



Integrity and Ethics in Research and Publication

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Abstract

Background: There is a lot of development going on in the fields of research ethics (RE) and research integrity (RI). There have been numerous reports of research misconduct, unethical practises in the fields of RE and RI, and associated areas. This scoping review's objective was to compile and analyse examples of RE and RI, highlighting their key characteristics and how they were presented in the pertinent scientific literature.

Aim: The aim of this study about integrity and ethics in research and publication.

Methods: Cases where there was a breach of, misbehaviour towards, poor judgement in, or harmful practise in research were included in the search. In March of 2023, Using date- and language-neutral search terms, we combed through the databases Pub Med, Web of Knowledge, SCOPUS, JSTOR, Ovid, and Science Direct. Article and case data were collected from case narratives.

Result: The search turned up documents, of which 402 were included in the final qualitative analysis. There were 500 detailed case reports in the periodicals. When the inclusion/exclusion criteria were applied, 315 instances remained. Most of the identified infractions (44.9%) in the case study involved instances of fabricated or false information. Lack of informed consent and REC permission (15.7%), concerns about patient safety (11.1%), and plagiarism (6.7%) are the next most common reasons for rejection. came in second and third, respectively. Natural sciences accounted for 11.5% of the cases, social sciences for 4.3%, engineering and technology for 2.1%, humanities for 1.3%, and medical and health sciences for 80.8%. The most common punishment was having a paper retracted (45.4%), followed by not being eligible for funding (35.5%).

Keywords: Ethics, guidelines, medical research, scientific misconduct

Introduction

Since the goal of scientific endeavours is to uncover the truth, candour must rank as one of the highest priorities for scientists. Universities' primary responsibility should therefore be to instil the value of integrity in the minds of tomorrow's scientists and scholars. In the end, it all boils down to the fact that people will

always find a way to justify doing whatever they want, whenever they want, regardless of the consequences (Ambrose, J., et al, 2023). Therefore, promoting universal norms for research integrity is an international obligation in today's interconnected scientific community (Flanagan, A., et al, 2023).

Academic institutions have become increasingly concerned with issues of research integrity and research ethics in the previous decade. Among other things, this is because of the prevalence of complicated new technology and the constant push to produce new content; the competition for grants, the growth of university-industry joint programmes, and the expansion of worldwide collaborations (National Academies of Sciences, et al, 2017).all contribute to an ever-evolving research environment. Another reason RE and RI are popular in the classroom is because of scandals that made national headlines (Davis, M. S, et al, 2007).

Publication of more and more RE and RI examples may shape public perceptions of science and scientists (Ampollini, I., & Bacchii, M, 2020). Different methods have been applied to the study of RE and RI instances. Research on the background, causes, and effects of these instances has included analyses of ORI files (Office of Research Integrity), retracted papers (Hesselmann, F., et al, 2017), quantitative surveys (De Vries, M. B. A. M. R 2005), data audits (Loikith, L., & Bauchwitz, R. 2016). And media coverage.

Analyses of RE and RI circumstances are frequently used to inform policy for the ethical conduct of research. Further, case information can help expand our knowledge of RE and RI problems and motivate the development of solutions. The scientific literature does not currently contain any systematic reviews of the RE and RI examples. These reports are being prepared for publication on the website of the Embassy of Good Science (www.embassy.science). we are collecting relevant data on each case. members of the Entire consortium have produced this review. The data has been analysed twice. The first analysis looks at the identified research publications to see how different factors change the way that examples of RE and RI are written up in the literature. In the second part of the analysis, cases are characterised and analysed in terms of the infractions committed, the sanctions imposed, and the field of study in which they were found regulations that were drawn up in advance. Therefore, whenever a case involves a breach of, misbehaviour towards, or RI and RE practises that are harmful to a normative framework do so in accordance with expressed and/or unstated standards.

Section Snippets

Research integrity

Since they are confident that their peers adhere to the standards of good science, most researchers and scientific organisations prefer to keep quiet on the topic of research integrity. Once asked, however, most researchers see the flaws in the current system of ever-increasing research needs. Causes for these issues include failing to adhere to professional norms, failing to properly record and report outcomes, and failing to take the work seriously.

