

THE ACCURACY OF REFERENCES IN MANUSCRIPTS SELECTED FOR PUBLICATION IN PAKISTAN ARMED FORCES MEDICAL JOURNAL (PAFMJ)

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ABSTRACT

Objective: To assess the accuracy of references cited in manuscripts accepted for publication in an issue of a scientific journal and to categorize these errors.

Design: An observational study.

Place and duration: The study was conducted in the library of Army Medical College, Rawalpindi during September 2007.

Materials and Methods: A total of 288 references listed in the references section of twenty manuscripts were examined. Journal references were compared with either the original articles or abstract obtained through MEDLINE and Pakmedinet. Book references were checked against the original book or bibliographical information obtained through Publisher's catalogues and online catalogues of libraries. The total number of errors in the references were counted and categorized.

Results: Seventy (24.3%) of the 288 assessed references had no errors, while a single error occurred in 51(17.7%) and more than six errors were found in 22(7.64%) references. The author element was the most frequent error category, where 103(43.64%) references from journal and 26(63.41%) references from books contained the errors.

Conclusion: The primary responsibility of ensuring accuracy of references lies with the authors. However the continuous process of removing errors by reviewers and editorial team can reduce the error rate in the references.

Keywords: Authorship, bibliography, citations, errors, accuracy, references

INTRODUCTION

Accurate references to the previously published relevant work are necessary in scientific communication. It helps the readers, reviewers and editors to easily locate the publications cited by authors. Most of the medical journals follow the Vancouver style of references with minor changes. It is primarily the responsibility of authors to check the references against the original documents and to format these according to the guidelines given by the journal when submitting manuscript. A good scientific journal needs to be accurate in references

cited, moreover it is the right of the reader to be facilitated by providing accurate references and hence it becomes the shared responsibility of the contributors and editorial board [1].

The errors in citations of medical journals were first identified in 1950 [2] and after it many studies have evaluated the accuracy of references in the published medical journals (general and specialist) in other countries, which reported error rates ranging from 3% to 60% [1,3-9]. However no such study in Pakistani medical journals has ever been done.

Only one study in west has assessed the accuracy of references prior to publication in manuscripts submitted for peer review [10].

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The aim of this study was, first to determine the frequency of errors observed in the references of manuscripts accepted for publication in the September 2007 issue of Pakistan Armed Forces Medical Journal (PAFMJ) and secondly to categorize these errors.

MATERIALS AND METHODS

The references listed in the references section of all the manuscripts accepted for publication in the September 2007 issue of PAFMJ were analyzed. These contained a total of 288 references. This is inline with the previous study in this area, in which a total of 261 references were analyzed. The number of references for a given paper ranged from 6 to 25. Each reference from journal was searched for on Pub Med [MEDLINE] or Pakmedinet (an online database of Pakistani medical journals). Where the journal was not referenced on these databases, the original article was sourced as a first line check. Book references were checked against the original book or bibliographical information obtained through Publisher's catalogues or online catalogues of libraries. In cases where the referenced bibliographical information from online databases/catalogues clearly matched the manuscript reference with no error this was considered accurate. When there was a possible citation error present, further efforts were made to obtain the original article/book. The original article or book was used as the gold standard against which the original reference was judged. If there was any error in the reference it was deemed as incorrect. The references from Internet were also accessed from uniform resource locator (URL) given in the references for verification. Each error in the citation was listed and categorized in accordance with bibliographic headings. Each article was checked for author name (including number of authors listed, order, initials and spelling), title of article, journal title (including proper abbreviation), year, volume, issue, page numbers and punctuation/style. Each reference from book was checked for authors/editors name, title of book/chapter, imprint (place of publication,

publisher and year of publication), page numbers and punctuation/style. Each reference from Internet was also checked for general material designation (GMD), cited date, updated date and URL at which available. The errors like punctuation and Vancouver style were also checked.

STATISTICAL ANALYSIS

Data had been analyzed using SPSS version 10.0. Descriptive statistics i.e percentages were used to describe the data.

