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Shakil Ahmad
Imam Abdulrahman Bin Faisal University, shahmad@iau.edu.sa

Abu Waris
Imam Abdulrahman Bin Faisal University, abuwaris@iau.edu.sa

Isam Mohammed Abdel-Magid
Imam Abdulrahman Bin Faisal University, iahmed@iau.edu.sa

Md Sohail
Fiji National University, sohailmlis@gmail.com

An assessment of the impact and visibility of United Arab Emirates Journals

By

Shakil Ahmad[1], Prof. Dr. CEng. Isam Mohammed Abdel-Magid [2], Dr. Abu Waris [3]
and Md. Sohail [4]

Abstract

This research reviews well cited United Arab Emirates Research Journals as per journal bibliometric quality indicators and scientometric protocols. Complex algorithms and trustworthy databases were used in judging journals quality ranking level.

The main objective of this research work is to assess currently employed (2015) scientific journal quality indices with emphasis on recognised indicators that include: Journal Impact Factor (JIF), Eigenfactor Score (ES), SCImago Journal Rank indicator (SJR) and H5-index. United Arab Emirates Research Journals were chosen from their category within Web of Science. JIFs and ESs are acquired from Journal Citation Report and the SJR from the SCImago Journal and country rank website(Cantín, Muñoz, & Roa, 2015).

The thirty-nine (39) selected United Arab Emirates Research Journals were recorded and their associated data records and information documents retrieved from their primary locations, in Web of Science (WoS) and Scopus, in relating JIF, SJR, ES and H5 quality indicators for ranking purposes and rationales. Correlations amongst indicators were signified through Pearson's and Spearman's statistical correlations, calculated by means of SPSS software. Inspected JIFs fluctuated between 3.753 and 0.59; ES ranged between 0.03069 and 0.00028, while JSR extended between 1.605 and 0.207 and H5 varied between 59 and 9.

Bivariate correlation between the four indicators (JIF, ES, SJR and H5) for ranking of the nominated United Arab Emirates Research Journals revealed a high Pearson's (r) statistical correlation between JIF and SJR indicators (r = 0.841) and a rather low statistical correlation between JIF and H5 indicators for journals in the selected category (r = 0.761). This correlation is lowest between JIF and ES values (r = 0.527).
Spearman's rho statistical correlation showed a high correlation between JIF and SJR indicator for United Arab Emirates Research Journals (coefficient value of 0.871). A rather low correlation was noted among JIF and each of ES and H5 rankings (coefficient value = 0.728 for both indicators).

Keywords: Journal Rank, Bibliometric Indicators, Impact Factor, SCImago Indicator, Eigenfactor Score, H5-Index, United Arab Emirates Research Journals

[1] Lecturer, Deanship of Library Affairs, Imam Abdulrahman Bin Faisal University Library, Dammam, Kingdom of Saudi Arabia, E-mail: shahmad@iau.edu.sa; shakilahma@gmail.com; Phone: +966558172752

[2] Chair Unit of Training & development at Deanship of Postgraduate Studies; Head Proofreading and Revision Dep. at the Centre of Scientific Publications; Professor of water resources and public health at Public Health Dept. Of the College of Engineering, Imam Abdulrahman Bin Faisal University, Box 1982, Dammam 31451, KSA, Fax: +96638584331, Phone: +966530310018, E-mail: iahmed@iau.edu.sa, isam.abdelmagid@gmail.com, Web site: http://www/sites.google.com/site/isamabdelmagid/; isamabdelmagid.net.

[3.] Dr. Abu Waris, Assistant Professor, Deanship of Library Affairs, Imam Abdulrahman Bin Faisal University Library, Dammam, Kingdom of Saudi Arabia, abuwaris@uod.edu.sa

[4]. Md. Sohail, Department of Library Services, Fiji National University, Fiji, E-mail: md.sohail@fnu.ac.fj; sohailmlis@gmail.com

1) Introduction

Research findings and conclusions usually are published in eminent scientific journals to accredited outcomes, citation associations and work recognition. This is of value to experts, professionals, research groups, scientists, academicians, librarians, writers, and authors alike(Nagaraja & Vasanthakumar, 2011).

