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Research Article

Trajectory of Research Retractions by Indian Scholars: Trends, Causes and Ethical Imperatives

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ABSTRACT

This study explores the trajectory of academic retractions of Indian scholars considering the period 2010-2024 and assesses the reasons for restrictions, the role of publishers, and the analysis of time delay for retractions, etc. The aim is to assess the current trajectory and focus on the measures that can be taken to enhance research ethics and thereby reduce the rate of retractions in the academic environment. Data were extracted from the Retraction Watch database and focused on 2853 retracted papers by Indian scholars. This study analyzed the growing trajectory, causes, and engagement of publishers and journals. Also, journal characteristics such as impact factor, quartile, indexing status, were also identified, along with retraction time delays and patterns. The study indicates an increase in academic retractions with 57.55% of papers between 2021-2024. This trajectory shows the increasing requirement for research integrity mechanisms. The main reasons for retractions are fake peer review (1007 papers), plagiarism (880), and data manipulation/falsification (746), which shows areas that can be targeted for improving the effectiveness of peer review and data validation in research outputs. The study also highlights that the eight major publishers, including Springer, Elsevier, and Taylor and Francis, have accounted for 73.78% of the retractions. When looking at the retraction time, the majority (86.29%) was done within five years of publication and 38.27% within the first year. Moreover, research articles (67.40%) were found to be the most common type of retraction. This study presents a quantitative analysis of academic retractions by Indian scholars to examine the trajectory in misconduct, the role of publishers, and the characteristics of journals involved in the retractions. Based on the causes of retractions, the study offers suggestions on how to reduce the incidence of retractions to enhance India's academic standing in the global arena.

Keywords: Academic Retractions, India, Retraction Watch, Research Ethics, Global South, South Asia, Research Misconduct.

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INTRODUCTION

The increasing occurrence of academic retractions across the globe has therefore called for stronger measures to ensure the integrity of research. Retractions are a major setback in the scholarly communication process as they erode trust and can harm the image of the authors, institutions, and in some cases, even countries (Kumar and Siwach, 2024). India must seek to strengthen its position as a global research destination, then it has to address issues concerning retractions of academic work and encourage the practice of ethical research (National Academies of Sciences, Engineering, and Medicine, 2017). Hence, this study discusses the trajectory of retracted articles written by Indian scholars during the last 14 years to identify trajectory, causes, and consequences of retraction on academic publishing. Using data from the Retraction Watch database, we explored the annual trajectory of retraction, journal and publisher characteristics and the reasons for retraction to identify practices for fair research and institutional reforms.

Retraction Watch

The website Retraction Watch, created by Ivan Oransky and Adam Marcus in 2010, is a website that monitors and records retractions of academic papers. Known for its extensive coverage, large database, and regular updates. Retraction Watch has therefore become a well-established and credible source for information on the integrity of research. By the year 2020, its database has recorded more than 50,000 retractions and has been a great help in identifying patterns in scholarly publishing. This study extracted the data on retracted papers from the Retraction Watch database which made the data set reliable, accurate, and updated for this analysis (Expert, 2024; Retraction Watch, 2025; Taylor, 2018).

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LITERATURE REVIEW

Past studies on retracted publications have mostly concentrated on specific fields or areas, with limited studies on Indian scholars. Candal-Pedreira *et al*., (2022) scrutinized retracted papers from paper mills, concluding that 92.3% of these papers were associated with Chinese institutions. Dutta Majumder *et al*., (2021) did on ophthalmology publications, resulting in an increase in retractions since 2010, with false data and plagiarism being the foremost reasons. Likewise, Kwee and Kwee, (2023) analyzed retracted medical imaging papers and found that China had the highest number of retractions, with duplication, plagiarism, and data issues being the core causes. Ribeiro and Vasconcelos, (2018) deliberated retraction notices in PubMed from 2013-2015, observing that 85% of retractions came from 15 countries, often those with the highest publication volumes. Yang *et al*., (2024) studied oncology papers from Chinese scholars and acknowledged common causes like data problems, plagiarism, and methodological errors, often linked to low-impact journals. In India, Elango *et al*., (2019) identified plagiarism as the main concern for retraction, with trajectory emerging in 2005 and increasing thereafter. Kumar and Siwach, (2024) analyzed 93 retracted publications from Indian authors, finding that data falsification was the most common reason, with a major percentage of these papers being open-access. This attempt is made to focus exclusively on publications by Indian scholars to understand the trajectory, reasons, journal characteristics, and various surrounding factors leading to retractions of publications by Indian researchers.

