

Evaluation of Literature Search Strategy amongst Dental Faculty of K.M. Shah Dental College – A Questionnaire Based Study

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Received: 2 April 2020 Revised: 21 May 2020 Accepted: 24 May 2020 Published: 5 June 2020

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Abstract

Continuing professional development is of vital importance for the academicians teaching in educational institutions to keep themselves abreast with the recent happenings in the scientific world. The literature search strategy forms the basis of professional growth and development. To locate sound evidence a well-structured literature search is important which may be found in books, journals, government documents and on the internet. Hence this research attempts to evaluate the Literature search strategy for best evidence among the dental faculty of K.M. Shah Dental College by questionnaire tool. Pre-validated questionnaire was used among the teaching faculty from the K.M. Shah Dental College. Out of total 70 faculty who participated in this study 60% to 80% of respondents used Google, Google-Scholar and PubMed regularly for their literature search. Majority of participants (90.14%) used to define search question before starting the search. Around 70% of the participants formed PICO for their search strategy. Majority of participants were aware of Keywords,

Filters, MeSH term, Boolean operators and advanced search options and felt that it gives more precise and specific search results. Basic knowledge of research and how to search for literature is adequate among the health professional but implementation of basic search strategy is required to practice an evidence-based dentistry. It is recommended to train the entire health professionals for searching and using database for procuring the best available evidence.

Key Words: Medical Subject Headings, Literature Search, Evidence-Based Dentistry, PubMed, Publications

Introduction

A literature search is a methodical and systematized search for all of the literature published on a subject. A well-structured literature search is the most effective and efficient way to locate sound evidence on the subject you are researching which may be found in books, journals, government documents and on the internet¹.

In our daily clinical settings, we come across various clinical conditions or scenarios that mandates the precise evidence based treatment option². Asking and answering clinical questions during daily practice can be challenging and time consuming. Knowing the resources available to answer a specific clinical question can lead to a more efficient and effective search strategy and thus, to a more applicable answer based on the levels of evidence available^{3,4}.

Creating a well-focused question is the first step – this will help you determine useful keywords and limitations for your topic. Having defined the search topic and identified the key concepts, you need to produce a list of keywords that will be used as your search terms when you begin your search. The keywords should consist of all possible words or phrases that might be used to describe the subject. Various previous studies found PubMed database to be superior to find out the best evidences near to the gold standard⁵.

The proper and precise Literature search strategy is a very important step towards right evidence on the topic. Hence this research attempts to evaluate the Literature search strategy for best evidence among the dental faculty of K.M. Shah Dental College, Sumandeep Vidyapeeth by a questionnaire tool. The objectives of the research were to evaluate

knowledge of literature search strategy amongst Dental Faculty, evaluate orientation of literature search strategy amongst Dental Faculty and compare the change in Literature search strategy after giving the search blue print.

Methodology

The Questionnaire study was carried out after approval from ethical committee of Sumandeep Vidyapeeth. All the teaching faculty from the K.M. Shah Dental College, Sumandeep Vidyapeeth who were willing to participate in the study were surveyed for their knowledge regarding the Literature Search strategy.

The questionnaire was first administered to 10 experts and 15 respondents for validation. As mean values of experts and respondents didn't differ significantly for knowledge and orientation scales, it was concluded that the knowledge and orientation scale was validated (p-value > 0.05). The overall reliability of the questionnaire was about 92% (Cronbach's Alpha = 0.917).

The Prevalidated questionnaire was then distributed among the selected teaching faculty of the institute after the due informed consents were obtained. The filled questionnaire was then collected and the data from it was compiled for further statistical analysis.

Results and Observations

Total sample size for the study was 70. Faculty were asked different types of closed and open ended questions with few of the questions in 'Yes-No' answers. When the faculty were asked regarding the tools for literature search 60% to 70% of respondents used Google and Google-Scholar regularly for their literature search Figure 1.