Publication ethics

One of the most essential principles in science is authorship, but different fields, societies, and even individual scientists have very diverse ideas about what it means to be an author. Medical journal editors from around the world have put out a statement saying "Uniform Requirements for Manuscripts Submitted to Biomedical Journals" (updated 2023). According to them, authorship credit must be granted based on.

Search Strategy

In March of 2023, a no-cost search was undertaken in Pub Med, Databases such as Web of Knowledge, SCOPUS, JSTOR, Ovid, and Science Direct. Two searches were carried out simultaneously using two sets of medical topic header (Mesh) phrases, two, one each for RE and RI. The two sets of data that the concurrent searches yielded allowed us to examine and delve more into the evolution, parallels, and distinctions in the scholarly literature's depiction of RE and RI situations.

The first search was conducted using the phrases "research ethics" & "violation OR unethical OR misconduct." Integrity in research "In the parallel search, the terms were utilised. A pilot search that read the abstracts of the first 100 results from each database tested the search technique's efficiency while employing a wide range of keyword combinations and search strings.

The titles and abstracts of the items that were collected from the databases after employing these two search phrases were read independently by three contributors (ACVA, PK, and KB). Articles that might possibly fit the criteria for inclusion were identified. After each author had independently reviewed the papers in question, they conferred to determine which would advance to the next round. Items were reevaluated if there was a dispute in order to come to a decision. Qualified pieces were then read in their entirety.

Data extraction

There were three assessors (ACVA, PK, and KB) who divided up the data extraction methods. The other two assessors double examined each of the lists of extracted data that the first assessor had prepared. To obtain an agreement, the case was reevaluated in the event of any discrepancies. When available, the following categories were used to analyse each item's data once it had been extracted: First, the name(s) of the authors, then the title, then the year it was published, and finally the country the author was born in (if applicable). (Classification by the FOS-OECD) (V) the type of article it is; (VI) the year it was published; (VII) the country in which the incident occurred; (VIII) the institution(s) and individual(s) involved; and (IX) the field of study concerned. (X) The category of infraction (described further below), (XI) a summary of the incident, and (XII) the consequences for the parties involved.

After the data extraction procedure, two sets of data were produced. The analysis of articles and how they were depicted in the literature was done using one set, and the examination of cases was done using the other set. Cases that occurred in more than one paper were included in the collection for the study of publications. The goal was to comprehend both the paper genre in which cases are documented and analysed as well as the

historical features of infractions mentioned in the literature. The variables nation (IV), article genre (V), article year of publication (III), and types of violations (X) were examined for this group.

All duplicate cases and cases without enough particulars to distinguish them from others were disregarded from the study of cases. This set only contained unique cases since noteworthy cases (those that appeared in multiple papers) were only listed once. To prevent the depiction of the same case more than once, these extra exclusion criteria were used. In order to analyse cases, the following variables were taken into account: (VI) the case's year; (VII) the case's country; (VIII) The scientific sector (as classified by the FOS-OECD); X. The types of infractions; XI. The particulars of the case; and XII. The repercussions for the parties involved.

Article genre classification

To identify the differences in genre, we selected ten categories. If a case was mentioned in a scientific journal's or newspaper's news section, we provided a case summary in the "news" category. The New York Times, for example, is included in scientific databases like Pub med, even though there is currently no way to search for its articles. Each case description was assigned to "editorial" using the same criteria, "commentary", "misconduct notice", "retraction notice", "review", "letter", or "book review" (Hussein, M., et al, 2023). When describing a case that also involved an examination of the case's normatively, we used the "case analysis" genre. The "educational" genre was used to describe cases that were designed to educate readers about RE and RI regulations and policies.

Categorization of violations

When defining the infractions or ethical difficulties involved in the event, we used the articles' own terms to tag each article during the extraction process.

