

**Publication rate of presentation abstracts presented at the Canadian Health
Libraries Association (CHLA/ABSC) annual meetings from 2004-2009**

Shaw, Christine E., MLS

Acting Head, Sciences and Technology Library
Associate Librarian, University of Manitoba
christine.shaw@umanitoba.ca

211 Machray Hall, University of Manitoba
Winnipeg, MB R3T 2N2
204-474-8302

Szwajcer, Andrea L., MLIS, AHIP

St. Boniface Hospital and WRPCP Librarian
Associate Librarian, University of Manitoba
andrea.szwajcer@umanitoba.ca

Carolyn Sifton-Helene Fuld Library, St. Boniface Hospital
Albrechtsen Research Centre, 351 Taché Ave., Winnipeg, MB R2H 2A6
204-237-2991

ABSTRACT

Purpose: To determine the publication rate of Canadian health sciences librarians, post conference presentation. Discover barriers that prevent librarians from taking conference presentation to full publication. Assess the metrics available to librarians for scholarly output measurement by examining metrics, traditional and altmetrics, of articles resulting from conference presentation.

Methodology: A survey using FluidSurveys was distributed via e-mail to authors of poster and papers presentation presented at Canadian Health Libraries Association/ Association des bibliothèques de la santé du Canada (CHLA/ABSC) conferences from 2004 to 2009. A literature search for articles matching presentations in National Library of Medicine's PubMed, Cumulative Index of Nursing and Allied Health Literature (CINAHL), and, Library, Information Science & Technology Abstracts (LISTA) was conducted to determine publication rate. Metrics of retrieved articles were gathered and analyzed to gauge scholarly output of Canadian health sciences librarians.

Findings: A publication rate of 31.5% was determined by literature search. Time restriction was the most common reported reason for not publishing. The altmetric analysis included 71 articles, of which 52% had at least 1 value in various metrics, with Mendeley counts being the most common value represented.

Research Limitations: Not all survey respondents may be library science professionals, so that survey findings may not be generalizable to the Canadian health librarian profession. While every effort was made to find and confirm publications related to conference presentations, the reported publication rate may be either an over estimate or under estimate of the true rate. Current altmetric science is very dynamic and evolving.

Value: This study provides a baseline publication rate, identifies barriers librarians face to publication and provides a glimpse into the state of metrics available to Canadian librarians for evaluation of their scholarly output.

Introduction

The scholarly output of librarians can be measured by conference presentations, publication rate, traditional bibliometrics and altmetrics sources. This paper examines the state of scholarly output of Canadian health sciences librarians by establishing a base publication rate, examining the article level metrics available at the time for these publications and tries to discover barriers that prevent librarians from publishing.

Publication rate, as measured from publications proceeding from conference presentations, is a common knowledge translation metric in health sciences. Annual meetings or conferences and published peer-reviewed articles may serve different purposes. Conferences allow the presentation of initial findings to obtain feedback, establish connections with colleagues, and pursue further investigation. Published articles are a more comprehensive, mature discussion of the research, and have an archival function (Bar-Ilan, 2010; Montesi and Owen, 2008). In the health science disciplines a Cochrane systematic review found a weighted mean publication rate of 44.5% of articles published after conference presentation (Scherer et al., 2007). How does the publication rate of Canadian health sciences librarians compare to this broader health sciences publication rate?

Within the library science field, there are few studies regarding publication rate, with rates ranging but overall lower than the 44.5% reported by the Cochrane systematic review (Scherer et al. 2007). Presentations at an Association of College and Research Libraries (ARCL) conference in 1999 were later published as full peer reviewed papers 13% of the time (Fennewald, 2005). At Medical Library Association (MLA) conferences between 2002-2003 poster and paper presentations resulted in a publication rate of 28% (Harvey and Wandersee, 2010). An analysis of research presentations that won awards at MLA conferences showed a publication rate of 44% (Alpi and Fenske, 2011; Alpi and Fenske, 2009). International Society for Scientometrics and Infometrics (ISSI) found a publication rate of 31.7% post conference presentation in peer-reviewed journals (Aleixandre-Benavent et al., 2009). A study investigating librarian involvement in research activities such as integrating research into practice, conference presentation, publication, and grant writing reports a publication rate of 34% from librarian survey respondents (Lessick et al., 2016).

There are many factors that contribute to an author's decision to publish affecting the publication rate within a discipline. Harvey & Wandersee (2010) reported that the greatest barrier to publication as perceived by conference presenters was a lack of time. Other reasons supplied for not publishing included the belief that the material was not "substantive enough to merit a journal article" or that the respondents never intended to publish (Harvey and Wandersee, 2010 p.252). Self-censoring by potential authors, lack of time, feeling the conference presentation was adequate, trouble with co-authors are often given as personal reasons for not publishing (Aleixandre-Benavent et al., 2009). Beyond author-related factors, conferences and annual meetings are seen as places to present preliminary, brief or technical content, and successful projects. This type of presentation may not be designed for formal publication or have followed appropriate research design methodologies that would allow for further publication (Aleixandre-Benavent et al., 2009; González-Albo and Bordons, 2011; Harvey and Wandersee, 2010). Evidence coming from the literature suggests that academic librarians, who have the most to gain from publishing, make up the majority of published authors (Harvey and Wandersee, 2010; Lessick et al., 2016).

