DO INDIAN RESEARCHERS READ INDIAN RESEARCH?
A REAPPRAISAL, FOUR YEARS LATER

CHITTARANJAN ANDRADE, SHASHI KIRAN,
N. SANJAY KUMAR RAO & PARTHA CHOUDHURY

ABSTRACT

A previous study found that many papers in the Indian Journal of Psychiatry (IJP) had failed to reference relevant papers previously published in the same journal. The present study examined whether any change in referencing patterns had occurred. The database comprised 182 eligible articles published in the IJP during 1993-1996. In general, few articles cited previous IJP papers (median citations, 0-1); however, few articles omitted to cite previous (relevant) IJP research (median omissions, 0-1). The average number of articles cited : omitted was 2 : 1. Original articles cited as well as omitted more IJP references than brief communications. The larger the number of total references cited, the larger was the number of IJP references both cited and omitted. No significant changes in referencing patterns was evident across the years. Indexing of articles, an important method of identifying relevant, previously published research, was grossly adequate in 89% of articles; the average article received 2 index entries. While IJP papers appear to be receiving greater attention, it is suggested that room for improvement remains.

Key words : Indian Journal of Psychiatry (referencing in), Indian Journal of Psychiatry (indexing of), referencing (patterns in articles), citation (patterns in articles), indexing (of Indian Journal of Psychiatry articles)

The quality of a journal is a function of a quality of the papers that it publishes. The citation index is one method for estimating the quality of published material (Howard & Wilkinson, 1997; Andrade, 1998). Unfortunately, citation statistics are unavailable for the Indian Journal of Psychiatry (IJP). Therefore, an alternate method for assessing the impact of the IJP would be to examine the adequacy of the extent to which the IJP is itself cited in papers which it publishes; this would additionally provide information on the degree to which Indian researchers pay attention to Indian research.

A previous study (Andrade & Choudhury, 1994) examined papers published in the IJP between 1989-1992, both years inclusive. The study found that of 292 articles published, 133 (45.5%) had neglected to cite relevant articles

published during or after 1985 in the same journal. The overall ratio of IJP articles cited : omitted was 1:1. The paper concluded that Indian researchers and reviewers were either unaware of or unconcerned about Indian research as published in the IJP.

Concerns about the subject are perhaps still warrented. For example, Gada (1997) reported a case of rabbit syndrome to the IJP, believing it to be the first such report from India; yet, a report on the same syndrome had earlier appeared in the same journal (Gangadhar et al.,1981). Transsexualism is a very rare condition; yet Banerjee et al. (1997) and Jiloha et al. (1998) each reported a case without referencing another case previously reported in the IJP (Andrade et al.,1995). Several other similar examples can easily be cited.

The present study therefore sought to examine whether referencing of IJP research had improved in the block of 4 years succeeding the previous study; that is, 1993 to 1996, both years inclusive. This block was selected because it represented the full term of an editor; it is conceivable that editorial inputs and reviewer patterns will vary across editorial blocks, leading to varing degrees of insistence upon citation of previously published IJP material.

A secondary objective of the study was to ascertain whether end-of-year indexing of published articles was adequate during the years of review. This is because indexing is an important means for retrieving material on a particular subject that has previously been published in a journal.

MATERIAL AND METHOD

The database for study comprised all reviews, original articles, brief communications and letters to the editor published in the IJP during 1993-1996, both years inclusive. Reviews comprised overviews, discussions and commentaries on specific subjects, and included presidential addresses, D.L.N. Murthy Rao orations and Tilak Venkoba Rao orations. Original articles comprised all full length studies. Brief communications comprised case reports, and letters to the editor included articles published under this heading.

Articles were excluded if any contained potential citation baises. For example, editorials were excluded because many deliberately focused on articles published in the current issue of the journal. Letters to the editor which discussed previously published papers, and the previous analysis of citations in the IJP (Andrade & Choudhury,1994) were excluded for similar reasons. Two reviews (Pilowsky,1993; Berne, 1996) were not considered because previous IJP publications were relevant to neither. Book reviews were also excluded from analysis.

Articles relevant for analysis were examined on the following measures :

1. Total number of references cited.
2. Total number of IJP references cited, irrespective of the year of publication.
3. Total number of relevant IJP references omitted, reckoning from the 1985 volumes onwards. Criteria to determine relevance are outlined in the appendix.
4. Adequacy of primary indexing; that is, indexing of the most important elements of the paper. For example, a paper on the use of a particular drug for a particular disorder was expected to be indexed under both (named) drug and (named) disorder.

