

Review Article**Science production in Iran: the scenario of Iranian medical journals***Farzaneh Aminpour^{*a,b}, Payam Kabiri^c***Abstract**

In Iran, the number of published articles has increased significantly in the basic and applied sciences including medicine and its subspecialties during the recent years. The present study reviewed Iranian science production in medicine, focusing on Iranian medical journals and assessing the current status of Iranian medical journals in several information databases. The study revealed that only a few number of Iranian biomedical journals were indexed by Web of Science, Medline, Scopus and Biological abstract, but most of them have been covered by Index Copernicus and Index Medicus for Eastern Mediterranean Region. Observing some important factors such as journal's basic publishing standards may increase the number of Iranian medical journals indexed by reputable information databases and improve Iranian contribution to the world science.

KEYWORDS: Scientific Productivity, Research Performance, Medical Journals, Information Databases, Iran.

JRMS 2009; 14(5):

Quality of health services strongly depends on production, publication, dissemination and application of updated biomedical knowledge in order to prevent and treat diseases and improve health services. James Grant, the former executive director of UNICEF, remarked: "The most urgent task before us is to get medical and health knowledge to those most in need of that knowledge. Of the approximately 50 million people who were dying each year in the late 1980s, fully two thirds could have been saved through the application of that knowledge."¹

Due to the major role of research in sustainable development of countries, research policies should be formulated according to the updated information on science production and research output of each country. The number of published articles of a country is a frequently used scientometric indicator of the scientific position of that country.²

Scintometric indicators such as "number of papers", "number of citations" and "citation per paper" have become increasingly important as instruments for analyzing scientific activities and their relationship with economic and social development. They can appraise the performance and improvement of national science and technology.³

The quality and the quantity of published articles of each country indexed by reputable databases are important in determining the country's contribution to the world science and status in international academic rankings.

In Iran, the number of published articles has increased significantly in the basic and applied sciences including medicine and its subspecialties during the recent years. In 2006, Butler reported that Iran after Turkey stood in the second position amongst Islamic countries according to the number of published papers.⁴ About 25.6% of total Iranian scientific publica-

^a PhD Student of Health Information Management, Faculty of Management and Medical Information Sciences, Iran University of Medical Sciences, Tehran, Iran.

^b Scientometry Department, Medical Education Research Center, Isfahan University of Medical Sciences, Isfahan, Iran.

^c Biostatistics and Epidemiology Department, Faculty of Health, Tehran University of Medical Sciences, Tehran, Iran.

* Corresponding Author
E-mail: f.aminpour@gmail.com

tions have been devoted to biomedicine and biochemistry during 1995 to 1999.⁵ Malekzadeh et al showed that from 1993 to 1998, Iranian indexed articles by Web of Science experienced an annual increase of 25%.⁶

The number of medical journals published around the world has been continuously increased during the recent decades.⁷ In Iran, the number of medical journals increased from 8 in 1979 to 146 in 2009. During 1993 to 1998, less than 7% of Iranian scientific articles appeared in international reputable databases.⁶ This poor percentage may be due to low number of Iranian journals indexed by Web of Science and Medline. Improving the quality of Iranian journals along with their quantity may be the best solution. Some researchers reported a positive correlation between the qualitative and quantitative criteria in the Iranian scholarly scientific publications indexed by Web of Science.⁸ However, it seems that rapid increase in the number of Iranian journals has led to depletion in their content and to their timeliness of publication.⁶

In the present study, all Iranian medical journals accredited by the Commission for Accreditation and Improvement of Iranian Medical Journals (CAIMJ) have been reviewed. The main goal of this review was to assess the presence of Iranian medical journals in several information databases including Web of Science (WOS), Medline, Scopus, Biological Abstracts (BA), Index Copernicus (IC) and Index Medicus for Eastern Mediterranean Region (IMEMR). The conclusion includes some practical suggestions for improving international academic impacts of Iranian medical journals.

Iranian Scientific Production

Iran experienced a significant development in all branches of science especially in medical science over the recent decades. According to the 2009 January update of Essential Science Indicators (ESI) Iran has achieved Rising Star status in three fields of clinical medicine, microbiology, and biology and biochemistry. The report was based on the total citations increase from June to August 2008.⁹