METHODOLOGY

As stated earlier, the data for this study were collected from two different sources. The first phase involved data collection from the Retraction Watch database as of December 2024. The next step was to identify the characteristics of the journals that published the retracted publications such as whether the journal is indexed, its impact factor, and its quartile ranking within its category as per the 2024 release of Journal Citation Reports (JCR). Data on papers retracted by Indian scholars published between 2010 and 2024 were obtained from the Retraction Watch database after applying filters for the country "India," retraction status "retracted" and the period "2010-2024". Other filters were left as the default. The data were then processed in Excel to remove duplicates and to group the papers according to retraction type, reason for retraction, and other parameters. It was found that 2853 papers were identified, and these papers were analyzed by counting the number of retracted papers per year. Thereafter, trajectory in the frequency of retraction, the modes of retraction, the causes of retraction, delays in retraction, and the publishers and journals that participated in the retraction were discussed in further sections.

Objectives of the Study

✓To discuss the trajectory and patterns of academic retractions with a focus on Indian scholars.

✓To identify the major publishers and journals involved in the retraction of papers.

✓To understand the main reasons and the time delay for retractions.

✓To explore the features of journals that are associated with the retraction of papers.

✓To suggest measures for promoting ethical research practices to avoid retractions.

RESULTS

Annual Distribution of Retractions and Retraction Delay

As of 2024, a total of 2,853 papers authored by Indian scholars were retracted between 2010 and 2024 as depicted in Figure 1. The annual distribution of these retracted papers shows a steady increase with a sharp rise in 2022 where 1,022 publications were retracted which is 35.82% of all the retractions noted in the given timeframe. Out of the total, 2211 (42.45%) were retracted in the period between 2010 and 2020 while 1642 (57.55%) were retracted from 2021 to 2024. Especially, the retractions in the last four years exceeded the total number of retractions in the previous decade which shows that there has been an increasing trajectory in the retraction activity in recent years. The study also examines the retraction time delay, that is the time between the publication of a paper and its retraction. The time taken for retraction ranged from 0 to 8782 days with the mean being 947 days and most of the papers were published after the year 2000. Only two papers published during the 1990s were noticed in the data set. A count of 1092 (38.27%) of the 2853 papers were retracted within one year of publication which shows that the stakeholders were quick to act on cases of misconduct.

Figure 1 also depicts the distribution of retraction delays by year of publication. As shown in Figure 1, forty-five percent of the retractions were done within the first year and 86.29% of the retractions were done within five years from the date of publication which suggests that misconduct is easily exposed within the first few years after publication. It is also important to note that there were two papers retracted after 24 years, showing that in some cases detection of misconduct can be delayed for long periods. Nevertheless, the trajectory shows that the majority of retractions are made within 10 years, which means that there has been an improvement in the detection of misconduct over time. Remarkably, only 0.01% of retractions were made after 14 years, which suggests that while retraction processes have been made faster, there is still potential for enhancing the efficiency of detecting and preventing research misconduct at the early stage.

Types of retractions

The type of retracted papers is shown in Figure 2 where the number of research articles that were retracted was 1,923 (67.40%) out of the 2853 retracted publications, making them the most affected. The second most affected were conference papers which amounted to 534 (18.72%) retractions, followed by review articles with 124 (4.35%) retracted. Other types, including book chapters, meta-analyses, case reports, etc. made up only 272 (9.53%) of all. This pattern shows that the primary research articles that are reviewed more stringently are still most likely to be retracted, this could be due to errors in data, wrong methods, or authorship issues. This may explain why there has been a high frequency of conference paper retractions as well, the process of ensuring that the same level of scrutiny is applied in conference proceedings as in peer-reviewed journals may not be easy. From this distribution, it is evident that there is a need to enhance ethical practices and methodological practices, especially for primary research outputs and other forms of publication.