Quality of scientific research journals usually are monitored through suitable scientometric means. Recognized bibliometric indicators have their benefits and weaknesses. Largely employed indicators embrace: Journal Impact Factor or Eugene Garfield factor (JIF), Eigenfactor Score (ES), SCImago Journal Rank indicator, and H5 indicator (see Fig. 1). Several elements influence the number of citations of a journal, such as journal history and its indexing in an accredited database, rate of international cooperation, and country of publication (Ebadi & Schiffauerova, 2015; Jamali, Salehi-Marzijarani, & Ayatollahi, 2014).
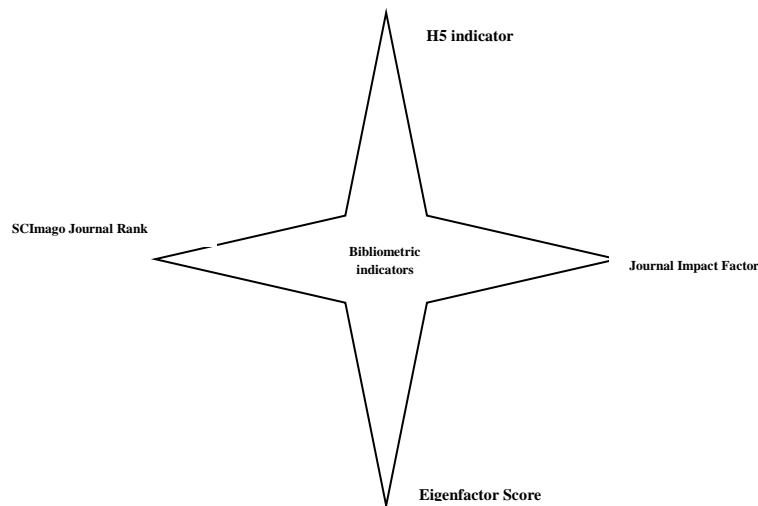

Fig. (1): 4-star bibliometric indicators.

JIF indicator is extensively used and is calculated annually by dividing the number of citations to articles published in the journal in the past two years, by the number of articles published in the journal in the same time frame (Garfield, 2006). Nonetheless, JIF has been criticized for its English-language bias and influence of self-citation (Ramin & Shirazi, 2012).

SJR indicator is based on an algorithm like Google's Page Rank. Citations are based on the Scopus database, spanning over a period of three years. SJR considers journal prestige and status, which gives more weight to citations for highly ranked journals(SCImago, 2017).

ES indicator provides added weight to citations from highly ranked journals, using an algorithm analogous to Google's Page Rank. Citations are based on the Web of Science database, covering a period of five years. Eigenfactor project's website allows access to ES values (Kim, 2016).

Google Scholar (2016) developed the H-5 index for ranking publications. A journal with an index of h has published at least h articles, each of which has been cited h times in other articles, for the period of the last five years.

2) Research objective

This research work addresses the quality metrics of selected United Arab Emirates Research Journals to establish their database coverage in Scopus and Web of Science and to compare, display discrepancies and draw suggestions interrelated to practical bibliometric factors such as JIF, ES, SJR and H5.

3) Materials and methods

Thirty-nine (39) United Arab Emirates Research Journals were reviewed in this study. Suitable information and data were collected from their original sites as presented within the 2015 journal ranking section of SCImago journal and country ranking website[3] provided by Scopus and Google Scholar Citations (GS) metrics and from Web of Science[4] (WoS) Core Collection official website and citations, ISI[5]- and Scopus-indexed journals. It need to be pointed out that the mere inclusion of scientific journals in the ISI does not necessarily lead to an increase in international visibility (Reza Davarpana & Behrouzfar, 2009), (Pouris, 2005), (Andrei, Teodorescu, & Mirică, 2016).

Correlations and links among indicators were assessed using Pearson's and Pearson's' correlation coefficients from the Statistical Package for the Social Sciences (SPSS) version 21.0, 2012 release.

4) Results and discussion

The chosen United Arab Emirates Research Journals covered areas of: agriculture, Alzheimer Research, Analytical Chemistry, Anti-Cancer Agents in Medicinal Chemistry, bioinformatics, cancer, computer-aided drug design, combinatorial chemistry, drug delivery, drug design & discovery, drug medicinal chemistry, drug metabolism, endocrine metabolic, food, gene therapy, genomics, high throughput screening, HIV research, immune disorders-drug targets, molecular medicine, medicinal chemistry, medicinal chemistry, medical imaging, nanoscience, nanotechnology, neuropharmacology, neurovascular research, organic synthesis, organic chemistry, pharmaceutical analysis, pharmaceutical biotechnology, pharmaceutical design, protein & peptide science, protein and peptide, proteomics, stem cell research & Therapy, and vascular pharmacology. Ranking of the United Arab Emirates Research Journals conformed to all four indices (IF, ES, SJR and H5). Pearson and Spearman of SPSS 21.0 expressed correlations among indices. In general, the thirty-nine (39) journals were arranged and indexed in both ISI and Scopus, with 2015 rankings as per SCImago, JIF, ES and H5.

Table (1) gives related information ISI- and Scopus-indexed chosen United Arab Emirates Research Journals. The table obviously shows that very few of the chosen United Arab Emirates Research Journals had the same ranking across the four (4) indices. As such, it is difficult to relate metrics across the all indicators.

Table (1): Comparative rankings of United Arab Emirates journals by 2015 JIF, ES, SJR and H5 Index

	Journal Impact Factor		Eigenfactor score		SCImagoJournal Rank		H5-Index	
Journal	JIF	JIF-Rank	ES	ES-Rank	SJR	SJR-Rank	H5	H5-Rank
Current Neuropharmacology	3.753	1	0.0034	17	1.373	6	31	23
Current Cancer Drug Targets	3.707	2	0.00525	12	1.537	3	32	28
Recent Patents on Anti-Cancer	3.533	3	0.00106	29	1.323	7	23	11

[3] Website: http://www.scimagojr.com/.