Table 1. Rankings of all scientific fields in Iran during 1996-2006

Rank	FIELD	PAPERS	CITATIONS	CITATIONS PER PAPER
1	CHEMISTRY	6,609	27,639	4.18
2	PHYSICS	2,080	8,247	3.96
3	CLINICAL MEDICINE	2,188	6,248	2.86
4	ENGINEERING	3,236	6,052	1.87
5	PHARMACOLOGY & TOXICOLOGY	622	2,207	3.55
6	PLANT & ANIMAL SCIENCE	1,262	1,963	1.56
7	MATERIALS SCIENCE	1,073	1,885	1.76
8	BIOLOGY & BIOCHEMISTRY	610	1,578	2.59
9	NEUROSCIENCE & BEHAVIOR	308	1,209	3.93
10	AGRICULTURAL SCIENCES	469	998	2.13
11	GEOSCIENCES	471	879	1.87
12	MATHEMATICS	844	812	0.96
13	ENVIRONMENT/ECOLOGY	311	808	2.60
14	MOLECULAR BIOLOGY & GENETICS	147	635	4.32
15	IMMUNOLOGY	153	538	3.52
16	PSYCHIATRY/PSYCHOLOGY	137	495	3.61
17	COMPUTER SCIENCE	506	391	0.77
18	SPACE SCIENCE	127	279	2.20
19	SOCIAL SCIENCES, GENERAL	168	209	1.24
20	ECONOMICS & BUSINESS	34	40	1

SOURCE: Essential Science Indicators. Reported from: <http://www.in-cites.com/countries/iran2006.html>

Table 1 presents the ranking of all science fields in Iran during 1996 to 2006. As shown in this table, clinical medicine ranked third after chemistry and physics according to the total citations. An analysis by ESI revealed that Iran with a total number of 21,661 papers, 63,519 citations and average 2.93 citations per paper ranked 42nd for papers, 49th for citations and 135th for citations per paper among 146 top performing countries in all fields.¹⁰

Several studies confirmed an increase in scientific production in all fields in Iran. Saboury evaluated Iranian papers in Web of Science from 1993 to 2002 and compared research status of Iran with other Asian countries. He concluded that the percentage of Iranian scientific production experienced a relatively good increase during the mentioned time span.¹¹ Osareh and Marefat studied scientific growth of Iranian researchers based on Medline database from 1976 to 2003 and reported a sharp increase in Iranian science production towards the end of that time span.¹² Moin et al also evaluated the scientific output of Iran from 1967 to 2003 and compared Iran with 15 countries in the year 2000. Accordingly, Iranian contribution to science increased from 0.0003% in 1970 to 0.29% in 2003. Based on the ratio of science output to GNP, Iran stood on thirteenth place among 16 countries in year 2000.¹³

Aminpour and Kabiri reported a remarkable increase in the indexed papers of a major Iranian medical university by Medline and Web of Science during 2000 to 2006.¹⁴ Another study also evaluated all types of research output of Isfahan University of Medical Sciences including research projects, books, journal articles and conference proceedings in 2006 and found a 100% increase in all types of scientific productions of this university compared to 2005. Out of all published articles, 74.2% appeared in domestic medical journals while only 25.8% were published in foreign journals.² Noroozi et al compared Iran, Turkey and Egypt scientific productions indexed in WOS through 2005 to 2006. According to this study Turkey, Iran and Egypt stood in the first, second and third

places, respectively, among the Middle East countries.¹⁵

Commission for Accreditation and Improvement of Iranian Medical Journals

Most of Iranian biomedical journals are published by Iranian medical universities and accredited by the Commission for Accreditation and Improvement of Iranian Medical Journals (CAIMJ). CAIMJ has been directed by Iranian Ministry of Health and Medical Education, Deputy of Research since 1994. The commission has been set up to appraise and accredit Iranian biomedical journals and is also responsible for evaluating new requests of Iranian medical journals for accreditation, while continuously evaluating current accredited journals.

At the present time, CAIMJ has 9 active sub-committees in specific fields such as indexing and peer reviewing. The commission also encourages journals to setup electronic versions through their websites, preparing XML feed needed for better indexing and searching by information databases. CAIMJ's new project is development of a ranking criterion to evaluate and sort out accredited journals accordingly. CAIMJ members include Iranian health minister, vice chancellor for research, vice chancellor for education, medical information manager of the ministry, a representative of academic promotion committee, 8 selective academic members of Iranian medical universities and the commission secretary.¹⁶

Iranian Medical Journals

Due to the integration of medical education and health services in Iran, the ministry of health and medical education is responsible for medical publishing in the country. Most of Iranian medical journals are accredited by CAIMJ and founded by medical universities. However, there are a few published by non-governmental associations. Therefore, from financial and administrative points of view Iranian medical journals are mainly supported and ruled by governmental budgets and poli-

cies, while only a few journals have private expenditure and independent policy.

It seems that insufficient funding amongst other deficiencies is a major problem in administering the majority of the Middle Eastern medical journals.¹⁷ Moreover, most of the Iranian medical journals have general titles and accordingly have general scopes in publishing biomedical articles. Only few journals are focused on specific specialties in biomedicine. Furthermore, the original language of the majority of Iranian medical journals is Persian, while most accredited information databases have a strong tendency for indexing English language journals.

