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INTRODUCTION

Librarians working in university settings typically work under the philosophy and practice of teaching researchers or practitioners to do their own comprehensive literature searches and act as a resource for guidance on database selection, search strategy development, and so on. The exception is systematic reviews (SRs), where librarians’ expertise in literature searching is essential for a comprehensive and replicable search of the existing literature, as indicated by the Canadian Institutes of Health Research and the Institute of Medicine [1, 2].

With any significant change to or philosophical shift in professional practice resulting from changing demand, issues and challenges need to be identified and addressed by university health sciences library administrators, librarians, library schools, and library associations. Crum and Cooper’s recent findings on

Benchmarking participation of Canadian university health sciences librarians in systematic reviews

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This study describes the current state of Canadian university health sciences librarians’ knowledge about, training needs for, and barriers to participating in systematic reviews (SRs). A convenience sample of Canadian librarians was surveyed. Over half of the librarians who had participated in SRs acknowledged participating in a traditional librarian role (e.g., search strategy developer); less than half indicated participating in any one nontraditional librarian role (e.g., data extractor). Lack of time and insufficient training were the most frequently reported barriers to participating in SRs. The findings provide a benchmark for tracking changes in Canadian university health sciences librarians’ participation in SRs.

A supplemental appendix is available with the online version of this journal.
emerging roles for biomedical librarians included US, Canadian, and international data but did not identify country-specific information [3]. Anecdotal evidence suggests that Canadian health sciences librarians are experiencing an increasing demand to participate in SRs, identifying a need to do a Canadian study with a more granular focus. While this demand may have implications for a number of aspects of the health sciences library profession, the authors’ interest was in the current state of Canadian university health sciences librarians’ knowledge about, training needs for, and barriers to participating in an SR.

METHODS

An online survey was generated using Qualtrics software and distributed via the email discussion lists of the Canadian Health Libraries Association/Association des bibliothèques de la santé du Canada, CANMEDLIB, and the Association of Faculties of Medicine of Canada Libraries Group, AFMCLIB. A convenience sample of approximately 130 health sciences librarians working in Canadian university libraries was surveyed. The survey was sent out on May 12, 2014, with a 2-week deadline for completion (Appendix A, online only). The study received University of Saskatchewan Behavioural Research Ethics Board approval on April 21, 2014.

The core questions asked about librarians’ participation in various roles for SRs as derived from Beverley et al. [4]. The survey did not limit SRs to health discipline topics because the authors knew that health sciences librarians also participate in library science SRs. The authors were also interested in the current state of librarian SR knowledge and training in all aspects of SRs, from formulation of the research question to publication. Additional questions asked about barriers to librarian participation in SRs, library policies or guidelines for clarifying librarians’ roles and levels of involvement in SRs, and librarians’ participation in other kinds of literature reviews, based on Grant and Booth’s typology with the addition of meta-narrative and realist reviews or syntheses [5–7].

Participants had to be health sciences librarians working at a university to complete the survey. If university library employees had participated in an SR over the past year, they were eligible to complete all subsequent survey questions; if they had not, they were redirected to the final survey questions about policies, participation in other types of literature reviews, and demographics.

OUTCOMES

One hundred and seventeen respondents began the survey. Thirty-two respondents who were not employed at a university library were directed to the “thank you” page and did not contribute any data. Eighty-five were employed at a university library during the past year. Two of the university-employed respondents did not answer any further survey questions, leaving eighty-three who continued on with the survey.

Fifty-four of the eighty-three respondents indicated they had participated in an SR over the past year. Fifteen respondents stopped answering questions at this point in the survey, leaving thirty-nine who completed the entire survey. Twenty-nine of the eighty-three respondents, who had not participated in an SR in the past year, were redirected to a question about participation in other types of literature reviews. Thus, thirty-nine respondents completed the entire survey, and a further twenty-nine respondents answered all but the questions specifically about participation in SRs, for a total of sixty-eight respondents. Results are discussed in six categories: librarian participation, knowledge and training, barriers, policies and guidelines, other types of literature reviews, and demographics.

Librarian participation in systematic reviews

The number of responses to the SR participation questions varied from 35–39. Respondents reported they provided formal instruction in the past 12 months for the more traditional librarian roles of database selector (n=32), search strategy developer (n=30), citation manager (n=29), research question formulation (n=28), and document supplier (n=21). For roles that were less traditional for librarians, respondents reported that they provided instruction as: disseminator (n=12), critical appraiser (n=7), report writer (n=6), project leader (n=6), project manager (n=5), data extractor (n=3), and data synthesizer (n=2).

When asked about providing reference or research assistance in the previous 12 months, assistance was reported more frequently for the more traditional librarian roles of search strategy developer (n=34), database selector (n=34), research question formulation (n=30), citation manager (n=29), and document supplier (n=25). Assistance providing reference or research assistance was reported less frequently for the less traditional librarian roles of project leader (n=15), report writer (n=13), disseminator (n=12), critical appraiser (n=7), project manager (n=7), data extractor (n=5), and data synthesizer (n=4).