[4] Website: http://www.accesowok.fecyt.es/.

[5] Institute of Scientific Information.

Drug Discovery								
Current Medicinal Chemistry	3.455	4	0.02567	2	0.842	15	56	38
Current Alzheimer Research	3.145	5	0.00778	5	1.605	1	37	35
Current Pharmaceutical Design	3.052	6	0.03069	1	1.22	8	59	39
Current Drug Targets	3.029	7	0.0102	4	1.211	9	42	36
Current Molecular Medicine	2.912	8	0.00745	6	1.574	2	38	34
Current Topics in Medicinal Chemistry	2.9	9	0.01162	3	0.763	18	42	37
Current Drug Metabolism	2.847	10	0.00558	11	0.976	12	39	29
Mini-Reviews in Medicinal Chemistry	2.841	11	0.00571	10	0.451	24	34	30
Current Gene Therapy	2.738	12	0.00265	19	1.095	10	30	21
Anti-Cancer Agents in Medicinal Chemistry	2.722	13	0.00596	9	0.975	13	34	31
Current Stem Cell Research & Therapy	2.645	14	0.00208	20	0.869	14	26	20
Current Protein & Peptide Science	2.441	15	0.00431	13	1.43	4	27	27
Current Genomics	2.43	16	0.00426	14	1.387	5	32	26
Current Vascular Pharmacology	2.374	17	0.00369	16	0.839	16	30	24
Current Neurovascular Research	2.123	18	0.00142	26	0.695	20	24	14
Current Organic Synthesis	2.05	19	0.0016	25	0.445	25	19	15
Endocrine Metabolic & Immune Disorders-Drug Targets	1.987	20	0.00115	28	0.717	19	21	12
Current Organic Chemistry	1.949	21	0.0074	7	0.486	22	31	33
Current Pharmaceutical Biotechnology	1.802	22	0.00736	8	0.769	17	42	32
Recent Patents on Nanotechnology	1.576	23	0.00039	37	0.425	27	19	3
Current HIV Research	1.562	24	0.00303	18	0.979	11	23	22
Medicinal Chemistry	1.458	25	0.00205	21	0.318	31	18	19
Current Drug Delivery	1.446	26	0.00188	22	0.506	21	23	18
Mini-Reviews in Organic Chemistry	1.394	27	0.00058	36	0.297	34	13	4
Current Analytical Chemistry	1.238	28	0.00093	32	0.429	26	13	8
Current Computer-Aided Drug Design	1.155	29	0.00064	35	0.309	33	13	5
Protein and Peptide Letters	1.069	30	0.00376	15	0.472	23	22	25
Combinatorial Chemistry & High Throughput Screening	1.041	31	0.00186	23	0.357	29	22	17
Letters in Drug Design & Discovery	0.974	32	0.0012	27	0.338	30	14	13
Current Nanoscience	0.934	33	0.00172	24	0.283	35	20	16
Current Pharmaceutical Analysis	0.885	34	0.00032	38	0.225	38	9	2
Current Bioinformatics	0.77	35	0.00082	34	0.31	32	19	6
Letters in Organic Chemistry	0.756	36	0.00102	30	0.254	36	12	10
Emirates Journal of Food and Agriculture	0.623	37	0.00099	31	0.401	28	19	9
Current Medical Imaging Reviews	0.613	38	0.00083	33	0.242	37	13	7
Current Proteomics	0.59	39	0.00028	39	0.207	39	9	1

In terms of JIF, the most cited top three of United Arab Emirates Research Journals were (JIF score in parenthesis): Current Neuropharmacology (3.753), Current Cancer Drug Targets Journal (3.707) and

Recent Patents on Anti-Cancer Drug Discovery (3.533). These journals were closely followed by Current Medicinal Chemistry (3.455). In contrast, the lowest citations were scored by Current Proteomics (0.59).

In terms of Eigenfactor Score, the three journals that classed top were (ES score in parenthesis): Current Pharmaceutical Design (0.03069), Current Medicinal Chemistry (0.02567) and Current Topics in Medicinal Chemistry (0.01162). Current Proteomics also scored the lowest ES score (0.00052) for this research work journals.

Ranking of top three journals as assessed by SJR (SJR score in parenthesis) are: Current Alzheimer Research (1.605), Current Molecular Medicine (1.574) and Current Cancer Drug Targets (1.537). Current Proteomics tailed the record of evaluated journals with an SJR scores of 0.207.

H-5 Index incidentally coincided with JIF for ranking its top three journals particularly (H-5 index in parenthesis): Current Pharmaceutical Design (59), Current Medicinal Chemistry (56) with third placed shared by Current Drug Targets and Current Topics in Medicinal Chemistry (42). These were followed closely by Current Alzheimer Research (37). The trail of journals followed yet a closer score as is shared by Current Pharmaceutical Analysis and Current Proteomics tailed (9).

