ACTA INFORM MED. 2013 Jun; 21(2): 113-115

doi: 10.5455/aim.2013.21.113-115
Received: 25 January 2013 • Accepted: 02 April 2013
CONFLICT OF INTEREST: NONE DECLARED

Scientific Production of Medical Sciences Universities in North of Iran

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Original paper
ABSTRACT
Introduction: The study of the scientific evidence citation production by famous databases of the world is one of the important indicators to evaluate and rank the universities. The study at investigating the scientific production of Northern Iran Medical Sciences Universities in Scopus from 2005 through 2010. **Method:** This survey used scientometrics technique. The samples under studies were the scientific products of four northern Iran Medical universities. **Results:** Viewpoints quantity of the Scientific Products Mazandaran University of Medical Sciences stands first and of Babol University of Medical Sciences ranks the end, but from the viewpoints of quality of scientific products of considering the H-Index and the number of cited papers the Mazandaran University of Medical Sciences is a head from the other universities under study. From the viewpoints of subject of the papers, the highest scientific products belonged to the faculty of Pharmacy affiliated to Mazandaran University of Medial Sciences, but the three other universities for the genetics and biochemistry. **Conclusion:** Results showed that the Mazandaran University of Medical Sciences as compared to the other understudies universities ranks higher for the number of articles, cited articles, number of hard work authors and H-Index of Scopus database from 2005 through 2010.
Key words: H- Index; Scientific production; Scopus; Database; Iran

1. INTRODUCTION

"Scopus is an abstract and indexing database with full-text links that is produced by the Elsevier Co. Scopus which reportedly has excellent navigation skills. The verbal and behavioral feedback of these librarians and researches was analyzed and used to improve the product." (1) "Scopus developers claim to index over 14,000 STM and social science titles from 4000 publishers, stating that it is the "largest single abstract and indexing database ever built". The database claims 4600 health science titles are indexed including 100% MEDLINE coverage, 100% of EMBASE coverage and 100% of Compendex coverage. The list of titles indexed is selected based on user demand and market research. It contains 27 million abstracts with citations back to 1966. In addition to American journals, it includes European and Asia Pacific literature in both English and non-English languages. Indexing includes CAS registry numbers, MeSH terms, EMTREE terms, and supplemental key terms added by indexers." (1)

"Some features of Scopus include: Links to both citing and cited documents, allowing the user to go both forwards and backwards in time, Open access titles are included in the index, Indexes web pages and patents, with a claim to over 167 million relevant web pages, OpenURL compliant and works with any link resolver, using image-based linking, Runs an entitlement check prior to returning a full-text image is the article if available to the user, and can link to the publisher's web site to view the document (1)". "Scopus was born in 2004 with the best software module for presenting result lists. When the H-Index was introduced, users could very efficiently scroll down in chunks of maximum two hundred items per page in the result list in Scopus, sorted by decreasing order of citation counts in order to eyeball the H-Index value, the point where the number of citations received by a publication is equal to or larger than its rank order number. Web of Science beat Scopus in coming up with an automatic H-Index generator in late 2006, but by mid-2007, Scopus came out with two automated H-Index generation options. One is good, but the other one is very unfair to accomplished scholars, because it excludes from the H-Index calculation any paper published before 1996—even when they have been cited extensively since 1996."(2)

The database can be used for collection development as well as for research". (1). Scopus database is chosen because more articles will provide a base for Iranian writers, so they search for articles and citations to articles on this site which are easier and more useful. "For citation analysis, Scopus offers about 20% more coverage than Web of Science, whereas Google Scholar offers results of inconsistent accuracy. Scopus covers a wider journal range, of help both in keyword searching and citation analysis, but it is currently limited to recent articles (published after 1995) compared with Web of Science"(3).