Publication rate is a useful method to measure the scholarly output at a group level (e.g. discipline, association) and can be used as a comparison tool. However, measuring individual scholarly activities and the impact of those publications on the discipline can be measured using traditional bibliometrics and more recently altmetrics. Traditional metrics such as times cited, journal impact factors and h-index are well established conventional measures of research output. However, as Roemer and Borchardt point out defining and measuring impact for librarians can be difficult, librarians use different methods of publication including blogs and open access repository that traditional metrics do not measure (Roemer and Borchardt, 2015). Altmetrics can be a way to promote and assess the scholarly output of librarians. Piwowar and Priem describe benefits to scholars when altmetrics are embedded into a curriculum vitae, such as uncovering the impact of newly published works, providing a measure for non-traditional methods of publication, and encouraging a public engagement with the published work (Piwowar and Priem, 2013). However, similar to those in the humanities disciplines as Hammarfelt discovers in an examination of altmetrics in the humanities, the availability of altmetric data to librarian researchers can be limited (Hammarfelt, 2014). Depending on the type or media of publication, be it print vs. digital, journal article vs. book or book chapter, or even acceptance of a specific metric within a field will impact whether the

measurement is available to an author.

Design/methodology/approach

This is a modified replication study as outlined by Harvey and Wandersee (2010). The sample was determined from the Canadian Health Libraries Association/ Association des bibliothèques de la santé du Canada (CHLA/ABSC) conference years 2004 to 2009, for a total of 200 abstracts: 105 papers, 95 posters. Invited speakers were not included in the sample. The date range allowed for 3 years from the last conference year in the range as per established abstract-to-publication time (Harvey and Wandersee, 2010). The resulting publication citations from the sample abstracts were determined from a literature search and by survey response from authors.

Literature Search

Data was collated in Microsoft Excel and the following data elements were entered: author, title, type of presentation (paper or poster), the year and location of the conference. Then, one researcher (CS) set out to trace the subsequent publications in National Library of Medicine's PubMed, Cumulative Index of Nursing and Allied Health Literature (CINAHL), and, Library, Information Science & Technology Abstracts (LISTA). The search technique used for retrieving the published articles consisted of queries containing the surnames and initials of the lead authors in Boolean combination with keywords from the title. When this procedure produced no hits, the databases were interrogated again with the authors' last names, or title keywords. In order to determine the correspondence between a conference presentation and the subsequent publication we follow these criteria: a) the authors' names were the same in both the article and a presentation; b) the author affiliations coincided; c) The title and keywords coincided. When these criteria could not be met, possible matches were resolved by consensus between the investigators. When the attributes of an article coincided with those of a presentation, it was added to the database with its title, authors, publication type, year and other identifying citation information, along with the name of the databases in which it was located. The Journal of the Canadian Health Libraries Association (JCHLA) was hand-searched from 2004 to 2014. This title was chosen because CHLA/ABSC is the conference host association and also publisher of this title. The final publication list was independently checked (AS) for accuracy by random sample of 20% of the abstracts using a combination of the databases listed above and Google.

Survey

Harvey & Wandersee's (2010) survey was used with two additional questions: open access as a factor in the choice of publication to submit; and chapter affiliation [appendix]. Some authors had presented more than one abstract in the sample year range; removing the duplicate authors, there were 150 unique first authors. Using the compiled author list, corresponding email addresses were collected from conference programs, university directories and websites. A total of 120 addresses were gathered; 30 addresses were unobtainable. The survey was constructed using FluidSurveys and distributed via e-mail in July 2012. Of the 120 surveys distributed, 12 e-mails bounced back or failed leaving a total 108 successfully contacted first authors. A follow-up reminder was sent at two-week intervals to the email list 3 consecutive times. An alternate method to reach authors included posting to both the CanMedLib and MLA email list discussion groups inviting authors to contact us.

Survey respondents were asked to report on the first paper/poster abstract presented chronologically in the year range of the study. For those respondents that had published, they were asked for the following: the citation of the publication to confirm identification of the correct publication; whether journal open access and peer review were factors in their consideration of places to publish; status of the publication if it was submitted at the time of the survey response. Respondents who reported that they did not publish were asked to indicate a primary and secondary reason for that decision. For all respondents, demographic information was collected including CHLA/ABSC chapter affiliation, years in profession, type of library employed at, and highest level of education. This study was reviewed and approved by the University of Manitoba Health Research Ethics Board (H2012:079).