Table (2) depicts a bivariate correlation between the four indicators (JIF, ES, SJR and H5) for ranking of the selected United Arab Emirates Research Journals. As revealed in the table, there is a high Pearson's (r) statistical correlation between JIF and SJR indicators (r = 0.841) and a rather low statistical correlation between JIF and H5 indicators for journals in the selected category (r = 0.761). This correlation is lowest between JIF and ES values (r = 0.527).

Spearman's rho statistical correlation indicated a high correlation among JIF and SJR indicator for United Arab Emirates Research Journals (coefficient values of 0.871), while a lower correlation was recorded between JIF and each of ES and H5 rankings (coefficient value = 0.728 for each indicator).

Table (2): Bivariate correlation between three indicators for ranking of United Arab Emirates journals

Correlation statistic	Coefficient value	Sig.
Pearson's r between JIF and ES values	0.527	.000
Pearson's r between JIF and SJR values	0.841	.000
Pearson's r between JIF and H5 values	0.761	.000
Spearman's rho between JIF and ES rankings	0.728	.000
Spearman's rho between JIF and SJR rankings	0.871	.000
Spearman's rho between JIF and H5 rankings	0.728	.000

Figure (1) represents a bump chart for the top ten (10) JIF-ranked United Arab Emirates Research Journals in comparison with their respective ES ranking. Figure (1)) clearly shows the changing array of ranking of both indicators for the selected journals. Recent Patents on Anti-Cancer Drug Discovery, Current Cancer Drug Targets and Current Neuropharmacology journals were pulled from their leading status.
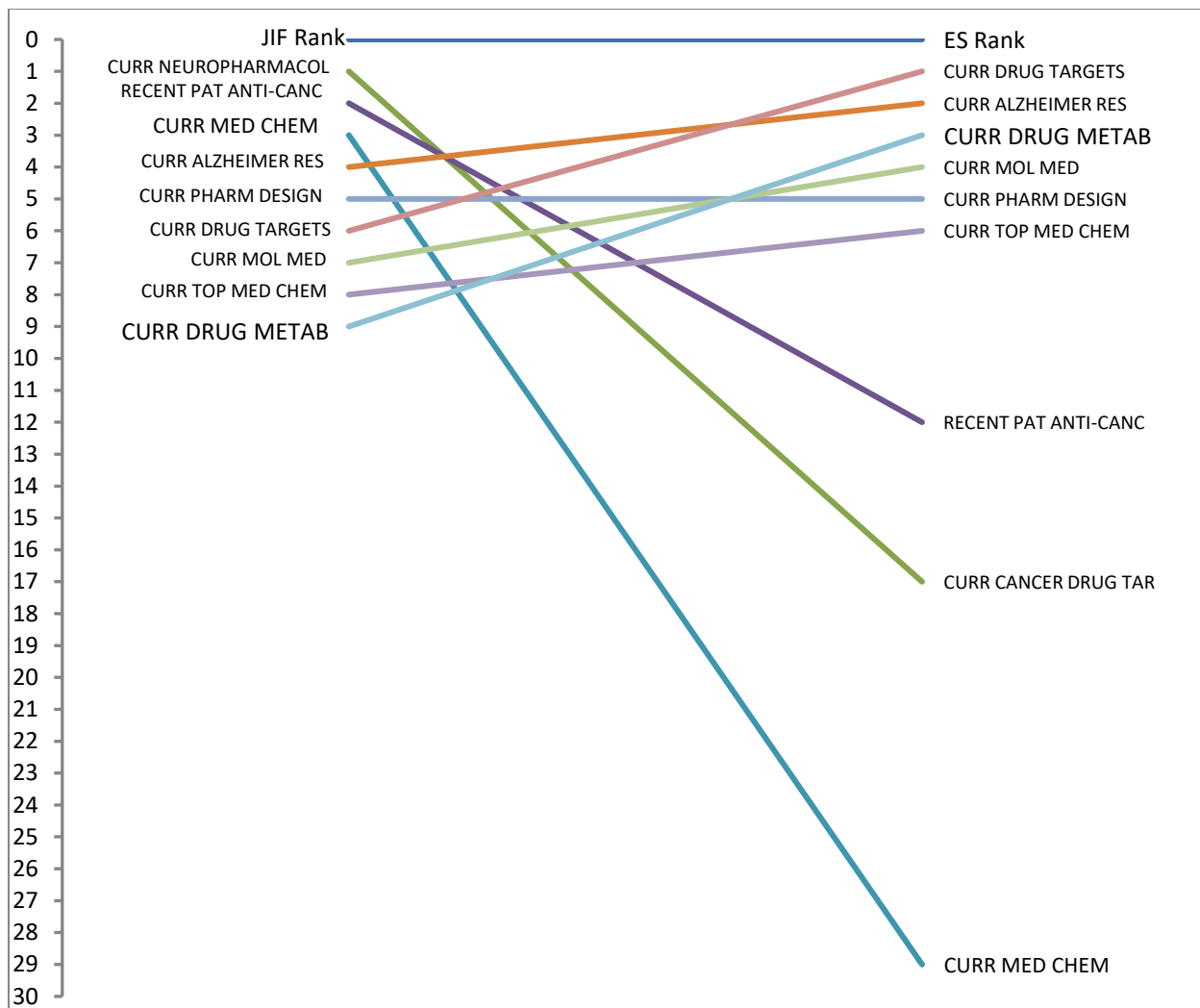
Figure (1): Top 10 JIF ranked United Arab Emirates journals in comparison with ES ranking