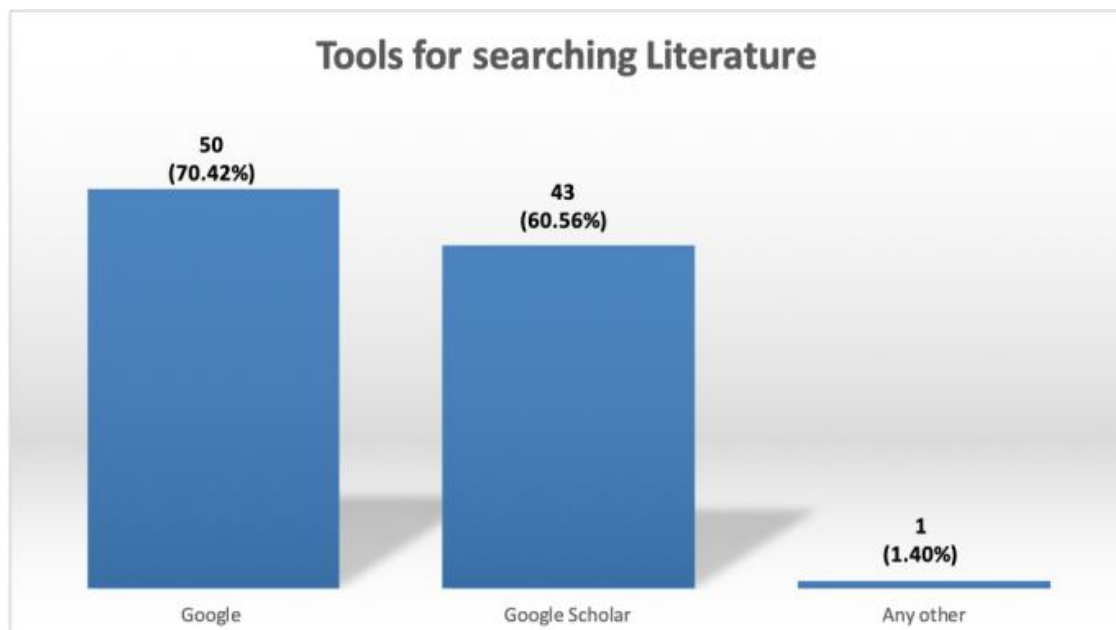


Figure 1: Tools for Searching Literature

The most common database used to search was PubMed which was 83.09%. The graphical presentation of various databases searched by faculty is presented in Figure 2.

