# How the retracted publications are managed and used? A South Korean case

Park, J.; Lee, J.Y.; Kwon, O.J.


**STI 2018 Conference Proceedings**

*Proceedings of the 23rd International Conference on Science and Technology Indicators*

All papers published in this conference proceedings have been peer reviewed through a peer review process administered by the proceedings Editors. Reviews were conducted by expert referees to the professional and scientific standards expected of a conference proceedings.

**Chair of the Conference**

Paul Wouters

**Scientific Editors**

Rodrigo Costas
Thomas Franssen
Alfredo Yegros-Yegros

**Layout**

Andrea Reyes Elizondo
Suze van der Luijt-Jansen

The articles of this collection can be accessed at https://hdl.handle.net/1887/64521

ISBN: 978-90-9031204-0

23rd International Conference on Science and Technology Indicators (STI 2018)
"Science, Technology and Innovation indicators in transition"
12 - 14 September 2018 | Leiden, The Netherlands
#STI18LDN

# How the retracted publications are managed and used? A South Korean case

Jinseo Park[*], June Young Lee [**] and Oh-Jin Kwon[**]

[*] *jayoujin@hanmail.net*
Future Technology Analysis Center, Korea Institute of Science and Technology Information, 66 Hoegiro, Dongdaemun-gu, Seoul, 02456 (Korea)

[**] *road2you@kisti.re.kr; dbajin@kisti.re.kr*
Future Technology Analysis Center, Korea Institute of Science and Technology Information, 66 Hoegiro, Dongdaemun-gu, Seoul, 02456 (Korea)

## Introduction

Many studies have reported a steadily increasing number of retracted publications with misconduct (Ribeiro & Vasconcelos, 2018; Grieneisen & Zhang, 2012; Fang et al., 2012). However, there are very few systematic reviews of how the retracted publications are managed in the bibliographic database and are cited after the retraction. In this study, we deal with the following research topics.

First, what are the characteristics of retracted publication in Korea? Are the retracted publications constantly increasing? In what research areas and for what reasons were withdrawn? Are a few authors leading the retraction as the "repeat offenders" (Grieneisen & Zhang, 2012)?

Secondly, is there a notice of retraction from a bibliographic database? In WoS (Web of Science), the retracted publications are classified as "retracted publication" in document type (DT) or the title of article is marked with "Retracted article". In KCI (Korea Citation Index), the retracted publication has a title beginning with "research misconduct article". Unless the original article in the bibliographic database is clearly known to be a retracted, researchers may not know that the paper has been withdrawn and the retracted publications can be cited like any other articles (Teixeira da Silva & Bornemann-Cimenti, 2017; Fang et al., 2012).

Third, one of ways of disseminating retracted publication after withdrawal is that retracted publication is cited by another researcher or by oneself. Teixeira da Silva & Dobránszki(2017) regarded this citation of retracted publication as "an academic *faux pas*" despite the variety of motives and reasons for citation.

## Data and Methods

We used Retraction Watch Database (retractiondatabase.org) instead of WoS to analyze the retracted publications of Korean authors. The reason is that the number of retracted articles of Korean authors was only 211 in WoS, but 438 in Retraction Watch Database (accessed March 18, 2018). The difference originates from their coverage, i.e. the Retraction Watch Database

collects not only the retracted publications of journals but also the retracted publications of the conference proceedings.

We collected 438 retracted publications from Retraction Watch Database. We removed duplicated data and searched WoS and KCI for verifying whether each retracted publication is listed and marked as the information of a 'retracted' in those databases. We built a single database for analysis (N=432) by combining the retrieved information from two databases and Retraction Watch Database.