Figure (2) represents a bump chart for the top ten (10) JIF-ranked United Arab Emirates Research Journals in comparison with their respective SJR ranking. Figure (2) evidently describes the varying assortment of ranking of both indicators for the designated journals. Current Medicinal Chemistry and Current Topics in Medicinal Chemistry Current Drug Metabolism journals were pushed further down the scale.
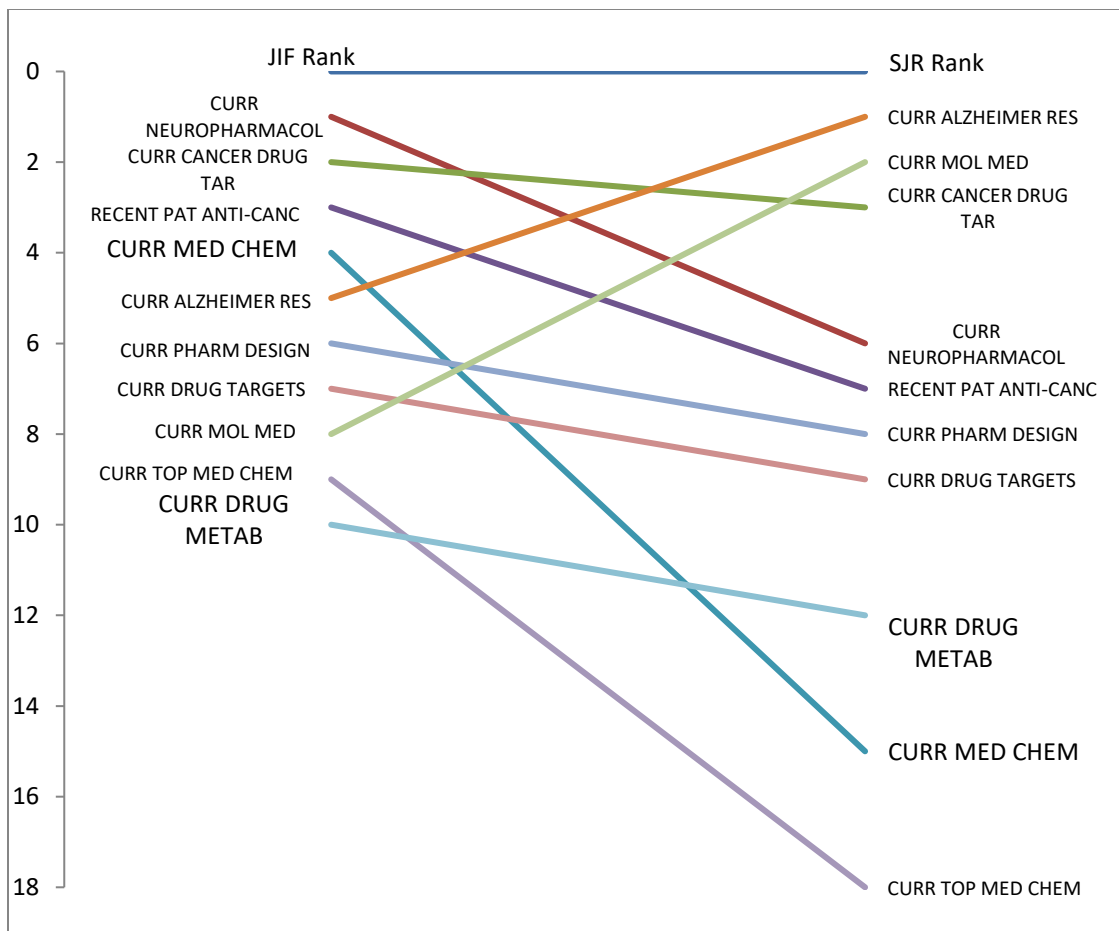
Figure (2): Bump chart for top 10 JIF ranked United Arab Emirates Journals in comparison with SJR ranking.

