Letter to the Editor-in-Chief of the Journal of Informetrics

Toward a Principled Retraction System: Protecting Careers While Preserving Scientific Integrity

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Abstract

Han et al. (2025) examine Chinese medical researchers with retracted publications, showing that career penalties are sharply stratified by seniority. Early-career researchers face lasting declines in citations, collaboration, and career mobility, whereas senior researchers remain largely insulated, reflecting institutional and cultural leniency. The study further shows that output-driven incentives increase retraction risk, broad collaboration networks mitigate it, and retractions due to scientific errors can result in harsher penalties than those from misconduct. Despite its rigor, the study stops short of critiquing the retraction system. Treating all retractions as equivalent undermines fairness and scientific integrity by conflating deliberate misconduct with honest error, disproportionately harming early-career researchers and discouraging self-correction. Drawing on principles of proportionality and intent from legal frameworks, we propose a principled retraction typology distinguishing malicious intent, negligence, and honest mistakes to preserve accountability while safeguarding the self-correcting function of science. We further argue that Scopus and Web of Science exacerbate these harms by applying a single undifferentiated retraction label, amplifying stigma and career damage. Differentiating retractions on these platforms is urgent to reduce unjust penalties, promote transparency, and align bibliometric practices with the self-correcting norms essential to scientific progress.

1 - Career Consequences and Systemic Issues in Retractions

Han et al. (2025) offer a detailed quantitative examination of 373 Chinese medical researchers with retracted publications from 20 leading hospitals, analyzing author characteristics, retraction drivers, and career consequences. Comparing retracted researchers to matched non-retracted peers, the study uncovers distinct patterns across career stages: early-career researchers with retractions underperform academically, experience steep declines in citations, reduced collaboration, and limited career mobility, whereas senior retracted researchers maintain high productivity, influence, and expansive collaboration networks, reflecting cultural and institutional leniency. Probit regression demonstrates that output-driven incentives, such as rapid increases in publication and citation rates, raise retraction risk, while broader collaboration networks mitigate it. Institutional peer pressure exerts minimal influence. Strikingly, retractions due to scientific errors result in harsher professional penalties than those caused by misconduct, including larger citation and collaboration losses, challenging prior assumptions that fraud is most damaging. Using a difference-in-differences framework, the study quantifies these impacts, highlighting early-career researchers' disproportionate vulnerability. However, Han et al. could have advanced a stronger and more explicit critique of the current retraction system. The prevailing practice of treating all retractions as equivalent poses a serious challenge to both scientific integrity and fairness within the academic ecosystem. In its present form, retraction functions as a blunt instrument, failing to distinguish between fundamentally different causes and intentions underlying a paper's withdrawal. A single undifferentiated category is used to encompass acts of deliberate misconduct—such as fabrication, falsification, or plagiarism—as well as inadvertent methodological errors, miscalculations, or oversights in data interpretation. This lack of differentiation collapses essential distinctions between ethical violations and honest mistakes, often leading to disproportionate and unjust outcomes that unnecessarily damage the careers and reputations of researchers acting in good faith. Retractions can have profound and lasting consequences for scientific careers, extending well beyond the immediate withdrawal of the paper in question. Evidence shows

that a retraction can reduce not only citations to the retracted work but also to the authors' prior publications, generating long-term negative effects on scholarly reputation, particularly when authors do not proactively disclose or self-report the error (Lu et al., 2013). In general, retractions are associated with significant declines in citation counts, and even those resulting from honest mistakes can lead to severe reputational penalties for scientists (Azoulay et al., 2017). Although many retractions arise from genuine errors, public perception often equates them with misconduct or fraud, creating a pervasive stigma (Behavior, 2021). This fear of reputational damage can discourage researchers from correcting the scientific record, potentially driving talented and conscientious scientists out of academia. Retractions thus function as a form of stigma that can call into question both a researcher's professional competence and ethical integrity, irrespective of whether the underlying issue was inadvertent. Studies have highlighted that retraction notices themselves can communicate this stigma, shaping reputational outcomes within the scientific community (Xu & Hu, 2022). Moreover, recent empirical work demonstrates that retractions often attract intense attention, which can precipitate departures from scientific careers, disproportionately affecting researchers whose work is under greater public scrutiny. In addition, the structure of citation and collaboration networks is typically altered following a retraction, further amplifying the long-term consequences for the affected authors (Memon et al., 2025).

