

Scientific Production of Academic Members in Web of Science during 2000-2005 and Effective Factors: A case study in Isfahan University of Medical Sciences

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Abstract

Nowadays the usage of the ISI databases is one of the important methods for assessment of scientific activities, thus scientific centres specially universities have policies to improve quality and quantity of their researchers' works in the ISI journals and in this way, increase their validity in the scientific national and international societies. The propose of this research is to measure the scientific products of Isfahan University of medical Sciences in the Web of Science during 2000-2005 and determine the factors which enabled some academic members of this University to publish their works in ISI journals.

This is a descriptive-analytical, cross-sectional survey. The data were collected via searching in the Web of Science and by a researcher-made questionnaire. The research population included those academic members whom their names as main author for at least one article have indexed during 2000-2005 in the Web of Science. Also descriptive and analytical statistics (Kolmogorov-Smirnov, kruskal-wallis and mann-whitney tests) were used for data analyzing.

There are 203 documents in the Web of Science from Isfahan University of medical Sciences with "Isfahan Univ Med Sci" organizational name, during 2000-2005. The most numbers of these documents are allocated to faculty of Medicine, whereas the Pharmacognosy department has the first rank of numbers of document among Isfahan University of medical Sciences' departments. The findings also indicate that the gaining proficiency in English and research methods and familiarity with ISI and its products have direct relation with the numbers of documents published with Isfahan University of

Medical Sciences' academic members in the ISI journals.

The scientific products of Isfahan University of medical Sciences in WOS, regarding to capacity and number of academic members of this university are insignificant. According to the result of this research, research managers can change the present situation, with more efforts for improving the proficiency of academic members in English and research methods and familiarity with ISI and its products.

Key words: Scientific production, Scientometrics, ISI, Isfahan University of Medical Sciences (IUMS)

1 Introduction

The importance of publishing scientific articles closed by ISI is clear for universities and research centers authorities now a days. Although there are opponents against researchers policies in case of publish their articles in ISI journals, it is the only way for authors to introduce their scientific works internationally and make them available for other researchers all around the world. This way the global scientific place of our country will be improved. The amount of scientific production of Isfahan University of Medical Sciences (IUMS) members which are published in ISI journals has been studied during 2000-2005 and the effective factors have been evaluated.

2 Literature review

Beiglou (1996) has studied the amount of scientific productions of Tabriz UMS faculty members. The findings showed that publishing articles and researches were the most ones, and most of productions were in the medical field.

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Weisinger JR, Bellorin-Font E (1999) examined the number and impact of peer-reviewed publications from Latin America included in the Institute of Scientific Information (ISI) and MEDLINE databases. In addition, they analyzed the number of abstracts submitted to the congresses of the International Society of Nephrology (ISN), American Society of Nephrology (ASN), and Latin American Society of Nephrology and Hypertension (SLANH). This study indicated that although efforts toward improving the quantity and quality of research in Latin America have been made, the final results are less than other regions in the world. Possible factors responsible for the low performance include a failure in academic motivation and lack of pressure for publication, as well as limited research funding. Therefore, important efforts from local and international nephrological communities are needed to boost research in Latin America.

Sarrafzadeh (2000) studied the situation of Iranian researchers articles in two data base "CAB" and "AGRIS" from the beginning till 1997 with the object of addressing collaboration rate in every educational and research centres of Iran to know how is the portion of censors. The results showed the decrease of Iranian researcher's articles in these two data banks after 1978.

Jacobs (2001) studied of the publication patterns of a selected group of academic and research scientists of ten universities of South Africa for a period of five years, 1992-96. The study demonstrated that there is a direct relationship between status and publication productivity. The study further showed that there are significant differences in productivity between areas of sciences but that there is no direct relationship between institutional funding and productivity.

Norouzi and Alimohammadi (2007) has a paper titled "scientific collaboration of Iranian librarians internationally. Findings revealed that the quantitative situation of articles published by librarians and information scientists are lower than international level; and needs more attention.

Sabouri (2007) has studied the Iranians scientific productions in WOS during 2006. The total numbers of indexed citations from Iran have been 6761. Chemistry, mathematics, electronic, neurology; pharmacology and physics have had the most portions in subject. Also the most collaboration has been among Iranian scientist with USA, England and Canadian ones.