Figure (3) shows a bump chart for the top ten (10) JIF-ranked United Arab Emirates Research Journals in comparison with their respective H5 ranking. Fig. (2) plainly defines the wavering assortment of ranking of both indicators for the selected journals. Current Neuropharmacology, Current Cancer Drug Targets and Recent Patents on Anti-Cancer Drug Discovery journals showed a retarding grade within this quality index.
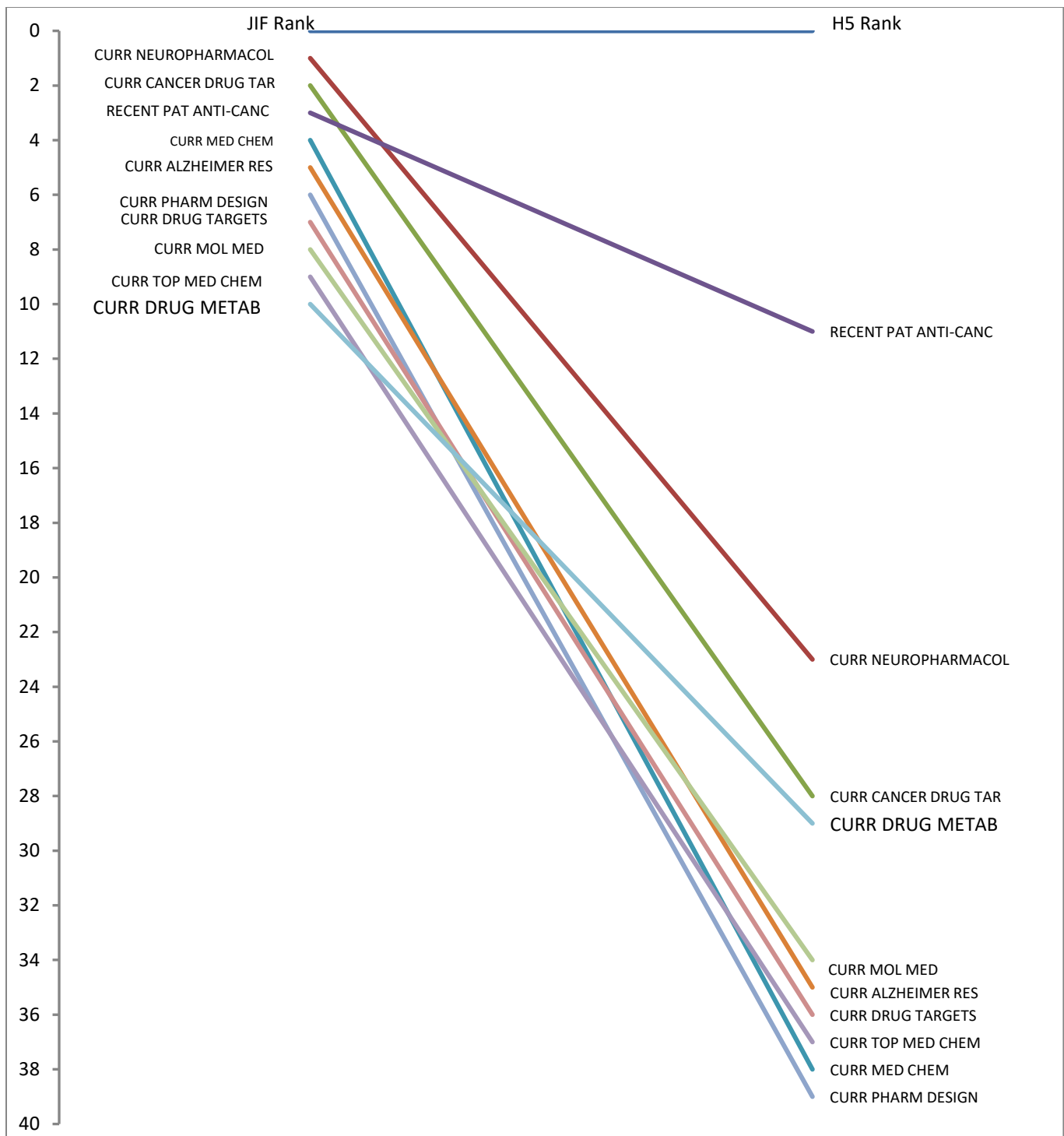
Figure (3): Top 10 JIF ranked United Arab Emirates journals in comparison with H5 ranking

Figure (4) illustrates six-scatter plots presentation the correlation between JIF, ES, SJR and H5 (values and rankings) as well as their fit lines for the ten (10) United Arab Emirates Research Journals incorporated in this study. Figures (4-a) and (4-b) displays a linear correlation between the values and ranks of JIF and ES indicators. Figures (4-c) and (4-d) shows a stronger relationship between the values and ranks of JIF and SJR indices. Figures (4-e) and (4-f) exhibits the same correlation between the values and ranks of JIF and