Reported participation as a member of an SR team in the past year showed a similar pattern as formal instruction and research assistance; in other words, participation was more frequently reported for the more traditional librarian roles and less frequently reported for less traditional librarian roles (Figure 1).

Knowledge and training

Knowledge in more traditional librarian roles was most frequently reported as “pretty good” or “extensive”; database selection (n=37), citation management (n=36), search strategy translation (n=35), literature search documentation (n=35), and research question formulation (n=34). Only a few (0–3) reported “none” or “some” knowledge for these same roles. A small number (3–4) of respondents indicated “pretty good” or “extensive” knowledge in the less traditional librarian roles of risk of bias analysis and meta-
analysis or synthesis. Data extraction (n=9) and selection of articles for inclusion or exclusion (n=17) were reported slightly more frequently. "None" or "some" knowledge was most frequently reported for risk of bias analysis (n=28), meta-analysis or synthesis (n=28), data extraction (n=25), and selection of articles for inclusion or exclusion (n=28). A few (2–6) respondents indicated that some of these roles were "not applicable."

Self-assessed levels of training were mostly reported as "pretty good" or "extensive" for database selection (n=33), search strategy translation (n=32), citation management (n=30), research question formulation (n=30), and literature search documentation (n=25). "None" or "some" training for these roles was reported by 3–10 respondents. A small number (1–11) of respondents indicated "pretty good" or "extensive" training in risk of bias analysis, meta-analysis or synthesis, data extraction, and selection of articles for inclusion or exclusion. "None" or "some" training was most frequently reported for these same roles: risk of bias analysis (n=30), meta-analysis or synthesis (n=29), data extraction (n=29), and selection of articles for inclusion or exclusion (n=22). A few (1–3) respondents indicated some of these roles were "not applicable."

**Barriers**

Lack of time (n=19) and insufficient training (n=12) were the most frequently reported factors limiting respondents’ ability to provide assistance for SRs. Of the 12 respondents reporting insufficient training as a barrier, most (9–10) also reported "none" or "some" training in selecting articles for inclusion, extracting data from included studies, conducting a risk of bias analysis, and conducting a meta-analysis or synthesis. A few (2–6) respondents reported "none" or "some" training in literature search documentation, search strategy translation, management of citations, research question formulation, and database selection. One respondent reported "none" or "some" training in all roles.

Less frequently reported were factors such as SRs not being part of assigned duties (n=5), being a low institutional priority (n=2), being inappropriate for rank (n=1), and not being of interest (n=1). Insufficient database access and a lack of requests were not reported as limiting factors by any respondents. Five respondents indicated "other" factors, which seemed to relate to the lack of time, lack of interest, and low institutional priority categories.
Policies and guidelines

Eighteen respondents indicated that their institutions had policies, guidelines, or other materials to assist them in clarifying their potential roles and levels of involvement for an SR requestor. Thirteen respondents indicated their institutions did not have policies; five respondents were not sure.

Other types of literature reviews

Although all 68 university-employed respondents were permitted to answer this question and could choose multiple answers, there were missing data. Scoping reviews (n=32) were the most frequently reported other type of literature review that respondents were involved in during the previous 12 months, followed by mixed method reviews (n=17), critical reviews (n=14), rapid reviews (n=13), realist reviews (n=11), meta-narratives (n=6), and other (n=7). Seven respondents indicated that they were unsure if they had been involved with any of these types of literature reviews in the past 12 months.

Demographics

Thirty-five of the 50 respondents answered the question about job title. The most frequent response was liaison librarian (n=18). Other job titles were reported less frequently (2-5): branch head, reference librarian, public services librarian, subject librarian, and information specialist. No respondents reported being a knowledge synthesis librarian. Fifteen respondents provided 12 other job titles, most of which were synonymous with the titles listed in the survey (e.g., information services librarian).

Thirty-two of the 49 respondents had been librarians 10 or more years and 17 for fewer than 10 years. Twenty-five had been a health sciences librarian for more than 10 years; 13 for 4–9 years; and 11 for 3 years or less.

DISCUSSION

Survey respondents represented a broad mix of years as university health sciences librarians and roles in university health sciences libraries. About 65% had participated in SRs in the past 12 months. Similarly, Crum and Cooper’s 2013 study found that 71% of academic librarians and 86% of academic library directors reported SR support as one of the most commonly added or planned new roles [3]. Results from a 2013 survey conducted at the University of Waterloo indicated 69% of faculty from health-related departments would include liaison librarians on their SR teams [8].

Traditional versus less traditional roles

Interestingly, the survey findings present a fairly clear delineation of more traditional and less traditional librarian SR roles that university health sciences librarians either provide assistance for or actively participate in. The more traditional librarian roles included search strategy developer, database selector, research question formulator, citation manager, and document supplier. The less traditional librarian roles include disseminator, critical appraiser, report writer, project manager, project leader, data extractor, and data synthesizer. It is significant to note that some level of assistance or participation was reported for all SR roles. There is evidence in the literature that librarian roles in SRs have expanded beyond literature searchers to knowledge creators (e.g., as reviewers for screening the literature, critical appraisers, educators, disseminators, and coauthors [4, 9–12]).