Analysis

Descriptive statistics as provided by FluidSurveysTM was utilized for the survey results. All traced publications from either the search or survey respondent reporting was collated. From the collated publications, a bibliometric analysis was conducted on the journal article citations using Bradford's law to determine what publication(s) had the majority of publishing activity within the sample (HLWiki Canada, 2014). An attempt was made to obtain most recent year-available

impact factor (IF) for the sample, via ISI's Journal Citation Reports (JCR), or publisher-reported on the journal website; for a majority of titles, IF was unavailable and the analysis was abandoned. Times Cited Counts (TCC) were also collated for analysis and Google, Scopus and Web of Science were used; Google was the only source that reported TCC regardless of title as Scopus and Web of Science did not index a majority of the titles in the sample. As there is no collation tool for Google TCC, a TCC for each citation was found and collated in Microsoft Excel by hand. TCC were categorized by title and descriptive statistics performed. Altmetrics analysis, which includes article-level metrics such as page views and mentions on social media, was performed on the journal citation sample using the tools by AltmetricTM and ImpactStoryTM (late February 2013).

Results

Literature Search & Bibliometric Analysis

The collated publications from the literature search determined a publication rate of 31.5% (62/200 abstracts resulted in 1 or more publications). Publications reported by the survey confirmed a publication rate of 32%. In total, there was 82 publications found from the abstract sample, of which 80 publications were included for analysis: 76 journal articles, 2 journal letters, 1 dissertation and 1 book chapter; 2 journal articles were excluded by researcher consensus as they did not sufficiently correspond to the topic identified in the conference proceeding. All publication types were included in the rate calculation, regardless of the timing of the publication as long as it was reasonably proximate (pre or post conference presentation).

The focus for the bibliometric/altmetric analysis was restricted to journals given the very limited number of alternative publication types represented in the sample. From the Bradford's law analysis of 31 journal titles, *Journal of the Canadian Health Libraries Association* (JCHLA) was the major publication of choice, having published 43% (33/78) of all journal citations (Fig. 1). *Journal of the Medical Library Association* (JMLA) and *Health Information & Libraries Journal* (HILJ) were the next most common titles at 9% (7/78) and 7% (5/78) respectively. 54% (13/24 titles) of 'Other' titles would be deemed a medical title publication classification and include *British Medical Journal* (BMJ) and *PLOS One*.

Google Times Cited Counts (TCC) was sought for all citations whose journal title was represented 2 or more times in the sample (Fig. 2). Four out of the six titles had averages within a 2-point spread; there was no statistical variance found between any of the titles (p-value=0.146). Unlike Scopus or Web of Science TCC where reports can be easily generated for a citation list, presently Google TCC are tedious to obtain and have been shown to be problematic as a metric however, times cited counts are a common method for demonstrating article level impact (Davis, 2012; Lopez-Cozar, 2013).

For the 71 articles that were included in the altmetric analysis, 37 or 52% of the citations had at least 1 value in the various metrics represented in at least one of the two tools used. For those citations that did not have values, either there were no values available (i.e. 0) or no values could be obtained. While the number of citations for which values could not be obtained was not recorded, the barriers to obtaining article-level metrics (ALMs) was noted: (a) only journal or issue-level digital object identifiers (DOIs) were available by the publication; (b) no individual article URL was available as the article was “locked” in issue-level PDF and/or ALMs not available at all, thus untraceable. Almost half (14/37) of the citations that had a metrics value were shared across both tools. Mendeley counts were the most common value represented (57%; 21/37) with values ranging from 1 to 29. Ten citations had metrics of note, that is to say that the tool gave the citation a special score (i.e. Altscores) or shown to be highly cited or saved; there was an equal number of medical and health library citations represented. Seven citations had some version of metric that showed social media activity, either Tweet counts, Facebook mentions or wiki/blog reference; again, evenly divided between medical and health library citations.

Survey

The survey received a 51.85% (56/108) response rate. The demographics showed an equal distribution of respondents across the CHLA/ABSC chapters. The majority of respondents work in an academic environment with 59% (33/56) of the respondents from universities or university hospitals, and another 14% (8/56) in teaching hospitals. There was no difference in publication rate by years in the profession. The largest educational classification was 77% (43/56) with a

Masters of Library Science or equivalent designation, 11% (6/56) had other Masters level degree, 7% (4/56) had PhD designations and 6% (3/56) had Bachelor level or diplomas.

Survey respondents who indicated that they did not publish were asked to choose a main and secondary reason for this decision (Fig. 3a). For both the main (43%) and secondary (36%) reasons, 'Time restriction' was most commonly reported. 'Other' was the next most common response (30% of main reason; 36% of secondary reason), of which there were 18 total explanations given in the open question. A thematic analysis of the 18 comments (Fig. 3b) illustrates a spectrum of reasons, the majority indicating the view that the abstract was unworthy of pursuit to formal publication. Sample of these comments demonstrate this perspective: "*Not sure there is a paper in it since it was a presentation on a database project*"; "*not a research project*"; "*Topic did not warrant a full article, it was a 'how I do this' type of abstract - not really 'worthy' of further publication*". 'Collaboration challenges with co-author(s)' was also self-reported as the next most common secondary reason for not publishing.