In Iran, the scientometrics started in

1997 and till now numerous studies have been done in this context, and the main ones that have more relevance to our studies are reported. Abbaspour (2001) investigated the condition of the articles published by the faculty member of Guilan University of Medical Sciences during the year 1997 through 2001. He found that the medical faculty with %87 and the nursing faculty with %19 had the highest and lowest number of published articles respectively (4). Noori et al. (2007) investigated the ISI Web of Science indexed articles published at the Isfahan University of Medical Sciences from 1976 through the end of 2006. In this study 488 articles were investigated, most of them in the study were original and most of the peripheral blood vessels diseases. All of the published articles were not evaluated to be indexed, therefore it is suggested that university authorities provide better environment to improve the situation on order to create motivation to improve the researchers' articles quality (5).

Zorzetto et.al (2006) has studied: "The scientific production in health and biological sciences of the top 20 Brazilian universities, most of the production is focused in public universities and research institutes located in the richest part of the country. Among all areas of knowledge, the most productive are Health and Biological Sciences. During the periods of 1998-2002 these areas presented heterogeneous growth ranging from 4.5% (Pharmacology) to 191% (Psychiatry), with a median growth rate of 47.2%. In order to identify and rank the 20 most productive institutions in these areas, searches were made in three databases (Data CAPES, ISI and MEDLINE) which permitted the identification of 109,507 original articles produced by the 592 Graduate Programs in Health and Biological Sciences offered by 118 public universities and research institutes. The 20 most productive centers, ranked according to the total number of ISI-indexed articles published during the 1998-2003 period, produced 78.7% of the papers in these areas and are strongly concentrated in the Southern part of the country, mainly in São Paulo ".

Dakik et.al (2006) in a research entitled: "Research productivity of the medical faculty at the American University of Beirut" for analyzing the quality and quantity of scientific publications in a six year period (1996-2001) found that: "The faculty consisted of 203 members. Their average productivity rate (mean (SD)) was 1.24 (1.38) publications/faculty member/year (PFY), with a mean impact factor of 2.69 (4.63). Eighteen per cent of the faculty did not have any publication in the six year study period, and only 20% had two or more publications per year. There was a significantly higher publication rate among newly recruited faculty members (0.93 (1.40) PFY for those appointed before 1990, 1.45 (1.24) PFY for those appointed during 1990-1995, and 1.67 (1.43) for those appointed after 1995, $p = 0.007$), and among those who are younger member ($p<0.01$). Collaboration with international investigators resulted in more original publications than work done only at AUB (65% v 35%, $p<0.001$), and a higher journal impact factor for the publications (3.20 (3.85) v 1.71 (2.36), $p<0.05$)" (7).

Bjorn et.al in a research entitle:" Doctoral prepared nurses in Denmark and their scientific production between 1976 and 2005" by the purpose of to identify the number of Danish nurses holding a doctoral degree by the end of 2005 and to document their scientific production, found that: "a pattern of growing engagement in publishing peer-reviewed articles among the Danish nurses holding a doctoral degree. Fifty per cent of these doctoral prepared nurses published peer-reviewed papers. The majority apparently pursued a career in health sciences. Nursing as an academic discipline is evolving in Denmark, but, with its roots in clinical nursing, scientists may have to be aware of the necessity to prevail as a discipline through scientific production"(8).

Shahbedaghi (2010) due to his research: "Quantitative and qualitative growth of Shahid Beheshti University of Medical Sciences articles on ISI reports during the last twenty years (1989-2008)" concluded that out of 2330 articles, 2118 (91%) were published in periodicals, only 212 (9%) were presented in the conferences. Most papers were in the field of pharmacy, 124 papers were published by faculty members of Shahid Beheshti university of Medical Sciences in Iran in collaboration with the USA researchers. (9).

In this study we aimed at to investigate the Scopus indexed written papers at faculty members of northern Iran Medical Sciences Universities.

2. METHODS

The samples for investigation all of the published paper at the Northern Iran University of Medical Sciences from 2005 till the end of 2010, indexed at Scopus data base. The data were obtained on 30 October, 2010. The data were collected at the universities are indexed differently at the database, hence, first name of the city, the universities, and then affiliated colleges were selected. The obtained data were analyzed by the history writing method which is one the scientometics.