2 - Towards a Principled Retraction Typology

The consequences of this undifferentiated approach are multifold. At the individual level, researchers who make genuine mistakes face severe professional penalties, including sharp reductions in citations, collaborative opportunities, and career mobility, regardless of the absence of any malicious intent. Early-career scientists are particularly vulnerable, as their networks and reputations are still nascent, making them less able to absorb the shock of a retraction. At the systemic level, the conflation of misconduct with honest error can discourage transparency and self-correction. If admitting an error is

effectively indistinguishable from being labeled dishonest, researchers may avoid reporting mistakes, and journals may hesitate to issue corrective notices. The resulting culture of fear inhibits the epistemic process: science thrives on error detection and correction, yet this vital mechanism becomes stigmatized, undermining the reliability of the scientific record. Therefore Implementing a principled retraction typology could offer a solution to this problem. A typology would categorize retractions according to the underlying cause, differentiating between intentional misconduct, gross negligence, honest error, and procedural or editorial issues. By making the reasons for retraction explicit and transparent, this system would allow the scientific community, funding bodies, and the public to interpret the significance of a retraction accurately. Intentional misconduct would remain clearly marked and appropriately stigmatized, preserving accountability and maintaining trust in scientific norms. Meanwhile, honest errors could be framed as part of the self-correcting nature of science, with minimal damage to the researcher's reputation and career trajectory. Insights from legal and penal frameworks can provide valuable guidance in designing a fair and effective system for scientific retractions. Just as criminal law carefully distinguishes between intentional crimes, negligence, and accidents, academic corrections should likewise differentiate deliberate misconduct from honest mistakes. In legal systems, penalties are proportionally scaled according to factors such as intent, the harm caused, and the foreseeability of the outcome, ensuring both fairness and accountability. For example, deliberate fraud is met with severe punishment, whereas acts of negligence or inadvertent error typically result in milder sanctions or corrective measures. Translating these principles to academic publishing suggests that a structured retraction typology could clarify distinctions between different types of retractions, providing transparency and proportionality in response to the underlying cause.

Level 1 -Malicious Intent: Fraudulent Retraction

- ***Fabrication:*** *Making up data or results and recording or reporting them as if they were real.*
- ***Falsification:*** *Manipulating research materials, equipment, processes, or data such that the research is not accurately represented in the Research Record.*
- ***Plagiarism:*** *Appropriating another person's ideas, processes, results, or words without proper credit. This includes verbatim or nearly verbatim copying that materially misleads regarding the author's contributions. It does* ***not*** *include limited use of standard methodological phrases, self-plagiarism (text recycling), or authorship/credit disputes.*

Level 2 -Negligence: Negligent Retraction

- *Errors arising from inadequate methodology, oversight, or carelessness,* ***without intent to deceive****. Examples include flawed experimental design or mismanaged data that do not reflect deliberate misconduct.*

Level 3 -Honest Mistake: Corrective Retraction

- *Errors that occur despite reasonable care, such as miscalculations, data handling mistakes, or unforeseen methodological limitations.*
- ***Self-plagiarism***

Regarding the inclusion of self-plagiarism as a Level 3 (honest mistake), several clarifications are warranted. Although self-plagiarism is frequently framed as a serious ethical violation, concerns surrounding it appear overstated. Callahan (2014) argues that self-plagiarism has been inflated into a perceived crisis despite limited evidence that it meaningfully harms the scholarly record. Editorial approaches vary widely: some journals impose rigid similarity thresholds (e.g., 10%), while others suggest that the reuse of even a sentence or paragraph may be unethical. Such absolutist interpretations overlook standard scholarly practices, including the iterative development of ideas, the reuse of methodological descriptions, and the repetition of theoretical frameworks for clarity and continuity.