Discussion

The publication rate of poster and paper abstracts from 2004 - 2009 CHLA/ABSC annual meetings was 31.5% when measured by independent searching of the literature. The self-reported publication rate was 32% overall. The most frequent reason selected by CHLA/ABSC abstract authors for not submitting their projects for publication was time restrictions at 43%. The publication rates from both the CHLA/ABSC author survey and from the literature searches closely reflect the findings by Harvey & Wandersee (2010) of 26.5% from survey and 27.6% from literature search. As such, the CHLA/ABSC rates were well below the mean rate of 44.5% that the Cochrane systematic review found for biomedical professionals (Scherer et al., 2007). The reasons why there is such a difference may be multifactorial including the type of abstract, research/publication skills within the profession, individual researcher motivations, and method and vehicles for publishing.

In their discussion, Harvey and Wandersee (2010) put forward that medical abstracts usually report research while library

science paper and poster presented at meetings tend to be more wide-ranging in their content, including programming and technical reporting. Due to a professional awareness to seek the best possible evidence in medicine, “some medical librarians are so aware of any methodological limitations that they minimize the value that their investigations could contribute to library scholarship”(Harvey and Wandersee, 2010 p. 254). Alpi and Fenske (2011) in their publication rate analysis of award-winning MLA research presentations showed a rate closer to that of Scherer et al.(2007) of 44% perhaps indicating a preference to publish research articles than other types of papers. In the CHLA/ABSC survey, a majority of comments in the ‘Other’ reasons for not publishing seem to reflect the valuing of research to non-research: “*Not sure there is a paper in it since it was a presentation on a database project*”; “*not a research project*”. It remains unclear to what degree self-selection based on abstract type impacts overall publication rate and requires further research.

As Roemer so well states, librarianship is a ‘discipline of practice’ (Roemer, 2015) and to some degree, the comments reflects this fact, because the author felt the presentation to be practice and not research based, journal article publication was not considered appropriate. Librarianship scholarly contribution, both quantity and value, needs to include alternate forms of output. At the time of this study’s altmetric analysis, a certain proportion of citations were unavailable due to the nature of the publication vehicle. The authors speculate that, if the analysis was to be done today, there would be far more article-level-metrics available for inclusion, likely due to several factors: the new standardization of the altmetrics field via the NISO, dynamic industry developments of the tools, and the built-in availability of these metrics as part of the publication vehicle itself, such the Plumprint™ in institutional repositories. With the likely improvement of altmetric availability together with strong encouragement by the profession for the emerging role of librarians in aiding researcher in understanding the use of altmetrics as well as rounding out their own scholarly contribution impact, librarians would do well to be prepared to report their own in such venues as curriculum vitae (Piwowar, 2013; Philbrick, 2014; Roemer, 2015).

While the altmetric sample size in this study was too small to be definitive, the results suggest patterns similar to what has been previously reported in librarianship and related social science and humanities disciplines. The most available metric in this study’s sample was Mendeley counts, reflective of an analysis by Hammarfelt in the humanities literature

(Hammarfelt, 2014). In their analysis of four Library and Information Science publications, LIS articles tend to attract more Mendeley readers than Scopus citations for the first 7 years of publication (Maflahi and Thelwall, 2014). One reason that Maflahi and Thelwall (2014) suggest for this include that LIS readership is larger in Mendeley; in view of the barriers this study's authors have observed in seeking altmetrics across a variety of publications, it may be that Mendeley is serving as a dissemination vehicle for LIS publications. More research is required with larger sample sizes to clarify what role metrics like Mendeley reader counts have for LIS scholarly output, and the possible influences of publication type and method of dissemination on that output.

Within the North American context, several library science professional associations have established a relationship between scholarly output and the ability and experience to demonstrate and participate in the complete research cycle. Competencies related to the full participation in the research cycle have been identified by the Association of Research Libraries (ACRL) and the Canadian Association of Research Libraries (CARL) (Belzile et al., 2010; Jaguszewski and Williams, 2013). For example, CARL lists "research and publication contributions through writing, editing, refereeing and reviewing of books, articles and reports" as part of the Research and Contributions to the Profession competency expected of Canadian academic librarians (Belzile et al., 2010 p.9). As an attempt to address the publication/research skills gap, various library science organizations have instituted training opportunities, such as the Library Research Institute (LRI) established by CARL (Jacobs and Berg, 2013; Canadian Association of Research Libraries, 2013). Within the medical librarian community, CHLA/ABSC has initiated a workshop entitled "Research by design: proposing, planning and carrying out a research project for the practicing librarian" (CHLA/ABSC, 2014). The Medical Library Association's Research Section has a mandate to support librarians to engage in research, either formally or informally, together with course offerings and its publication *Hypothesis* offers a venue for authors that may not be otherwise published (Cooper, 2014). These association statements together with the self-reporting comments in this study's survey findings seem to infer the presence of a possible "confidence gap", acting as a form of self-censorship, resulting in an unwillingness to engage the publication process, thus denying peer review its work to determine what is of value to the broader community. This confidence gap in research and publishing is a long-standing and recognized issue in scholarship, both in librarianship and biomedical sciences (Jacobs and Berg, 2013; Song et al., 2014). More research such

