



REFLEXION

Analysis and reflection regarding the Pearce Case: Scientific fraud

HIGHLIGHTS

1. A critical analysis of the Pearce Case and its ethical implications.
2. Identification of habitual scientific fraud practices.
3. Strategies proposed to prevent ethical misconducts.
4. Relevance of honesty in scientific research and publication.

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ABSTRACT

Objective: To reflect on the Pearce Case, an instance of scientific misconduct that presents traits which characterize scientific fraud. **Method:** A reflection based on the topic, with its search made during May and June 2024 in Temuco, Chile. **Results:** Ethical breaches that impaired transparency in the editorial process were identified, such as data fabrication and falsification, authorship irregularities and conflicts of interests. Flaws were also detected in the peer review process, in addition to absence of effective editorial barriers and to low data reproducibility. **Final considerations:** Organizations should implement strategies to counteract scientific fraud, such as training programs in scientific ethics, transparency in research and requiring public data availability. It is also fundamental for authors, editors, reviewers, academic institutions and readers assume shared responsibility, in order to implement honest practices during the process.

DESCRIPTORS: Scientific Misconduct; Authorship in Scientific Publications; Fraud; Peer Review, Research; Scientific Communication and Diffusion.

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INTRODUCTION

Science seeks to generate knowledge about the environment and its mechanisms by means of observation and analysis, which implies adequate and ethical scientific conduct where honesty is fundamental in all stages of the process. Therefore, inadequate and fraudulent conducts take place when this value is breached¹.

However, not only good practices and honesty should prevail in scientific communication; shared responsibilities must also be assumed. This is not merely up to authors, editors and reviewers but also to organizations that evaluate scientific productivity, scholars, new researchers and readers, with the purpose of ensuring integrity and transparency in knowledge diffusion².

Honesty is one of the main virtues and values scientists should aim at; nevertheless, dishonesty has been a reason for concern due to its resulting deceit. So much so that, in 1830, a mathematician and inventor wrote about the scarcely ethical practices in place in British science, highlighting deceit and falsification. This latter means inventing and manipulating data so that they look more precise than they really are³. Consequently, in 2000 the White House Office of Politics, Science and Technology conceptualized misconduct in research "as fabrication, falsification or plagiarism when proposing, conducting or examining a research study and/or when the results obtained are communicated"³. Therefore and given the above, the objective is to reflect on the Pearce Case, an instance of scientific misconduct that presents traits which characterize scientific fraud.

METHOD

A reflection and analysis of the literature targeted at the Pearce Case, where conducts inherent to scientific fraud are highlighted and questions such as the following ones are answered: Which are the ethical aspects involved?; Which are the characteristics of authorship?; and What measures can be applied to prevent scientific fraud?. The scientific databases chosen were SciELO and Scopus, with "scientific fraud", ethical aspects" and "co-authorship" as keywords, in addition to normative regulations and ethical documents. The search took place during May and June 2024 in Temuco, Chile.

RESULTS

The bibliographic search allowed identifying 17 documents, which were analyzed according to their country of origin and type of evidence. The studies came from varied geographical contexts (with greater representation of Spain, Costa Rica, Mexico and the United States) and presented different levels of evidence such as editorials, narrative and systematic reviews, original studies, normative regulations, books and webpages. Table 1 presents an integrated view showing how the documents were distributed according to type of evidence.

Table 1. Distribution of the documents according to country and type of evidence Temuco, Chile, 2024

Countries	Types of evidence	Number
Brazil	Original	1
Chile	Narrative review	1
Colombia	Editorial	1
Costa Rica	Narrative and systematic review	2
Cuba	Bibliometric analysis	1
Spain	Editorial, Normative, Narrative review	3
United States	Book, Normative, Webpage	3
France	Original	1
Mexico	Editorial, Original	2
United Kingdom	Editorial	1
Ukraine	Webpage	1
Overall total		17

Source: The authors (2024).

