinical trials, they guarantee better readability and enhanced citations as compared to research studies and clinical trials, there is a perception that it can be easily undertaken by postgraduates and junior research faculty. Though, this is a welcoming trend in dental research and practise, there remains concern regarding the quality of these reviews. Inconsistent or biased systematic reviews result in inaccurate conclusions and erroneous decision-making.^{5,6,7}

El Rabbany et al (2017)⁸ analysed the systematic reviews in dentistry for their quality and concluded that, there is dire need to improve various aspects in the conduct and reporting of systematic reviews. The main concerns were unsatisfactory evaluation of the included studies i.e risk of bias with regards to conflict of

interest, sponsoring agencies, transparency of the trial. Other reasons compromising the quality of evidence included limitations in study design, inconsistent results, lack of inclusion of grey unpublished literature, no publication bias assessment, lack of prior protocol preparation and registration in PROSPERO (International Prospective Register Of Systematic Reviews) and incorrect interpretations of meta-analysis. Mathew et al (2023)⁹ also conducted a comparable quality analysis on the systematic reviews published in dentistry journals of India. The results were dismal with almost 65% of the reviews being graded as “critically low quality” using the AMSTAR tool. Around 18% of the reviews were categorised as “low quality”, 16% were considered as “moderate quality and a meagre 1% were of deemed to be of “High quality”. Additionally, they noted that only 50% of the systematic reviews disclosed the application of PRISMA guidelines, demonstrating a glaring ignorance of prescribed methodology among authors, reviewers, and editors alike. The discrepancies observed in these reviews highlight the need for monitoring the evidence generated by systematic reviews on time to time basis.

Certain Recommendations that may ensure a robust and good quality systematic review in dentistry include:

- Researchers who intend to conduct systematic reviews should be well-versed in the topic of interest and possess a general understanding of the available literature that has already been published on the subject, including other systematic reviews.
- Refer Handbooks and Manuals as well as established guidelines to ensure rigorous methodology and reduce bias to enhance the accuracy of reporting the evidence i.e the PRISMA Guidelines and Cochrane Handbook for Systematic reviews being the most referred to.¹⁰
- Prospective Registration of systematic review protocols in PROSPERO registry to avoid unintended duplicity, ensure transparency and reduce the reporting bias.
- The researchers can train themselves for undertaking robust systematic reviews by attending workshops and/or online courses- one of which is available on Swayam Platform Entitled “Introduction to Systematic Reviews for Dental Health Professionals”.
- Use of more databases for article search, increasing the number of authors, and rigorously checking the quality using appropriate Risk of Bias tools.
- The funding agencies and professional organisations should recognise the need of specific systematic reviews and provide funding support for the authors for enhancing the quality.
- Editors and peer reviewers of dental journals must be cognizant of the large volume of systematic reviews being produced and make sure that they are, in fact, meticulously carried out and contribute meaningfully to the body of current knowledge.

Conclusion: Systematic reviews are crucial for the practise of evidence-based dentistry. However, their validity is the most important aspect that determines the usefulness of the reviews. If systematic reviews are to be used for making informed clinical decisions in the future, they must address questions that are focused and clinically relevant, and adhere to a clear and well-designed protocol. A food for thought for all stake holders involved is that -a well conducted, redundant systematic review that summarises the hitherto covered trials is as unqualified for publication as is a new, but poorly performed review of previously unappraised trials. Both these have the potential for misrepresentation and delude the readers leading to

poor clinical decisions. Thus, evaluating and closely observing the systematic reviews that are published would go a long way in enhancing the quality of prevailing evidence and persuade the conduct of newer and better designed clinical trials.

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