The initial language for the situation was expanded upon to include other categories that it didn't fit the case description. The resulting glossary was then standardised using Boater and co-workers' (Boater, L. M., et al., 2016) classification of major and minor transgressions. This list is broken down into four sections covering research methodology, data collection, data reporting, and teamwork issues. There are a total of 60 items.

Integrity in research

- Individual scholars and the institutions they work for enjoy a sterling reputation for honesty and reliability. It reveals something about their ethics and life experiences.¹ For institutions to create a culture that promotes ethical conduct, they must adhere to norms of excellence, dependability, and legality.
- Intellectual integrity when putting forward, carrying out, and reporting research;
- The accuracy of contributions to research proposals and reports;
- Unbiased peer review;
- Collaboration in scientific discussions, including communication and resource exchange;

Methods: We based our methodology on the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement and its extension, the PRISMA Statement for Scoping Reviews (PRISMA-SCRs). The whole protocol is accessible <https://ec.europa.eu/research/participants/documents/downloadPublic?Documented=080166e5bde92120&appId=PPGMS>. It was pre-registered.

Eligibility: The articles that presented non-fictional case(s) of misconduct, bad judgement, or Negative research methods in the context of an established standard were covered. The absence of connection to scientific endeavours, No labs, universities, corporations, or journals were included. Articles that provided insufficient background information were also rejected.

As a result, if a case involves misconduct, poor judgement, or a damaging research practise in respect to a normative framework, it does so in accordance with the stated and/or implied standards guiding RE and RI practise.

Results

Systematic search

With 3068 results from the RI search and RE's, a total 10,538 records were identified. The duplicates were eliminated from the combined results of the parallel searches 9750 items removed at this stage because they did not meet the inclusion criteria from the remaining 10,500 records. 806 items were selected for reading in their entirety. The qualitative synthesis was then completed with 388 articles (Fig. 1).

These 407 articles, 315 were discovered using only RE, 87 were discovered using solely RI, and 144 were discovered using both RE and RI. 500 case descriptions were found in the eligible articles, which were incorporated in the publication's article analysis. The same 50 situations were explored in 256 case descriptions. The Te Hwang case received the greatest attention, receiving 27 publications in total. In addition, 132 articles contained the top 10 cases with the most descriptions 238 acceptable cases were left after eliminating duplicate and cases (a total of 206; 41.2% of all case descriptions) (56; 11.2%) that lacked sufficient details to set them apart from other cases (Table 1).

Violations

Articles are analysed Fabrication, plagiarism, and other unethical research methods and "other misconduct" represents the various types of infractions that can be found, according to the definitions provided by the NAOSM. There could be multiple types of violations in each situation. With a mean of 1.56 infractions per case, the majority of instances involved several violations or ethical issues. The frequency of each infraction attached to the articles. The most commonly flagged breaches were falsification and fabrication. In 468/500 (or 46.8%) of the papers describing cases, Te breaches were mentioned, and they were responsible for 29.1% and 30.0% of the tagging (n=780). Patient safety came in second with 6.7% of the tags and 10.4% of the articles, while informed consent issues came in third with 5.4% of the tags and 8.4% of the articles. 7.0% of

the publications referenced negative research practises, including authorship difficulties, plagiarism, and problems with experimentation, replication, mentorship, and referencing one's own work.

