Impact factor as a misleading tool in evaluation of medical journals

SIR—The impact factor (IF) of a journal is an average number of citations of articles from a journal, in all journals.[1] It is believed to measure the quality of a journal.[2] The distribution of IF ranges from hundredths of a unit to more than 40; this implies that some journals are a thousand times more important than others. Currently, there are discussions among medical institutions that scientific merit should only be based on publications in journals with an IF of greater than 2.[3] In biochemistry and molecular biology, there were 62 journals with an IF of over 2 in the year 1992. There are medical specialties in which journals of IF greater than 2 do not exist. Many of them are clinical specialties, such as hand surgery, orthopaedics, traumatology, otolaryngology, geriatrics, and rehabilitation medicine. IF is calculated by taking the number of all citations for a particular journal for the 2 previous years, and dividing this by the total number of articles published in the journal during that time.[1] Thus, only articles that are cited within 2 years after its publication contribute to the impact factor. The supposition is that citing occurs most frequently during this time.[2] I have looked at the differences between research areas with respect to citation habits during these 2 years.

15 reputable journals were selected to represent different medical research areas. The citation pattern in each journal was assumed to represent the citation habit in that particular specialty. Journal volumes published on or around July, 1992, were selected. Only reviews and research articles were counted. The pattern factor (PF) for a particular journal was calculated as the number of citations of articles published in 1990 and 1991 (all journals), divided by the number of articles in the journal during the same time period. The figure shows a strong relation between PF and IF with R^2 as high as 0·89 (logarithmic transformation), leaving journal quality to account for at most 11% of variation in IF.

The pattern of citations in the journal itself accurately predicts IF. Speedy references in a journal means that the journal could be expected to display a high IF. The events leading to a publication might explain the short-comings of clinical journals. A study, inspired by a published article, requires permission from an ethics committee. Many studies depend on consecutive patients, and treatment alternatives might be investigated for long periods. It is thus difficult to publish a clinical study fast enough to reward the source article with a citation within the 2 years. Criticism of IF extends to rating of individual articles. Citations of individual articles in a journal of high IF have a skewed distribution. A few articles have many citations and the rest are sparsely cited. There is virtually no correlation between the citation frequency of a certain article and IF of the journal in which it is published.[1]

Thus IF is predicted by field-associated habits to cite articles published within 2 years, favouring research areas that generate many short-term studies. IF creates a tendency to treat clinical journals as less important. Quality plays a small part in determining IF. I propose that the impact factor be rejected as a guide to quality.

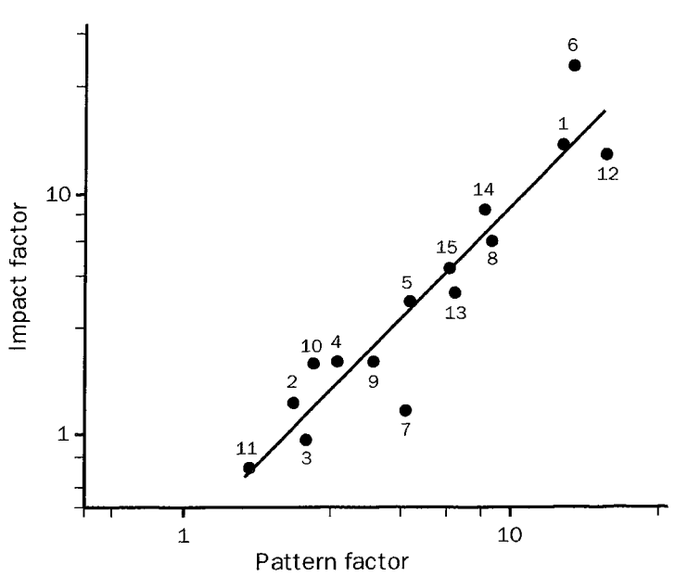

Figure: **Impact factor plotted versus pattern factor in 15 journals (logarithmic scales)**
R^2=0·89. 1=*Neuron*, 2=*J Bone Joint Surg*, 3=*Arch Otolaryngol*, 4=*Am J Obstet*, 5=*Arch Neurol*, 6=*J Trauma*, 8=*Ann Neurol*, 9=*Sleep*, 10=*J Urol*, 11-*Arch Phys Med Rehab*, 12=*Gene Dev*, 13=*Ann Surg*, 14=*Circulation*, 15=*J Physiol*.

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2 Garfield E. Citation analysis as a tool in journal editing. *Science* 1972; **178:** 471–79.
3 Drettner B, Seglen PO, Sivertsen G. Inverkanstal som fordelningsinstrument ej accepterat av tidskrifter i Norden. *Läkartidningen* 1994; **91:** 744–45.
4 Seglen PO. The skewness of science. *J Am Soc Inform* 1992; **43:** 628–38.

Will the real Dr Doublit please stand up?

SIR—Your comment in an editorial (Aug 5, p 323) that psychiatrists have yet to shake off the epithet "Dr Doublit" (whose standard reply to a nurse's comment that the patient is not responding to antipsychotic medication is "double it") and the implication that psychiatrists give patients inappropriate polypharmacy in excessive doses with unpleasant side-effects surprised me. I have worked as a psychiatrist for several years and have worked with older psychiatrists, now retired, and I have yet to meet Dr Doublit (or his esteemed colleague "Dr Addanother").

There have been studies showing extensive polypharmacy in psychiatric patients.[1] However, studies based on detailed knowledge of each case reveal that the number of truly inappropriate prescriptions is very low.[2] In my experience, when a nurse comments that the patient is not responding, psychiatrists ask how long the patient has been on the medication, is the dosage adequate, how distressed is the patient, are there any side-effects, is the patient compliant with the medication, is he or she on other medication (such as an antacid) that is affecting absorption, and are there other, remediable social/environmental factors exacerbating the condition? Only then would the psychiatrist consider increasing (or changing) the medication.

Perhaps Dr Doublit and Dr Addanother work in other specialties. When I worked as a preregistration house-physician in Manchester, I regularly came across medical patients, often elderly, admitted as emergencies on cocktails of medication prescribed by physicians and general practitioners. The senior registrar would often ask "What poisons is she/he on?". At first, being inexperienced, I thought he was being facetious. I would present a long list of medications and, after hearing the list, he would reduce or stop some, or even all, of the drugs. One man admitted to hospital with chest pain had been prescribed several different types of potent medication for his angina. "Stop them", said the senior registrar. "The patient must need this medication or it would not have been prescribed. He will surely not