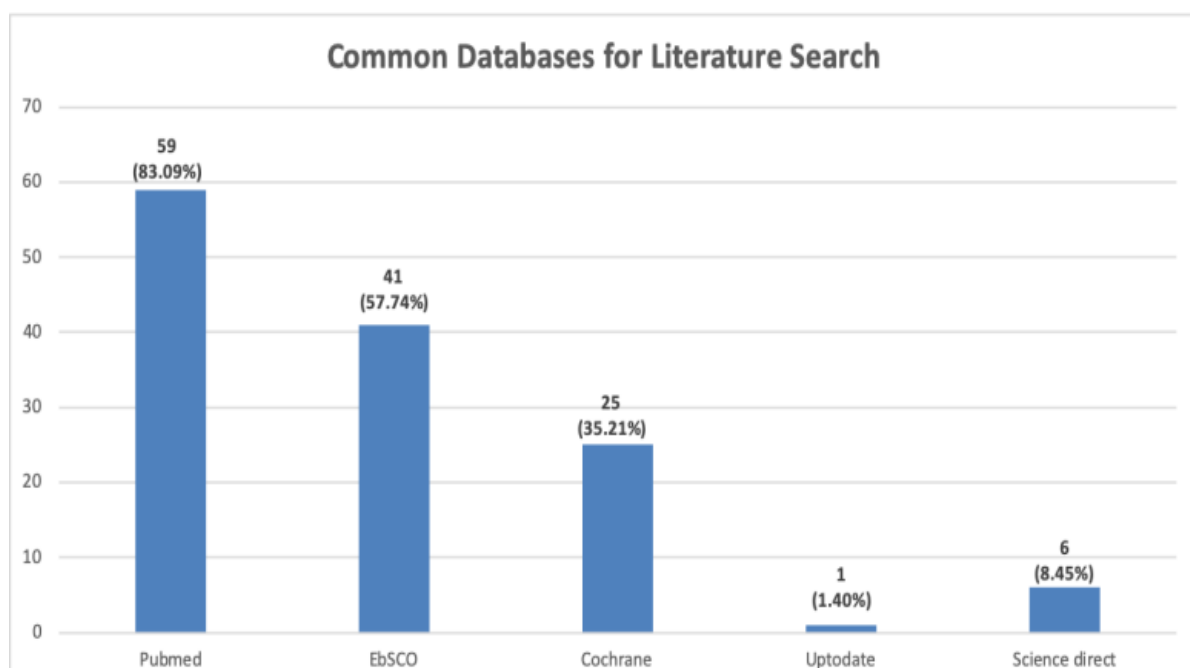


Figure 2 : Common Databases for Literature Search

Majority of participants (90.14%) used to define search question before starting the search. Around 70% of the participants formed PICO for their search strategy. Most of the

participants opined to the open ended question related to importance of keywords in search. The participants felt that the keywords reduce the volume of literature specific to PICO and helps in limiting the search in focused way. Keywords also helps in limiting the search data and getting the relevant search articles. 77.46 % participants were aware about **MeSH** term Figure 3.

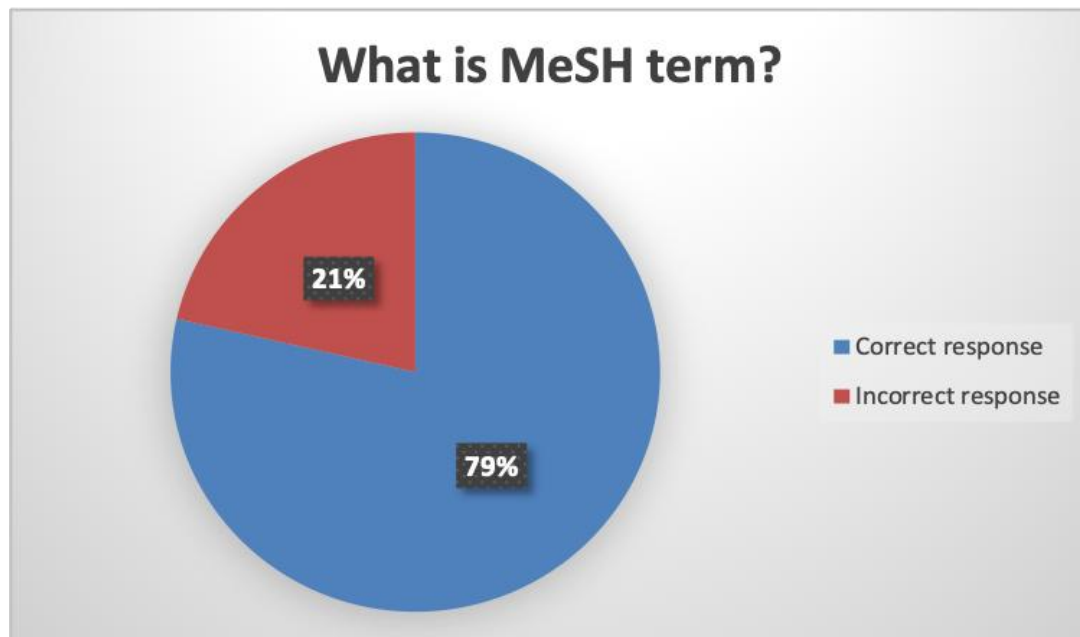


Figure 3 : MeSH Term

More than 50% of the participants used **MeSH** term. Around 65% of the participants used **Booleans** like AND, AND OR NOT, AND BOTH, AND OR. The participants felt that the **filters** help in narrowing down the search making the outcome more research question specific and helps in avoiding unwanted and irrelevant data. The participants commonly used article type, availability of full text, language, type of study, year of study, human study, free full text, etc as **filters**. The participants felt that PubMed is the most user-friendly database **search engine** followed by Google and Google scholar along with various other search engines such as EBSCO, DOAJ, Medline etc. The results also showed that 53.52% of participants sometime use advanced search options while 33.8% rarely use advanced search options Figure 4.