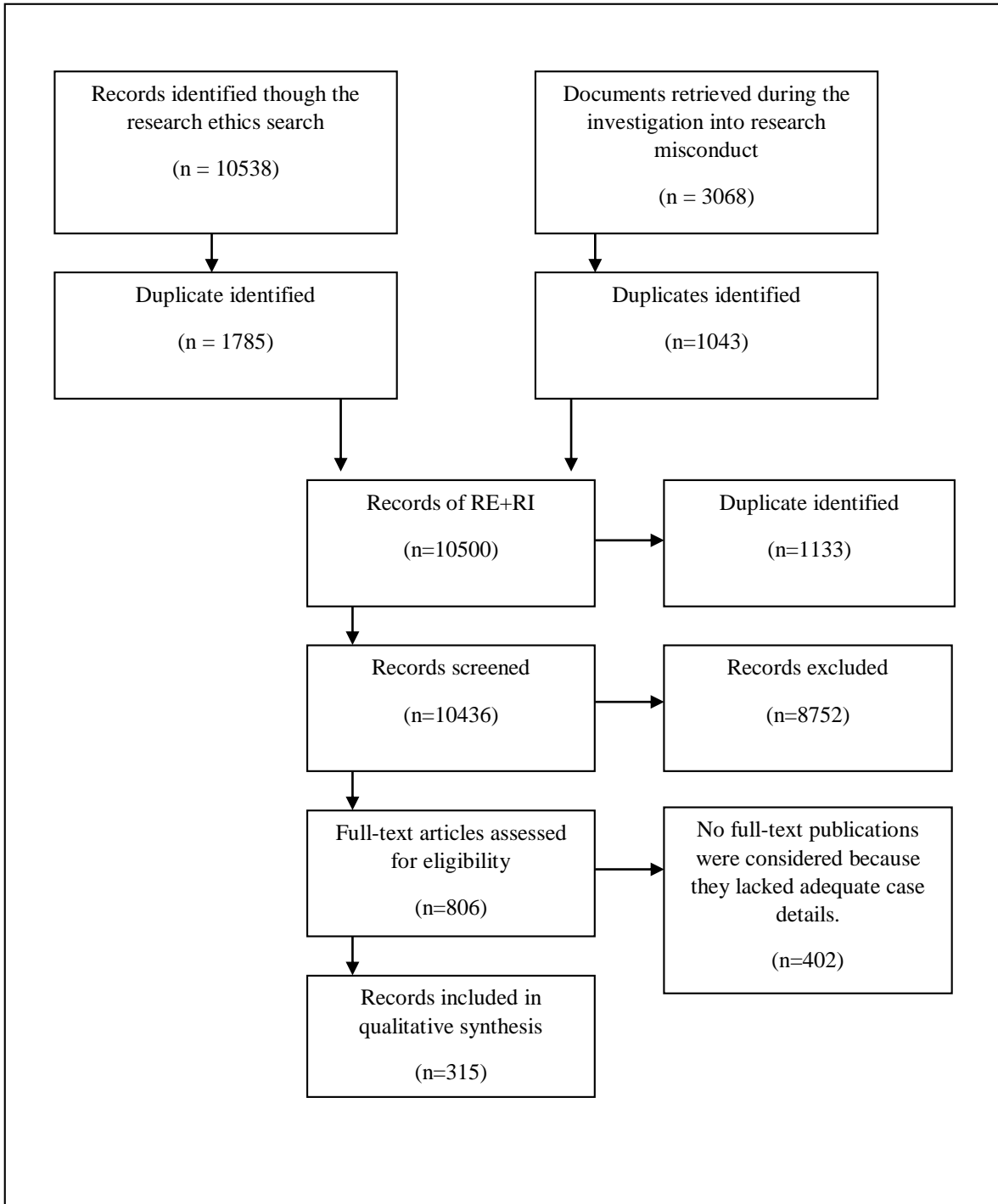


Fig 1. Flow diagram

Table 1. Top 10 Most Described Cases

	Articles	Date range
1. Hwang	30	2006-2017
2. Baltimore /Manish-Kari	27	1991-2008
3. Gallo	24	1992-2009
4. Fisher	17	1996-1998
5. Schon	14	2022-2023
6. Luck Van Parjis	13	1999-2022
7. Poehlman	11	2020-2023
8. Bolts	9	2012-2016
9. Wakefield	7	2008-2015
10. Cnep	4	2004-2011

Article: Our research revealed that the majority of the 500 thorough case reports we gathered and analysed from 402 articles related to well-known and widely-discussed cases. The top ten most often discussed cases were covered in 132 pieces, and almost 50% of the cases have at least 2 citations across publications.

The amount of reoccurring examples we found (such as the Hwang case) shows that the type of article in which a case is discussed and the specific infringement that was highlighted in that case are both significant can both contribute to the popularity of particular cases in the literature. 33 percent of the cases in the article genre study were described in scientific periodicals' news sections. Our research reveals that practically every article genre discusses the hot, new cases. Once a case enters the public eye, it receives extensive media coverage and scientific discussion, with some well-known instances receiving more than 20 years of discussion (Table 1).