Publishers and journals involved in retractions

A total of 2853 papers were retracted from 156 different publishers. Out of these, 89 publishers had the least number of retractions, i.e. one paper only. The publisher with the highest number of retractions was for 540 papers. Also, 44 publishers retracted 2-10 papers, 5 publishers retracted 10-20 papers, 9 publishers removed 21-100 papers, and 8 publishers retracted more than 100 papers. Notably, the top 8 publishers accounted for 2,105 retracted papers, representing 73.78% of the total retractions. Figure 3 shows the top 10 publishers involved in these retractions, with major players including Springer, IOP, Elsevier, Sage, Taylor and Francis, Wiley, IEEE, Walter Kluwer, etc. The retractions affected 1,051 journals, and each journal retracted between 1 to 335 papers. As mentioned earlier, 71.36% (750) of the journals retracted one paper only while 26.64% of the journals retracted between 2-10 papers. Only 19 journals (1.81%) retracted between 11-100 papers while 3 journals (0.28%) retracted more than 100 papers. The top 10 journals with the highest number of retractions are shown in Figure 3. These top 10 journals published 1042 retracted papers which is 36.52% of all the retractions, while the top 50 journals published 1442 retracted papers which is 50.54% of all the retractions.

Reasons for Retractions

The majority of the retracted papers were found to have multiple causes for retraction. A total of 60 reasons for retraction were determined with each reason being associated with a certain number of retracted papers. The following is a list of the 10 most common reasons for retraction of a paper, arranged in the order of descending as shown in Figure 4. The most frequent reason was 'Investigation by Journal/Publisher', which involved 1,329 retractions, while the second reason was 'Fake Peer Review' with 1,007 papers. Other major reasons were observed to be 'Plagiarism' where 880 papers were affected, 'Unreliable Results/ Falsification/Fabrication' where 746 papers were affected, and 'Duplication of Article' where 638 papers were affected. Other similar concerns were observed to include issues to do with 'Referencing/Attributions' (549 papers), 'Rogue Editor' (519 papers), 'Concerns about Authorship/Authorship Objections' (491 papers), 'Investigation by Third Party' (474 papers) and 'Concerns/Issues About Data' (464 papers). These findings show that the process of retraction is not monolithic; it is a multifaceted

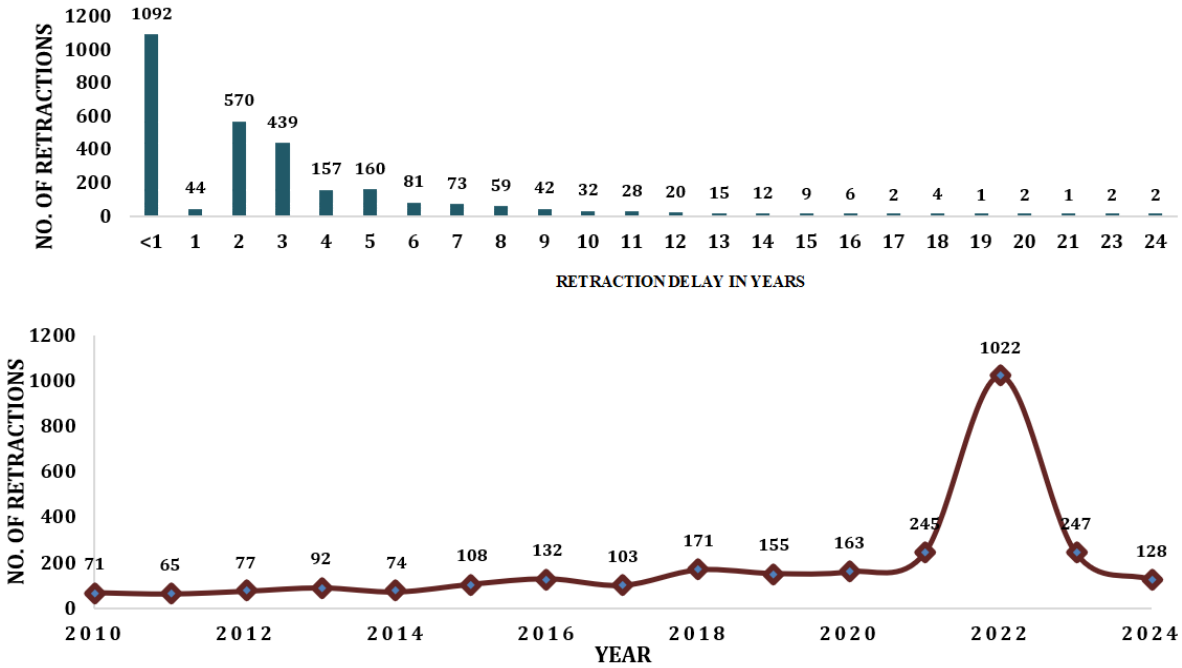

Figure 1: Annual Distribution of Retractions and Retraction Time Delay in Years.