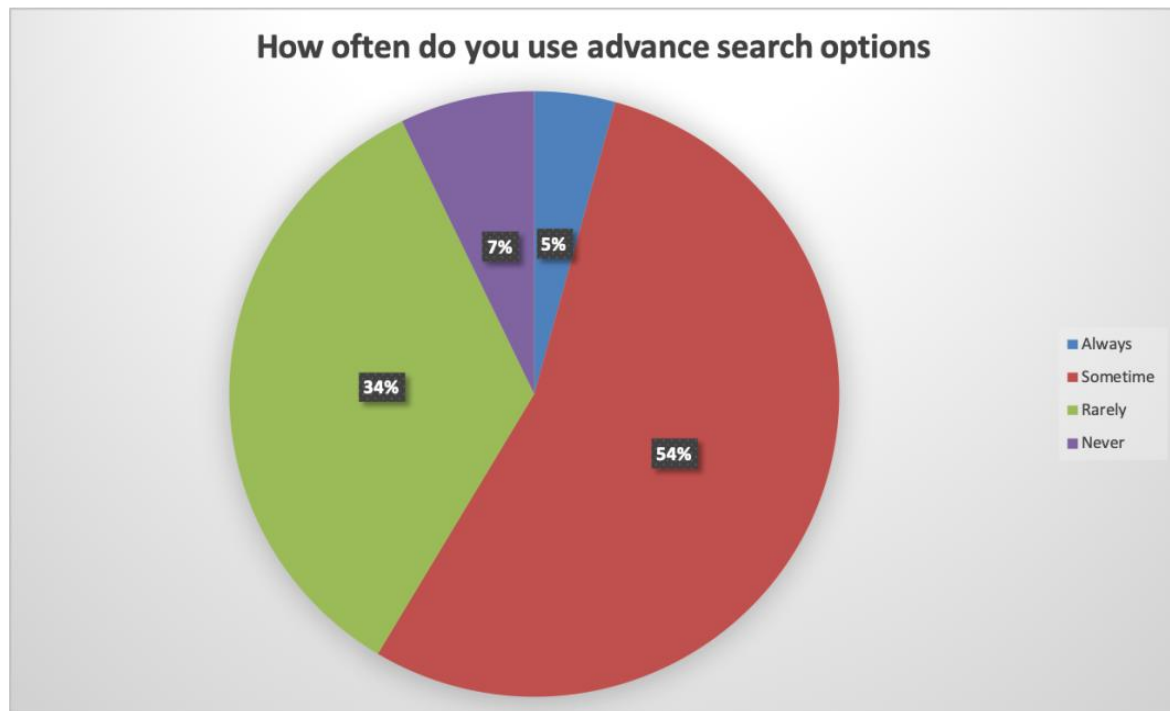


Figure 4 : Advance Search Options

Majority of participants were aware of advanced search options and felt that it gives more precise and specific search results. (Table 1 & Table 2)

Question	Yes	No	If Yes
Do you define your search question before starting your search	64 (90.14%)	6 (8.45%)	NA
Do you form a PICO for your search.	49 (69.01%)	21 (29.57%)	NA
Do you use MeSH term	38 (53.52%)	31 (43.66%)	NA
Do you use Boolean and which Boolean you use first	46 (64.78%)	24 (33.80%)	AND 25 AND OR NOT 15 AND BOTH 1 AND OR 1

