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LETTER

Chinese and Iranian Scientific Publications: Fast Growth and Poor Ethics

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There is a rapid global growth of scientific publications. The world growth rate of scientific publications from 1980–1994 to 1995–2009, indicates that the Iranian growth rate is the fastest in the world and it is followed by the Republic of Korea, Turkey, Cyprus, China and Oman [Science-Metrix 2010]. On the other hand there are frequent reports of academic misconduct in various scholarly activities in some of these countries [e.g., Butler 2009; Hvistendahl 2013]. The objective of this letter is to quantitatively scrutinize publication misconduct among a number of countries and compare the countries' ranking on scientific publication misconduct.

As a rough indicator of the publications misconduct, the number of retracted articles of the top 25 countries based on the SCImago Journal and Country Rank portal was determined [SJR 2016]. The portal uses the Scopus database information to analyse scientific journals and countries contributions in scientific publication production. The numbers of retracted documents (NRD) for the period of 1996–2014 for each country are found using the Scopus database [Scopus 2016]. For the sake of comparison, the NRD to the total number of documents is defined as the ratio of retracted documents (RRD) and finally, the RRD for all 25 countries under consideration are normalized by dividing RRD for each country by the minimum value of RRD among all these 25 countries and it is called the Normalised Ratio of Retracted Documents (NRRD). Table 1 presents the results of this analysis.

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Table 1 Analysis of retracted article for the top 25 countries based on the SCImago Journal and Country Rank portal [SJR, 2016; Scopus 2016]

Country	Documents	Citations	Citations per document	H index	Retracted articles (NRD)	Ratio of NRA (RRD)	Normalised RRD (NRRD)
United States	8,626,193	177,434,935	23.36	1648	113	1.31E−05	4
China	3,617,355	19,110,353	7.44	495	9126	2.52E−03	755
United Kingdom	2,397,817	44,011,201	21.03	1015	48	2.00E−05	6
Germany	2,176,860	35721869	18.5	887	29	1.33E−05	4
Japan	2,074,872	27,040,067	13.79	745	39	1.88E−05	6
France	1,555,629	24,700,140	17.95	811	11	7.07E−06	2
Canada	1,227,380	22,152,666	21.4	794	27	2.20E−05	7
Italy	1,200,448	18,019,464	17.52	713	6	5.00E−06	1
India	998,544	6,989,150	9.61	383	68	6.81E−05	20
Spain	952,099	12,628,097	16.14	591	5	5.25E−06	2
Australia	890,458	13,772,961	19.49	644	34	3.82E−05	11
South Korea	739,229	7,063,429	12.38	424	49	6.63E−05	20
Russian Federation	701,029	4,289,618	6.5	390	6	8.56E−06	3
Netherlands	681,804	14,278,721	24.56	694	12	1.76E−05	5
Brazil	598,234	5,036,027	11.73	379	2	3.34E−06	1
Switzerland	493,857	10,872,269	26.1	686	5	1.01E−05	3
Taiwan	491,560	4,790,230	12.17	331	117	2.38E−04	71
Sweden	460,607	9,417,604	23.21	614	8	1.74E−05	5
Poland	431,016	3,491,958	9.57	371	4	9.28E−06	3
Turkey	390,874	2,938,841	9.79	266	5	1.28E−05	4
Belgium	372,093	6,691,791	21.01	547	3	8.06E−06	2
Iran	287,010	1,504,541	9.83	180	95	3.31E−04	99
Israel	272,352	5,079,652	20.56	496	2	7.34E−06	2
Austria	268,472	4,334,382	19.24	449	4	1.49E−05	4
Denmark	263,026	5,494,671	24.94	518	1	3.80E−06	1

China has the highest NRRD of 755 followed by Iran (99), Taiwan (77), India (20) and South Korea (20). As seen in Table 1, China, Iran and India have a low number of citations per document which is below 10 for these countries and is an indication of the lower quality and impact of their publications. South Korea and Taiwan have more than 12 citations per document. The table shows that Iran has the lowest H-index among the countries under consideration in the study.

In conclusion, although China and Iran are at the top of the list of countries with the fast-growth of scientific publications, they are also champions in publication misconduct compared to other countries. Moreover, these countries, in particular Iran, suffer from the low-quality of their scientific publications. This preliminary

investigation suggests that the research and science policy-makers in these countries need to seriously consider and impose policies to promote academic ethics among academic communities in their plans and policies to address this issue.

Compliance with Ethical Standards

Conflict of interest The authors declare no competing financial interest.

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