Although reliable studies revealed considerable improvement in Iranian science production and in its global academic ranking, only few Iranian journals have been indexed by reputable databases like Web of Science and Medline. According to the Journal Citation Reports (JCR) only 3 Iranian journals were indexed in Web of Science until 2005.

One of the main reasons for the improvement of Iranian scientific ranks in regional and international academic ranking systems is the growing process of indexing Iranian journals especially medical journals by major information databases. According to Akbari Sari, the present director of CAIMJ, most Iranian medical journals have been indexed in Index Medicus for the Eastern Mediterranean Region and Index Copernicus. He reported that out of 134 Iranian medical journals, 52 were in general fields while 82 journals were related to specific fields in medicine and health science. Ninety eight journals were in Persian language but most of them included English abstracts as well. The remaining 36 were in English and most of them covered specific topics in medicine. He believed that although the quality and quantity of Iranian medical journals were rapidly increasing, a large number of them needed further improvement to be indexed in major international databases.¹⁸ By increasing the quality and decreasing publication frequency of the journals, a larger number of Iranian

journals may find suitable places in reputable databases.¹⁹

As most of Iranian medical journals are published by medical universities, they often follow the research policies of their related universities. Aminpour et al argued that the dominant policy of most Iranian medical universities in offering universities web pages and educational contents in Persian language is an important obstacle for being internationally well known.²⁰

According to table 2, 16 Iranian medical journals are indexed by Web of Science. Therefore, it is predictable that total number of WOS indexed articles published by Iranian journals and the probable citations they receive will increase in future. Web of Science is available via Thomson Reuters ISI Web of Knowledge and covers over 10,000 of the highest impact journals worldwide, including data in the sciences, social sciences, arts, and humanities across 256 disciplines. It is noteworthy that recently new 1,228 journals were added to the journal coverage of WOS. From which 322 journals were from Asia Pacific, 647 from the European Union, 135 from Latin America, 105 from the Middle East and Africa, and 19 from North America. Notably, South Africa, Turkey and Iran with 19, 14 and 11 journals, respectively had the highest coverage in the Middle East and Africa region.²¹ Out of 141 Iranian medical journals, only 5 journals including Urology Journal, Iranian Biomedical Journal, Archives of Iranian Medicine, Iranian Journal of Immunology and Iranian Journal of Allergy, Asthma and Immunology are indexed by Medline, which is a premier bibliographic database in medical science containing over 17 million bibliographic data from over 5,200 worldwide journals.²² The original language of all Iranian medical journals indexed by Medline is English.

Eighteen Iranian medical journals including English and Persian language journals have been indexed by Scopus. Scopus is a large abstract and citation database covering approximately 36 million records of 16,000 peer re-

viewed journals from more than 4,000 international publishers.^{23,24}

According to the current review, "DARU" published by Tehran university of medical sciences is the first Iranian medical journal indexed by WOS and the only Iranian medical journal indexed by Biological Abstracts (BA). Biological Abstracts is a bibliographic database covering over 11.3 million records of 4,200 journals from 100 countries.²⁵ DARU has been published only in Persian language from 1991 to 1995, in Persian with English abstract from 1995 to 1999 and only in English from early 1999 as a quarterly journal. The main scope of this journal is pharmaceutical science.²⁶

On the other hand, 92 Iranian biomedical journals are indexed by Index Medicus for Eastern Mediterranean Region (IMEMR). IMEMR is a cumulative index directed by WHO Eastern Mediterranean Region Office (EMRO). It covers journals published on health issues in the Eastern Mediterranean Region, including countries like Iran, Afghanistan, Cyprus, Egypt, Iraq, Jordan, Kuwait, Lebanon,

Libya, Morocco, Oman, Pakistan, Qatar, Saudi Arabia, Sudan, Syria, Tunisia and Yemen.²⁷

Most Iranian medical journals (115 journals) including English and Persian language journals have been covered by Index Copernicus (IC). This may be related to the multi-lingual and multi-cultural manner of this database and its relatively quick and easy process of registering professional journals.²⁸

Approaches to Increase The Coverage of Iranian Medical Journals by Reputable Databases

Many qualitative and quantitative factors are considered by reputable information databases when evaluating a journal for indexing.^{29,30} The most important criteria which should be considered by Iranian journals' editorial boards are journal's basic publishing standards, timeliness of publication, editorial content, international diversity of authorship, citation data, international editorial conventions, providing content or at least bibliographic information in English, and the use of peer review process.