Crucially, unlike traditional plagiarism, self-plagiarism involves the reuse of one's own previously published material and does not entail deception regarding authorship. Moreover, major institutional frameworks—such as MIT's *Procedures for Dealing with Misconduct in Research and Scholarship*—do not classify self-plagiarism as research misconduct, underscoring its secondary ethical status. Treating self-plagiarism as a moral failing risks diverting attention from genuinely serious violations, such as fabrication or falsification, while penalizing routine academic practices. From an ethical standpoint, self-plagiarism should merit retraction only when it reaches clearly excessive levels—typically above 30% of textual overlap—and when such reuse undermines the novelty of the work or materially distorts the scholarly record. Below this threshold, concerns are more appropriately addressed through transparency, citation, or editorial correction rather than punitive measures. Overemphasis on minor textual overlap risks fostering compliance anxiety rather than promoting substantive ethical integrity.

3 - Why Scopus and Web of Science Must Differentiate Retractions

Scopus and Web of Science currently apply a single, undifferentiated "retraction" label to all withdrawn publications, regardless of whether the underlying cause is deliberate misconduct, negligence, or an honest scientific mistake. Given the central role these databases play in academic evaluation, this practice inflicts serious and often unjust harm on researchers who have acted in good faith. Retractions are not interpreted as neutral bibliographic signals; they function as powerful reputational markers that influence hiring, promotion, funding decisions, and collaboration opportunities. When all retractions are treated as equivalent, innocent researchers are implicitly associated with fraud, even when the withdrawal results from minor errors or responsible self-correction. A growing body of empirical research demonstrates that retractions lead to substantial and enduring declines in citations, network centrality, and career mobility, with these penalties frequently spilling over to an author's non-retracted work. Crucially, studies show that retractions due to honest

errors can result in equal or even greater professional losses than those caused by misconduct. This outcome is not accidental but structural: by collapsing fundamentally different behaviors into a single category, Scopus and Web of Science amplify stigma and transmit a misleading signal about researcher integrity. Early-career scientists are particularly vulnerable, as they lack the reputational capital and institutional protection needed to absorb such shocks, making a single honest mistake potentially career-ending. This undifferentiated approach also undermines the epistemic foundations of science. If correcting an honest error carries the same reputational cost as committing fraud, researchers are disincentivized from transparency and self-correction. Fear of stigma can delay or suppress necessary corrections, weakening the reliability of the scientific record. Given the availability of clear conceptual distinctions and the accumulating evidence of harm, maintaining a single retraction category is no longer defensible. It is therefore urgent that Scopus and Web of Science adopt at least a minimal retraction typology distinguishing intentional misconduct, negligence, and honest mistake. Such a reform would preserve accountability where warranted, reduce unjust career damage, and realign retraction practices with the self-correcting norms that scientific progress depends upon.

Conclusions

Han et al. (2025) provide compelling evidence that retractions in Chinese medical research have highly uneven consequences depending on career stage, author productivity, and collaboration networks. Early-career researchers are disproportionately affected, experiencing sharp declines in citations, reduced collaboration, and constrained career mobility, whereas senior researchers appear largely insulated from these negative effects. This asymmetry points to systemic leniency toward established scholars and highlights the role of institutional and cultural dynamics in shaping post-retraction outcomes. However, the analysis would have benefited from a more explicit critique of the retraction system itself. Current retraction practices that treat all retractions as equivalent collapse essential distinctions between intentional misconduct, negligence, and honest mistakes, producing unjust

outcomes and discouraging transparency. The pervasive stigma associated with retractions further inhibits the self-correcting processes of science, as researchers may avoid reporting genuine errors for fear of reputational harm. Implementing a principled, tiered retraction typology that distinguishes fraudulent, negligent, and corrective retractions would better align consequences with intent, preserve scientific integrity, and protect the careers of conscientious researchers. Drawing lessons from legal and penal frameworks, which scale penalties according to intent, harm, and foreseeability, such a system could ensure proportional and fair treatment: deliberate misconduct would incur clearly defined sanctions, while unintentional errors would be addressed through corrective, non-punitive measures, reducing stigma, encouraging transparency, and strengthening the overall reliability of the scientific record.

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