
A worldwide survey of perceptions towards journal impact factor among gastrointestinal researchers

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Abstract

Introduction: Impact Factor is a proxy for the significance of a journal in its field. This study aims to examine the perceptions of Impact Factor and journal reading preferences among gastrointestinal researchers.

Methods: A world wide online survey was conducted among 764 gastrointestinal researchers in 2004. Basic characteristics, job nature and number of publications were reported. Moreover, opinions towards the applications of Impact Factor, reading preferences of gastrointestinal and general medical journals were assessed.

Results: Majority of the respondents believed that Impact Factor could reflect the journal quality (68.1%) and should be a major factor in selecting journals for publications (78.6%). Only about 40% of them agreed that use of Impact Factor should be extended to appraisals of institutes, departments, and faculty members. North American and European researchers tended to read the journals in their own regions. Gastrointestinal and general medical journals with relative higher Impact Factor were the most popular and highly ranked.

Conclusions: In general, assessment of journal quality was a more acceptable application of Impact Factor than other uses to gastrointestinal researchers. Reading preferences of both general medical and specialty journals may be related to the geographic locations of the readers and the Impact Factor values.

Keywords: perceptions, impact factor, journals, gastrointestinal

Introduction

Impact Factor was primarily developed to assess the citation counting of articles in a journal (Garfield, 1996). It is calculated from citation counts of articles published in a journal over the past two years, excluding editorials, letters, news, meetings, and abstracts; thus, its coverage is limited. Besides, using Impact Factor for cross-disciplinary comparison may not be appropriate as it is always more difficult to publish

in fields with a large number of researchers (Coelho et al., 2003). Furthermore, there is always a larger citation pool of specialty journals than general journals making it easier to attain a higher Impact Factor (Malaviya, 2004). Therefore, the extent of use of Impact Factor in the assessment of performance of institutions, academic departments, and individual researchers has been criticized (Hecht, Hecht, & Sandberg, 1998; Meenen, 1997; Semenzato, Rizzato, & Agostini, 2004).

Nonetheless, Impact Factors plays an important role in reflecting specialties' opinions on the quality of journals (Garfield, 1999; Hoeffel & Fornes, 1999) and improving the overall impact of the journals in their fields (Dunnett, 2004). Within the medical disciplines, intra-disciplinary comparisons are keen (Saha, Saint, & Christakis, 2003). Among the biomedical studies in the world, majority (8%) of them were in gastroenterology (Lewison, Grant, & Jansen, 2001).

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Therefore, the aim of this study was to examine the perceptions of gastrointestinal researchers on the use of the Impact Factor as an indicator of academic quality as well as an assessment of research output. Reading preferences of specialty and general medical journals among the gastrointestinal researchers was also examined.

Methods

An online survey was designed to determine the perceptions of Impact Factor among gastrointestinal researchers during the period from 31st August to 7 September 2004. The questionnaire consisted of three major sections. The first section covered the characteristics of the respondents: gender, age, countries of origin, and nature of and number of publications. The second section sought their opinions on the extended applications of Impact Factor to assess performance of institutes, departments, and individual researchers, using a 5-point likert scale (Strongly agree, agree, neutral, disagree, strongly disagree). The last section was on the reading preferences and ranking of gastrointestinal and general medical journals.

A total of 20,000 email addresses were identified from the correspondent authors of publications in gastroenterology inside Medline database in 2004. They were then extracted into a dataset using a self-developed SAS program. Electronic mails with a cover letter stating the link to the online interactive questionnaire were sent out to these addresses. All the answers provided by the respondents were captured real-time into a database through the functions written in Active Server Pages (ASP) scripts. Upon completion of the questionnaire, a set of summary statistics of the accumulated data was reported on the website. Participants' Internet Protocol (IP) addresses and access time were recorded so as to identify and verify the country names. Moreover, the online system was programmed with a cookie checking function to prevent respondents from repeating the votes using the same IP address. Journal Impact Factor values of the included journals for the year 2003 were obtained from the ISI Web of Knowledge. Significant differences in reading preferences between European and North American researchers were determined by the chi-square test. Statistical analyses was with SPSS for Windows and SAS.

