An Algorithmic Approach of Evidence-based Dentistry-review

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

Review Article

ABSTRACT

Evidence-based practice is mainly based on scientific evidence, nowadays there is an increasing approach towards research-based studies, there are various steps in choosing the criteria, steps in writing, level of grading, and various search engines have been mentioned, such as google scholar, PubMed, etc. finally we have various other criteria for selecting and writing the final article, it is very important to choose a proper website for publishing our article. In recent years, practice of dentistry has become more complex and challenging, because of its advancement on a daily basis, so it is very important to analyse and update the current. iSeek is also a particular type of search engine for students, teachers, and administrators alike. The main aim is to provide a balanced mix of knowledge with science for the clinical expertise, and at same time which helps to know the needs of the patient so that optimizing patient care in a practice would not be underestimated.

1. INTRODUCTION

In the current generation, practitioners have been expected to cope up with the recent advancements in both theory-based as well as practical works. Evidence-based practise is primarily based on two principles: the recognition that scientific evidence alone is insufficient to

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guide decision making; and the existence of hierarchies within available sources of evidence [1].

2. EVIDENCE-BASED MEDICINE

During the last decade, the concept of Evidence-Based Medicine (EBM) caused great interest among health professionals. Evidence-Based Medicine, particularly in rapidly growing fields such as medicine, is defined as the integration of clinical expertise, patient values, and the best available evidence to aid in decision making regarding patients' health care [2]. EBM aims to encourage the general practitioner in primary care to look for and make significant sense of the evidence available to apply it to daily clinical issues. However, making clinical decisions based on evidence does put up several pre-issues for the practitioner [3].

Doctors should attempt to match the patient's treatment needs and preferences with the best accessible sources, as well as the doctor's professional knowledge, when designing effective treatment plans [4]. It has been found that only 10% of medical experience is based on validated research. It may take 17–20 years to implement the research-based knowledge to patient care [5-7–20] ,[21–25].

By better illustrating the evidence from the study, this branch of evidence-based medicine seeks to make individual decision-making more systematic and objective. Population-based data are applied to the care of an individual patient [26] while respecting the fact that practitioners have clinical expertise reflected in effective and efficient diagnosis and thoughtful identification and compassionate use of individual patients' predicaments, rights, and preferences [27].

3. EVIDENCE-BASED SCIENCE

Effective science communication can assist research and innovation systems handle global challenges and prioritise public interests, resulting in the development of shared and applied knowledge. For science communication to play this mediating role effectively, we have to combine with recent advancement that is evidence-based teaching [28]. The purpose of evidence-based teaching is to contribute to knowledge on the adoption levels of evidence-based teaching practices by faculty within a science degree program and inform our science curriculum review in practical terms [29].

4. STEPS IN EBD WRITING

4.1 Selecting the Topic

A topic is the main, principle guiding the analysis of your research paper. Topics provide us with a structure for writing and a focus on what we want to say. Topics represent the core subject matter of scholarly communication and how we arrive at other topics of conversations and discover new knowledge.

The topic should be intriguing to you (ideally, you should have come across a series of recent publications related to your line of work that demand a critical overview), a significant component of the field (with enough information to write the analysis), and a well-defined issue (Otherwise, you could potentially include thousands of publications, which would make the review unhelpful) [30].

Visualization along with research presentations and communication is one of the most important components due to its ability to synthesize large amounts of data into effective graphics [31].

4.2 Criteria for Choosing the Articles

All articles in a journal issue should have basic criteria which makes it complete for selecting our articles. The basic criteria include,

- Original or review articles
- In English
- Quantitative and qualitative studies
- About topics that are important to the clinical practices
- Analysis of each article is consistent with the study question [32].
- Level/grading the articles

