

# Impact Factor

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**One of the factors influencing scientists of all disciplines is the scientific quality of the journal they choose to publish their research. In the mid-1960s the 'impact factor' system was developed<sup>1</sup>, and although this system has been universally accepted as the best we currently have at the moment, perhaps the time has come to question its validity.**

Impact factors are widely used for evaluation of research quality of both institutions and individuals and may influence a researcher's choice of journal when submitting a manuscript. The frequency with which articles are quoted in the two years following their publication, the citation rate, is used as the principal criterion for determining journal impact factor. Lists of impact factors are published by the Institute for Scientific Information (ISI), a private institute in Philadelphia. All journals selected for inclusion in their product 'Science Citation Index Expanded' are scrutinised and the impact factor is calculated retrospectively by dividing the current year citations to source items published during the past two years. The problem with this system is the questionable value of such a crude measure. For example, one approach to boosting impact factors is for journals to include a significant proportion of traditional narrative reviews. In contrast with Cochrane-style systematic reviews, the evidence shows that narrative reviews are of very limited value to the scientific community and therefore patient care.<sup>2</sup> Another example is that journal impact factors often conceal the differences in individual article citation rates. The heterogeneity of quality of individual articles in specialist journals is well known and it is no surprise that the most cited half of articles in a journal are typically cited 10 times more often than the least cited half.<sup>3</sup>

In medicine, many researchers choose to submit their latest findings to generalist medical journals such as the *New England Journal of Medicine*, *British Medical Journal* and *The Lancet*, to ensure wide dissemination. Specialist medical journals often have a lower profile than general journals in the eyes of the medical research community. The reverse is true to some extent in dentistry and impact factor is often quoted as a reason for preferring a specialist, rather than a generalist journal. The pitfalls of ranking dental journals by impact factors are well described by Linde who pointed out that reliance on citation alone for scientific impact disregards important considerations such as possible influence of research on clinical practice, health care programmes and industrial applications, not to mention the value of contributions to other areas of science.<sup>4</sup> Of particular relevance to dentistry is the fact that journal impact factors depend largely on the nature of a research field. Conditions which favour high impact factors are rapidly expanding fields with numerous related articles containing extensive reference bibliographies. Such literature may be short-lived and whilst dental research which finds its way into top science journals such as *Nature* and *Science* are likely to be of high scientific quality, it must be acknowledged that most quality dental research appears in dental journals.

It is heartening that the Higher Education Funding Council (HEFC) Dental Panel will not rely on such a metric in their evaluation of dental research in the 2001 Research Assessment Exercise.<sup>5</sup> Instead they will undertake expert peer review of the research itself, relying for assessment of publication quality on scrutiny of four articles submitted for each member of staff included as 'research active'. The HEFC panel decision removes some of the constraints imposed by journal impact factors on the publication choice of dental researchers in the UK, leaving them free to consider other important factors such as circulation volume, lead-in time and rigour of the review process. But perhaps we should also be questioning the value of using impact factors at all.

- 1 O'Neill, J, The significance of an impact factor: implications for the publishing community. *Learned Publishing*, 2000, 13, 105-109
- 2 Egger, M & Davey Smith, G. Meta-analysis. Potentials and promise, *Br Med J* 1997, 315, 1371-1374
- 3 Seglen, P O, Why the impact factor of journals should not be used for evaluating research. *Br Med J* 1997, 314, 498-502
- 4 Linde, A, On the pitfalls of journal ranking by impact factor. *Eur J Oral Sci* 1998, 106, 525-526
- 5 HEFCE website: (<http://www.rae.ac.uk/>)

Professor Philip Sloan  
Scientific Editor of the *BDJ*  
and Dr Ian Needleman  
Clinical Editor of the *BDJ*