Results

A total of 764 researchers (85.9% males) completed the online survey. The characteristics of the respondents are summarized in Table 1. The majority of respondents were academic researchers (89.8%) and clinicians (93.4%), from Europe (57.4%), Asia (25.7%) and North America (12.4%). Table 2 summarizes the perceptions of gastrointestinal researchers towards the use of Impact Factor. Majority (68.1%) of the respondents believed that the Impact Factor could reflect the journal quality. On average, about 40% of them agreed with the use of Impact Factor as a criterion for institutional and departmental ranking, and staff appointments. Only 12.8% of the researchers agreed or strongly agreed to abolish the Impact Factor system.

For the journal reading preferences of the respondents Table 3 and Figures 1-2 show that *Gastroenterology* was the most popular (54.3%) and highly ranked (40.4%) gastrointestinal journal, while *New England Journal of Medicine (NEJM)* was the most popular (67.3%) and top ranked (48.4%) general medical journal. Other commonly read journals were *Gut* (46.3%), *BMJ (British Medical Journal)* (44.4%) and *American Journal of Gastroenterology (Am J Gastroenterol)* (41.8%).

Table 4 summarizes the countries of the researchers and their journal reading preferences. For gastrointestinal journals, a significantly ($P<0.05$) higher prevalence of European (24.8%) than American (17.4%) researchers reported to read the American journal *Hepatology* (IF=9.503). On the other hand, a significantly ($P<0.05$) higher prevalence of European (13.5%) than North American (4%) researchers read the Asia Pacific journal, *Journal of Gastroenterology and Hepatology* (IF=1.530). For general medical journals, significantly ($P<0.05$) more European researchers (49.6%) read the European journal *BMJ* (IF=7.209), when compared with North American researchers (23.9%). Moreover, European researchers (70.3%) were significantly ($P<0.05$) more likely to read the other European journal *Lancet* (IF=18.316) than the North American researchers (47.8%). Furthermore, the American journal *Science* (IF=29.781) was read by 43.5% of North American researchers but only by 25.7% of European researchers, with a significant difference ($P<0.05$).

Table 1: Basic characteristics of the gastrointestinal respondents

	N (%)
Sex	
Male	367 (85.9)
Female	60 (14.1)
Age	
Below 39	137 (32.2)
40-49	180 (42.4)
Above 50	108 (25.4)
Regions *	
Europe	241 (57.4)
North America	52 (12.4)
South America	14 (3.3)
Asia	108 (25.7)
Australia / New Zealand	5 (1.2)
Number of Publications	
19 or below	112 (31.5)
20-49	116 (32.6)
50-99	75 (21.1)
100 or above	53 (14.9)
Job Nature	
Academic	326 (89.8)
Non-Academic	37 (10.2)
Practice	
Clinical	366 (93.4)
Non-Clinical	26 (6.6)

* African respondents are not included.

Table 2: Summary of responses to questions on perceptions of Impact Factor

Perceptions of Impact Factor	Strongly Disagree or Disagree	Neutral	Strongly Agree or Agree	Total
	N (%)	N (%)	N (%)	N
Truly reflect the journals' quality	59 (16.1)	58 (15.8)	250 (68.1)	367
An important factor when deciding journal to publish	31 (8.4)	48 (13.0)	290 (78.6)	369
Employed as a major criteria for determination of funding to an institute	129 (35.2)	88 (24.0)	149 (40.7)	366
Employed as a major criteria for determination of funding to a department	134 (36.4)	85 (23.1)	149 (40.5)	368
Employed as a major criteria for determination of appointments or promotions	114 (31.0)	104 (28.3)	150 (40.8)	368
Impact Factor System should be abolished	241(65.7)	79(21.5)	47(12.8)	367