Analysis and reflection regarding the Pearce Case

The case

Malcom Pearce (a British gynecologist) committed scientific fraud in the form of fabrication because he published two articles in the British Journal of Obstetrics and Gynecology, describing a study he had never conducted. The General Medical Council declared Pearce guilty of this fraud and removed him from the Medicine roster, after an in-hospital research study showed that Pearce also furthered his scientific fraud by manipulating the computer records, asserting having successfully reimplanted a 5-week ectopic embryo via the uterine cervix⁴. To publish these articles, the British Journal of Obstetrics and Gynecology did not implement the necessary barriers that might have detected the fraud; Pearce was the journal's Editor and the Editor in Chief was the head of his department, Professor Geoffrey Chamberlain. In turn, the journal failed to review the case reports⁴. Finally, the clinical trial review was clearly inadequate. The fact that Pearce claimed having included 191 women with so an uncommon syndrome was also not questioned, although an important reference center was only witnessing one or two new cases per month. Another fraud instance committed in this same research study refers to its authorship, as co-authorship was impossible in these articles because the paper had not been conducted. This scandal also led to Geoffrey Chamberlain (his immediate superior) resigning as President of the Royal College of Obstetricians and Gynaecologists and as Editor of the British Journal of Obstetrics and Gynecology⁴.

Ethical aspects breached in the case

Scientific fraud is defined as an instance of scientific misconduct and is considered the most severe breach in this scope. It can take the following forms: fabrication, falsification, plagiarism, authorship problems, manipulation of images and redundant publications⁴. Fraud is a complex topic to address given the difficulty to detect it, as it is usually necessary for authors to self-report cases to prove it. Otherwise, it would only be possible to demonstrate the existence of errors in research, which does not allow confirming any deliberate intention to manipulate the information⁴.

When considering the Pearce Case, we are faced with a “fabrication” situation, as the author published two articles based on studies he had never conducted. “Falsification” for manipulating computer records and “authorship problems” are also noticed, as co-authorship was impossible considering that the study had not been conducted. On the other hand, problems related to publication were detected, as no barriers were implemented to detect the fraud, also verifying a conflict of interests, as Pearce was the Editor of the journal where the aforementioned material was published and the Editor in Chief was the head of his department, added to the fact that the journal failed to review the case reports.

In turn, as for “fabrication”, it takes place when data and/or results are made up, in addition to recording and reporting them^{3,5}. “Falsification” implies that there are data and/or results which have been distorted or manipulated. Although not the expected ones, results are in fact obtained in this situation and are therefore adjusted according to the needs for everything to be coherent⁵.

Likewise, a conflict of interests is observed in the case, defined as a set of situations that might impair professional reflection due to the coexistence of a main interest and of secondary ones: obtaining economic profit and achieving reputation and/or recognition. However, the conflict of interests is related to a situation and not exactly to a behavior. Therefore, it would not be considered a scientific breach as such, which does harm scientific quality. In this case, Pearce “took advantage” of his condition as editor of the journal to publish his material with a secondary interest⁶. However, it is worth noting that the conflict of interests would not disappear even if the material was published in another journal to which he was not affiliated, as the problem lies in his personal or professional interests and not on the journal itself⁶.

Another aspect that was breached was the scientific communication process due to not complying with fundamental strategies such as peer evaluation, adequate selection of the editorial team and guaranteeing data reproducibility⁷.

Therefore, it is necessary to achieve adherence to globally applicable writing, review, editing, manuscript request and scientific publication standards in order to improve visibility of the publications and enhance their impact on the scientific community⁸. Having said that, researchers should uphold certain ethical values inherent to their scientific activity, preserving the so-called scientific integrity, which is related to generating science and knowledge as a social benefit; therefore, they should abstain from negligent and careless actions that would harm collective work⁹.

Co-authorship in the case

In collaborative research, authorship-associated scientific fraud can be the result of the high demands imposed by the evaluating systems to which researchers are subjected, where a high number of publications is demanded as main requirement for their qualification¹⁰. Authorship has implications from the academic, social and economic points of view. Likewise, authors should assume responsibility for the content included in the publication, supporting their research studies in their entirety or, in the case of multidisciplinary studies, the specific component for which they are accountable¹⁰.

Given the existence of scarcely honest practices, a number of criteria have been created to preserve adequate ethical conduct in the authorship process, but they are not always observed¹⁰. The Contributor Roles Taxonomy (CRediT) proposal stands out, which sets for 14 possible roles for any author, namely: Conceptualization; Data

Treatment; Formal Analysis; Funding Acquisition; Investigation; Methodology; Project Management; Resources; Software; Supervision; Validation; Visualization; Original/Draft Preparation; Writing/Review and Editing¹¹. Another proposal is the one set forth by the International Committee of Medical Journal Editors (known as the "Vancouver Group)", which establishes criteria to define who the authors would be: substantial contributions in conception, design and data analysis or interpretation; participation in text design and/or review; participation in accepting the final manuscript that will be published; and having due competence to respond for any part of the document, thus ensuring accuracy of the manuscript¹².