Table 2. Bibliographic Information & Indexing Status of Iranian Medical Journals

No	Journal Name	Publisher	Language	Frequency	WOS	Medline	Scopus	BA	IMEMR	IC
1	Journal of the Faculty of Medicine	Shaheed Beheshti Univ. Med. Sci.	Persian	Quarterly					*	*
2	Medical Journal of the Islamic Republic of Iran	Iran Univ. Med. Sci.	English	Quarterly					*	*
3	Iranian Journal of Medical Sciences	Shiraz Univ. Med. Sci.	English	Quarterly			*		*	*
4	Tehran University Medical Journal	Tehran Univ. Med. Sci.	Persian	Monthly					*	*
5	Medical Journal of Tabriz University of Medical Sciences & Health Services	Tabriz Univ. Med. Sci.	Persian	Quarterly					*	*
6	Journal of Medical Council of Islamic Republic of Iran	Medical Council of Islamic Republic of Iran	Persian	Quarterly					*	*
7	TEB VA TAZKIEH	Ministry of Health and Medical Education	Persian	Quarterly						*
8	Journal of Isfahan Medical School	Isfahan Univ. Med. Sci.	Persian	Quarterly					*	*
9	DARU	Tehran Univ. Med. Sci.	English	Quarterly	*		*	*	*	*
10	Journal of Kerman University of Medical Sciences	Kerman Univ. Med. Sci.	Persian	Quarterly					*	*
11	Scientific Journal of Forensic Medicine	Legal Medicine Organization of I.R.I	Persian	Quarterly					*	*
12	Journal of Dental Shaheed Beheshti University of Medical Sciences	Shaheed Beheshti Univ. Med. Sci.	Persian	Bimonthly					*	*
13	Journal of Guilan University of Medical Sciences	Guilan Univ. Med. Sci.	Persian	Quarterly						*
14	Urology Journal	Shaheed Beheshti Univ. Med. Sci.	English	Quarterly		*	*		*	*
15	Acta Medica Iranica	Tehran Univ. Med. Sci.	English	Bimonthly			*		*	*

No	Journal Name	Publisher	Language	Frequency	WOS	Medline	Scopus	BA	IMEMR	IC
16	Iranian Journal of Nuclear Medicine	Tehran Univ. Med. Sci.	Persian	Biannually			*		*	*
17	BINA	Eye Bank of I.R. Iran	Persian	Quarterly					*	*
18	Iranian Journal of Psychiatry and Clinical Psychology	Iran Univ. Med. Sci.	Persian	Quarterly					*	*
19	PEJOUHANDEH	Shaheed Beheshti Univ. Med. Sci.	Persian	Bimonthly					*	*
20	Journal of Shahid Sadoughi University of Medical Sciences and Health Services	Shahid Sadoughi Univ. Med. Sci.	Persian	Quarterly					*	*
21	Scientific Journal of Hamedan University of Medical Sciences	Hamedan Univ. Med. Sci.	Persian	Quarterly						*
22	Kowsar Medical Journal	Baqiatallah Univ. Med. Sci.	Persian	Quarterly						*
23	Journal of Islamic Dental Association of Iran	Islamic Dental Association of Iran	Persian	Quarterly					*	*
24	Journal of Sabzevar School of Medical Sciences	Sabzevar Univ. Med. Sci.	Persian	Quarterly						*
25	Journal of Mazandaran University of Medical Sciences	Mazandaran Univ. Med. Sci.	Persian	Bimonthly					*	*
26	Daneshvar Medicine	Shahed University	Persian	Bimonthly						*
27	Journal of Research in Medical Sciences	Isfahan Univ. Med. Sci.	English	Bimonthly	*		*		*	*
28	Scientific Medical Journal	Ahwaz Jundishapur Univ. Med. Sci.	Persian	Quarterly						*
29	FEYZ	Kashan Univ. Med. Sci.	Persian	Quarterly						*
30	Iranian Journal of Clinical Infectious Diseases	Infectious Diseases and Tropical Medicine Research Center	Persian	Quarterly						*
31	Journal of Qazvin University of Medical Sciences	Qazvin Univ. Med. Sci.	Persian	Quarterly					*	*
32	Physiology and Pharmacology	Shaheed Beheshti Univ. Med. Sci.	Persian	Quarterly						*
33	HAKIM	Ministry of Health and Medical Education	Persian	Quarterly					*	*
34	Journal of Dental Medicine	Tehran Univ. Med. Sci.	Persian	Quarterly					*	*
35	Modares Journal of Medical Sciences	Tarbiat Modares University	Persian	Quarterly						*
36	Iranian Biomedical Journal	Pasteur Institute of Iran	English	Quarterly		*	*		*	*
37	Urmia Medical Journal	Urmia Univ. Med. Sci.	Persian	Quarterly						*
38	Archives of Iranian Medicine	Academy of Medical Sciences of Iran	English	Quarterly	*	*	*		*	*
39	Journal of Iran University of Medical Sciences	Iran Univ. Med. Sci.	Persian	Quarterly						*
40	Iranian Journal of Endocrinology and Metabolism	Shaheed Beheshti Univ. Med. Sci.	Persian	Quarterly					*	*
41	Yakhteh Medical Journal	Royan Institute	English	Quarterly	*		*		*	*
42	Pharmaceutical Sciences	Tabriz Univ. Med. Sci.	Persian	Quarterly						*
43	The Iranian Journal of Otorhinolaryngology	Mashhad Univ. Med. Sci.	Persian	Quarterly					*	*
44	Iranian Journal of Dermatology	Iranian Society of Dermatology	Persian	Quarterly					*	*
45	Journal of Babol University of Medical Sciences	Babol Univ. Med. Sci.	Persian	Bimonthly					*	*
46	Rahavard Danesh Journal of Arak University of Medical Science	Arak Univ. Med. Sci.	Persian	Quarterly					*	*
47	Koomeh Journal of Semnan University of Medical Sciences	Semnan Univ. Med. Sci.	Persian	Quarterly					*	*
48	Iranian Red Crescent Medical Journal	Iranian Hospital - Dubai	English	Quarterly	*					*
49	Journal of Reproduction and Infertility	Avicenna Research Institute	Persian	Quarterly					*	*
50	Iranian Journal of Public Health	Iranian Public Health Association/ Tehran Univ. Med. Sci.	English	Quarterly	*		*		*	*
51	Iranian Journal of Basic Medical Sciences	Mashhad Univ. Med. Sci.	English	Quarterly					*	*
52	Journal of Zanjan University of Medical Sciences and Health Services	Zanjan Univ. Med. Sci.	Persian	Quarterly					*	*
53	Journal of Shahrekord University of Medical Sciences	Shahrekord Univ. Med. Sci.	Persian	Quarterly					*	*