as Brancolini and Kennedy's (2016) examination of the impact of the Institute for Research Design in Librarianship is required to determine if these library science association initiatives have a measureable, benchmarked impact on scholarly output, such as publication rates.

This study's finding that time restriction is the most common barrier to publishing echoes findings from a similar research studies and a systematic review (Harvey and Wandersee, 2010; Song et al., 2014). 'Lack of time' may encompass a spectrum of related barriers that draws away from available time (Song et al., 2014). For example, an investment of more time is required if the publishing knowledge or skill is weak, or if the work environment is not conducive to completing a publication, demanding personal time. However, more fundamental is the value of time itself: the researcher must weigh time taken to publish in comparison to the relative value of career gain of publishing in whatever form that may take. The cost/benefit of time versus career recognition or expectations may explain why librarians employed at academic or academic-affiliated institutions are more likely to publish. For example, some academic institutions have incentivized publication through protected time granted as part of institution policy, collective agreement or some other mechanism. However, recognizing that librarianship is a practice-based profession, it can be argued that there is a knowledge loss if the more technical areas of medical librarianship, including hospital or non-academic affiliated health librarianship do not fully engage the research cycle.

Conclusions

While knowledge translation includes both presenting at professional meetings and publishing, it is the formal publication that documents findings and provides an evidence base for the profession. This study found that presenters at the CHLA/ABSC from 2004-2009 conferences publish at a rate equivalent to other library specialties but lower than that of medical disciplines. Librarians' decision to publish is influenced by many factors including time and author's confidence. Creating a body of evidence to draw upon requires librarians to engage in the publication process, further disseminating research results, program ideas and issues related to library science as a profession. The measurement of scholarly output for individual librarian researchers is difficult to assess, and availability of traditional metrics, times cited and impact factor is limited; the growing area of altmetrics may fill this gap. Investigation is needed on the impact of continuing

education initiatives and other supports to encourage librarians to research and publish.

References

- Aleixandre-Benavent, R., González-Alcaide G., Miguel-Dasit A., Navarro-Molina C. and Valderrama-Zurián, J.C. (2009), "Full-text publications in peer-reviewed journals derived from presentations at three ISSI conferences", *Scientometrics*, Vol. 80, No. 2, pp. 407-418.
- Alpi, K. and Fenske, R. (2011), "Previous research shows Medical Library Association award winner publication rate", *Journal of the Medical Library Association : JMLA*, Vol. 99, No. 1, pp. 3.
- Alpi, K. and Fenske, R. (2009), "Award Winning Work -- Read all about It!", *Hypothesis: Journal of the Research Section of MLA*, Vol. 21, No. 1, pp. 16-17.
- Bar-Ilan, J. (2010), "Web of Science with the Conference Proceedings Citation Indexes: the case of computer science", *Scientometrics*, Vol. 83, No. 3, pp. 809-824.
- Belzile, S., Busby, L., DeLong, K., Garnett, J., Haines, M., Ingles, E., Lewis, V., Maskell, C., Weir, L., Williamson, V., Argaez, D. and McColgan, K. (2010). "Core competencies for 21st century CARL librarians". Ottawa, ON: Canadian Association of Research Libraries/ Association des bibliothèques de recherche du Canada / (CARL/ABRC), available at http://www.carl-abrc.ca/uploads/pdfs/core_comp_profile-e.pdf (accessed 26 July 2016).
- Brancolini, K. & Kennedy, M.R. (2016). "Measuring the Effectiveness of a Research Continuing Education Opportunity for Librarians: Institute for Research Design in Librarianship (IRDL)". Arlington, VA: *Library Assessment Conference: building effective, sustainable, practical assessment*. Association of Research Libraries, Session 14: Organizational Issues 3. available at: <http://libraryassessment.org/schedule/index.shtml> (accessed 5 September 2016).
- Canadian Association of Research Libraries (CARL), "Librarian's Research Institute", available at: <http://www.carl-abrc.ca/strengthening-capacity/workshops-and-training/librarians-research-institute/> (accessed 14 September 2013).
- Canadian Health Libraries Association / Association des bibliothèques de la santé du Canada (CHLA/ABSC) (2014), "Research by design: proposing, planning and carrying out a research project for the practicing librarian", available

at: <http://www.chla-absc.ca/node/1434> (accessed 16 January 2016).

