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Original Article

A Survey of Iranian Retracted Publications Indexed in PubMed

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Abstract

Background: Retraction is a mechanism for correcting the literature and a warning for readers in relation to publications that contain serious flaws or erroneous data. As a result of growth and development of Iranian publications in the last two decades, that brings unethical behavior of researchers led to retraction of their publications. We aimed to investigate Iranian retracted publications indexed in PubMed database.

Methods: All Iranian retracted publications published in PubMed up to Dec 2017 have been retrieved. Bibliographic information of retracted publications, retraction notice, time lag between article publication date and the date of retraction notice, reasons of retraction, Issuer of retraction and acknowledge information of retracted publication were recorded. Additionally, citation data of retracted publications before 2013 were analyzed.

Results: Overall, 164 Iranian retracted publications were identified. Meantime lag was 20.8 months. "Islamic Azad University" and "Tehran University of Medical Sciences (TUMS)" were two affiliations that have received highest number of retracted publications. The most issuer of retraction publications was editor-in-chief and the most mentioned reasons for retractions were authorship issues, plagiarism, and redundant publication. Thirty-three (20.12%) publications have received funds from various agencies. Citation study of retracted publications indicates that these publications have received 789 citations (Citation per publication=11.6).

Conclusion: Although Iranian retracted publications represent small portion of all Iranian publications, but the number of retracted publications has increased. More than half of retracted publications have had authorship issues and plagiarism that requires more attention to research ethics authorities.

Keywords: Retracted publication; Ethics, Research; Bioethics; Scientific misconduct; Plagiarism; Iran

Introduction

When it is determined that published studies have serious flaws, these studies should be retracted to prevent misleading future readers (1). Retraction is a mechanism for correcting the literature and a warning for readers in relation to publications that contain such serious flaws or erroneous data. Unreliable data can be the result of honest error or research misconduct (2).

Until the 1990s, the concept of retraction of publications received little attention, but after a review on retracted publications and retraction notices in the Medline database, more attention has been given to this subject (3).

There are several reasons for retracting publications, the most important of which is research misconduct, faked data, falsification, ethical misconduct, plagiarism, fraud, multiple submissions and duplicate publications, copyright violations, and ethical norms of research (4–7).

The number of retracted publications has been increasing, with the number of retracted publications in journals indexed on the Science Citation

Index Expanded has increased by 20 times between 1990 and 2008, as well as in the Medline database, the number of retracted publications has increased tenfold between 1999 -2009 (5).

The main concern over the growing number of retracted publications is the consequence of this issue. Researchers whose studies have been retracted may have serious consequences. These researchers decrease scientific production by a median of 91.8% and had a large decline in receiving fund (8).

Unreliable information in medical literature can potentially put patients in danger (9). Since the field of medical sciences deals with human health, this issue may have significant dimensions and consequences. Thousands of patients in serious cases may be at risk when prescriptive behavior and patient management are based on unreliable studies (10).

Retracted publications are evidence of project failure in an enterprise irrespective of the cause, so the number and frequency of retracted publications are important indicators of the health of scientific enterprise. Hence, the study of retracted publications can provide valuable information about the status of adherence to ethical principles in scientific enterprise (11).

A considerable amount of literature has been published on retracted articles, some of these studies focus on specific subject areas, including dentistry (12), cancer (7), pharmacology (10), radiology (13), mental disorders (14) some of these studies focus on broad research area of biomedical and life sciences topics (1,9,11,15–19) as well as a comprehensive study has been conducted on retracted publications and authors for gathering retracted publication 42 data sources were consulted (20).

To the best of our knowledge, three studies have been done on the retracted publications of Iran. Two studies have been published on retracted publications of Iran on Web of Science database (21,22) and one study surveyed the retracted publications of Iran on PubMed database (23). The most important aspects of this study, compared to the three studies that studied the retracted publications of Iran, are the calculation of the time interval between the article publication date and the date of retraction notice, review of the citation status of the articles before and after retraction notice, as well as the status of receiving fund.

Methods

This study was performed using PubMed database on Jul 10, 2018. Covering all Iranian retracted publications published in PubMed up to Dec 2017 have been retrieved using the following search strategy: Retracted Publication[sb] AND Iran[ad]

Bibliographic information of retracted publications and their retraction notice were imported into an excel spreadsheet. For each retracted article we recorded the time passed between article publication date and the date of retraction notice, the reasons for retraction (Table 1), who issued the retraction, authors affiliations and examine whether the retracted publications received funding from any agency. Moreover, additional information related to the journals such as journal Impact Factor (IF) and their publisher are also recorded. Retracted publications should not be used or cited (24). With this fact, we examined citation count of retracted publications. Publications before 2013 were included in this part of study. The reason for the delay is to allow publications to receive enough citations. Scopus database was used to record citation data for each publication. To analyze citation data, we used the approach mentioned in Budd et al. (15). Citation count dating before and one year after the appearance of retraction notice were recorded. For example, in cases where the notice of retraction was issued in 2005, the citation study dates from articles published in the year 2006 or after. Besides, each retraction notice was checked in Scopus whether they received any citation.

