



Evidence Summary

Research Quality and Newsworthiness of Published Articles are Partial Predictors of Journal Impact Factors

A Review of:

Lokker, C., Haynes, R. B., Chu, R., McKibbin, K. A., Wilczynski, N. L., & Walter, S. D. (2012). How well are journal and clinical article characteristics associated with the journal impact factor? A retrospective cohort study. *Journal of the Medical Library Association*, 100(1), 28-33.
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Reviewed by:

Jason Martin
Head of Public Services
duPont-Ball Library, Stetson University
DeLand, Florida, United States of America
Email: jmartin2@stetson.edu

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Abstract

Objective – Determine what characteristics of a journal’s published articles can be used to predict the journal impact factor (JIF).

Design – A retrospective cohort study.

Setting – The researchers are located at McMaster University, Hamilton, Ontario, Canada.

Subjects – The sample consisted of 1,267 clinical research articles from 103 evidence based and clinical journals which were published in 2005 and indexed in the McMaster University Premium LiteratUre

Service (PLUS) database and those same journals’ JIF from 2007.

Method – The articles were divided 60:40 into a derivation set (760 articles and 99 journals) and a validation set (507 articles and 88 journals). Ten variables which could influence JIF were developed and a multiple linear regression was run on the derivation set and then applied to the validation set.

Main Results – The four variables found to be significant were the number of databases which indexed the journal, the number of authors, the quality of research, and the “newsworthiness” of the journal’s published articles.

Conclusion – The quality of research and newsworthiness at time of publication of a journal’s articles can predict the journal impact factor with 60% accuracy.

Commentary

Journal impact factors (JIFs) are calculated over a two-year period by dividing the total number of the journal’s citations by the total number of “citable” articles published in that journal. Such a seemingly simple idea has led to a great deal of discussion and controversy. A journal’s impact factor is what helps establish it as a “core journal,” a label which carries a great deal of prestige. Critics of JIFs are quick to argue editorial policies and other influences can manipulate impact factors.

The authors of this study set about to determine what, if any, facets of a journal’s articles are associated with JIFs. Their sample consisted of articles indexed in the McMaster University PLUS database. They developed 10 variables they thought would predict JIF with 4 of those variables proving significant. While the authors mainly describe how the research quality and newsworthiness of a journal’s published studies can predict JIF thereby making an impact factor an indicator of worth and value, they do admit the highest predictor of JIF was the number of authors and the amount of databases which indexed the journal.

The methodology of the article is well-defined and strictly followed. However, the authors admit several major limitations of the study exist. The first limitation is the PLUS database uses an extensive screening system whereby only evidence based articles receiving high scores from a trained research reviewer and a group of physicians representing various fields are indexed in the database. (The definitions of research quality and newsworthiness used by the authors are the same ones the raters use for PLUS.) This creates a population of articles which can be described as the best of the best.

The second limitation is the study’s use of such a small sample: 103 journals. In addition to being small, the sample did not include online journals which studies have shown are typically more often cited, although it is unclear what the researchers meant by “online journals.” The authors encourage future research on the prediction of JIFs using a random sample from a larger population of both low- and high-quality studies.

The authors state this study can lead to higher JIFs for journals if editors were to include practicing clinicians in the peer review process and make sure their journals are indexed in an abundance of databases. (This is somewhat out of the hands of the journal editors since the database editors make the final decisions on what journals to index.) The authors also posit JIFs can help direct clinicians to higher quality studies. All-in-all, this study, while finely executed, does little to clear the murky waters which surround the use of impact factors.