Sanz-Casado E, et al (2006) analyzed the trends in scientific research on transmissible spongi-

form encephalopathy by applying bibliometric tools to the scientific literature published between 1973 and 2002. The study revealed a very high increase in scientific production. It is related also with the beginnings of research on bovine spongiform encephalopathy and variant Creutzfeldt-Jakob disease, with the establishment of progressive collaboration relationships and a reflection of public health concerns about this problem.

Chia Wen H, et al (2007) attempted to quantify the scientific production of EHR research articles, and how they have changed over time, in an effort to investigate changes in the trends cited in these critical evaluations. This research showed a considerable increase during 1991-2005. The production was dominated by articles, those from the US, and those published in English. The production came from many countries, denoting the devotion to this field in different areas around the world.

Paz Otero DS, et al (2007) analyzed the articles published in journals, with no reference to any other kind of documentation. The methodology applied uses the Web of Knowledge databases in the period 1990-2005. Through the data extracted in these databases several indicators are obtained, among them, the following: scientific production comparison; collaboration among genre; thematic areas of principal interest for women, etc... All of these data having in mind the particular characteristics of a leader institution in Spanish aerospace research.

With the data obtained it is intended to show the increasing women participation in engineering and other technological disciplines, not only as students but as researchers.

3 Method

This is an analytical survey. The populations of this study are the faculty members of which have been IUMS affiliated during 2000-2005 and have had at least one article (as main author) in one of journals covered by ISI. Data gathered through searching WOS data base and also a questionnaire which was validated by the experts and its reliability was also examined by Cronbach alpha evaluated. ($r = 0.78$).

This research has done in two phases. First phase: a list of eligible individuals provided by searching the faculty member's documents in WOS Organization search field, and the first author was selected. The second phases: reli-

ability and validity of the questionnaire were evaluated and it distributed among research population after correction. For data analyzing we used Kolmogorov-Smirnov, kruskal-wallis and mann-whitney tests.

4 Data

Totally 203 documents were from IUMS affiliated during 2000-2005 in WOS. IUMS faculty members were the first author in 146 ones. The first authors of these 146 articles were 55 faculty members that 45 of them answered the questionnaires.

Medicine faculty had 66 documents (45.2%), the most indexed documents in WOS during 2000-2005 among other faculties. Pharmacology faculty was the second one with 59 documents (40.42%) and the faculty of Health Science was the third with 8 documents (5.48%). Among the different departments, pharmacology department from pharmacology faculty with 39 indexed documents (26.71%) ranked in first stage. The Internal Medicine dept of the Medicine faculty had 16 ones (10.95%) and pharmaceuticals dept of pharmacology faculty with 14 documents (9.59%) had the second and third ranking in order. Among 203 various documents which were considered, articles (160) were the most ones and conferences abstracts were second one, in ranking (table1).

Table1: frequency distribution of IUMS faculty member's documents indexed in WOS sorting by the kind of document.

Document Type	Document nos	Percentage
ARTICLE	160	78.82
MEETING ABSTRACT	39	19.21
LETTER	3	1.48
EDITORIAL MATERIAL	1	0.49
Total	203	100

As it is seen in table 2, the most documents (58 items) have been published in 2005 (28.57%) and the least one have been published in 2000 which were 9 ones (4.43%).

Table2: frequency distribution of IUMS faculty members documents, indexed in WOS sorting by the publication year

Publication Year	Number of documents	Percentage
2000	9	4.43
2001	17	8.37
2002	27	13.3
2003	49	24.14
2004	43	21.18
2005	58	28.57
Total	203	100

The total numbers of WOS indexed documents from all around the world have been 7595757 during 2000-2005. 17948 ones have been from Iran (0.23% of whole) and 203 documents from IUMS (1.13% of Iranian indexed ones) in WOS. In order to study the different effective factors on scientific production by IUMS faculty members, the number of their articles and the following variants were evaluated: the researchers being familiar with ISI, their knowledge about data bases, their English language, their knowledge of research methods and statistics. Being normal of data was inspected by Kolmogorov-Smirnov test at first. (p. value=0.21) which wasn't normal via this test. So kruskal-wallis test was used and the following results in table 3 were found.

Table3: The relationship between variants with the number of faculty member's articles in WOS during 2000-2005.