H5. A linear correlation between the different values of indices (ES versus JIF, and SJR versus JIF) is visibly exposed in the figures. Similarly, linearity of relationship is apparent between ranks of ES versus JIF, SJR versus JIF and H5 versus JIF.
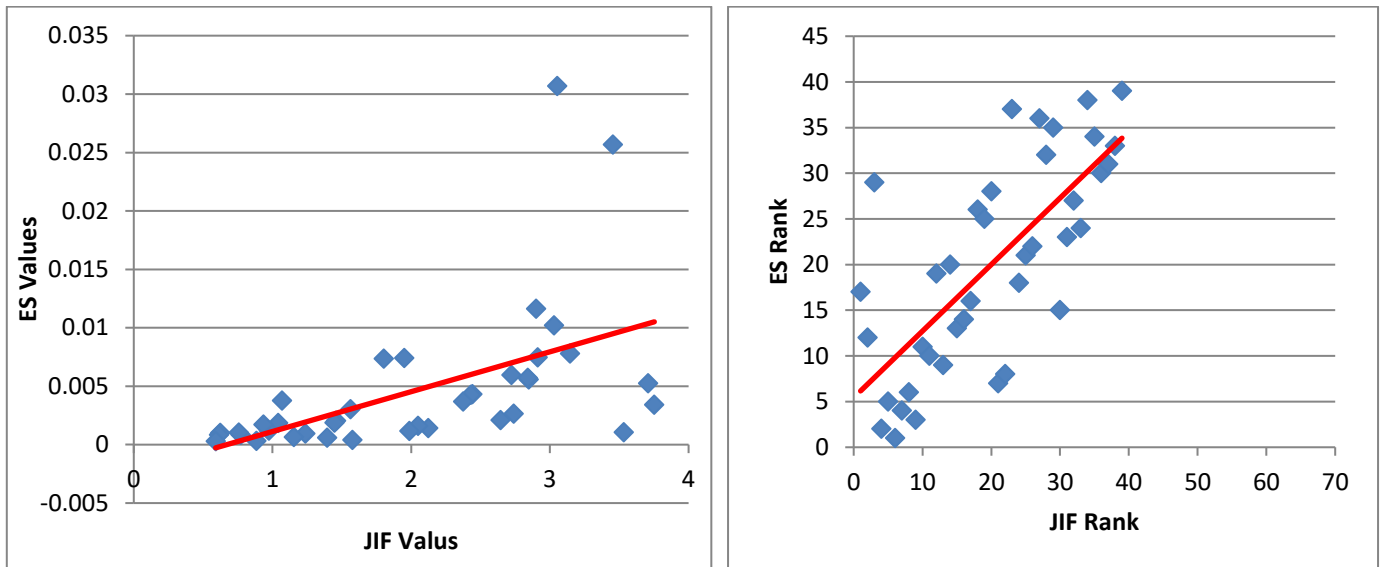
 (4-a) and (4-b) correlation between values and ranks of JIF and ES indicators.
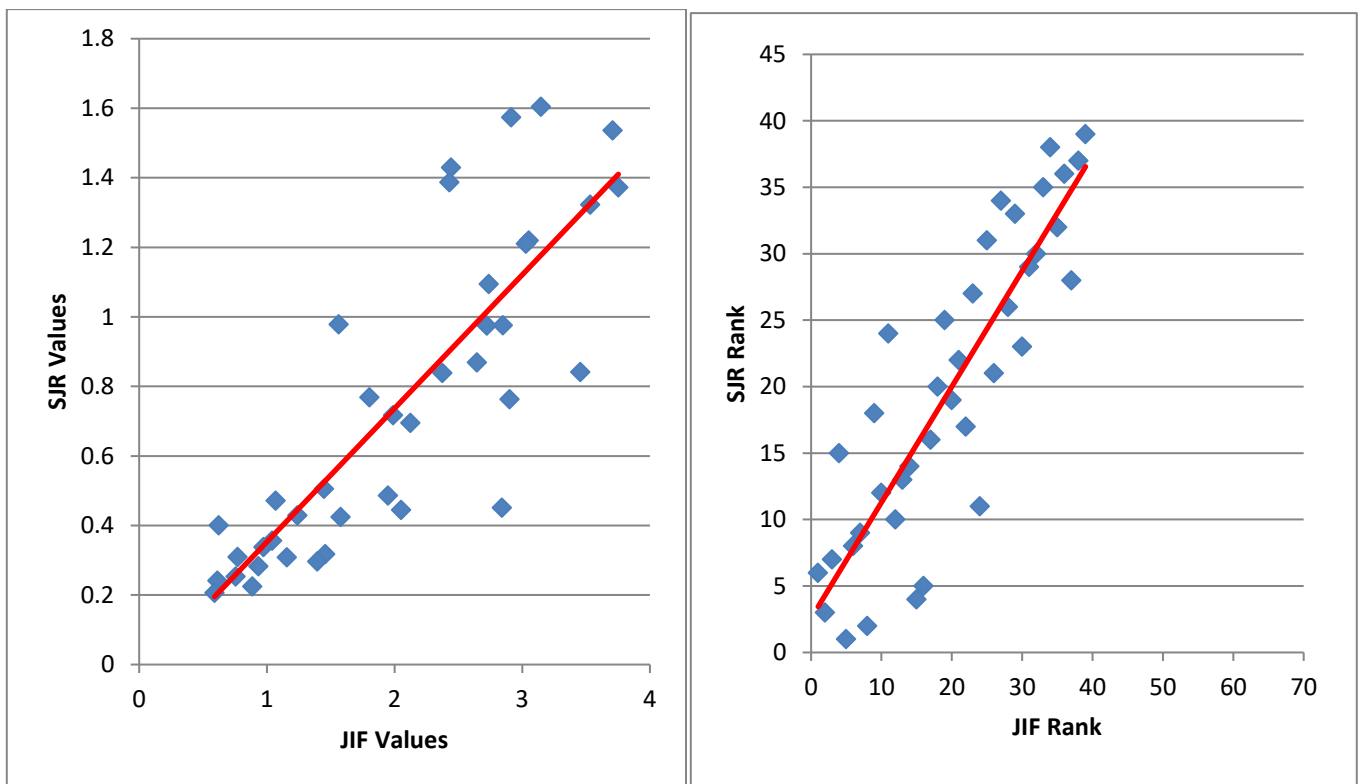
(4-c) and (4-d) correlation between values and ranks of JIF and SJR indicators.
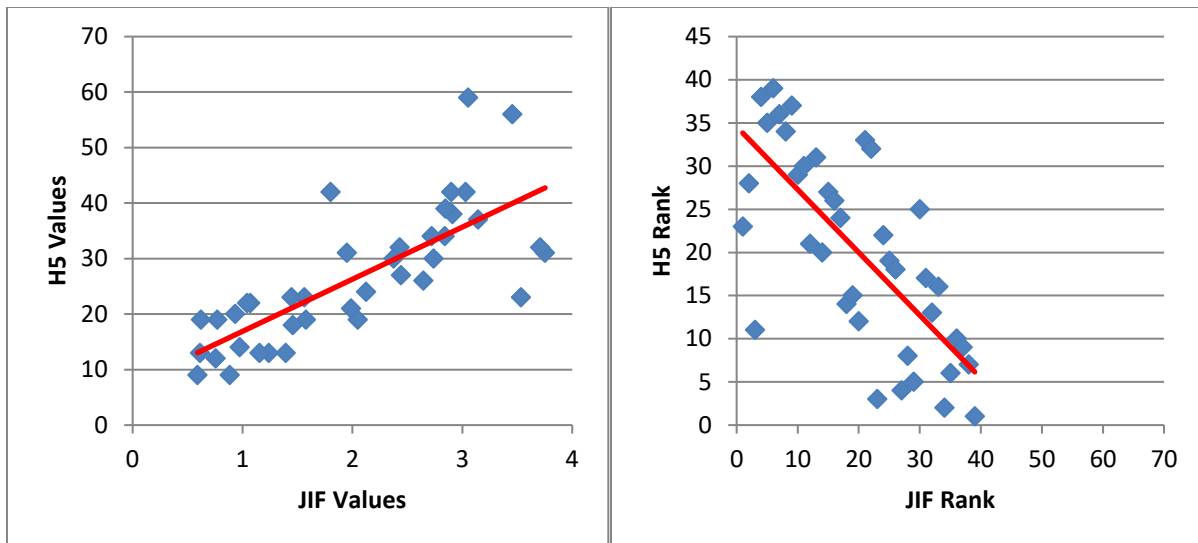
(4-e) and (4-f) correlation between values and ranks of JIF and H5 indicators.