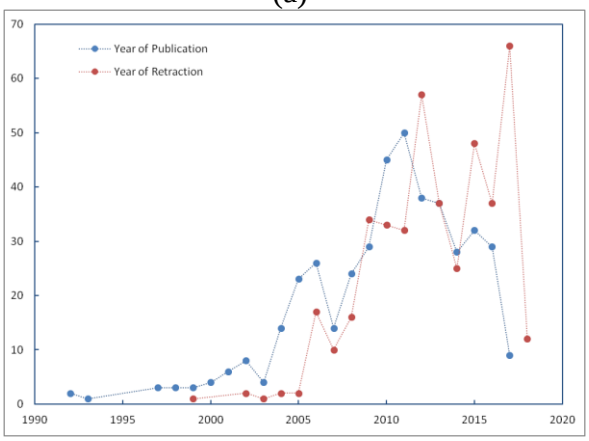
## Results

*The characteristics of retracted publications in Korea*

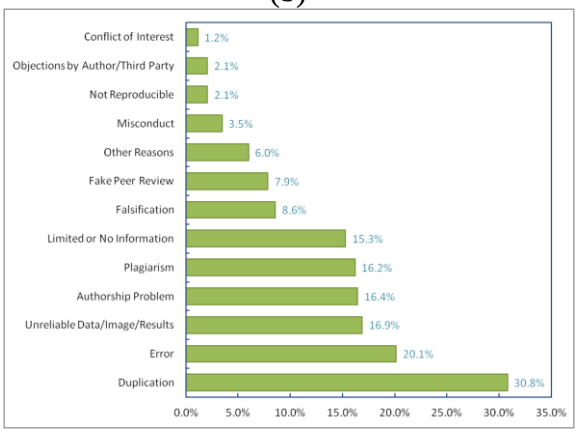
To date, the number of retracted publications has increased to the peak of 50 publications in 2011 (figure 1a), and the main reasons of retractions were Duplication 30.8%, Error 20.1% and Unreliable Data/Image/Results 16.9% (figure 1b). Most of the retracted publications were found in medicine and biology (figure 1c). In figure 1c, there may be more than one reason of retraction in a retracted paper, and so we have counted in duplicate.

Figure 1: (a) Number of retracted publications by year, (b) Reason of retraction, and (c) Number of retracted publications by field based on Scimago journal categories

(a)




(b)




(c)

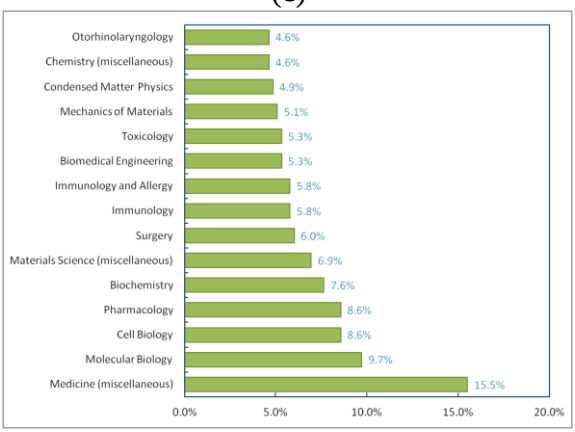
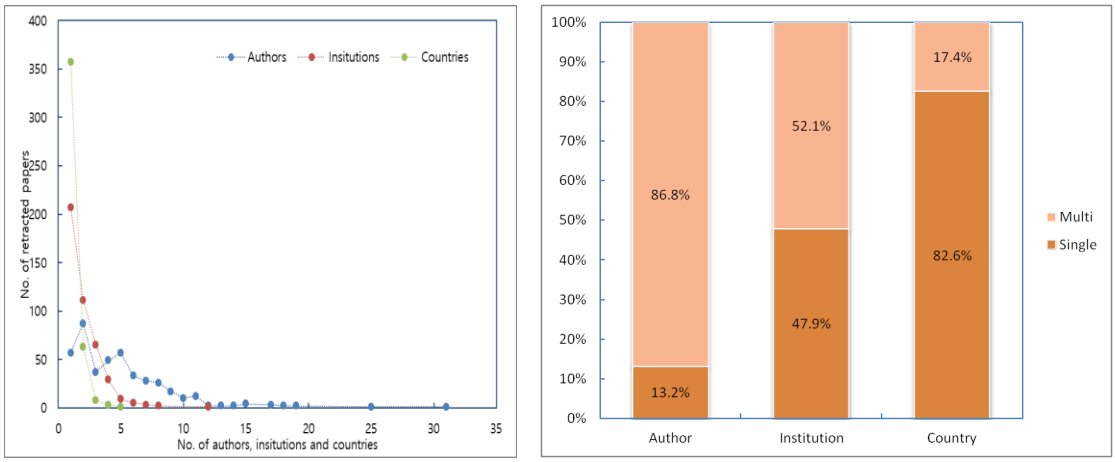