On the other hand, co-authorship is a form of scientific collaboration that seeks to enhance visibility of the results, favoring academic recognition and the development of complementary skills¹³. In the scientific literature, papers written by several authors usually possess greater scientific value, as the number of errors is reduced due to the contributions made by a multidisciplinary group¹³. However, both the main author and the co-authors share the same legal responsibility regarding content of the article¹⁴.

Measures to prevent scientific fraud

Various strategies targeted at detecting it have been established:

1. Peer evaluation: during the publication process for an article, journals request filters to approve documents, with the following among them: editorial team selection; participation of evaluators; and due verification that the data can be reproduced by different groups of researchers⁷.

2. Creating Responsible Conduct of Research (RCR) programs: in the United States, actions have been implemented since 2009 to publicize these programs in research centers through the National Science Foundation (NSF) and the United States National Institutes of Health (NIH), encouraging the promotion of specific plans; however, such promotion is still limited⁷.

3. Own regulations implemented by the scientific community:

a. The PubPeer Foundation: a not-for-profit organization based on the United States that seeks to "improve the quality of scientific research by enabling innovative approaches for community interaction". The objective is to maintain and develop the PubPeer online platform for peer review after publication¹⁵.

b. For Better Science: a project created by a journalist specialized in science, conducted by an international team of experts on research integrity, biomedical ethics and academic publication and which reports undue practices by researchers^{4,16}.

There are also other measures such as the following ones: conflict of interest statements, especially when there is a link to companies with specific interests; public data availability after their publication and mandatory submission to ethics committees; anonymous reporting of scientific fraud cases to warn organizations about possible deceptions; training options to strengthen scientific writing and management of antiplagiarism and integrity/ethics programs; in addition to fostering an academic integrity culture⁴. In addition, there are other mechanisms such as establishing clear policies and procedures connected to research integrity, adjusting monetary incentives, and creating protocols and regulations that explicitly define undue conducts¹⁷.

DISCUSSION

This article analyzes a case from the ethical perspective and in a structured way, which sets forth a problem related to scientific fraud and co-authorship and proposes preventive measures to combat these undue practices.

The core discussion aspect is scientific fraud, duly described as the most severe misconduct type in research. According to the evidence, its hard detection (oftentimes only possible by means of self-report or by the presence of errors, which do not demonstrate the intention to manipulate information) shows the need to insist on devising more robust surveillance mechanisms than the current ones⁴.

The pressure to publish plenty of materials (publish or perish) is acknowledged as a factor that contributes to authorship fraud. Although co-authorship constitutes a valuable form of scientific collaboration, it implies shared legal and academic responsibility regarding the entire content of an article¹⁸⁻¹⁹. Productivity demands have favored the proliferation of trivial research studies to the detriment of relevant problems, in addition to intensifying the pressure to improve bibliometric indicators such as the H Index¹⁹⁻²⁰.

This tendency is more evident in developing countries, where limited access to funded contents has driven open access publications¹⁸. The difficulty to assess the actual impact exerted by a research study by means of quantitative metrics can affect institutional academic integrity, a risk that is potentiated by the use of Artificial Intelligence for favoring mass content production to the detriment of innovating or socially relevant surveys¹⁸⁻²⁰.

FINAL CONSIDERATIONS

Scientific fraud is considered as the most severe and hard to detect misconduct type, evidencing the fact that the existing competitiveness due to the need to publish materials leads researchers to indulge in these behaviors. The repercussions generated by fraud are relevant for the scientific world, as using distorted or inaccurate information produces setbacks in science. Therefore, each researcher is responsible for acting according to ethics and preserving adequate scientific integrity.

In order to foster ethical, transparent and honest practices, the recommendation is to follow the existing preventive strategies: stating conflicts of interests; making the data publicly available after their publication; anonymously reporting fraud cases; managing training options in scientific writing; and managing antiplagiarism, integrity and ethics programs, among others.

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