Citation and self-citation in medical research in Iran

During the past two decades, Iran has witnessed a positive trend in output of medical research. The impact of such productivity has been reflected on the rate of citations of researchers from other countries. However, citations are used as indicators to evaluate scientific impact or influence, self-citations are often considered problematic. Although authors may have good reasons to cite their own works, these citations do not necessarily reflect the importance of their work or its impact on the rest of the scientific community.

Author self-citation has been translated as a means for an author or group of authors to expand their earlier hypotheses or methods. Therefore, author self-citation may be an inevitable consequence of developing research by authors in a specific field. However, self-citations, when pervading, may falsely inflate an author’s importance to the general scientific community.

With regard to Iran, the rate of self-citation varies between 22% and 39% in a different field and accounted for an average of 33% (95% confidence interval). The rates of self-citations in many different medical subspecialty either basic or clinical sciences based on extracted data from Scopus database between 1996 and 2012 pursue the general pattern [Table 1].

Observation of constant increase of self-citation rate by Iranian scholars in all fields shows that self-citation plays an important role in scientific communication even in the field of medicine. Base on Ghane’s study the rate of journal self-citation among Iranian medical journals is about 61.5% and with reared to the Iranian author self-citation rate, the study of Ghazimirsaeid et al. over 12 most prolific authors confirmed the average of 25.89% author self-citations.

It has previously been reported that 20% of self-citation may be considered as a normal rate, but the higher number of self-citations of the Iranian researchers may be taken as a rhetorical and tactical tool in the struggle for visibility and scientific authority.

Base of the citation analysis literature, it appears that self-citation phenomenon would be a problematic issue in the assessment of scientific communication of Iranian scholars from bibliometric approach. As a result, to have an unbiased impact of Iranian scientists, we suggest the application of Landoni et al. model at every bibliometric analysis of Iranian medical literature who did not take into account self-citation exceeding 20% of the total and called it “new impact factor (IF) 20%.” Landoni model pursues the following formula:

IF Formula according to the Landoni model

$$\text{IF}_{20\%} = \frac{\text{number of non self–citations} + (0.2 \times \text{total number of citations})}{\text{number of papers}}$$

Surprisingly the “new IF 20%” had only a minimal effect on the rankings of the journals. Correcting IF would limit the extensive use of self-citation by authors and contribute to the publication of more broadly and scientifically based references.

Table 1: The number of documents, citations and self-citation in different fields of medical sciences between 1996 and 2012*

<table>
<thead>
<tr>
<th>Discipline</th>
<th>Documents</th>
<th>No. of citations</th>
<th>No. of self-citations</th>
<th>Percentage of self-citations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biochemistry, genetics and molecular biology</td>
<td>16100</td>
<td>105767</td>
<td>41144</td>
<td>39</td>
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<tr>
<td>Immunology and allergy</td>
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<td>25594</td>
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<td>Neuroscience</td>
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<td>Dentistry</td>
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<tr>
<td>Pharmacology, toxicology and pharmacuetics</td>
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<tr>
<td>Medicine</td>
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REFERENCES