

EDITORIAL

Citation trends of general psychiatric journals¹

Journals play a vital role in the communication of medical knowledge but little is known about their relative influence and how this may change over time. Citation analysis is one method which allows an objective assessment of scientific research. It has been used as a measure of research achievement by which national and individual academic performance can be judged (Smith *et al.* 1986; Evered *et al.* 1987) and it can be applied to journals as well as to individual authors (Garfield, 1972). When a journal article is cited in a subsequent publication it indicates that it has influenced the subsequent work. Thus, it follows that journals which are cited most frequently are likely to be those which are most influential within their particular field (Garfield, 1986). This measure of influence must be distinguished from those obtained by quantifying readership or circulation. Many medical publications have large circulations because they are distributed unrequested and free of charge. Others are official publications of professional organizations and are circulated to all members of those organizations who have paid their membership fees. Citation analysis has been traced back for at least 70 years (Lock, 1985) but in modern context it dates from 1964 with the publication of the *Science Citation Index* by the Institute for Scientific Information in Philadelphia (Garfield, 1970). Each year since 1975 this has been supplemented by the *Journal Citation Reports* which now cover several million references published in over 12000 journals. Source item counts include original articles, technical notes, reviews and papers presented as proceedings which have been published in the journals surveyed. They do not include editorials or letters unless these report the results of substantive research.

The *Journal Citation Reports* rank journals each year according to the total number of citations made to the journal in that year. There are separate listings for the number of citations made to each journal for articles published during the previous two years. The *Journal Citation Reports* also calculate an impact factor which takes into consideration the possibility that a particular journal may be cited frequently merely because it publishes a large number of articles. The impact factor for a given year is calculated by listing all citations during that year to articles published during the previous two years divided by the total number of articles published during those two years. This reflects the average citation rate of each published article and reduces the effect of a journal's size, age and frequency of publication. Garfield (1972) has shown that there is a predominance of a small group of journals in the citation network in that the majority of references cite relatively few journals. He has suggested that there is a multidisciplinary core for all sciences comprising no more than 1000 journals. Using data from the 1981 *Journal Citation Reports* for general medical journals it has been shown that the *Lancet* and the *New England Journal of Medicine* have the greatest influence as judged by the number of citations received and their impact factor (Garfield, 1986). Indeed, these two journals between them received over one third of all 1981 citations.

What is the position of general psychiatric journals? During the decade ending in 1986, the last year for which figures are available, five journals which cover the whole range of psychiatric specialities were consistently ranked in the top 1000 scientific publications according to the total citations received in each year. These were *Acta Psychiatrica Scandinavica*, *American Journal of Psychiatry*, *Archives of General Psychiatry*, *British Journal of Psychiatry* and *Journal of Nervous and Mental Disease*. *Psychological Medicine*, a more recently established journal first published in 1970 was ranked in the top 1000 for each of the last eight years of the decade.

The total citations received by each journal are shown in Fig. 1. Two American journals, the *Archives of General Psychiatry* and the *American Journal of Psychiatry* are clearly the most

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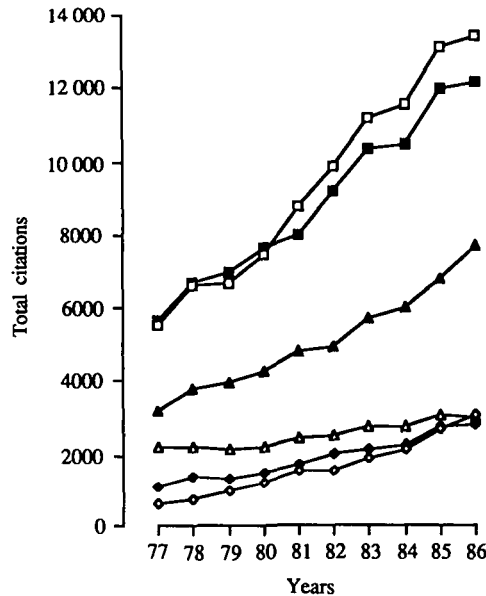


FIG. 1. Total citations for each journal 1977-86. Key: ■, *American Journal of Psychiatry*; □, *Archives of General Psychiatry*; ▲, *British Journal of Psychiatry*; △, *Journal of Nervous and Mental Disease*; ◆, *Acta Psychiatrica Scandinavica*; ◇, *Psychological Medicine*.