Table 1. Oxford center for evidence-based medicine levels of evidence

Evidence Level	Therapy/ Prevention, etiology/ Harm	Prognosis	Diagnosis	Differential Diagnosis/ Symptom Prevalence Study	Economic And decision analyses
1a	Systematic Review of RCT	Systematic Review of Cohort studies	Systematic Review of Level 1 Diagnostic Studies	Systematic review of Prospective Cohort Studies	A systematic review of level 1 Economic Studies
1b	Individual RCT with Narrow Confidence Intervals	Individual Inception Cohort study with >80% Follow up	Validating Cohort study with good reference standards	Prospective Cohort study with good follow up	Analysis based on Clinically Sensible Costs or alternative, a systematic review of evidence. Multi-way sensitivity analysis included
2a	systemic Review of Cohort studies	systematic Review of Either retrospective cohort studies or untreated control groups in RCT	A systematic review of level >2 diagnostic studies	systematic review Of level >_2 b studies	A systematic review of level >2 economic studies
2b	Individual Cohort study (including low-quality RCT; eg,< 80% follow up)	retrospective cohort study or follow up of untreated control patients in RCT	Exploratory cohort Study with good reference standards	Retrospective cohort study or proof follow up	analysis based on clinically sensible costs or alternatives A limited review of the evidence or single studies. Multiway sensitivity analysis included
2c	Outcomes research; Ecological studies	'outcomes' Research		ecological studies	audit or 'outcome' Research
3a	Systematic Review of Case-control studies		A systematic review of level>_ 3b studies	A systematic review of level >_ 3b studies	A systematic review of >_3b studies

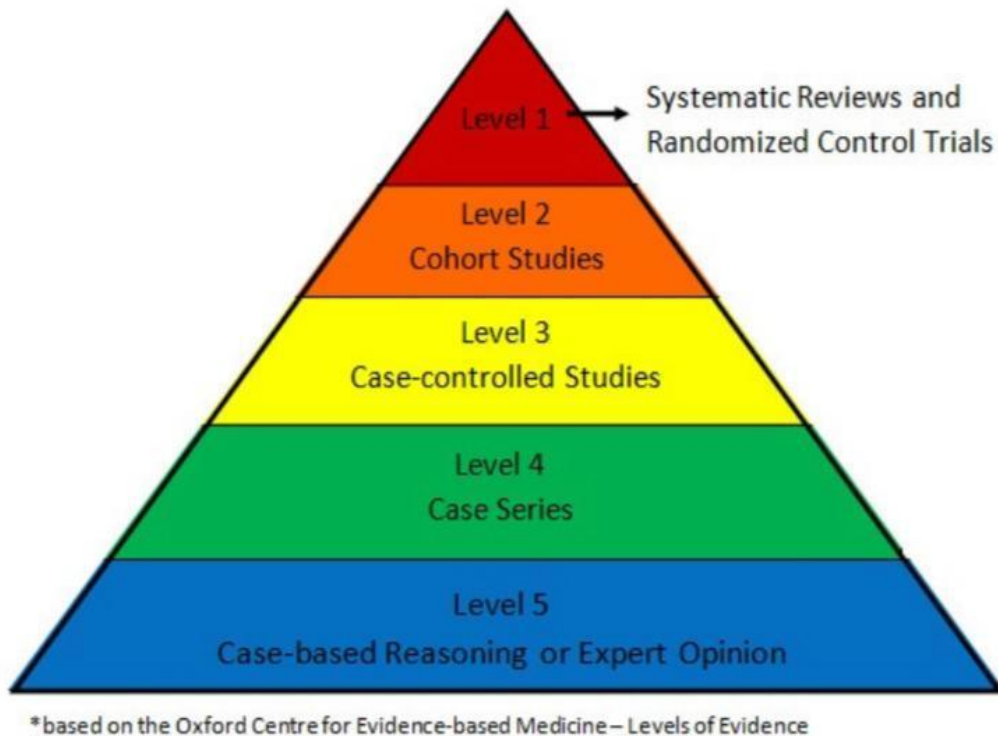## Oxford System of grading articles.

Fig. 1. Oxford System of Grading Articles

5. SEARCH ENGINES

Search engines are the programs that are used to search the information on the various topic worldwide, the use of search engine has been increasing rapidly, it not only provides daily information needs where it helps us to understand, clears our doubts, clarifies Evidence-Based things, but it also helps us to fulfill our curiosity, etc [33].