Cooper, D. (2014), "Hypothesis' role in library research", *Hypothesis: Journal of the Research Section of MLA*, Vol. 26, No. 1, pp. 3-4.

Davis, P. (2012), "Gaming Google Scholar citations, made simple and easy" *The Scholarly Kitchen*, available at: <https://scholarlykitchen.sspnet.org/2012/12/12/gaming-google-scholar-citations-made-simple-and-easy/> (accessed 27 July 2016).

Fennewald, J. (2005), "Perished or Published: The Fate of Presentations from the Ninth ACRL Conference", *College & Research Libraries*, Vol. 66, No. 6, pp. 517-525.

González-Albo, B. and Bordons, M. (2011), "Articles vs. proceedings papers: Do they differ in research relevance and impact? A case study in the Library and Information Science field", *Journal of Informetrics*, Vol. 5, No. 3, pp. 369-381.

Hammarfelt, B. (2014), "Using altmetrics for assessing research impact in the humanities", *Scientometrics*, Vol. 101, No. 2, pp. 1419-1430.

Harvey, S.A. and Wandersee, J.R. (2010), "Publication rate of abstracts of papers and posters presented at Medical Library Association annual meetings", *Journal of the Medical Library Association : JMLA*, Vol. 98, No. 3, pp. 250-255.

HLWiki. (2014) "Bradford's law of scattering", HLWiki Canada, available at http://hlwiki.slais.ubc.ca/index.php/Bradford's_law_of_scattering (accessed 4 July 2016).

Jacobs, H.L.M. and Berg, S.A. (2013), "By Librarians, For Librarians: Building a Strengths-Based Institute to Develop Librarians' Research Culture in Canadian Academic Libraries", *Journal of Academic Librarianship*, Vol. 39, No. 3, pp. 227-231.

Jaguszewski J.M., and Williams K. (2013) "New roles for new times: transforming liaison roles in research libraries", Association of Research Libraries, Washington, DC, available at: <http://www.arl.org/component/content/article/6/2893> (accessed 27 July 2016).

Lessick, S., Perryman, C., Billman, B.L., Alpi, K.M., De Groote, S.L. and Babin, T.D. (2016), "Research engagement of health sciences librarians: a survey of research-related activities and attitudes", *Journal of the Medical Library*

- Association : JMLA*, Vol. 104, No. 2, pp. 166-173.
- Liséé, C., Larivière, V. and Archambault, É. (2008), "Conference proceedings as a source of scientific information: A bibliometric analysis", *Journal of the American Society for Information Science & Technology*, Vol. 59, No. 11, pp. 1776-1784.
- Lopez-Cozar, D.E., Robinson-Garcia, N. and Torres-Salinas D. (2012) "Manipulating Google Scholar citations and Google Scholar metrics: simple, easy and tempting", working paper EC36 Cornell University Library, Cornell University, Ithaca, New York, 29 May.
- Maflahi, N., and Thelwall, M. (2016) "When are readership counts as useful as citation counts? Scopus vs. Mendeley for LIS journals", *Journal of the Association for Information Science and Technology*, Vol. 67, No. 1, pp. 191-199.
- Medical Library Association (2014), "Research vs. research: sometimes the little r is all you need (webinar)", available at: <https://www.mlanet.org/event/research-versus-research-sometimes-little-r-all-you-need-webinar> (accessed 16 January 2015).
- Montesi, M. and Owen, J.M. (2008), "From Conference to Journal publication: how conference papers in software engineering are extended for publication in journals", *Journal of the American Society for Information Science and Technology*, Vol. 59, No. 5, pp. 816-829.
- Philbrick, J.L. (2014), "Medical Library Education | Measuring research impact on the social web: a look at altmetrics", *Medical Library Association News*, Vol. 54, No. 1, pp. 13.
- Piwowar, H. and Priem, J. (2013), "The Power of Altmetrics on a CV", *ASSIS&T*, Vol. 39, No. 4, pp. 10-13.
- Roemer, R. C. and Borchardt, R. (2015), "New Grads, Meet New Metrics: Why Early Career Librarians Should Care About Altmetrics & Research Impact", *In the Library with the Lead Pipe*, available at: <http://www.inthelibrarywiththeleadpipe.org/2015/new-grads-meet-new-metrics-why-early-career-librarians-should-care-about-altmetrics-research-impact/> (accessed 06 July 2016).
- Scherer, R.W., Langenberg, P. and von Elm, E. (2007), "Full publication of results initially presented in abstracts (Review)", *Cochrane Database Syst Rev*, pp. 1-81.
- Song, F., Loke, Y. and Hooper, L. (2014), "Why are medical and health-related studies not being published? A systematic review of reasons given by investigators", *PLOS ONE*, Vol. 9, No. 10, pp. e110418.