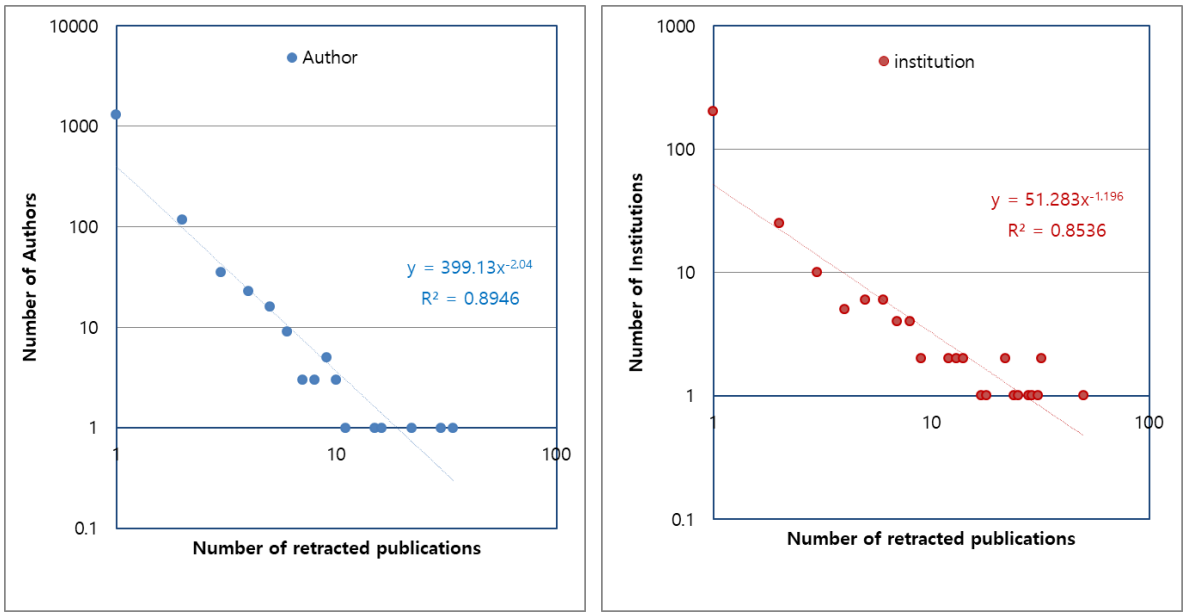
Figure 2a shows the relations between the number of authors, institutions and countries per article, and the number of the retracted publications and figure 2b indicates the percent of the single or multi-authorships at individual, institutional and country level.

Figure 2: (a) Number of authors/institutions/countries per article and number of retracted publications and (b) Percent of the single or multi-authorships in authors, institutions and countries




The following figure 3 shows whether retractions are caused by "repeat offender" with full counting. One author has 34 retracted publications and one institution has 50 retracted publications. This distribution is similar to a typical power-law distribution.

Figure 3: Number of retracted publications per author/institution and number of authors/institutions



*The status managed by bibliographic database (WoS & KCI)*

The retraction notice is announced in various databases, from publisher websites to bibliographic databases such as Web of Science or PubMed (Bakker and Riegelman, 2017). Although the retraction notices of the publishers or the full text files (e.g. PDFs) of retracted publication are very important, we have examined two bibliographic databases, Web of Science and KCI. In Web of Science, Of the 432 retracted publications, 313 papers were searchable in Web of Science. Of these 313 publications, 164 were announced with retracted publications. In other word, the retraction notice rate was only slightly over half (52.3%). (Table 1) KCI is mainly indexing Korean journals and of the 113 retracted publications indexed by KCI, only 2 papers have the retraction notice. (Table 2)

Table 1. Retracted publications in WoS

| Indexed by WoS | Retraction Notification | No. of Publications | Average Time Delay between publication and retraction | Average Time Delay between retraction and present | Total Times cited | Average Times cited |
|---|---|---|---|---|---|---|
| Not Indexed | - | 119 | 3.60 | 4.78 | - | - |
| Indexed | No | **149** | 2.47 | 5.38 | 1,793 | 12.03 |
| | Yes | **164** | 2.34 | 5.66 | 3,079 | 18.77 |
| | Sub-total | 313 | 2.40 | 5.53 | 4,872 | 15.57 |
| Total | | 432 | 2.73 | 5.32 | - | - |

Table 2. Retracted publications in KCI

| Indexed by KCI | Retraction Notification | No. of Publications | Average Time Delay between publication and retraction | Average Time Delay between retraction and present | Total Times cited | Average Times cited |
|---|---|---|---|---|---|---|
| Not Indexed | - | 319 | 2.43 | 5.67 | - | - |
| Indexed | No | **111** | 3.59 | 4.39 | 607 | 5.47 |
| | Yes | **2** | 3.00 | 1.50 | 1 | 0.50 |
| | Sub-total | 113 | 3.58 | 4.34 | 608 | 5.38 |
| Total | | 432 | 2.73 | 5.32 | - | - |

*The times cited before and after retraction in WoS*

Of the 313 retracted publications that can be searched in WoS, 3 papers have the information on the times cited but have no the citing articles information. We collected the publication years of citing articles of each retracted publication (N=310) and compared the times cited before and after retraction except for the times cited of retraction year.

