



Comparison of the Accuracy of Bibliographical References Generated for Medical Citation Styles by EndNote, Mendeley, RefWorks and Zotero



Jiří Kratochvíl

Masaryk University Campus Library, Brno, Czech Republic

ARTICLE INFO

Article history:

Received 26 April 2016

Received in revised form 18 August 2016

Accepted 8 September 2016

Available online 15 September 2016

KEYWORDS:

Accuracy

Bibliographical references

Citation styles

EndNote

Medical journals

Mendeley

Reference managers

RefWorks

Zotero

ABSTRACT

Bibliographical references to online and printed articles, books, contributions to edited books and web resources generated by EndNote, Mendeley, RefWorks and Zotero were compared with manually written references according to the citation instructions in 15 biomedical journals and the NLM citation style. The fewest mistakes were detected in references generated by Zotero for 11 journals and the NLM style, while the second fewest number of mistakes was found in Mendeley. The largest number of mistakes for 9 journals was found in references generated by EndNote and in the other 4 journals the largest number of mistakes was detected in RefWorks references. With regard to the individual types of resources, the lowest number of mistakes was shown by Zotero, while RefWorks had the greatest number of mistakes. All programs had problems especially with generating the URL and the date of access in the reference to online documents. It was also found that several mistakes were caused by technical limitations of the reference managers, while other mistakes originated due to incorrect setting of the citation styles. A comparison showed that Zotero and Mendeley are the most suitable managers.

© 2016 Elsevier Inc. All rights reserved.

INTRODUCTION

Bibliographical references are an integral part of all scientific publications. However, their authors constantly struggle with generating them and repeatedly make mistakes in creating them. These mistakes should not be treated lightly, because they may lead the reader to doubt the quality of the author's research; the author might also have shown the same carelessness in the references in the following parts of the article or in the research itself (Biebuyck, 1992). In the past, some authors have been revealed to have mentioned sources in the list of references which they had not read. Some authors have also brought over incorrectly formatted bibliographical references from different articles (Cronin, 1982; Garfield, 1990; Sweetland, 1989; Wyles, 2004). As a result, not only the reputation of the authors but also the reputation of the journals can suffer when poorly produced articles featuring mistakes are published (Spivey & Wilks, 2004). Mainly the cited authors and the cited journals are affected. Indexing these authors in citation databases can become more complicated or even impossible due to such mistakes (Garfield, 1990).

The causes of mistakes in references can vary. Apart from unethical ways of citing as mentioned, mistakes have also been reported for decades now to have been caused by mere carelessness and the authors' inconsistent writing (Bahar et al., 2012; De Lacey, Record, & Wade, 1985; Lok, Chan, & Martinson, 2001; Oermann, Cummings, & Wilmes, 2001). The blame lies with the journals themselves, because they do not contain very detailed citation instructions for authors. They may

also refer to already invalid versions of the citation styles or they do not give any citation styles at all (De Lacey et al., 1985; Onwuegbuzie, Hwang, Combs, & Slate, 2012). Another reason for errors is the existence of too many citation styles where the authors cannot be sure what the best approach is (Liu, 1993; Moorthy, 1988; Park, Mardis, & Ury, 2011).

Standardisation of reference rules could provide a way out of this situation (Freimer & Perry, 1986; Garfield, 1990; Mansfield, 1984; Sweetland, 1989; Terbille, 1990). However, the situation in medical journals shows the reverse. Despite the Uniform Requirements for Manuscripts being in existence for forty years already (ICMJE, 2015; Patrias, 2007), many medical journal editors request that authors follow the editor's own citation rules. No wonder that there is a high percentage of incorrect bibliographical references. For example, in five general surgical journals, such as *Annals of Surgery* and the *British Journal of Surgery*, 11% of references published in the July 2004 issues were incorrect. Three journals dealing with pediatric surgery (e.g. the *Journal of Pediatric Surgery*) had 33.7% incorrect references in the first issues of the year 2001, and the *Archives of General Psychiatry* and *Journal of Clinical Psychiatry* had 38.5% incorrect bibliographical references out of 420 randomly selected references published in the September 1980 and 1999 issues. Journals in the nursing field, e.g. the *Journal of Pediatric Nursing*, had as many as 42.7% incorrect bibliographical references in articles published in issues from the period between September 1999 and February 2000 (Celayir, Sander, & Celayir, 2003; Oermann et al., 2001; Reddy, Srinivas, Sabanayagam, & Balasubramanian, 2008). In the past, on average 23.6% incorrect references were found in such prestigious

journals as the New England Journal of Medicine and The Lancet (De Lacey et al., 1985). In all these cases the mistakes were usually in authors' names, the titles of articles and journals, or incorrect information concerning the year of the journal or the pagination.

Under these circumstances, a growing interest in reference managers is understandable. Reference managers help to administer bibliographical records, text and picture files and above all they assist in inserting references into the text that are formatted in compliance with various reference styles (Zhang, 2012). A number of studies comparing the functions of the EndNote, Mendeley, RefWorks and Zotero reference managers have been published recently. However, these studies, a summary of which in connection with the results of this study can be found in the Discussion section, focused only on comparing technical aspects of the reference managers, not on comparing the accuracy of the bibliographical references generated from within these programs. Only a few studies have focused on such comparisons (Homol, 2014).