3. RESULTS

The interesting point in the Table 3 is that H-Index of Babol University of Medical Sciences considering the number of published articles as compared to the Golestan and Guilan University of Medical Sciences is better, the high active writer of the Medical sciences. Authors having 23 published articles at the Scopus database were considered as the highest active author (table 3), orderly belonged to the Mazandaran, Golestan, and Guilan University of Medical Sciences. The difference between numbers of the first author's article with the fifteenth author had is 24, but the number of third to the tenth author had normal distribution. Among the 15 high active authors in the study period, 9, 5, 1, and none belonged to the Mazandaran, Golestan, Guilan, and Babol respectively.

As Table 1 indicates from the beginning of 2005 till the end of October 2010, the faculties' member s of the universities under study, published1348 articles, of them 546 articles from Mazandaran Universities of Medical Sciences with more articles and 256, the Babol University of Medical Sciences with lowest number. Comparison of the number of the articles among the under study universities indicate that some of the universities produce more and some the same number of articles. For example the Babol and Guilan universities of Medical Sciences produced the same number of articles in, 2008 (47 articles). The progressive number of published articles in different years is interesting. In a way that the Mazandaran University of Medical Sciences in a comparison between 2006 to the 2005 had % 100 increases of published articles, which was showed a retrogressive phenomenon the next two years, in 2009 as compared to the 2008, illustrated increase of %62. The analysis of obtained

	Medical University						Total	%
		2005	2006	2007	2008	2009	2010		
1	Mazandaran	38	79	82	84	142	121	546	40.50
2	Golestan	10	37	66	54	66	55	288	21.36
3	Guilan	21	27	47	47	66	50	258	19.13
4	Babol	27	20	44	47	55	63	256	18.99
Total		96	163	239	232	329	289	1348	100

Table 1- Status of Scientific production

	Medical Sciences University	Total Article	Number of Citations	H-Index
1	Mazandaran	546	1728	19
2	Golestan	288	608	11
3	Guilan	258	482	10
4	Babol	256	441	11
Total Citations		3259		

Table 2. Number of citations and H-Index

data in the table 1 shows progressive rate of the articles in the years 2009 and 2010, indicating the suitable scientific activities of the faculty members.

Table 2 shows that the H-Index published articles of the northern Iran universities had 3259 citations till 30 October 2010. In other words, mean citation to each article was 2.5 times. If we study the rate of citation based on H-Index, it would be cleared that, at present, the highest and lowest H-Index papers is for the Mazandaran and Guilan Universities of Medical Sciences respectively.

H- Index is one of the main indices of evaluating the effectiveness of articles in scientific societies. In the table 4- if look at to the H- Index universities, we would find that, always more number of articles is not indicative of more effect in the scientific society, but the rate citation is the indicative of the significance and effectiveness. In the table 5, the list of high cited articles in the field of medicine published by the faculty member of the northern Iran Medical Universities along with information is given. This list is important, because the young researchers can get ideas and familiar to the titles presented internationally and act better in the selection of research topics. As shown in the table -4, among the 10 high cited articles, 4 belonged to every Babol and Mazandaran Universities of Medical Sciences and 1 to every Guilan and Golestan Universities of Medical Sciences. Interesting point in the table is that though Babol University of Medical Sciences though had lower number of articles from than Guilan and Golestan University of Medical sciences but had quiet higher citation. Therefore, it is concluded that the rate of efficiency of Babol University of Medical Sciences articles is more than other university under studies.

The comparison of table 3 with table 4 showed that of the 15 writers with highest Scopus indexed articles one person is highest cited articles. It means that, in the scientific society's majority of the articles published by the faculty members of the university under study have not been cited. It could be concluded that the articles of high active faculty members lack the scientific qualification.