Table 3: Journal reading preferences and readers' rankings

Journal Name*	Impact Factor**	Origin ***	Total				Among readers of the journal						
			Not Read		Read		Ranked 1st		Ranked 2nd		Ranked 3rd		Top 3 N
			N	%	N	%	N	%	N	%	N	%	
Gastrointestinal Journal													
Aliment Pharm Ther	3.529	Euro.	300	79.8	76	20.2	1	1.3	7	8.8	10	12.5	18
Am J Gastroenterol	4.172	Amer.	219	58.2	157	41.8	5	3.2	12	7.6	19	12.1	36
Dig Dis Sci	1.387	Amer.	294	78.2	82	21.8	2	2.6	5	6.6	0	0	7
Digestion	1.399	Euro.	355	94.4	21	5.6	18	85.7	1	4.8	2	9.5	21
Endoscopy	3.227	Euro.	318	84.6	58	15.4	3	5.2	3	5.2	8	13.8	14
Gastroenterology	12.718	Amer.	172	45.7	204	54.3	26	12.8	18	8.9	8	3.9	52
Gut	5.883	Euro.	202	53.7	174	46.3	9	5.2	8	4.6	13	7.5	30
Helicobacter	2.624	Amer.	357	95.0	19	5.1	1	5.3	0	0	0	0	1
Hepatology	9.503	Amer.	272	72.3	104	27.7	8	7.7	8	7.7	4	3.9	20
J Gastro. Hepatol	1.530	APac.	312	83.0	64	17.0	0	0	5	7.8	4	6.3	9
General Medical Journal													
BMJ	7.209	Euro.	209	55.6	167	44.4	20	12.0	26	15.6	42	25.2	88
JAMA	21.455	Amer.	244	64.9	132	35.1	8	6.1	19	14.4	28	21.2	55
Lancet	18.316	Euro.	125	33.2	251	66.8	27	10.8	80	31.9	43	17.1	160
NEJM	34.833	Amer.	123	32.7	253	67.3	113	44.7	39	15.4	30	11.9	182
Nature	30.979	Euro.	240	63.8	136	36.2	42	30.9	21	15.4	14	10.3	77
Science	29.781	Amer.	253	67.3	123	32.7	20	16.3	25	20.3	20	16.3	65

*Journals' abbreviations are denoted according to the records in ISI Web of Knowledge

**Journal Impact Factor as the year 2003

***Euro. =European, Amer. =American, APac. =Asia-Pacific

Figure 1: Journal reading preferences and readers' rankings of gastrointestinal journals

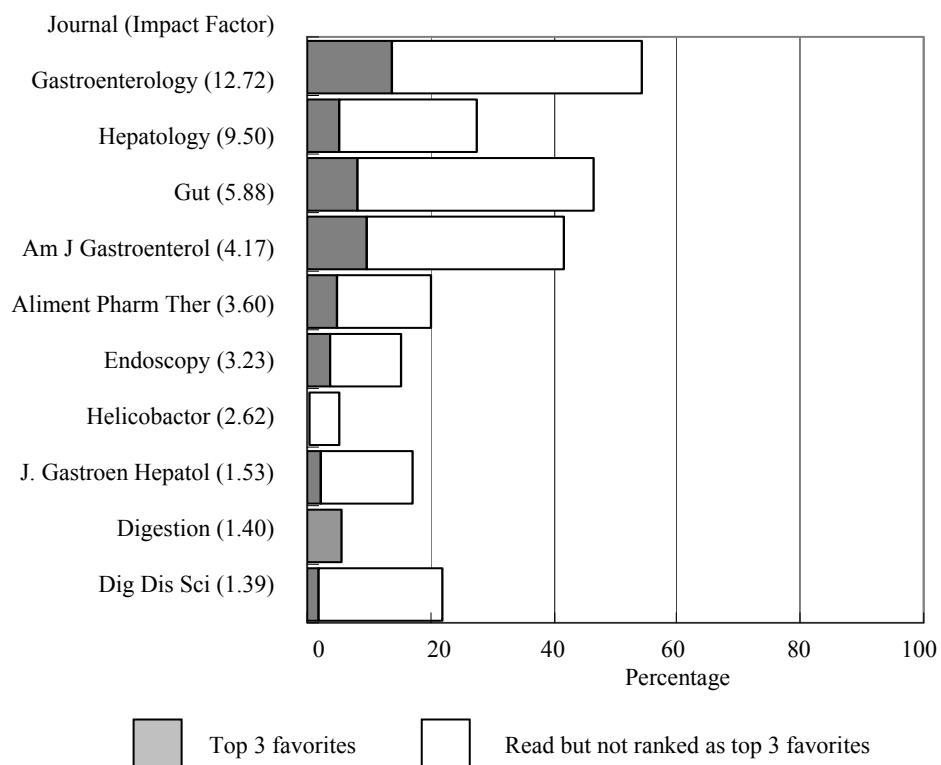


Figure 2.: Journal reading preferences and reader's rankings of general medical journals