dominant; the *Archives* has been the most cited journal from 1981 onwards. All the other journals increased their citation rates substantially, with *Psychological Medicine* having increased by more than four hundred per cent. The *Archives* also has the highest impact factor, as shown in Fig. 2. In 1986, articles published in the *Archives* during the previous two years were cited at least twice as frequently as those in the nearest competitors. With the exception of the *Journal of Nervous and Mental Disease* all six journals improved their rank order in relation to other scientific publications (Fig. 3). The *Archives of General Psychiatry* and the *American Journal of Psychiatry* are now among the 100 most frequently cited journals in all scientific disciplines. *Psychological Medicine* only entered the top 1000 in 1979 but showed a considerable increase in its rank in nearly all subsequent years so that it was among the 500 most frequently cited journals by 1986.

A recent survey of professors of psychiatry in the United Kingdom aimed to determine how their subjective judgements, taken to be representative of informed opinion, compared with the objective assessments provided by the *Journal Citation Reports* (Lloyd & Fletcher, 1988). A questionnaire asked them to rank the six journals according to their perceived influence world-wide on psychiatric research and clinical practice. Replies were received from 33 of the 34 professors circulated and the combined scores from their assessments gave a rank order identical to that of the *Journal Citation Reports* in 1986. However, there was considerable variation among the professorial assessments; the 33 replies gave 28 different combinations and four journals were placed first by at least one respondent.

It is important to acknowledge the shortcomings of citation analysis as a method of journal evaluation. A journal may appear highly influential if it publishes review articles or if it has published one article with an exceptionally high citation rate. In contrast, popular journals may rank lowly in the citation list. This does not necessarily mean that they are less important or less widely read; it merely means that they are mainly written and read for some purpose other than communication of original research findings (Garfield, 1972). Furthermore, citation analysis only provides an indirect and rather crude method of assessing the quality of articles. Despite these shortcomings, citation analysis remains the simplest and most objective way of assessing a journal's standing. It does not require a personality appraisal of the authors, moral or ethical judgement of

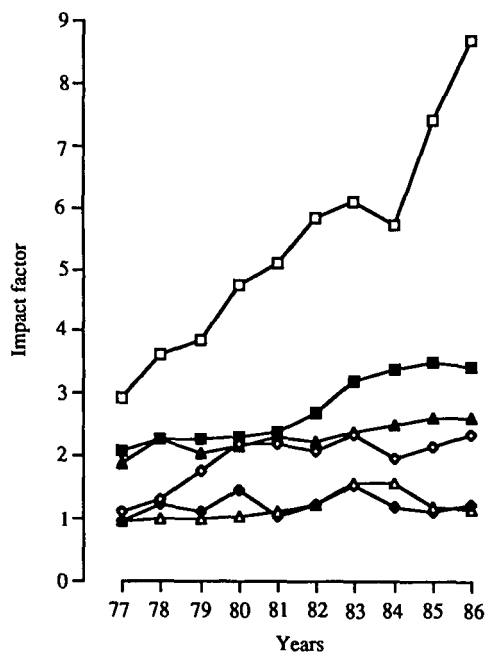


FIG. 2. Impact factor of each journal 1977–86. Key: ■, *American Journal of Psychiatry*; □, *Archives of General Psychiatry*; ▲, *British Journal of Psychiatry*; △, *Journal of Nervous and Mental Disease*; ◆, *Acta Psychiatrica Scandinavica*; ◇, *Psychological Medicine*.

the papers or an individual assessment of the scientific merits of each paper. Lock (1985), while maintaining that citation analysis is best used with other measures of quality, concluded that top-rank scientists publish more articles with high impact factor, that most citations are not self-citations or negative comments rebutting previous claims and that a small proportion of journals have a high impact factor and are correspondingly more important in medical communication.

Not surprisingly, two American journals dominate the psychiatric literature. The United States has far more psychiatrists and far more resources for research than any other country. American psychiatrists, particularly those in junior academic posts, are under intense pressure to publish to further their careers so there is considerable competition for space in their two leading journals. There is also the possibility, sometimes voiced by non-Americans (Lewis, 1962), that doctors in the United States are parochial in outlook and do not read or refer to the literature published outside their own country. Authors who write in other languages may hold similar views about the domination of the English language because all six of the leading psychiatric journals are published entirely in English. The journal whose rank has changed most dramatically during the decade is *Psychological Medicine*. This was ranked outside the top 1000 journals in 1977, almost certainly due to the fact that it was founded only in 1970 and therefore had a smaller pool of articles to which citation could be made. By 1986 it had risen to the top 500 and fourth place among the psychiatric journals as judged both by total citations and impact factor. Data from the *Journal Citation Reports* indicate that the relative status of journals changes with time. These changes may reflect changes of publishing or editorial policy and provide an opportunity for monitoring the effects of new editorial developments. They can also help medical library committees decide which journals to purchase. In addition to the general psychiatric journals considered here, other journals devoted to subspecialties such as biological psychiatry and psychosomatic research also feature regularly in the top 1000 publications.