Table 1: Reasons for papers retraction mentioned (12)

Reason	*Definition*
Redundant publication	Publication of the same data or article in more than one journal without appropriate justification, permission or cross-referencing
Overlap	Some new findings are presented in an article that also contains a substantial amount of previously published information
Misconduct	Evidence of unreliable results caused, for example, by data fabrication
Honest error	Evidence of unreliable results, caused, for example, by a miscalculation or by an experimental error
Plagiarism	Content of another author (data, words or theories) is presented by another author without referencing as it was his own
Authorship issues	Authorship dispute over an article or attempt to fake peer review
No reason reported	No clear information of the reasons for the retraction was mentioned

Results

After searching PubMed database, 164 Iranian retracted publications were identified.

Figure 1 shows the distribution of Iranian retracted publications by year. The first Iranian retracted publication has been published in 2001 and the most number of retracted publications were published in 2015 and 2014.

Studying time interval between publication date and retraction notice date revealed that the minimum time lag was zero month (the article has been retracted right at the issue that has been published(25)) and maximum time lag was 8.4 years (mean = 20.8 months).

From 164 retracted publications, 161 publications were indexed in Scopus and 142 in Web of Science. Regarding access status, 83 of them were published as Open Access. Overall, 88 journals have published Iranian publications. Top 10 journals are presented in Table 2.

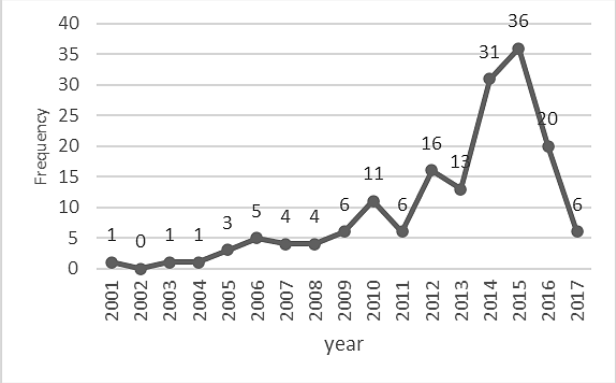

Fig. 1: No. of Iranian retracted publications in PubMed by year (total=164)

Table 2: Top 10 journals with most Iranian retracted publications

Journal title	*No. of Retracted Publication*	*Publisher*	*Impact Factor (IF)*
Diagnostic Pathology	22	BioMed Central	2.087
Tumour Biology	15	Springer Verlag	3.65
Iranian Red Crescent Medical Journal	10	Kowsar	0.865
Reproduction in domestic animals (Zuchthygiene)	5	Blackwell Publishing Inc.	1.422
Archives of Iranian Medicine	4	Academy of Medical Sciences of I.R. Iran	1.2
International Journal of Preventive Medicine	4	Isfahan University of Medical Sciences(IUMS)	-
Iranian Journal of Allergy, Asthma, and Immunology	4	Iranian Society of Asthma and Allergy	0.812
Perfusion	4	SAGE Publications	1.134
BJU international	3	Wiley-Blackwell Publishing Ltd.	4.338
Journal of animal physiology and animal nutrition	3	Blackwell Publishing Inc.	1.607
Toxicology and industrial health	3	SAGE Publications	1.255

The two affiliations of "Islamic Azad University" and "Tehran University of Medical Sciences (TUMS)" have received highest number of retracted publications (31 and 25 respectively). Figure 2 presented top 20 Iranian affiliations regarding the number of retracted publications. In 13 publications, Iranian authors had international collaborations with nine countries (i.e. Malaysia, India, Germany, Turkey, the United State, Spain, Singapore, Canada, and Czech Republic).