Statistical analysis : The data were analyzed as follows : first, the descriptive statistics were computed; these included measures of central tendency and of dispersion for quantitative variables, and frequency counts for qualitative variables. Next, inferential analysis was undertaken. For quantitative variables, since almost all data were skewed, the 't' test with modified degrees of freedom (to correct for heterogenous variances) was used to compare means between two groups, and the Kruskall-Wallis one way analysis of variance was used to compare ranks between several groups. For qualitative variables, the chi-square test was used to test the association between variables. Correlations were performed using Spearman's procedure. Alpha for significance was set at 0.05 for all tests except for the correlations where, to protect against a .type I error risk resulting from multiple correlations, it was set at 0.01. All tests of significance, wherever relevant, were two-tailed.

RESULTS

During the four years (1993-1996) under review, a total of 182 articles fulfilling the study selection criteria were published. The number of articles of each type published during each year is presented in table 1. It is clear that there were substantial differences in the number of articles published across the four years. Since the number of reviews and letters published was small, only the proportion of original articles to

DO INDIAN RESEARCHERS READ INDIAN RESEARCH?

TABLE 1
TYPE OF ARTICLE PUBLISHED BY YEAR OF PUBLICATION*

Year	Review	Original article	Brief commu- nication	Letter to editor	%
1993	4	43	13	1	33.5
1994	7	18	14	1	22.0
1995	4	22	8	1	19.2
1996	3	28	14	1	25.3
%	9.9	61.0	26.9	2.2	100

* Articles eligible for inclusion in this table and definitions of types of articles are described in the method section. There was no significant difference in the pattern of publication across the four years.

TABLE 2
REFERENCING CHARACTERISTICS OF ARTICLES PUBLISHED IN THE IJP DURING 1993-1996*

Year	IJP articles cited	IJP articles omitted	Total references cited
1993 (n=61)	0-8 1.34 (2.02) 0	0-4 0.77 (1.10) 0	0-114 15.57 (15.58) 11
1994 (n=40)	0-17 1.98 (3.63) 0	1-15 0.95 (2.44) 0	1-140 20.95 (26.76) 12
1995 (n=35)	0-9 1.34 (2.11) 1	0-4 0.77 (1.14) 0	2-55 16.06 (10.43) 14
1996 (n=46)	0-12 1.39 (2.36) 0.5	0-5 1.24 (1.40) 1	1-42 16.48 (10.86) 12.5

* Data presented are range, mean (standard deviation) and median. There were no significant differences between the four years on each of the three indices of referencing (Kruskall-Wallis test).

TABLE 3
IJP CITATIONS AND OMISSIONS IN ORIGINAL ARTICLES AND BRIEF COMMUNICATIONS PUBLISHED BETWEEN 1993 AND 1996*

	Original articles (n=111)	Brief communications (n=49)
Citations	1.96 (2.93) t=4.29. d.f.=157, p<0.005	0.55 (1.21)
Omissions	1.09 (1.81) t=4.29. d.f.=158, p<0.001	0.49 (0.87)

* Data presented are mean (standard deviation)

brief communications was compared across the four years; there was no significant differences (X^2=4.41, d.f.=3, N.S.), indicating that the difference in publication patterns across the four years did not reach statistical significance.

TABLE 4
ADEQUACY OF PRIMARY INDEXING OF ARTICLES PUBLISHED IN THE IJP BETWEEN 1993 AND 1996*

	Incomplete	Complete
1993	9	52
1994	1	39
1995	2	33
1996	8	38
Total	20 (11.0%)	162 (89.0%)

* There was a trend towards poorer indexing during 1993 and 1996

The descriptive statistics for IJP articles cited, IJP articles omitted from citation, and total number of references included during the four years of review are presented in table 2. Since the data were found to be skewed, medians were obtained in addition to the means and standard deviations. Kruskall-Wallis testing found that there was no significant difference in IJP citations (X^2=0.30, N.S.), IJP omissions (X^2=5.70, N.S.) and total citations (X^2=0.92, N.S.) across the four years.

Pooling data across the years 1993-1996, original articles and brief communications were specifically examined for number of IJP citations and omissions; the results are presented in table 3 (reviews and letters to the editors, being few in number, were excluded from this inferential analysis).

Original articles cited significantly more IJP papers, as well as omitted to cite significantly more IJP papers, in comparison with brief communications. Pooling data across all types of articles, for every two IJP references cited, one relevant IJP reference was omitted. The total number of references cited correlated significantly with the total number of IJP references cited (rho=0.30, p<0.001) as well as with the total number of IJP references omitted (rho=0.23, p<0.01). However, IJP citations and omissions did not correlate significantly with each other (rho=0.12, N.S.).