Figure (4): Scatter plots showing correlation between JIF, ES and SJR (values and rankings) as well as their fit lines for 39 United Arab Emirates journals.

Accumulated research statistical data disclosed that sole use of the SJR index does not actually regulate the quality categorization of United Arab Emirates Research Journals as compared to the JIF or its technique of calculation. Since SCImago Journal and Country Rank is a free access source, this suggests that it may be involved as an alternative, or in addition, to the JIF for United Arab Emirates Research Journals. Likewise, the H5 metric would be a dependable instrument for quality appraisal of United Arab Emirates Research Journals.

The four suggested indicators (JIF, ES, SJR and H5) ought to be engaged in an integrated mode to propose a more holistic and comprehensive interpretation of journal quality valuation.

5) Conclusions

In this research work four bibliometric research quality indices (JIF, SJR, ES and H5) were inspected and scrutinized for reputable United Arab Emirates Research Journals. The following conclusions emerged:

- ✓ Journal Impact Factor (JIF) is the major indicator used by researcher and academicians for ranking United Arab Emirates Research Journals, periodicals, bulletins and research publications.
- ✓ Four journal quality indicators (JIF, SJR, ES and H5) are recommended for an integrated quality assessment for United Arab Emirates Research Journals.
- ✓ Bivariate correlation between the four indicators (JIF, ES, SJR and H5) for ranking of the selected United Arab Emirates Research Journals revealed a high Pearson's (r) statistical correlation between JIF and SJR indicators and a rather low statistical correlation between JIF and H5 indicators for journals in the selected category. This correlation is lowest between JIF and ES values.
- ✓ Spearman's rho statistical correlation figured a high correlation among JIF and SJR indicators for United Arab Emirates Research Journals, while a rather low correlation was recorded between JIF and both of ES and H5 rankings.

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