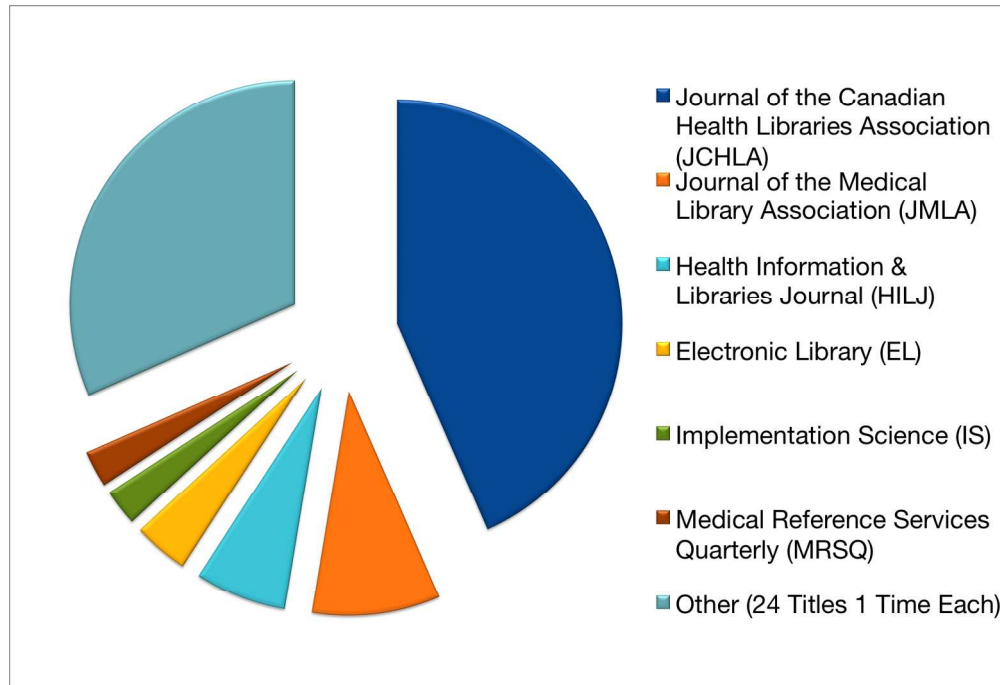


Figure 1: Number of journal titles (%) to the total number of journal citations.
Journal Titles

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Peer

Performance Measurement and Metrics

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

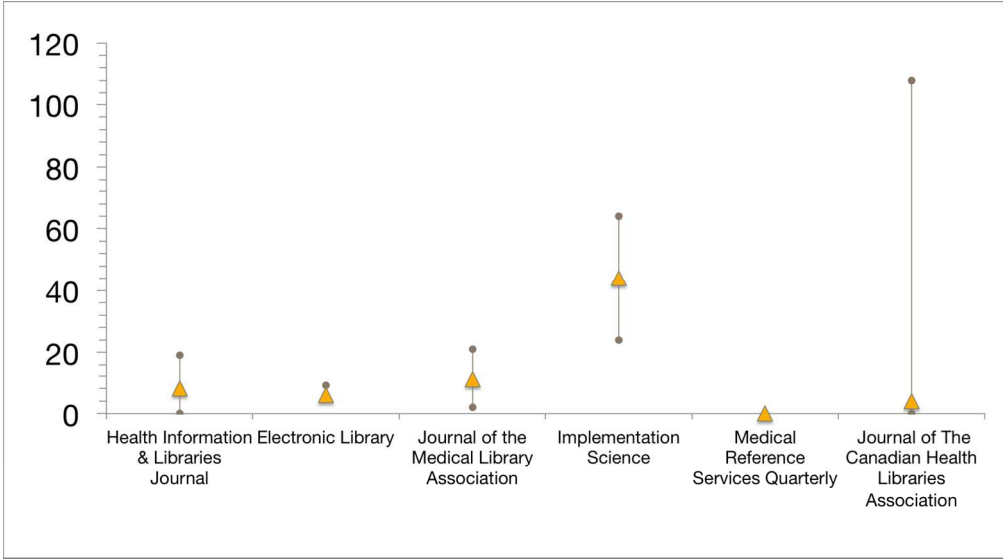


Figure 2: Google Times Cited Counts (avg) for the journal titles with 2+ occurrences in the citations.
Google Times Cited Counts