RESULTS

All the 20 items (1 editorial, 10 original articles, 1 review article, 1 field medicine, 7 case reports) with 288 references selected for publication in September 2007 issue of PAFMJ were included in the study. Of a total of 288 references 236 were from journals (220 from foreign journals, 16 from local journals), 35 from books, 8 from Internet, 2 from government documents, 2 from thesis and 2 were from reports. Three references (1 from book, 1 from report and 1 from Journal) could not be retrieved.

Table-1 summarizes the number of errors found in the 288 study references. Seventy (24.3%) of the 288 references had no errors, while a single error occurred in 51(17.7%), two errors in 36(12.5%), three errors in 40(13.89%), four errors in 31(10.76%), five errors in 21(7.29%), six errors in 14(4.86%) and more than six errors were found in 22(7.64%) references.

Table-2 shows the detail of errors in different bibliographical headings. The author element was the most frequent error category and 103(43.64%) references from journal and 26(63.41%) references from books contained the errors. In references from journals the errors in the article title element were included in the 85(36.02%) references. Inaccurate journal title abbreviations accounted in 41 (17.37%) references, the errors in year/Volume/issue element were found in 18(7.63%) references and inaccurate page listings were accounted in 41 (17.37%) references. Thirty three (13.98%) references

contained errors of punctuation and Vancouver style. In case of references from book material (books, reports, government documents, thesis) imprint errors were the second most common which were found in 25(60.98%) references, followed by punctuation/Vancouver style errors 19(46.34%), page errors 15(36.59%), title errors 11(26.83) and edition errors 6 14.63%.

Only two articles were found with references from Internet. Six references given in a single article were all correct, however the two references in other article had provided only web address and all other information was missing.

Table-1: References with number of errors (n=288).

No. of errors	No. of references	Percentage
Nil	70	24.3
1	51	17.7
2	36	12.5
3	40	13.89
4	31	10.76
5	21	7.29
6	14	4.86
More than 6	22	7.64
Could not be accessed	3	1.04
Total	0	100

DISCUSSION

Previous studies have shown an error rate ranging from 3% to 60% in the published citations [1,3-9]. A 2004 study of accuracy of references in manuscripts submitted for publication documented that out of 259 references 44% were correct and 56% were incorrect [10]. While our results show that out of 288 references 70 (24.3%) are correct and 218 (75.69%) are incorrect. Although the errors rate for manuscripts accepted for publication in this study is higher than in previous studies, this is not unexpected. The editorial committee before the publication makes the correction; therefore the final document has fewer mistakes. Re-arranging the references according to required format is not at all a difficult job but it is definitely a tough job for the editorial board/bibliographer to find out the missing or inaccurate elements. Moreover, only those

journals article indexed by the online databases and material available online can be checked and the references of patents, monographs, reports and government publications are difficult to be verified.

The reference errors are universal. Reference section may be the area where one can find more number of mistakes than the text proper. The responsibility for ensuring correct citations lies with the author that is why most Journals do not individually check the authenticity of references. High error rates were even found among leading biomedical journals that has their in-house reference checking procedures [11].

The reasons for the errors in references could be: (a) typing references is time consuming, technical and boring part of constructing manuscript; (b) a manuscript may sometimes have to be submitted to different journals, each with their own reference citation style, and this often requires retyping of references to suit the individual journal; (c) the International Committee of Medical Journal Editors clearly states that the primary responsibility of ensuring accuracy of references lies with the authors, that is the reason why the reviewers or the editorial team cannot do much justice to the references section; (d) copying references from articles who had previously cited the paper; [8] (e) to delegate the responsibility of verifying references citation to some one such as a secretary, clerk, subordinate or student can also result an error; [9] (f) ignorance of authors about citation orders, because they fail to follow instruction to authors given in the journal [3].

Another important discrepancy noted was that so many authors ignore the sequence of references cited in the text (introduction and discussion). Some authors change the number of reference when repeating the same reference in the text. This should be avoided and same number should be cited in the text. Another common mistake which was noted that reference was given in the reference section but it was not cited anywhere in the text.