No	Journal Name	Publisher	Language	Frequency	WOS	Medline	Scopus	BA	IMEMR	IC
54	Scientific Journal of Kurdistan University of Medical Sciences	Kurdistan Univ. Med. Sci.	Persian	Quarterly					*	*
55	Journal of Rehabilitation	University of Welfare & Rehabilitation	Persian	Quarterly						*
56	Iranian Journal of Ophthalmology	Iranian Society of Ophthalmology	English	Quarterly	*		*			*
57	Iranian South Medical Journal	Bushehr Univ. Med. Sci.	Persian	Biannually						*
58	Journal of Gorgan University of Medical Sciences	Gorgan Univ. Med. Sci.	Persian	Quarterly					*	*
59	Iranian Heart Journal	Iranian Heart Association	English	Biannually						*
60	BEHBOOD	Kermanshah Univ. Med. Sci.	Persian	Quarterly						*
61	Journal of Medicinal Plants	Institute of Medicinal Plants	Persian	Quarterly			*		*	*
62	Iranian Journal of Allergy, Asthma and Immunology	Iranian Society of Asthma and Allergy	English	Quarterly	*	*	*		*	*
63	PAYESH (Health Monitor)	Iranian Institute for Health Sciences Research	Persian	Quarterly						*
64	TANAFFOS	Shaheed Beheshti Univ. Med. Sci.	English	Quarterly					*	*
65	TABIB-E-SHARGH	Zahedan Univ. Med. Sci.	Persian	Quarterly						*
66	Journal of Iranian Society of Anaesthesiology & Intensive Care	Iranian Society of Anaesthesiology and Critical Care	Persian	Quarterly						
67	Hormozgan Medical Journal	Hormozgan Univ. Med. Sci.	Persian	Quarterly						
68	Iranian Journal of Diabetes and Lipid Disorders	Tehran Univ. Med. Sci.	Persian	Quarterly					*	*
69	Journal of Rafsanjan University of Medical Sciences	Rafsanjan Univ. Med. Sci.	Persian	Quarterly						*
70	Iranian Journal of Medical Education	Isfahan Univ. Med. Sci.	Persian	Biannually					*	*
71	Journal of Medical Education	Shaheed Beheshti Univ. Med. Sci.	English	Quarterly					*	*
72	YAFTEH	Lorestan Univ. Med. Sci.	Persian	Quarterly						
73	Journal of School of Public Health and Institute of Public Health Research	Tehran Univ. Med. Sci.	Persian	Quarterly					*	
74	Medical Journal of Mashhad University of Medical Sciences	Mashhad Univ. Med. Sci.	Persian	Quarterly					*	*
75	Journal of Ardabil University of Medical Sciences & Health Services	Ardabil Univ. Med. Sci.	Persian	Quarterly						*
76	Iranian Journal of Pharmaceutical Research	Shaheed Beheshti Univ. Med. Sci.	English	Quarterly	*				*	*
77	Journal of Military Medicine	Baqiatallah Univ. Med. Sci.	Persian	Quarterly						*
78	ARMAGHE DANESH	Yasuj Univ. Med. Sci.	Persian	Quarterly					*	*
79	Iranian Journal of Radiation Research	Novin Medical Radiation Institute	English	Quarterly	*				*	*
80	OFOGH-E-DANESH	Gonabad Univ. Med. Sci.	Persian	Quarterly						
81	Journal of Iranian Anatomical Sciences	Iranian Society of Anatomical Sciences	Persian	Quarterly						*
82	Journal of Medical Research	Shiraz Univ. Med. Sci.	Persian	Quarterly					*	
83	Advances in Cognitive Science	Institute of Cognitive Science Studies	Persian	Quarterly						
84	Iranian Journal of Orthopaedic Surgery	Iranian Orthopaedic Association	Persian	Quarterly					*	*
85	Iranian Journal of Radiology	Tehran Univ. Med. Sci.	English	Quarterly					*	*
86	Iranian Journal of Pediatrics	Tehran Univ. Med. Sci.	English	Quarterly	*		*		*	*
87	Journal of Birjand University of Medical Sciences	Birjand Univ. Med. Sci.	Persian	Quarterly						*
88	Iranian Journal of Obstetrics, Gynecology and Infertility	Mashhad Univ. Med. Sci.	Persian	Biannually					*	*
89	Journal of Mashhad Dental School	Mashhad Univ. Med. Sci.	Persian	Biannually					*	*
90	Journal of Dentistry of Teheran University of Medical Sciences	Tehran Univ. Med. Sci.	English	Quarterly					*	*
91	Blood Journal	Iranian Blood Transfusion Organization Research Center	Persian	Quarterly					*	*