We have various list of search engines which helps us in number of ways for research, assignment, knowledge, etc

5.1 Google Scholar

Google Scholar is the clear number one SEARCH ENGINE SITE which is considered as the topmost in all search engine sites. Many research papers are published on this site. By using keywords it helps us to search relevant articles based on our topic. Coverage included approximately 200 million articles. It consists of a simple form of abstract, related articles, references, citations, and links to the full text. The Export formats include APA, MLA, Chicago, Harvard, Vancouver, RIS, BibTeX.(34)

5.2 Microsoft Academic

It's Microsoft's answer to Google Scholar. It is considered as the top-cited article and it consists of reference articles as well. It contains abstract, related articles, references, the link's to full text, it consists of formats which export, such as APAS, MLA, BibTeX

Coverage: approx. 210 million articles [34].

5.3 Base

The BASE is hosted at Bielefeld University in Germany and that's where from (Bielefeld Academic Search Engine). Approximately it consists of 136 articles. It contains abstracts and links to full text, but it doesn't have a related articles list, references, and citations of the relevant article. The Export formats include RIS, BibTeX [34].

5.4 iSeek

iSeek is also a particular type of search engine for students, teachers, and administrators alike. This search engine helps students to get the required information about the given topic through various resources present on the World Wide Web [34].

5.5 PubMed Central

This search engine is very useful for those doing their work on science-related topics, it has been operated by National Biotechnology, it includes various citations and abstracts in a simple format which helps us to understand better [34].

6. SELECTING THE FINAL ARTICLE

When selecting a journal for publication, the introduction should be short and crisp which attracts the reader, and it should contain a good starting point, the next step is analyzing the editorial quality of research. Plagiarism checks using various methods such as iThenticate, using different statistical testing to confirm data validity, and applying forensic tools to detect image manipulation [35].

The introduction should have brief descriptions of the topic. This helps us to understand well about the topic, materials and methods are very important as it guides you the initial step towards your research. It provides us with technical details of how the experiments were carried out.

In some articles it may be research-based, review, or even a questionnaire will be provided for the survey. It would be better if you have diagrammatic representation like graphs, flow charts, tabular columns as well.
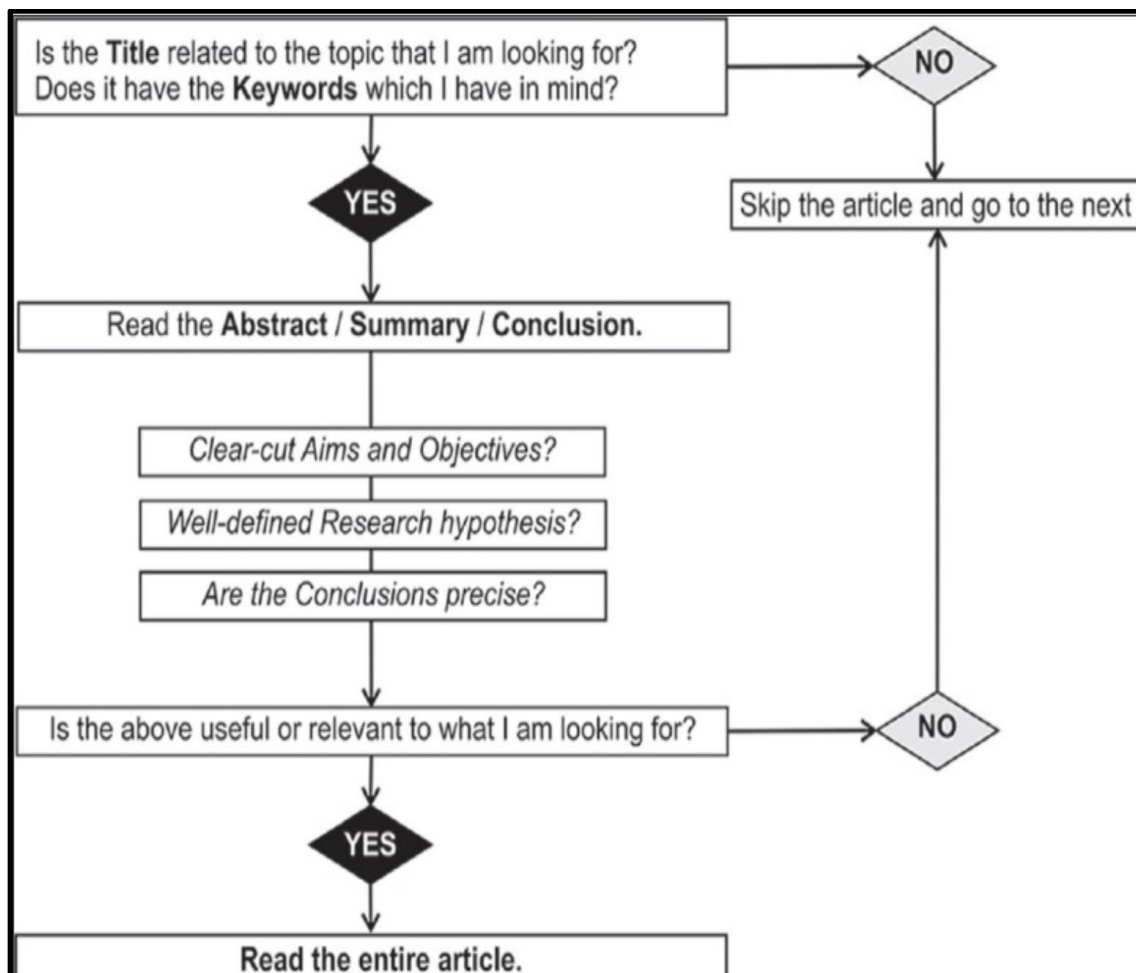