Table-2: References with errors in each bibliographic section.

Error in citations from Journals (Total 236 references were checked)			Errors in citations from Books/Reports/Government documents/Thesis (Total 41 references were checked)		
Bibliographic Section	Number of Errors	Percentage	Bibliographic Section	Number of Errors	Percentage
References with errors in authors	103	43.64	References with errors in authors	26	63.41
References with errors in article title	85	36.02	References with errors in title	11	26.83
References with errors in journal name/abbreviation	41	17.37	References with errors in edition	6	14.63
References with errors in Year/Volume/Issue	18	7.63	References with errors in Imprint	25	60.98
References with errors in page numbers	41	17.37	References with errors in page numbers	15	36.59
References with errors in punctuation/style	33	13.98	References with errors in punctuation/style	19	46.34

Various suggestions to decrease the errors are: (a) direct consultation with the original work, rather than copying them from another citation; (b) the requirement of authors to submit the first page of each quoted reference with the manuscript [8]. However, this is time consuming both for the journal involved and for the contributors; (c) some journals require a written statement by authors that they have checked references cited in their articles against the original documents or MEDLINE, however no guideline or undertaking alone can help in avoiding errors and inaccuracies of this nature (d) The use of bibliography-managing tools are developed to reorganize references into many different styles while preparing manuscripts will help the authors to improve their published work. End note and some freely available software can be used for this purpose. (e) The manuscript with high references errors may be rejected to discourage this practice. (d) Some journals have inducted the Librarians as bibliographers in the editorial board for verification and correction of the references. In PAFMJ induction of qualified librarian as a bibliographer has greatly improved the verification process as evident from data given in this paper. (f) Instruction to authors to be followed by contributors.

CONCLUSION

No guideline or undertaking alone can help to lower errors and inaccuracies in the references. There is requirement to spread the correct knowledge of the norms of writing by editors. The primary responsibility of ensuring accuracy of references lies with the authors and hence authors need to take more care to ensure the accuracy of citations. However the continuous process of removing errors by reviewers and editorial team can reduce the error rate in the references.

REFERENCES

1. O'Connor AE. A review of the accuracy of references in the Journal of Emergency Medicine [serial online]. *Emerg Med*. 2002 [cited 2007 June 12]; 14: 139-41. Available from: URL <http://www.blackwell-synergy.com>.
2. Kronick DA. Literature citations, clinico-pathological study, with presentation of three cases. *Bull Med Lib Assoc*. 1958; 46: 291-3.
3. Aronsky D, Ransom J, Robinson K. Accuracy of references in five Biomedical Informatics Journals. *J Am Med Informatics Assoc*. 2005; 12 (2): 225-8.

4. Raveendran R. Accuracy of references: whose responsibility is it? [Editorial]. *Indian J Pharmacol.* 2003; 35: 280.
5. Siebers R. The accuracy of references of three allergy journals. *Lancet.* 2000; 356: 837-8.
6. Eichorn P, Yankauer A. Do authors check their references? A survey of accuracy of references in three public health journals. *Am J Public Health.* 1987; 77(8): 1011-2.
7. Vargas-Origel A, Gomez-Martinez G, Vargas-Nieto MA. The accuracy of references in paediatric journals [serial online]. *Arch Dis Child.* 2001 [cited 2007 Jul 12]; 85: 497-8. Available from: URL <http://www.archdischild.com>.
8. Hansen ME, McIntire DD. References citations in radiology: accuracy and appropriateness of use in two major journals. *AJR Am J Roentgenol* 1994; 163: 719-23.
9. Roland CG. Thoughts about medical writing. XXXVII: verify your references. *Anesth Analg.* 1976; 55: 717-8.
10. Browne RFJ, Loban PM, Lee MJ, Torreggiani WC. The accuracy of references in manuscripts submitted for publication. *Can Assoc Radiol J.* 2004; 55 (3): 170-3.
11. Siebers R, Holt S. Accuracy of references in five leading medical journals. *Lancet.* 2000; 356: 1445.