The adequacy of primary indexing is presented in table 4. Primary indexing was adequate in 89% of the articles published during these four years. There was a trend for poorer primary indexing during 1993 and 1996 (X^2=6.75, d.f.=3, p=0.08).

DISCUSSION

There was a substantial difference in the number of articles eligible for analysis that were published in the IJP in the previous editorial block (n=292; Andrade & Choudhury,1994) as compared with the editorial block examined in the present study (n=182). One explanation for the difference is that the selection criteria for articles in the present study were more restrictive than those in the previous study; however, this explanation accounted for the exclusion of very few articles. The two remaining possibilities are that researchers submitted fewer manuscripts during this editorial block, and/or that editorial criteria for publication were more stringent. Either way, the bias in the database available for analysis justifies the decision to examine citation adequacy in units of editorial blocks.

During the years of review, a subjective observation was that several papers had cited IJP studies from the 1970s and early 1980s, but not studies that had been published subsequently even though these later studies were equally or more relevant. For example, the report on mental health training for primary care medical officers by Devi (1993) cited papers from the IJPs of 1978, 1980, 1981 and 1989, but not the specifically relevant IJP papers by Shamasundar et al (1988, 1989a, 1989b) and Jiloha (1989). Similarly, papers on suicide were observed to commonly cite some but not all relevant articles on suicide previously published in recent issues of the IJP.

During the years of review, the average article in the IJP cited a median of 0-1 IJP articles, and omitted to cite a median of 0-1 articles. When means were examined, it was found that the overall cited : omitted ratio was nearly 2:1. This means that for every two articles cited in the IJP, one relevant IJP paper was neglected An examination of table 3 shows that original articles cited as well as omitted to cite more IJP articles than brief communications. The increase in omissions is perplexing because original articles are not subject to the same limitations in length and number of references as are brief communications; a possible explanation is that brief communications are on focused topics, and therefore relevant articles may have been easier to locate.

While the inadequate citation of IJP research is disappointing, it represents an improvement from the previous study (Andrade & Choudhury,1994) which found that the cited : omitted ratio was 1:1, indicating that for every IJP article cited there was one relevant IJP article neglected. Several reasons may explain the improvement in IJP citation in this as compared with the previous editorial block. One reason is that authors, reviewers and the editorial office may have become more aware of the need to review Indian research, especially after the publication of the Andrade & Choudhury (1994) analysis which highlighted this need. Another reason is that in the new editorial block, four more volumes of IJPs became part of the database available to authors for the citation of IJP papers. A third reason is that indexing of papers in the last issue of each volume, commencing from the 1989 volume onwards, would have facilitated cross-referencing.

The improvement notwithstanding, it is undeniable that authors who published in the IJP continue to under-reference relevant research previously published in the same journal. An explanation for this lapse is that authors may be unaware of the previous research, possibly because of a difficulty in retrieval; this is discussed later. Other explanations are that authors may ignore colleagues' research for competitive reasons, or may credit research published in overseas journals to a greater extent. Editorial reviewers may likewise be insufficiently aware of or concerned about previous Indian research. A national perspective is necessary to encourage Indian research, and to identify significant cross-cultural variations that may exist; if Indian researchers do not do this, who will?

One solution to the situation is to require IJP reviewers to confirm that the submitted paper has adequately cited previous, relevant, Indian

literature. Another solution is to make indexing of the IJP more detailed. During the editorial block studied, no less than 11% of articles were inadequately indexed despite bare minimum requirements having been set to define adequacy of primary indexing; furthermore, the quality of indexing was inconsistent across the years (table 4). The average article was indexed under only two headings; in contrast, in overseas journals most articles are indexed under four or more headings to facilitate easy retrieval. Two examples are cited to illustrate possible improvement in indexing. The paper on life events in mania (Lakhera et al.,1995) was indexed under the headings of life events and bipolar affective disorder; it could also have been indexed under the headings of stress and mania. The paper on drug abuse in urban Madhya Pradesh (Ghulam et al.,1996) was indexed under the headings of epidemiology, drug abuse and (curiously) urban population; it should also have been indexed under substance abuse, tobacco, alcohol, cannabis, opium, tranquillizers and painkillers to assist retrieval by researchers who are working on specific substances.