process where ethical misconduct, academic misconduct, and scientific errors are the leading causes of the process.

Characteristics of the journals involved in retractions as per 2024 release of JCR

The data on journals involved in retractions show the following trajectory based on the indexing status, Impact Factor (IF), and quartile ranking as presented in Table 1. Most of the retracted papers (55.57%) were published in WoS-indexed journals which are usually perceived to have stringent peer review and editorial processes. However, the other 44.43% were published by non-WoS indexed journals, showing that retractions also take place in journals that may not have the same level of scrutiny or visibility. Concerning the Impact Factor, the majority of retracted papers were published in low Impact Factor journals, 80.65% of the retracted papers were published in journals with IF below 5. This implies that lower-ranked journals might have difficulties in ensuring the quality of editing and publication, which could lead to more retractions. Still, this does not mean that high-impact factor journals are free from retractions, a few percent of papers were removed from journals with impact factor >25. The quartile rankings also shade a rather complicated picture with 28.08% of retractions coming from Q1 journals and 31.34% from Q2 journals. This pattern shows that retractions are not limited to low-impact or low-ranked journals but can be seen in both high and low-impact factor journals. Therefore, the analysis of the data shows that there is a need to enhance supervision and ethical conduct at all levels of academic publication to deal with the issue of retraction.

Promoting Ethical Research and Preventing Academic Misconduct to Minimize Retractions

Promoting Core Research Values

Looking at the rising trajectory of retractions being published in journals and publishers, the focus on core research values such as honesty, transparency, and accuracy may be useful in enhancing the quality of research output. The incorporation of such principles in academic curricula will go a long way in encouraging a culture of integrity and evidence-based inquiry (National Academies of Sciences, Engineering, and Medicine, 2017). This approach would most probably cut down on the number of retractions by

Table 1: Characteristics of journals involved in retractions.

Nature of Journals	Retractions from Nos. of Journals	%
WoS Indexed Journals	584	55.57
Non WoS indexed Journals	467	44.43
Journal Impact Factor (JIF) 2024 Release		
>25	3	0.51
10 - 25	18	3.08
5 - 9.9	91	15.59
<5	471	80.65
N/A	1	0.17
Quartile of Journals		
Q1	164	28.08
Q2	183	31.34
Q3	159	27.23
Q4	75	12.84
N/A	3	0.51

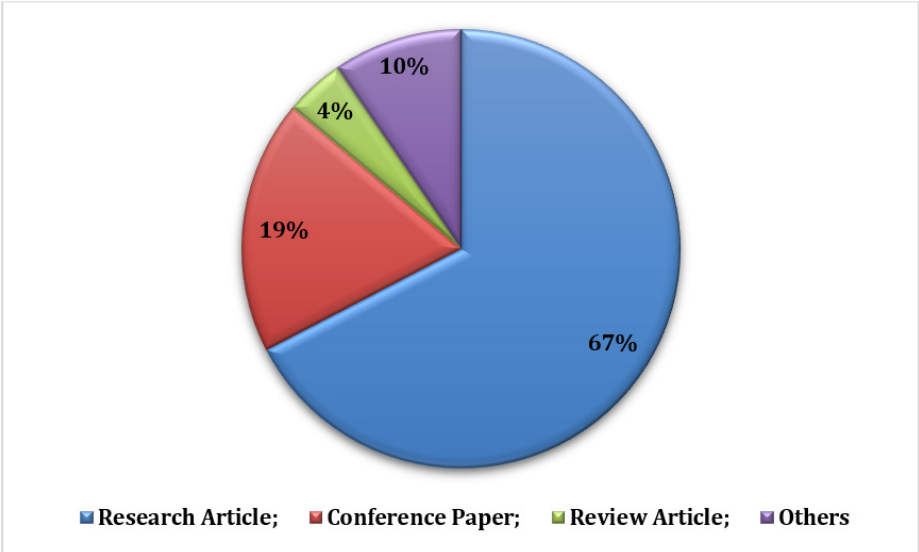

Figure 2: Types of retracted papers.