Kessler and Van Ullen (2005) compared 100 references produced in accordance with the APA style in the EasyBib, EndNote and NoodleBib programs, and found that the three applications generated 106 mistakes altogether. EndNote had the fewest mistakes in references to print publications while NoodleBib revealed the fewest mistakes in references to electronic publications. Brahmi and Gall (2006) focused their study on the quality of bibliographical references for 43 most prestigious medical journals created in EndNote and Reference Manager. They found that these applications were not able to generate references for 35–47% of the journals and the references which were generated differed in 33–43% of the cases from the recommended style. The bibliographical references made in the style of the remaining journals contained 33–46% of differences. Gilmour and Cobus-Kuo (2011) tested the CiteULike, Mendeley, RefWorks and Zotero managers for the ACS, AMA, APA, IEEE and Nature citation styles and they discovered that RefWorks shows the lowest error level in terms of the average number of mistakes. Homol (2014) compared the output from the EndNote, Basic, RefWorks and Zotero applications based on the APA and MLA citation styles with the references published in the EBSCO Discovery Service. She found that none of the programs generated faultless bibliographical references. RefWorks made the fewest mistakes for the APA style and EndNote Basic made the fewest mistakes for the MLA style.

None of these studies simultaneously compared the output from EndNote, Mendeley, RefWorks and Zotero, which are presently the applications most often tested. It is also necessary to verify the quality of bibliographical references to different types of documents, i.e. not only journal articles (Homol, 2014). Therefore, the aim of the study is to determine which of the reference managers generates the lowest number of mistakes for medical journals' bibliographical references. The focus on medical journals is due not only to the author's role in a university library, namely providing services for the Faculty of Medicine and their employees in the faculty hospitals, but also this focus was chosen with the aim of providing a more detailed analysis of the situation for medical authors and medical librarians. This study will help medical authors to better decide which reference manager to use. This article can also guide medical librarians when choosing which reference manager(s) to stress in their information literacy classes. Last but not least, the aim of the article is to encourage librarians to perform further similar analyses of the quality of the input from reference managers for journals from other scientific fields.

METHOD

Between December 2015 and January 2016 the quality of bibliographical references generated for 15 medical journals and the National Library of Medicine (NLM) citation style by the reference managers EndNote (version X7.4, Bld 8818), Mendeley (version 1.15.2), RefWorks (version 4.4.1376) and Zotero (version 4.0.28.10) were compared. The journals (see Table 1) were chosen in the following way: the ten medical journals with the highest number of published articles in Journal

Citations Reports in 2014 were added to the ten medical journals with the highest impact factor in Journal Citations Reports in 2014. These journals were chosen either because of the need for the medical authors to publish their articles in the most-referred journals or because the journals publish a high number of articles and therefore a large number of authors work with these journals' reference instructions. From these 20 journals, the following 5 titles were then excluded: CA: A Cancer Journal for Clinicians, Frontiers in Human Neuroscience, Molecular Medicine Reports, Oncology Letters and Oncotarget. This was done because in some citation managers it was not possible to generate the bibliographical references for these journals. The NLM style was added to these 15 journals for comparison. The format and how to adhere to NLM was agreed on by the editors of medical journals (ICMJ, 2015; Patrias, 2007). In this way, a list of journals and the NLM reference styles was created. The authors of medical journals very often follow these instructions.

Once the choice of the journals and the reference styles was made, the publications representing the commonly-mentioned types of print or online resources were chosen. As Homol (2014) pointed out, an analysis of other sources is needed. Although journal articles are and will probably continue to be the most frequently cited type of resources, various studies show that 16.5% of 81,834 references published in ten medical journals were to sources other than an article (Barrett, Helwig, & Neves, 2016; Delwiche, 2013; Rethlefsen & Aldrich, 2013). Therefore, references for various types of resources were tested in this study. These types were a journal article, a contribution to an edited book, a book, an edited book and a web resource. In addition, in the case of a journal article, a contribution to an edited book and a book, publications with different numbers of authors were also chosen. In the case of a journal article, a contribution to an edited book and a book, publications were chosen with different numbers of authors so that it could be verified whether the reference manager is able to generate the number of authors' names determined by the journal style. In this way, 17 publications (Table 2) were chosen. Bibliographical references were manually created according to the citation instructions of the NLM style and the example of all 15 journals. The reference instructions were found in the instructions for authors accessible on the websites of particular journals. These instructions for authors were the primary source of examples and were strictly followed. For example, according to the instructions of The Lancet a book title was set in capital case and a journal title in italics, while according to the NLM style a book title was set in sentence case and a journal title without any changes. If the instructions did not contain a citation instruction or an example bibliographical reference for some type of resource, a citation of the given resource published in the relevant year of the particular journal was used. For example, reference 37 in the article "Tumor Regression After Brachytherapy for Choroidal Melanoma" served as an example of a bibliographical reference to a contribution to an edited book, because Investigative Ophthalmology & Visual Science does not provide any example in its citation instructions (ARVO, 2015; Rashid, Heikkonen, & Kivelä, 2015). In this way, 17 examples of bibliographical references were made for individual journals and the NLM citation style.

After the examples of bibliographical references were created, manually-created records for the same publications were made in each of the reference managers. These were made manually so that they would contain all data in particular fields of records and so that mistakes due to importing records from different sources could be avoided (Basak, 2014; Kessler & Van Ullen, 2005). Following this, bibliographical references were generated from each reference manager using the citation formats for particular journals. The bibliographical references were compared with the examples created manually (Fig. 1 shows an example of such comparison).

In the same way as in the previous studies (Brahmi & Gall, 2006; Gilmour & Cobus-Kuo, 2011; Homol, 2014; Kessler & Van Ullen, 2005), different types of mistakes for individual resource types were detected. Similarly to the Homol's (2014) study we divided the errors found in

Download English Version:

<https://daneshyari.com/en/article/4939021>

Download Persian Version:

<https://daneshyari.com/article/4939021>

[Daneshyari.com](https://daneshyari.com)