	Subject	Mazandaran	Babol	Guilan	Golestan	Total
1	Pharmacology	120	6	3	9	138
2	Biology	109	10	14	37	170
3	Chemistry	88	3	1	2	94
4	Biochemistry & Genetics	85	27	17	84	213
5	Immunology & Microbiology	37	16	20	20	93
6	Neuroscience	20	8	3	18	49
7	Environmental science	2	6	4	2	14
8	Dentistry	1	7	6	1	15
	Total	84	173	190	115	786

Table 3. Frequency distribution of subject areas of documents

	Title of the paper	Author	University	Year of Publication	Number of Citation
1	Insect glutathione transferases and insecticide resistance	Enayati, A. A.	MazUMS	2005	87
2	Aspergillus flavus: human pathogen, allergen and mycotoxin producer	Hedayati, M. T.	MazUMS	2007	61
3	An epidemiological study of poisoning in northern Islamic	Moghadamnia, A. A	BUMS	2002	49
4	Antioxidant activity, phenol and flavonoid contents of some selected Iranian medicinal plants	Pourmorad, F., S. Hosseinimehr, and N. Shahabimajd	MazUMS	2009	48
5	Frequency and clinical manifestations of patients with primary immunodeficiency disorders in Iran: …	Rezaei, N., et al.	BUMS	2006	46
6	Trends in the development of radioprotective agents	Hosseininmehr, S. J.	MazUMS	2007	44
7	Primary immunodeficiency in Iran: first report of the National Registry of PID in Children and Adults	Aghamohammadi, A., et al	BUMS	2002	43
8	Breast milk iodine and perchlorate concentrations in …	AM Leung, BC Blount, HR Bazrafshan	GUMS	2007	38
9	Human bocavirus in Iranian children with acute respiratory infections	Nghipour, M.	GUMS	2007	35
10	Epidemiological features and clinical manifestation in 469 adult patients…	Hassanjani Roushan, M. R.	BUMS	2004	10

Table 4. Articles which core citation of faculty members at Northern

4. DISCUSSION

This study has illustrated the general image of the articles indexed at Scopus database from the Iran Northern Medical Sciences Universities. Results showed that publication of the articles by the under study universities from 2005 through 2010 had significant growth. Also, it was found that the part of Babol and Mazandaran Universities in production of good quality and high cited articles is much more than the Guilan and Golestan universities. Most of the articles published from 2005 through 2010 were orderly were in the subjects of biochemistry, genetics, biology, pharmacy, chemistry, immunology, but subject diversities varied among the universities, that is, at Mazandaran University of Medical Sciences most articles were on pharmacy, but at the Golestan, Guilan and Babol universities most articles were on the subjects of biochemistry and genetics.

REFERENCES

1. Burnham JF. Scopus database: a review. Biomedical digital libraries. 2006; 3(1): 1.
2. Jasco P. Testing the calculation of a realistic H-Index in Google Scholar, Scopus, and Web of Science for FW Lancaster. 2008.
3. Falagas ME, Pitsouni EI, Malietzis GA, Pappas G. Comparison of PubMed, Scopus, Web of Science, and Google Scholar: strengths and weaknesses. FASEB J. 2008; 22(2): 338-342.
4. Abbaspour H. Survey of Information production by the faculty members of Guilan University of Medical Sciences in the years of 1995 – 2001. Tehran University of Medical Sciences, 2002.
5. Noori R. Scientific productions of Isfahan University of Medial Sciences' Researchers on ISI (Web of Science) from 1976-2006. Health Information Management. 2007; 3(2): 73-82 (Persian).
6. Zorzetto R, Razzouk D, Dubugras MT, Gerolin J, Schor N, Guimaraes JA, et al. The scientific production in health and biological sciences of the top 20 Brazilian universities. Braz J Med Biol Res. 2006; 39(12): 1513-1520.
7. Dakik HA, Kaidbey H, Sabra R. Research productivity of the medical faculty at the American University of Beirut. Postgrad Med J. 2006; 82(969): 462-464.
8. Bjorn A, Hundrup YA, Wagner L. Doctoral prepared nurses in Denmark and their scientific production between 1976 and 2005. Int Nurs Rev. 2008; 55(2): 227-233.
9. Shahbedaghi A, editor. Quantitative and qualitative growth of Shahid Beheshti University of Medical Sciences articles on ISI reports during the last twenty years (1989-2008). Abstract of the 1st National Proceedings of Research and science production in medical topics; 2010; Babol, Mazandaran, Iran. Babol university of Medical Sciences, 2010.