The role of medical librarians in medical education review articles

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INTRODUCTION

Sir Isaac Newton famously wrote, in reference to building on the research of Descartes, “If I have seen further it is by standing on the shoulders of giants” [1]. Today, this familiar sentence, which appears in such conspicuous places as the Google Scholar search page, has been interpreted to mean that for scholars to further their research, they should seize the opportunity to build on the work of their predecessors. In the last decade, medical education has been recognized as a discipline of scientific inquiry [2]. With this recognition has come the call for increased publication of scientifically rigorous research in medical education because the results of research in medical education will ultimately impact patient care [3, 4]. Additional research, especially additional systematic reviews, should provide an opportunity for medical educators to “hoist themselves upon the shoulders of their colleagues” so that they too may be able to see just a bit farther [5]. However, a recent examination of medical education review articles concluded there was variability in the quality and reporting of search strategies, resulting in an inability to reproduce results [6]. That study made recommendations for conducting and reporting literature searches, including adding a librarian to research teams to design and run the search and to assist with retrieving literature and writing the manuscript.

The role of the librarian as an expert in literature search and retrieval has been described in published articles for a number of years [7–10]. Sampson and McGowan reviewed the search strategies of sixty-five systematic reviews and found that most contained at least one error and the majority of these errors could affect recall, which might also affect the results of the reviews [11]. That study suggested the need to use an expert when developing a search strategy. Furthermore, the Institute of Medicine and the Agency of Healthcare Research and Quality have both recently published reports recommending that librarians be included as members of research teams [12] and that their expertise in literature searching be integrated into the research process [13]. Librarian contributions not only add to the quality of the literature search, but the resulting research as well.

As a follow up to the study of search quality and reporting in medical education review articles noted above [6], the current study examined the role (if any) that was played by a librarian in medical education reviews.

METHOD

Review articles from three academic medical education journals: Academic Medicine, Teaching and Learning in Medicine, and Medical Education were examined. These journals focus on medical education research, are three of the top journals in the field, are indexed in MEDLINE, and are included in Journal Citation Reports. To locate these articles, MEDLINE via PubMed was searched on February 3, 2011, using the following search strategy:

(meta-analysis[pt] OR review[pt] OR meta-analysis[ti] OR systematic literature review[ti] OR systematic review[ti] OR meta-analysis[pt] OR review[pt] OR meta analysis[ti] OR systematic literature review[ti] OR systematic review[ti]) AND (“Acad Med”[Journal] OR “Med Educ”[Journal] OR “Teach Learn Med”[Journal])

This search strategy retrieved citations of the publication type “meta-analysis” or “review” or citations containing any of the words “meta-analysis,” “systematic literature review,” “systematic review,” or “literature review” in the citation title, in the three journals. The search expanded the time frame of the earlier study of medical education review articles to a five-year period, from 2005 through 2009.

The full-text of all articles retrieved was reviewed by the authors. To facilitate the review, a checklist was created to identify the presence or absence of a literature search and the involvement of a librarian. A librarian was considered to be involved if he or she was listed as a coauthor, if he or she was acknowledged by name, or if the acknowledgment made general mention of a librarian’s involvement (Table 1). If it was not clear from the article that an author or a named acknowledgment was a librarian, a web-based search on the name was conducted to determine if the individual had a library degree such as master’s of library science (MLS) and master’s of library and information science (MLIS, MS[LIS]) or an affiliation with a library. The checklist was completed for all articles by the two authors independently, and the results were compared. Both authors agreed unanimously on the presence or absence of all characteristics.

RESULTS

One hundred and seventy-five articles were retrieved. Of these, 2 were labeled commentaries, 4 viewpoints, and 4 perspectives. These 10 articles were excluded from the study. Of the remaining 165 articles, only 50 (30%) explicitly described a literature search, as defined by the presence of search terms. After reviewing the full text of these 50 articles, just 4 (8%) of the articles were found to be coauthored by a librarian. Nine additional (18%) articles identified a librarian by name in the acknowledgments section at the end of the articles. No article acknowledged the
assistance of a librarian in general. All cases that required a web search to determine if an author or acknowledgment was a librarian resulted in locating the credentials or the affiliation of the individual in question.

The number of librarians listed as coauthor increased over the 5 years with none in 2005 or 2006, 1 in 2007 and 2008, and 2 in 2009. The number of librarians acknowledged by name also increased over these 5 years. There was 1 named acknowledgment in 2005, none in 2006, and 1 in 2007, with an increase to 4 in 2008 and 3 in 2009. In total, 13 (26%) articles named a librarian as coauthor or acknowledged a librarian by name during the study time period.

**DISCUSSION**

Earlier studies have concluded that because medical education review articles generally lack the “essential elements of scientific reporting,” including detailed information on the literature searches, they are not replicable [6, 14]. This study’s results align with these earlier findings, in that only 30% of these review articles featured an explicit search strategy, and therefore, 70% of the overall articles are not reproducible. This must be remedied to enable medical educators to build on previous scholarship and to strengthen medical education as a discipline. A librarian’s involvement in research projects has been found to contribute to the quality and reproducibility of literature searches. However, as demonstrated by this study, librarians were leveraged in only 26% of the articles. Therefore, this raises the question why more librarians are not included in medical education research or if they are included, why is their work not acknowledged? Lastly, what is the librarian’s role and how should it be rightfully acknowledged?

The International Committee of Medical Journal Editors (ICMJE) asserts that “an author” is generally considered to be someone who has made substantive intellectual contributions to a published study. They also state, “an author must take responsibility for at least one component of the work, should be able to identify who is responsible for each other component, and should ideally be confident in their co-authors’ ability and integrity” [15]. By this guideline, a librarian who takes responsibility for the design and execution of a literature search should be included as an author of the publications. Therefore, librarians should not hesitate to ask for author recognition, as their efforts are a necessary component of the research.

Librarians need to be proactive and become members of research teams and, as such, contribute to the research project as expert searchers. They are trained to analyze complex questions and formulate comprehensive search strategies. They are skilled in the use of controlled vocabularies and Boolean operators and fully understand the benefits of multiple databases and gray literature searching. As members of these research teams, librarians are in a position to seek authorship on publications resulting from their work.

This study has some limitations. This study includes only three journals focused on medical education research. Many other journals publish medical education articles. Additionally, this report provides a snapshot of a five-year time period and may not be representative of earlier (or later) years of medical education research. There is also the possibility a librarian was involved in conducting the literature search but was not named or acknowledged.

**CONCLUSION**

Although the results of this study suggest the involvement of librarians has slightly increased over time, the results also suggest more needs to be done. Librarians need to be proactive in promoting their role as expert searchers. To enhance the medical education literature and contribute to the reproducibility of studies, librarians should be collaborators in the research process and coauthors of publications resulting from their work. Although this study only examined the discipline of medical education, future research should also examine the role of the librarian as an expert searcher and collaborator in other research areas.

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