Variable	Mean (grade=1-5)	Standard a- deviation	P. value
proficiency in English	3.73	0.75	0.020
knowledge of research methods	3.64	0.65	0.005
knowledge of statistics	3.11	0.71	0.113
knowledge about data bases	3.42	0.78	0.154
familiarity with ISI	3.36	0.86	0.023

5 Discussion and conclusion

Findings from WOS data base showed that IUMS (one of the best universities in Iran) faculty member's scientific productions are relatively low. Other findings revealed that there are a direct relationship between the number of

articles and amount of being familiar to English language and research method. This means that the more is the researcher ability in English and research methods, the more is his/ her ability to have published articles in ISI journals. The other result was the relationship between the number of articles and being familiar with ISI and its products. Most of authors who have written articles for ISI journals have done this aware; this means that they study about the importance and credit of journal before sending their article for the journal.

Faculty member's lack of knowledge about data bases and valid journals cause them to publish their valuable articles in an unknown sources and both the authors lose good situations and the information seekers miss these kinds of articles. Researchers should know when their articles publish in a journals covered by ISI, not only other researchers all around the world can access them, but also there will be a possibility to do different statistical studies on them, and to determine scientometric indexes and consider citations to them.

On the whole, must say the number of ISI indexed doc of IUMS faculty members compared with universities' vast and the number of academic members, is low. According to findings of this research there are some important factors which effect on the scientific production of IMUS faculty members including, getting familiar with research methods, ISI journals and English language. So, it is highly recommended to university authorities to improve these important factors and make the most of individual's abilities and finally improve the situation of such as these scientific products.

References

- Asnafi, AR. F. Danesh and M. Pakdaman-Naeini (2007). A survey of collaboration rate among of Iranian LIS students in producing scientific articles for annual student conference of AlZahra University (2000-2006) . In *Proceedings COLLNET 2007*, New Delhi, India. Available at :URL: <http://eprints.rclis.org/archive/00006352>. Accessed 23 september 2007.
- Beiglou, MH (1997). Survey of Quantitative Scientific Information Products of Tabriz Medical University's Academic members during 1988-1996 [MSc dissertation]. Tehran: Tarbiat Modarres University.
- Chia Wen, H. Y.S. Ho, W.S. Jian, H.C. Li and Y.H. Elsa Hsu (2007). Scientific production of electronic health record research, 1991-2005. *Computer Methods and Programs in Biomedicine*. 86(2). available at: URL:<http://portal.acm.org/citation.cfm?id=1238533>, Accessed July 10 2007.
- Jacobs D. (2001). Abibliometric study of the publication patterns of scientists in South Africa 1992-96, with particular reference to status and funding. *Information Research* 6 (3). Available at: <http://www.informationr.net/ir/6-3/paper104.html>, Accessed Agust 12,2005.
- Norouzi, A. and D. Alimohammadi (2007). Scientific Collaboration of the Iranian LIS Professionals across the World: With an Emphasis on Citation Indexes (1971-2007) Available at :URL: <http://nouruzi.googlepages.com/ISI-Iranian-LIS-Articles.doc> Accessed 23 January 2008.
- Paz Otero D.S., L.R. Herrerías Rubí and D.F. Mérida Martín (2007) Spanish Scientific Production on Aerospace Research from a Genre Perspective (1990-2005): a case study. Available at: URL:http://cicic.unizar.es/ibersid_en/Ediciones/Ibersid2007/Resumenes/Analisisdelaproduccion.htm, Accessed: July 10 2007.
- Sabouri, AA. (2007). Scientific Products of Iran in 2006. *Rahyaft* (38), 40-45.
- Sanz-Casado E, et al (2006). Trends in scientific activity addressing transmissible spongiform encephalopathies: a bibliometric study covering the period 1973–2002. *BMC Public Health* 6(245). Available at: URL: <http://www.biomedcentral.com/1471-2458/6/245>, Accessed: July 10 2007.
- Weisinger JR and E. Bellorçn-Font (1999). Latin American nephrology: Scientific production and impact of the publication. *Kidney International* (56), 1584–1590. Available at: URL:<http://www.nature.com/ki/journal/v56/n4/full/4491072a.html>, Accessed: July 10 2007.