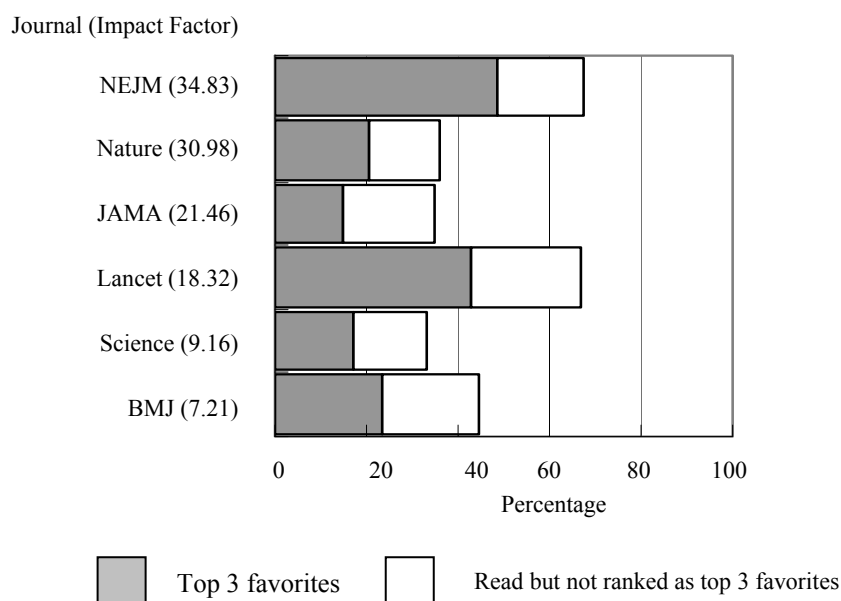


Table 4: Journal reading preferences by geographical regions of researchers

Journal Name	Europe (n=222)		North America (n=46)		Others (n=102)	
	N	%	N	%	N	%
Gastrointestinal Journal						
Aliment Pharm Ther	48	21.6	8	17.4	20	19.6
Am J Gastroenterol	87	39.2	21	45.7	47	46.1
Dig Dis Sci	52	23.4	8	17.4	21	20.6
Digestion	14	6.3	3	6.5	4	3.9
Endoscopy	36	16.2	5	10.9	17	16.7
Gastroenterology	118	53.2	24	52.2	60	58.8
Gut	100	45.1	21	45.7	50	49.0
Helicobacter	8	3.6	3	6.5	8	7.8
Hepatology*	55	24.8	8	17.4	38	37.3
J Gastro. Hepatol*	30	13.5	2	4.4	32	31.4
General Medical Journal						
BMJ*	110	49.6	11	23.9	42	41.2
JAMA	77	34.7	19	41.3	34	33.3
Lancet*	156	70.3	22	47.8	67	65.7
Nature	71	32.0	18	39.1	45	44.1
NEJM	148	66.7	30	65.2	71	69.6
Science*	57	25.7	20	43.5	45	44.1

* Significant differences ($P < 0.05$, Chi-Square Test) between Europe and North America

Discussion and conclusions

Our study confirmed that Impact Factor may be well accepted as a proxy of journal quality within the gastrointestinal discipline. However, extension of its applications to the assessment of performance of institutes, departments and researchers, require further study.

The geographical differences in journal reading preferences were consistent with the neglect of non-American medical literature among the fellows of the American College of Surgeons (Schein, Paladugu, Sutija, & Wise, 2000). This tendency of reading local journals rather than overseas journals was also found among the European gastrointestinal researchers for both gastrointestinal and general medical journals in our study. This may be related to the higher accessibility of the local journals in the past. However, with the introduction of electronic versions of journals, this influence may be substantial on the reading preferences. We believe that physicians may be more interested in local practice news than the overseas (Page et al., 2003). Moreover, memberships of local academic communities and institution - industry collaborations may also influence readers' choices.

These reading preferences may contribute to the publication biases (Möller & Jennions, 2001), which may in turn affect the Impact Factor values of the journals (Brice & Bligh, 2004) as a vicious cycle. This may not only have unfavorable impact on the researchers from places with few high Impact Factor local journals for submission (Shashok, 2003), but also further exaggerate the language biases existing in the medical disciplines (Tutarel, 2002). In view of these, establishing good quality journals in developing countries for reporting important local public health education and policies, as well as epidemiological findings should be encouraged.

Interpretations of our results may be limited by the response rate and representation of participants. However, this study has provided an overview of the perceptions of Impact Factor system and its role in reading preference and rankings among readers from different places. To have a more comprehensive understanding of influences of Impact Factor systems on academic research, investigations on the perceptions of Impact Factor, and the associations between reading preferences in other specialties are warranted.

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