Table 1: Closed-Ended Survey Questions

Importance of keywords in search	What do you mean by filter	Which are the commonly used filters for your research ?	When do you use filters in the search process	How advanced search is different from search?
“volume of literature specific to PICO.” “the best article directly related to the PICO question” “limits results shown for needed data, saves time” “simplify search” “focused results” “easy” “appropriate results” “define the search” “refined search” “limits searching data” “getting relevant search articles”	“narrowing the search” “limit search” “precise results” “avoid irrelevant data” “used to refine search”	“article type” “language” “type of study” “text availability” “publication dates” “year of study”	“remove unwanted data” “specify the search” “narrow search results” “refine the search”	“search specific to the author, journal type, publication year etc.” “limits search” “more precise”

Table 2: Content Analysis of Open-Ended Survey Questions

Discussion

Good efficient searching comprises of systematic stepwise approach to help the researcher from the research question to informed evidence-based decision making. Literature search plays a very vital role in good quality research.

The results of our research demonstrated that the participants in the research were well aware of the literature search strategy and procedures. This might be due to regular training and refresher courses being conducted for the staff of the institution on evidence-based dentistry and evidence based decision making.

Grewal et al. (2016) had explained different methods of literature such as primary literature, secondary literature and tertiary literature⁶. They have also mentioned various search engines such as Google, Google Scholar and Yahoo. In our research around 60 to 70% of participants used Google and Google scholar as search engines. They have also highlighted various electronic sources of research database such as PubMed, Medline, SCOPUS, ProQuest. Almost 60 to 84% of the respondents were using databases such as PubMed, Google Scholar their regular literature search. As evident from our research various databases such as EbSCO, Cochrane, Up-to-Date and ScienceDirect were frequently used by the researchers for a literature search.

It is very important to construct the well-defined and appropriate research question¹. A properly designed research question should address several components in the form of PICO, where P stands for patient population, I for intervention, C for comparative intervention and O for outcome of interest⁷. It is imperative to address all the components of PICO to arrive at well-defined research question. Well defined research question plays a very important role in driving the keywords for literature search⁷. In our research more than 90% of the participants define their research question before starting the literature search and around 70% of participants from well-defined PICO for literature search question. The participants in our research were using different types of keywords regularly and were of opinion that keywords reduces the volume of search specific to PICO and helps in retrieving the best article directly related to PICO question. They opined that keywords limits the results shown and hence simplifies the search focuses the results and saves the time in searching the relevant data.

A classic example of a thesaurus is Medical Subject Headings also called as MeSH. It is used in the Medline (PubMed) database. Each article in the Medline database is allocated ten to twenty words in the MeSH index to define each article's content. The use of MeSH topic search terms gives greater control and accuracy⁸. In our research more than 75% of participants were aware of MeSH and more than 50% of participants regularly used MeSH terms. This is reflection of how well-versed they are regarding use of specific medical subject headings during literature search.

Boolean operators are used during literature search to combine concepts or create relationships. The three Boolean operators commonly used are AND, OR and NOT. They are used to broaden or narrow the results. Parentheses may also be used for more complex

Boolean searches. In the present research around 65% of the participants used Boolean operators and 'AND' was the most commonly used Boolean operator.

The filters are usually used to refine the search results. Various filters commonly used are type of article, language, text availability etc ⁶. Waltho, D et al. (2015) systematically explained the steps to perform a literature search ⁷. They have emphasized on implementing filters to narrow down a search. Various search engines have different types of inbuilt tools to limit the outcome of search. These tools are termed as filters. In our research the respondents were well aware of using different types of filters. They felt that the filters helps in narrowing down the search making search results more research question specific and helps in limiting the results, avoiding irrelevant data and giving more precise outcome. They mentioned some of the common filters used by them such as article type, availability of full text, language, type of study and year of study. Along with filters more than 50% of the respondents in our research had used advanced search options during their literature search. The participants responded that the advanced search helps in getting more specific and precise search results related to the area of interest and helps in retrieving clearly focused data.

Conclusion

In this Era of information overload it is very important for a researcher to know and implement the correct literature search strategies. Literature search requires a combination of skills and knowledge about strategies involved, different databases, tools and filters available along with systematic step wise implementation. This research has clearly shown that the participants involved in this research are well aware of different aspects of literature search strategy and can use this knowledge in evidence-based decision making.

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