No	Journal Name	Publisher	Language	Frequency	WOS	Medline	Scopus	BA	IMEMR	IC
92	Iranian Journal of Immunology	Shiraz Univ. Med. Sci.	English	Quarterly		*	*		*	*
93	Journal of Army University of Medical Sciences of the I.R. Iran	Army Univ. Med. Sci.	Persian	Quarterly					*	
94	International Journal of Endocrinology and Metabolism	Shaheed Beheshti Univ. Med. Sci.	English	Quarterly					*	*
95	Iranian Journal of Surgery	Iranian Association of Surgery	Persian	Quarterly						*
96	Journal of Ilam University of Medical Sciences	Ilam Univ. Med. Sci.	Persian	Bimonthly						*
97	GOVARESH	Iranian Association of Gastroenterology and Hepatology	Persian	Quarterly					*	
98	Iranian Journal of Medical Physics	Iranian Association of Medical Physicists/ Mashhad Univ. Med. Sci.	Persian	Quarterly						
99	Iranian Journal of Pharmacology and Therapeutics (Electronic Journal)	Iran Univ. Med. Sci. Razi Institute for Drug Research	English	Biannually						*
100	Iranian Journal of Reproductive Medicine	Shahid Sadoughi Univ. Med. Sci.	English	Quarterly	*		*		*	*
101	Medical Sciences Journal of Islamic Azad University, Tehran Medical Unit	Islamic Azad University, Tehran Medical Branch	Persian	Quarterly					*	*
102	Iranian Journal of Neurology	The Iranian Neurology Society	Persian	Quarterly					*	*
103	Iranian Journal of Environmental Health Science & Engineering	Tehran Univ. Med. Sci.	English	Quarterly	*		*		*	*
104	Audiology	Tehran Univ. Med. Sci.	Persian	Biannually					*	*
105	Laser in Medicine	Academic Center for Education, Culture and Research	Persian	Quarterly						
106	Shiraz E Medical Journal	Shiraz Univ. Med. Sci.	English	Quarterly						*
107	ARYA	Isfahan Univ. Med. Sci.	English	Quarterly					*	*
108	Iran Journal of Nursing	Iran Univ. Med. Sci.	Persian	Quarterly					*	*
109	Dentistry Journal	Shiraz Univ. Med. Sci.	Persian	Quarterly					*	*
110	Iranian Journal of Pharmaceutical Sciences	Iranian Society of Pharmaceutical Scientists	English	Quarterly					*	
111	Strides in Development of Medical Education	Kerman Univ. Med. Sci.	Persian	Biannually					*	*
112	Journal of Health Management	Iran Univ. Med. Sci.	Persian	Quarterly					*	
113	Iranian Journal of Epidemiology	Iranian Epidemiological Association	Persian	Quarterly					*	
114	The Quarterly Journal of Fundamentals of Mental Health	Mashhad Univ. Med. Sci.	Persian	Quarterly					*	*
115	Iranian Journal of Nutrition Sciences & Food Technology	National Nutrition & Food Technology Research Institute	Persian	Quarterly					*	*
116	Iranian Journal of Child Neurology	Iranian Child Neurology Society/ Shaheed Beheshti Univ. Med. Sci.	English	Quarterly					*	*
117	Iranian Journal of Psychiatry	Tehran Univ. Med. Sci.	English	Quarterly					*	
118	Iranian Endodontic Journal	Iranian Association of Endodontists	English	Quarterly					*	*
119	The Journal of Tehran University Heart Center	Tehran Univ. Med. Sci.	English	Quarterly					*	*
120	Iranian Journal of Medical Hypotheses and Ideas	Tehran Univ. Med. Sci.	Eng-lish/Persian	Quarterly					*	*
121	Health Information Management	Isfahan Univ. Med. Sci.	Persian	Biannually					*	*
122	Iranian Journal of Pathology	Iranian Society of Pathology	English	Quarterly					*	*
123	Hepatitis Monthly	Baqiatallah Univ. Med. Sci.	English	Quarterly	*		*		*	*
124	HAYAT	Tehran Univ. Med. Sci.	Persian	Quarterly					*	*
125	Journal of Faculty of Nursing & Midwifery	Shaheed Beheshti Univ. Med. Sci.	Persian	Quarterly					*	*
126	SALMAND - Iranian Journal of Aging	University of Welfare & Rehabilitation Sciences	Persian	Quarterly					*	
127	Jahrom Medical Journal	Jahrom Univ. Med. Sci.	Persian	Biannually						
128	Journal of Isfahan Dental School	Isfahan Univ. Med. Sci.	Persian	Quarterly					*	*
129	Iranian Journal of Medical Microbiology	Iranian Society of Microbiology	Persian	Quarterly					*	*
130	Iranian Journal of Parasitology	Tehran Univ. Med. Sci.	English	Quarterly	*				*	*
131	Iranian Journal of Kidney Diseases	Iranian Society of Nephrology	English	Quarterly					*	