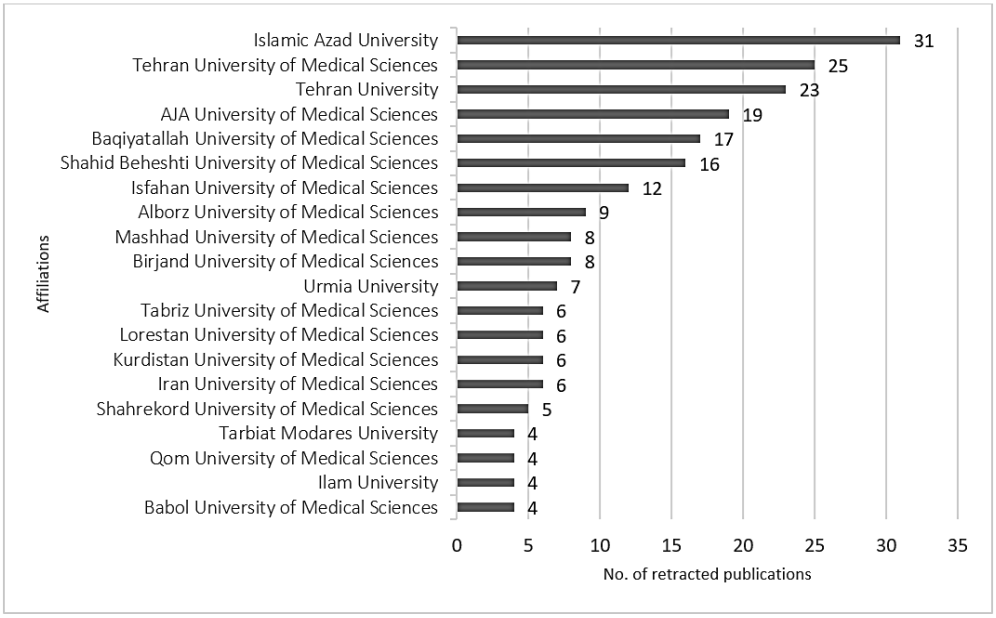

Fig. 2: Top 20 Iranian affiliations with the most retracted publications in PubMed

Most of publications have been issued by editor in chief with 129 and publisher 82. Other issuers respectively were authors with 21, associations 18 and 6 by third parties. The results indicate that most of the frequency of retraction reasons were authorship issues, plagiarism, and redundant publication. These frequencies presented in Table 3 add up to over 164 because some notices gave more than one justification for the retraction of one publication.

Table 3: Reasons for retractions of Iranian publications

Reasons for retraction	***Frequency***
Authorship issues	78
Plagiarism	66
Redundant publication	22
No reason reported	17
Overlap	14
Misconduct	9
Honest error	5

In the retracted publication acknowledgements section, most of the publications have acknowledged individuals and academic institutions. It is interesting to note that only 33 (20.12%) publications have received funds from various agencies (Table 4).

Table 4: List of items mentioned in acknowledgements section

Acknowledgements	*Frequency*
Individual	46
Academic Institutions	46
Fund	33
Staff	22
Participant	7
Non-Academic Institutions	6
Unstated	61

Citation study of retracted publications indicate that from 71 retracted publications between 2001 and 2013, 68 publications were indexed in Scopus. These publications have received 789 citations (Citation per publication=11.6). As explained earlier in this paper, 259 citations were identified after retraction notice. Reports show only six retraction notices received 14 citations, which means only 14 citations acknowledged that these publications were retracted.

Discussion

The first Iranian retracted publication was published in 2001 and then the number of retracted publications increased until 2015. In other previous studies (16,17,20), also were observed the increase in incidence of retraction. It is because of greater attention to the veracity of published research and the growing use of software to detect plagiarism (26) and overall increasing in the quantity of Iranian publications during previous decade (27). Although Iranian retracted publication has been raised, it is still tiny fraction of all Iranian publications, about 0.1% (23).

The mean time lag between the publication of the original Iranian publications and the retraction notice was 20.8 months. Another study observed a mean time of 3 years in PubMed notices of retraction (4).

Although Iranian retracted publications were mostly issued by journal editor in chief and publisher, in other studies most publications were issued by authors (28,29).

The present study showed that the reason for retraction of largest proportion of Iranian publications were authorship issues followed by plagiarism, redundant publication, overlap, misconduct and honest error. On the other hand, another study identified 74 retractions in dentistry publications indexed in MEDLINE showed that articles were retracted due to redundant publication (20.8%), plagiarism (18.1%) and misconduct (13.8%) (12). Similar findings were also obtained in a previous study (20) who observed that questionable data or interpretations and plagiarism were the most cited reasons for retractions. The most cited reasons for retractions were mistakes(honest errors), plagiarism and duplicate submission (17). Several attempts to positively influence the outcome of peer review process have occurred in several journals by authors or third-party agencies suggesting fabricated reviewers. This maybe the reason why authorship issues (including fraudulent peer review) is the reason for the largest proportion of Iranian retracted publications.

Only 20.12% of retracted publications mentioned that they received funds from various agencies. About half of retracted publications in the drug literature were funded by various sources (10).

Retracted publications continue to be cited as valid studies after retraction notices had been issued and only 14 citations acknowledged that these publications were retracted. This kind of pattern has been observed in previous works (3,17,30) in the same manner.

Conclusion

Although Iranian retracted publications represent small fraction of all Iranian publications, even one retracted publication is a lot! Because persons, organizations and countries are judged as

an unethical behavior with retraction, so we suggest the followings:

- Authors become more aware about consequences of scientific publication misbehaviors;
- Journals editor-in-chief should follow instructions mentioned in COPE guidelines;
- New technologies for plagiarism detection services should be used such as iThenticate, Unicheck (https://unicheck.com/), quetext (https://www.quetext.com/) , etc.

Implementing this kind of strategy will increase monitoring of pre-publishing processes and subsequently reduce scientific publication misbehaviors.

Ethical considerations

Ethical issues (Including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc.) have been completely observed by the authors.

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Conflict of interest

The authors declare that there is no conflict of interest.

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