The delineation of more traditional versus less traditional librarian roles is replicated in the findings about knowledge of and training in SR roles. Respondents more frequently reported pretty good or extensive knowledge of and/or training in the more traditional librarian roles and no or some knowledge of and/or training in the less traditional librarian roles.

Barriers

Almost 1/3 of the respondents indicated insufficient training was a barrier. Most participants reporting insufficient training as a barrier also indicated little or no training in the less traditional roles, although some did report “none” or “some” training for traditional roles as well. The findings also indicated that almost 80% of university health sciences librarian respondents were involved in at least one other type of literature review in the previous year.

This may have implications for library schools’ health sciences or medical library course content, as well as for continuing education offerings from library associations and other bodies. Health sciences librarianship courses offered at American Library Association–accredited library and information studies programs in Canada are generally electives that provide a basic introduction to health sciences information services and resources. Students may be introduced to the concept of an SR, but it is unlikely that they would receive any depth of training in literature searches for SRs or other synthesis methodologies. Saleh et al. noted that library science curricula have begun to include dedicated SR courses, as evidenced by the “Systematic Review Searching” course offered at the University of Alberta [13]. However, post-degree continuing professional education and workplace mentoring are likely the primary ways of learning these skills [14, 15].

The data from this survey also indicate that the current number of requests for Canadian university health librarians to participate in SRs is impacting their capacity to accommodate these requests. Half of the respondents who had participated in SRs in the past year identified lack of time as a barrier to their participation. With time commitment an identified
issue, accommodation of an increase in requests could be challenging [3, 4, 14, 16–18]. Canadian university health sciences library administrators need to acknowledge this new role and determine ways to manage its growth (e.g., inclusion in job descriptions, adjustments to assigned duties).

Policies and guidelines

Almost half of university health sciences librarians who had conducted SRs in the previous twelve months reported that their institutions did not have, or they were not sure if their institutions had, policies and guidelines that identified the level of participation that SR teams could expect from university health sciences librarians. Establishment of such policies and guidelines may be an important step in assisting librarians and library administrators in managing SR requests, addressing workload issues, and identifying training needs.

Limitations

The Association of Faculties of Medicine of Canada (AFMC) Libraries Group 2012/13 annual statistics were used to identify the number of university health sciences librarians in Canada. A manual search of library websites for AFMC libraries who did not report librarian data was conducted to identify numbers. Based on this information, the authors estimated that there are approximately 130 university health sciences librarians in Canada, including university health sciences library directors. Sixty-eight (52%) of these librarians responded to the survey. Although this is quite a good response rate, the authors acknowledge that missing data were a factor in interpreting the results of this study, as some respondents did not finish the survey or did not complete all questions.

Initially, technical problems with one of the questions and with finishing and/or getting out of a partially completed survey led to a hampered response rate. These issues were corrected within twenty-four hours of the survey’s release. The survey software did not enable the authors to determine if those who did not finish the survey on their first attempt went back at another time and completed a fresh survey.

CONCLUSION

Canadian university health sciences librarians are primarily participating in SRs in more traditional librarian roles. Some are showing engagement in less traditional SR roles as well as other types of literature reviews. Higher levels of knowledge and training in each stage of SRs seem to be generally more evident in traditional librarian roles. Although the data from this investigation are a snapshot of only one year and are merely suggestive due to the small survey sample, they provide a benchmark for tracking the participation of Canadian university health sciences librarians in SRs over time. More research is encouraged to monitor trends and to keep abreast of developments in this new role for university health sciences librarians.

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Lessons learned from ten years of distance learning outreach*

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Objective: The study tested the efficacy of providing distance learning with real-time videoconferencing to broaden high school student knowledge of health careers.

Methods: A pilot program was tried out and extended over ten years to include other schools in four different time zones and the National Library of Medicine. Survey results, site visits, and continued school participation were used as effectiveness indicators. Student ratings, site visits, and ongoing discussions were used to evaluate critical factors in the program.

Results: Nine program factors contributed to success.

Conclusions: Synchronous communication can be effective for outreach to special populations given appropriate infrastructure, technology, program design, and implementation.

INTRODUCTION

The National Library of Medicine (NLM) has managed a distance learning program for ten years with the objective of addressing health disparities by increasing minority high school students’ interest in a range of health careers and understanding of health sciences subjects and resources. This case study identifies strategies that affected the program’s development that may interest others who are considering use of synchronous, interactive online videoconferencing technology to reach special populations.

The program started as a modest pilot, proof-of-concept project involving a solitary class at a single high school but evolved to include other classes and, eventually, other schools serving additional minority populations. The program’s origins and evolution are

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