No	Journal Name	Publisher	Language	Frequency	WOS	Medline	Scopus	BA	IMEMR	IC
132	Qom University of Medical Sciences Journal	Qom Univ. Med. Sci.	Persian	Quarterly						*
133	Journal of Medical Ethics and History of Medicine	Tehran Univ. Med. Sci.	Eng-lish/Persian	Quarterly						*
134	International Journal of Fertility & Sterility	Royan Institute	English	Quarterly	*				*	*
135	Journal of Research in Behavioural Sciences	Isfahan Univ. Med. Sci.	Persian	Biannually						*
136	Iranian Journal of Occupational Health	Iran Univ. Med. Sci.	Persian	Quarterly						*
137	Iranian Journal of Nursing Research	Iranian Nursing Scientific Association	Persian	Quarterly						
138	Iranian Journal of Nursing and Midwifery Research	Isfahan Univ. Med. Sci.	English	Quarterly					*	*
139	Iranian Journal of Cancer Prevention	Shaheed Beheshti Univ. Med. Sci.	English	Quarterly						*
140	Journal of Ophthalmic & Vision Research	Shaheed Beheshti Univ. Med. Sci.	English	Quarterly					*	*
141	Iranian Journal of Psychiatry and Behavioral Sciences	Mazandaran Univ. Med. Sci.	English	Biannually						*

Moreover, most of the Iranian medical journals have general scopes instead of focusing on specific specialties in biomedicine. Whether this has any significant impact on being indexed by reputable information databases is remained to be determined by future studies.

Observing the above mentioned factors may increase the number of Iranian medical journals indexed by reputable databases.

How to Increase Iranian Contribution to The World Science

According to the current review, some approaches may promote Iranian contribution to the world science. One is to increase the number of Iranian articles published through for-

eign indexed journals. The other is to improve the quality of Iranian medical journals in order to get indexed by reputable information databases such as Web of Science and Medline.

Observing the qualitative and the quantitative indexing factors of reputable databases by Iranian medical journals is of great importance. In this way, Iranian published articles in domestic medical journals may be indexed by such databases and subsequently they would be considered in international academic rankings. This may improve Iranian contribution to the world science and promote Iran's scientific ranks in regional and international academic rankings.

Conflict of Interests

Authors have no conflict of interests.

Authors' Contributions

FA carried out the design and coordinated the study, and prepared the manuscript. PK provided assistance in the design of the study and participated in preparing the manuscript. All authors have read and approved the content of the manuscript.

References

1. Grant J. Opening Session. World Summit on Medical Education; 1993 Aug 8-12; Edinburgh, Scotland. *Med Educ* 1994;28(1 Suppl):11-4.
2. Aminpour F. Research performance of Isfahan University of Medical Sciences in 1385 (April 2006-March 2007). *Journal of Research in Medical Sciences* 2007;12(6):308-14.
3. King DA. The scientific impact of nations. *Nature* 2004;430(6997):311-6.
4. Butler D. Islam and science: the data gap. *Nature* 2006;444(7115):26-7.