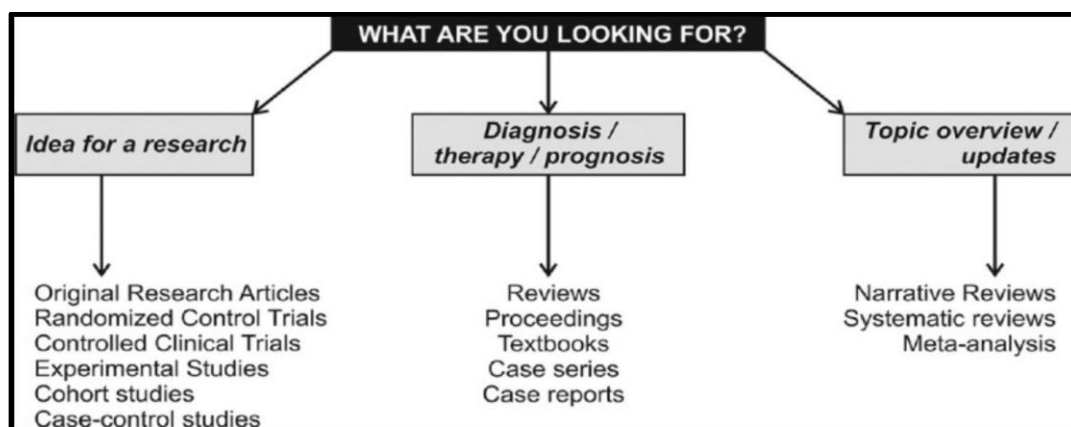**Fig. 2. Steps for Framing Article**

Fig. 3. Categorisation of Study Designs included for Research

An article that has been peer-reviewed is more valuable than one that has not. Structured abstract, introduction, methodology, findings, and discussion, as well as Randomized Control Trial, Controlled Clinical Trial, Experiment, Survey, and Cohort study, should all be included in an original research article. If it is a review it may be systematic or unsystematic. A case study is the description of a particular case whereas case series is a description of the number of such case studies.

The main part of the article is the discussion, where the research questions were answered, which helps in understanding, analyzing, and interpretation of data presented. The final one is the conclusion part where it gives the idea, results, future scope, advantages, and its disadvantages, limitations, Recap your key results, highlighting their significance concerning your aims in a precise manner.

7. CONCLUSION

Evidence-based science is an outgrowing in the field of research. It helps us to understand the importance of articles for research, not only their importance but also how to choose an article based on our topic. The main aim is to provide a balanced mix of knowledge with science for the clinical expertise, and at same time which helps to know the needs of the patient so that optimizing patient care in a practice would not be underestimated.

CONSENT

It is not applicable.

ETHICAL APPROVAL

It is not applicable.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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