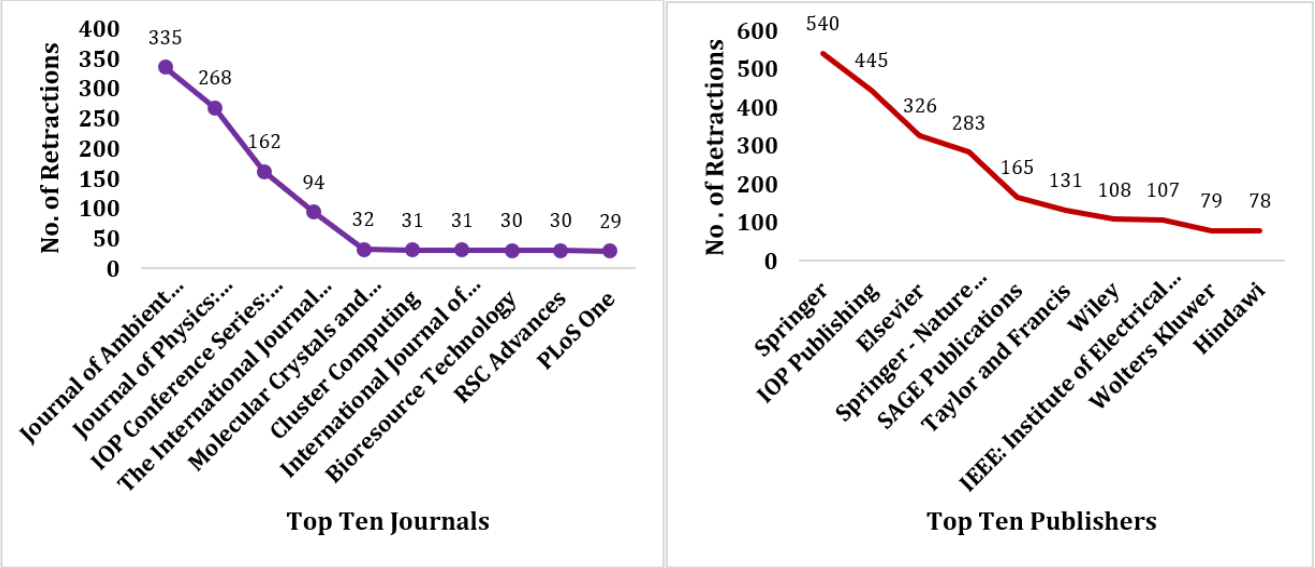

Figure 3: Publishers and journals involved in retractions.

ensuring that ethical practices are observed right from the time one is being trained to undertake research.

Enhancing Education on Research Integrity

Based on the results which reveal that falsification of data, fake peer review, and data manipulation are the most common causes for retraction, it has been suggested that training programs that focus on issues such as plagiarism, data falsification, and authorship, shall be made compulsory in academic development. These workshops, seminars, and online modules can be very useful if provided to students, faculty, and senior researchers as they help all levels of scholars to know the don'ts in ethics.

Reforming of Evaluation and Assessment Structures

The trajectory of retraction indicates that there might be increasing pressure on academicians to publish more rather than quality. Changing the emphasis of academic evaluation from the number of papers produced to the quality of research and its citation impact can help to decrease the pressure for unethical behavior. This would rather lessen the pressures that exist which lead to retraction by rewarding original and socially beneficial research regardless of quantity. This change would make the researchers concentrate on significant findings and not just publish to enhance their career progressions.

Enforcing Transparent Accountability Mechanisms

Considering the data presented earlier, it is clear that 73.78% of retractions were done by a few publishers only. This highlights the need to enhance the current accountability measures. Improvement on measures that are used to examine misconduct and the development of clear guidelines that would enable the handling of violations. That would also help in the prevention of retractions. This is because having confidential and easily accessible channels through which individuals can report cases would make it easy for people to come forward with their cases.