5. UNESCO. UNESCO Science Report 2005. 2nd ed. Paris: United Nations Educational, Scientific and Cultural Organization; 2005.
6. Malekzadeh R, Mokri A, Azarmina P. Medical science and research in Iran. *Archives of Iranian Medicine* 2001;4(1):27-39.
7. Altman DG. Statistical reviewing for medical journals. *Stat Med* 1998;17(23):2661-74.
8. Hayati Z, Ebrahimi S. Correlation between quality and quantity in scientific production: a case study of Iranian organizations from 1997 to 2006. *Scientometrics* 2009 Apr. Available at: <http://www.springerlink.com/content/a2625wh747122r54>
9. Rising Stars. 2009; Available at: <http://sciencewatch.com/dr/rs/09jan-rs>. Accessed June 8, 2009.
10. Essential Science Indicators. 2009; Available at: <http://in-cites.com/countries/iran2006.html>. Accessed June 8, 2009.
11. Saboury A. Research status report of Iran in 2002. *Rahyaft* 2003;28:87-95. (Persian)
12. Osareh F, Marefat R. The growth of scientific productivity of Iranian researchers in Medline. *Rahyaft* 2005;35:39-44. (Persian)
13. Moin M, Mahmoudi M, Rezaei N. Scientific output of Iran at the threshold of the 21st century. *Scientometrics* 2005;62(2):239-48.
14. Aminpour F, Kabiri P. Research performance in Isfahan University of Medical Sciences: evaluation of scientific productivity. *Proceedings of 11th International Conference of the International Society for Scientometrics and Informetrics (ISSI); 2007 Jun 25-27; Madrid, Spain. vol I & II. p.820-1.*
15. Noroozi Chacoli A, Nourmohammadi HA, Vaziri E, Etemadifard A. Comparative evaluation of Iran, Turkey and Egypt's scientific productions through 2005 to 2006. *Rahyaft* 2007;40:65-75. (Persian)
16. The Commission for Accreditation and Improvement of Iranian Medical Journals. Available at: <http://commission.hbi.ir>
17. Habibzadeh F. A snapshot of medical journals from the Middle East. *Lancet* 2006;367(9515):978.
18. Akbari Sari A. An overview of Iranian medical journals. *Proceedings of 4th Regional Conference on Medical Journals in the Eastern Mediterranean Region; 2008 Nov 5-7; Manama, Bahrain. Geneva: World Health Organization; 2008. p.45.* Available at: <http://www.moh.gov.bh/PDF/EMMJ.pdf>
19. Ghadrei A, Sameni S. Medical journals in Iran: a brief review. *Proceedings of 4th Regional Conference on Medical Journals in the Eastern Mediterranean Region; 2008 Nov 5-7; Manama, Bahrain. Geneva: World Health Organization; 2008. p.34.* Available at: <http://www.moh.gov.bh/PDF/EMMJ.pdf>
20. Aminpour F, Kabiri P, Otraj Z, Keshtkar AA. Webometric analysis of Iranian universities of medical sciences. *Scientometrics* 2009;80(1):253-64.
21. Journal Expansion. 2009; Available at: http://isiwebofknowledge.com/products_tools/multidisciplinary/webofscience/contentexp Accessed June 8, 2009.
22. MEDLINE. 2009; Available at: <http://www.nlm.nih.gov/pubs/factsheets/medline.html>. Accessed June 8, 2009
23. Scopus. 2009; Available at: http://www.elsevier.com/wps/find/electronicproductdescription.cws_home/704746/description#description. Accessed June 8, 2009.
24. Scopus in Detail: Facts and Figures. 2004; Available at: <http://www.info.scopus.com/detail/facts>
25. Biological Abstracts. 2009; Available at: http://www.thomsonreuters.com/products_services/science/science_products/scholarly_research_analysis/research_discovery/biological_abstracts
26. DARU. 2009 Available at: http://journals.tums.ac.ir/description.aspx?org_id=59&culture_var=en&journal_id=1&issue_id=1429&segment=en Accessed June 8, 2009.
27. Index Medicus for the Eastern Mediterranean Region. 2009; Available at: www.who.int/library/databases/emro/en/index.html
28. Index Copernicus International. 2009; Available at: <http://www.indexcopernicus.com>
29. The Thomson Reuters Journal Selection Process. 2009; Available at: <http://isiwebofknowledge.com/benefits/essays/journalselection>
30. Malekzadeh R, Azarmina P. Archives of Iranian medicine: challenges of becoming indexed. *Arch Iranian Med* 2002;5(2):71-2.