In the examination of article genres, the notices of misconduct and retraction were the only exceptions, as they often detailed isolated events. The National Institutes of Health Data Repository is among the datasets we looked at was the primary location where reports of misconduct were located. Some federal funding bodies, like the NIH, are quite transparent about making research results available to the public.

The findings from the NIH repository also help to explain why so many articles (61.9%) come from the US. However, in some instances, the case is only briefly described. Local institutions carry out the investigation in situations that haven't gotten federal financing and haven't been submitted to federal authorities. In these situations, each institution's policy and readiness to share information determines how findings are reported (Boucher, H., et al, 2018). Retraction notices are the other exception. Although there are ethical standards (Wager, E., et al, 2009). The proper way for a journal to report a retraction is not standardised. If you visit the Retraction Watch website, you'll find two checklists outlining what must-haves and nice-to-haves there are for a retraction notice (Watch, R. 2015).

Best retraction notices will explain not just why the article was retracted but also how the retraction came to be. (I) when the journal was first notified of issues; comments on more recent replications only if and when they have been independently authenticated; (IV) details about the process of retracting a paper; (V) insights into how this can affect the authors' other publications. Studies that gathered and assessed retractions (Fang, F. C., et al, 2012). Noticing the same lack of openness and detail in retraction announcements (Resnik and Dinse Resnik, et al, 2013). Assert that retractions notices in connection with misconduct proceedings frequently omit to identify the specific infraction at issue. Only 33.2% of alerts in this study mentioned the real problem whereas the other 58.8% mentioned problems with replication, data loss, or human error. Possible justifications for the euphemisms and ambiguous statements in Retraction notifications written by editors may address potential legal action from the authors, genuine or self-reported errors, or a lack of funding for in-depth investigations. Conflicts of interest on the part of the publication's author(s) can also be used to explain away the lack of transparency that often characterises the notices accompanying retractions.

The analysis of ethical violations demonstrates the predominance of cases involving fabrication and falsification and provides an explanation for the high frequency of well-known examples. Failure to follow procedures led to compromised patient safety, instances of plagiarism, and potential for bias. In the example study, the frequency of the four most frequently labelled breaches was higher than that found in the analysis of articles with the same violations. The only exceptions were cases of fabrication and falsification, which accounted for 59.1% of violations in the article analysis and 45% of violations that were tagged in the study of cases. When compared to other significant infractions, this disparity reveals a preference for the publication of conversations about fabrication and falsification. It is customary to write about situations that grab the public and the media's attention when discussing complex cases involving these kinds of infractions (De Vries, R., et al, 2006). The way RE and RI infractions are discussed in the literature provides the impression that only a small number of scientists are "the bad apples" and that they are frequently identified, looked into, and punished appropriately. This suggests that these infractions largely have no impact on the integrity of science as a whole. Studies on the factors that influence misconduct, however, demonstrate the need for a coordinated effort to address scientific misconduct, which is a systemic problem involving not just human factors but also institutional and structural barriers (Overcool, B. K, 2008); (Haven, T. L., et al, 2019).

Analysis of cases

Date: The 1990s saw a significant rise in RE and RI cases, which continued to rise gradually until roughly 2006.

This outcome is consistent with research that assessed paper retractions (Fang, F. C., et al, 2012); (Liberati, A., et al, 2009). Although we did not limit our investigation to retractions, the pattern is the same. The percentage of retracted articles attributable to fraud has increased by almost a factor of ten since 1975, according to studies that analysed retraction data, indicating that the rise in cases cannot be attributed only to the rise in publications. Our findings also demonstrate a declining trend in the number of cases starting in 2011 and a sharper decline in 2015. Given the length of time required for many investigations before their

findings are made public, this reduction should be carefully examined. From 2001 to 2010 The average length of an ORI inquiry was 20.48 months, and the longest lasted more than 9 years. (Fang, F. C., et al, 2012).

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