Introducing Stringent Penalties for Misconduct

The issues like plagiarism and data fabrication which were found to have caused a large number of retractions could be curbed by the implementation of firm and clear implications on individuals for such misdeeds, ensuring the timely actions against such cases by the authority.

Promoting Ethical Publishing Practices

It can be seen that journals with low Impact Factors tend to have higher rates of retraction which may be due to negligent editorial standards. This could include suggesting that researchers submit their work to reputable journals and informing researchers (National Academies of Sciences, Engineering, and Medicine, 2017).

Strengthening Mentorship and Collaboration

Mentorship is very important in supporting young scholars to embrace the right research ethics. Formal mentorship programs could be developed, ensuring senior researchers guide the junior researchers on the right practices (India Today Education Desk, 2024). In addition, encouraging collaborative and interdisciplinary research could also help for ethical research practice.

Developing a National Academic Integrity Framework

There is a need for a national framework for academic integrity and monitoring which could develop a robust policy for ethical issues and academic misconduct (National Academies of Sciences, Engineering, and Medicine, 2017). The proper guidelines on ethics, funding, and management of misconduct

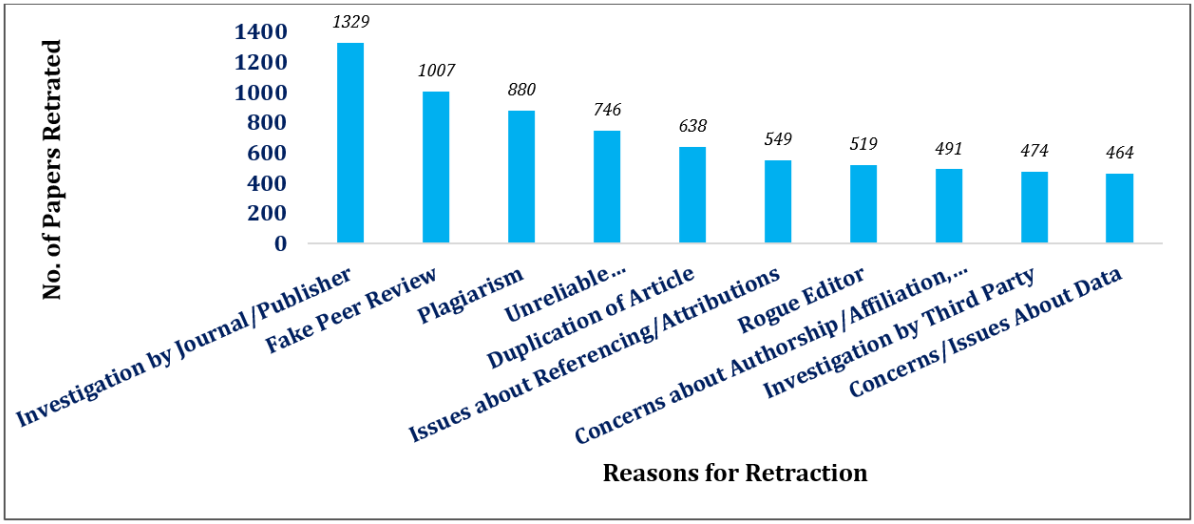

Figure 4: Reasons for retractions.

would be followed by all institutions and help in defining the research standards and regular monitoring.

CONCLUSION

The increasing trajectory of retractions with 2853 papers from Indian scholars between 2010-2024, highlights some of the concerns of research ethics including plagiarism, data fabrication, and unethical publication practices. Out of these, 57.55% were retracted in the last 4 years and this has been attributed to issues such as fake peer reviews and unreliable outcomes which exposed poor research ethics. To minimize such occurrences, core values of honesty, transparency, and accuracy as well as awareness of research ethics to be encouraged. Also, reviewing the academic evaluation systems so that the emphasis is not on the number of papers produced and ensuring proper mechanisms for accountability can greatly reduce misconduct. The fact that 73.78% of retractions were published by the top publishers shows the importance of showing researchers the right way to follow. The development of a framework on research integrity at the national level may ensure a consistent approach to decreasing the number of retractions and improve the quality and the output of India's research output at the global level.

CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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