Performance Measurement and Metrics

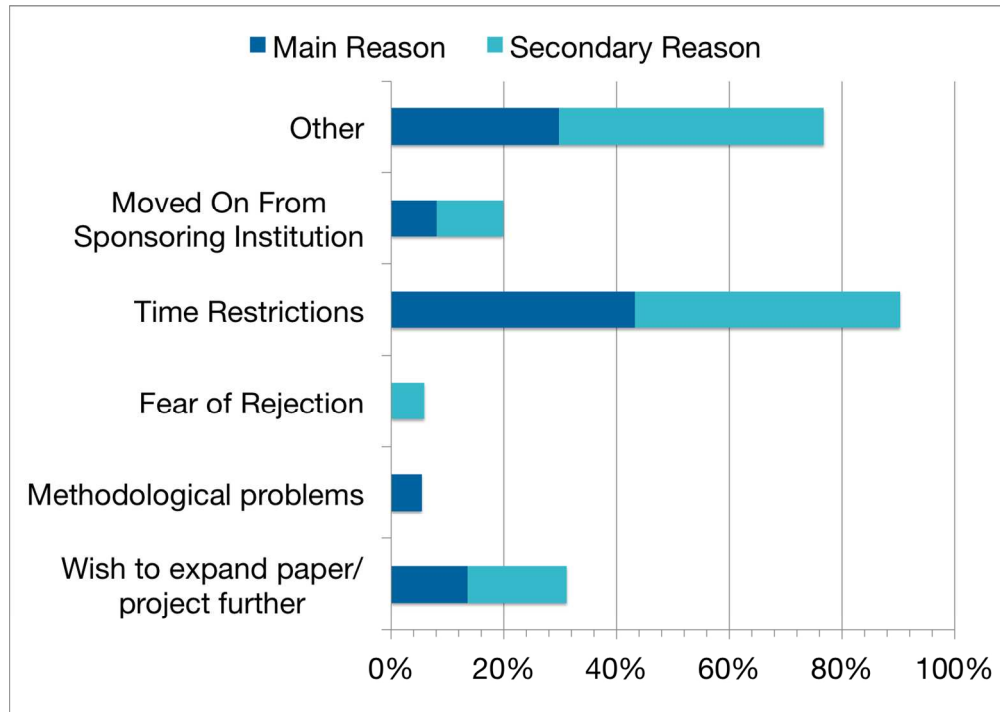


Figure 3a: Survey respondents' main and secondary reasons (%) of why they chose not to publish.
Survey Response 'Not Publish'

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Performance and Metrics

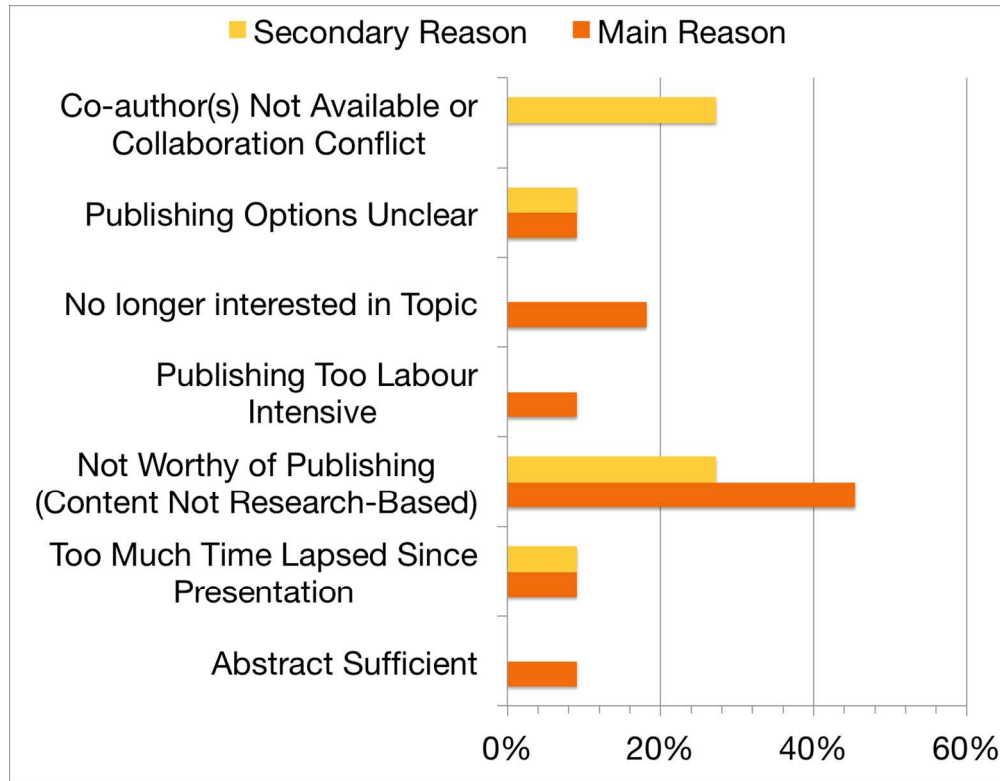


Figure 3b: Thematic results (%) of survey respondents' comments to the 'Other' category indicated by main and secondary reasons of why they chose not to publish.
Survey Response 'Other'

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60

Performance and Metrics