In a critique of psychiatric research Peart (1979) claimed that developments in clinical research were not keeping up with advances in understanding of brain function made in the basic sciences. If, as has been claimed, citation analysis reflects research activity, the recent data from the *Journal*

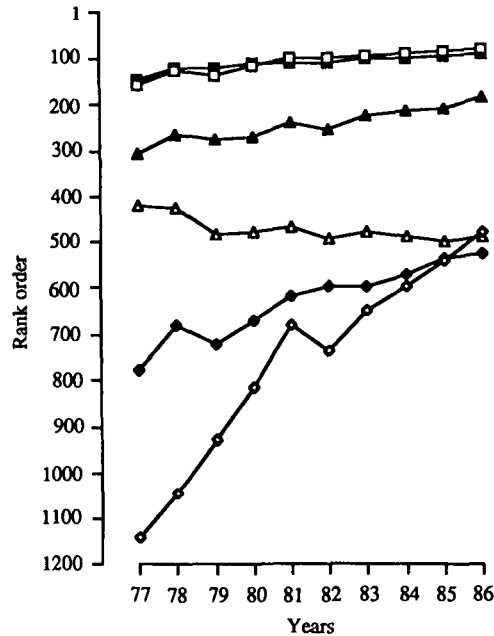


FIG. 3. Rank order of each journal 1977–86. Key: ■, *American Journal of Psychiatry*; □, *Archives of General Psychiatry*; ▲, *British Journal of Psychiatry*; △, *Journal of Nervous and Mental Disease*; ◆, *Acta Psychiatrica Scandinavica*; ◇, *Psychological Medicine*.

Citation Reports suggest an increasingly healthy position for psychiatric research, even though worthwhile research is considered harder to undertake in psychiatry than in other medical specialities (Kendell, 1980). Papers in general psychiatric journals are being cited with greater frequency so the results of clinical research are being disseminated widely. Furthermore, psychiatric journals are becoming more influential in the scientific literature, even in relation to other scientific and technical publications. The growing importance of British journals, approximately two-thirds of whose papers come from the United Kingdom, supports the observation (Martin *et al.* 1987) that psychiatry is among the specialities where the British influence is relatively strong at a time when there are considerable fears about the decline of British science in general (Irvine *et al.* 1985).

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REFERENCES

- Evered, D. C., Anderson, J., Griggs, P. & Wakeford, R. (1987). The correlates of research success. *British Medical Journal* **295**, 241–246.
- Garfield, E. (1970). Citation indexing for studying science. *Nature* **227**, 669–671.
- Garfield, E. (1972). Citation analysis as a tool in journal evaluation. *Science* **178**, 471–479.
- Garfield, E. (1986). Which medical journals have the greatest impact? *Annals of Internal Medicine* **105**, 313–320.
- Irvine, J., Martin, B., Peacock, T. & Turner, R. (1985). Charting the decline in British science. *Nature* **316**, 587–590.
- Kendell, R. (1980). Research by clinicians: past lessons and future implications. In *Priorities in Psychiatric Research* (ed. M. Lader), pp. 82–90. Wiley: Chichester.
- Lewis, A. (1962). What are the foreigners up to? *American Journal of Psychiatry* **118**, 751–752.
- Lloyd, G. G. & Fletcher, A. E. (1988). Unpublished observations.
- Lock, S. (1985). *A Difficult Balance*. Nuffield Provincial Hospitals Trust: London.
- Martin, B. F., Irvine, J., Nairn, F. & Sterritt, C. (1987). The continuing decline of British science. *Nature* **330**, 123–126.
- Peart, W. S. (1979). Research in psychiatry: a view from general medicine. *Psychological Medicine* **9**, 205–206.
- Smith, D. C., Collins, P. M. D., Hicks, D. M. & Wyatt, S. (1986). National performance in basic research. *Nature* **323**, 681–684.