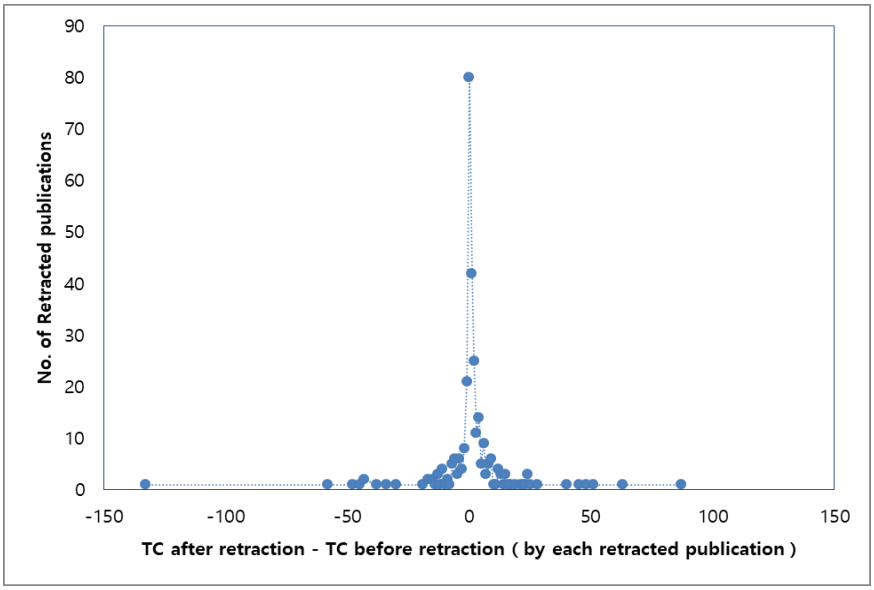
Table 3 shows the total and average times cited by whether or not there is a retraction notice. This result implies that the times cited is a tendency to increase even after retraction

regardless of retraction notice. In figure 4, we confirmed that the times cited after retraction increased more than before retraction in 150 papers (48.4%), but only in 80 papers (25.8%) the times cited after retraction decreased more than before retraction.

Table 3. The TC (times cited) before and after retraction in WoS

| Retraction Notification | No. of Publications | Total TC before retraction | Total TC after retraction | Average TC before retraction | Average TC after retraction | Rate of Increase before/after retraction |
|---|---|---|---|---|---|---|
| No | 147 | 551 | 689 | 3.75 | 4.69 | **25.05%** |
| Yes | 163 | 1,049 | 1,171 | 6.44 | 7.18 | **11.63%** |
| Total | 310 | 1,600 | 1,860 | 5.16 | 6.00 | **16.25%** |

Figure 4: The frequency of the difference between TC after and before retraction




In conclusion, we found that the retraction notice on the original article did not work well in the bibliographic databases. Furthermore, even if the retraction is announced, it does not have a significant impact on the citation by another researcher. Once an article is published, the article is cited by other researcher and the results of retracted publications are used by other studies regardless of the retraction notice. We need a rigorous research on the patterns and context of citations in at least three areas, the citation of retracted publications, irreproducible results and the predatory journal articles.

## References

Bakker, C. & Riegelman, A. (2017). Retracted Publications in Mental Health Literature: Discovery across Bibliographic Platforms, *Journal of Librarianship and Scholarly Communication*, 6(General Issue), eP2199. https://doi.org/10.7710/2162-3309.2199

Fang, F. C., Steen, R. G., & Casadevall, A. (2012). Misconduct accounts for the majority of retracted scientific publications. *Proceedings of the National Academy of Sciences*, 109(42), 17028-17033.

Grieneisen M. L. & Zhang, M. (2012). A Comprehensive Survey of Retracted Articles from the Scholarly Literature. *PLoS ONE*, 7(10): e44118. doi:10.1371/journal.pone.0044118.

Ribeiro, M. D. & Vasconcelos, S. M. R. (2018). Retractions covered by Retraction Watch in the 2013-2015 period: prevalence for the most productive countries. *Scientometrics*, 114, 719-734.

Stern, A. M., Casadevall, A., Steen, R. G., & Fang, F. C. (2014). Financial costs and personal consequences of research misconduct resulting in retracted publications. *eLife*, 3, e02956. http://doi.org/10.7554/eLife.02956.

Teixeira da Silva, J. A. & Bornemann-Cimenti, H. (2017). *Scientometrics*, 110, 365-370.

Teixeira da Silva, J.A. & Dobránszki, J. (2017). High cited retracted papers. *Scientometrics*, 110, 1653-1661.