Poor indexing can result in a failure to identify upto 50% of relevant articles in computerized database literature searches (Lewis et al.,1997). When searches are manually driven, therefore, poor indexing can lead to even greater difficulties in retrieval. Improved indexing of the IJP is hence a vitally important issue.

The index as a feature of the IJP was introduced from the 1989 volume onwards. The labour intensive method of scanning through the contents is the only way to identify subject-relevant articles published in the IJP prior to 1989. Therefore, there is a need for a cumulative index of the IJP for earlier volumes; this is particularly necessary because of the relative unavailability of these early volumes. Finally, in these day of electronic media, there is a felt need for the IJP to go 'on-line' through the internet, as many journals have done. Once this is effected, retrieval of subject-relevant material will no longer be a problem.

REFERENCES

Andrade,C. (1998) Citations of psychiatric journals. *Psychiatry Review*, 1, 60.

Andrade,C. & Choudhury,P. (1994) Do Indian researchers read Indian research? *Indian Journal of Psychiatry*, 36, 173-176.

Andrade,A.C., Kumaraiah,V., Mishra,H., Chatterji,S. & Andrade,C. (1995) Behaviour therapy for transsexualism. *Indian Journal of Psychiatry*, 37, 148-150.

Banerjee,A., Nizamie,S.H., Chopra,V.K. & Bagchi,D.J. (1997) Transsexualism : onset after an acute psychotic episode. *Indian Journal of Psychiatry*, 39, 76-78.

Berne,E.(1996) Principles of transactional analysis. *Indian Journal of Psychiatry*, 38, 154-159.

Devi,S. (1993) Short term training of medical officers in mental health. *Indian Journal of Psychiatry*, 35, 107-110.

Gada,M. (1997) Rabbit syndrome : an uncommon side effect of neuroleptics. *Indian Journal of Psychiatry*, 39, 176-177.

Gangadhar,B.N., John,C.J. & Chatterji, S. (1981) Rabbit syndrome : patchy disappearance in stage 1 NREM sleep. *Indian Journal of Psychiatry*, 23, 98-100.

Ghulam,R., Rahman,I., Naqvi,S. & Gupta, S.R. (1996) An epidemiological study of drug abuse in urban population of Madhya Pradesh. *Indian Journal of Psychiatry*, 38, 160-165.

Howard,L. & Wilkinson,G. (1997) Impact factors of psychiatric journals. *British Journal of Psychiatry*, 170, 109-112.

Jiloha,R.C. (1989) Image of psychiatry among medical community. *Indian Journal of*

Psychiatry, 31, 285-287.

Jiloha,R.C., Bathla,J.C., Baweja,A. & Gupta,V. (1998) Transsexualism in schizophrenia : a case report. *Indian Journal of Psychiatry,* 40, 186-188.

Lakhera,K.G., Solanki,R.K. & Vyas,J.N. (1995) A study of recent life events and their role in precipitation of mania. *Indian Journal of Psychiatry,* 37, 13-16.

Lewis,G., Churchill,R. & Hotopf,M. (1997) Systematic reviews and meta-analyses. *Psychological Medicine,* 27, 3-7.

Pilowsky,I. (1993) Aspects of abnormal illness behaviour. *Indian Journal of Psychiatry,* 35, 145-150.

Shamasundar,C., Chaturvedi,S.K., Desai,N., Girimaji,S., Raguram,R. & Seshadri, S. (1988) Training general practitioners in psychiatry : a new venture. *Indian Journal of Psychiatry,* 30, 227-231.

Shamasundar,C., John,J., Reddy,P.R., Verghese,A., Chandramauli, Issac,M.K. & Kaliaperumal,V.G. (1989a) Training general practitioners in psychiatry : an ICMR multicentre study. *Indian Journal of Psychiatry,* 31, 271-279.

Shamasundar,C., John,J., Reddy,P.R., Kaliaperumal,V.G., Verghese,A., Chandramauli & Issac,M.K. (1989b) Clinical vignettes for assessment of training general practitioners in psychiatry. *Indian Journal of Psychiatry,* 31, 280-284.

CHITTARANJAN ANDRADE, MD, Additional Professor, Department of Psychopharmacology, SHASHI KIRAN, MD, Department of Psychiatry, National Institute of Mental Health and Neurosciences, N. SANJAY KUMAR RAO, MD, Royal Edinburgh Hospital, 2, Morningside Park, Edinburgh EH 10 5HF, Scotland (UK) & PARTHA CHOUDHURY, DPM, MD, Department of Psychiatry, National Institute of Mental Health and Neurosciences, Bangalore-560 029.*

* Correspondence