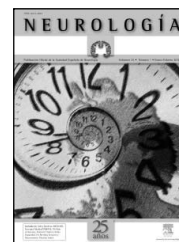




NEUROLOGÍA

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EDITORIAL

Fraud and misconduct in scientific publications

Fraude y conductas inapropiadas en las publicaciones científicas

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Received on 18th December 2009; accepted on 4th January 2010

KEYWORDS

Misconduct;
Plagiarism;
Fraud;
Redundant
publications;
Editorial review

Abstract

Introduction: Editors of scientific publications have, traditionally, been unaware of frauds and misconduct, being more concerned with subjects associated to impact or with editorial review. But, in the last few years they have been checking and reporting that there is misconduct in the scientific field, and furthermore, it is not uncommon.

Method: The most common misconduct of authors is reviewed. These are seen as an infringement of the conditions that a scientific work must have, and include fraud, such as plagiarism, repeated publications or redundant publications. Their frequency and the perspectives from a publishing point of view are discussed.

Conclusions: Many editors are demanding clear regulations to prevent misconduct. Editorial review and the provision of evaluation tools for reviewers are prevention, but not infallible formulas. What is most important could be that editorial teams be aware of its existence.

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PALABRAS CLAVE

Conductas
inapropiadas;
Plagio;
Fraude;
Publicaciones
repetidas;
Revisión editorial

Fraude y conductas inapropiadas en las publicaciones científicas

Resumen

Introducción: Los editores de revistas científicas han sido, tradicionalmente, poco conscientes de la existencia de fraudes y conductas inapropiadas, más preocupados por los temas relacionados con el impacto o con la revisión editorial, pero en los últimos años, se ha ido comprobando y denunciando que existen comportamientos inadecuados en el ámbito científico y que además no son infrecuentes.

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Desarrollo: Se revisan las conductas inapropiadas de autores más frecuentes que suponen una vulneración de las condiciones que debe tener un trabajo científico e incluyen fraudes como el plagio, las publicaciones repetidas o las publicaciones redundantes. Se discute su frecuencia y las perspectivas desde la edición.

Conclusiones: Muchos editores están reclamando regulaciones claras para prevenir las conductas inapropiadas. La revisión editorial y facilitar herramientas de evaluación para los revisores son fórmulas de prevención, pero no infalibles. Lo destacable puede ser que los equipos editoriales tomen consciencia de su existencia.

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Readers will note that in this issue of *NEUROLOGY* there has been a change in the editorial publishing unit, which returns to Elsevier-Doyma, where the official organ of the Spanish Society of Neurology (SSN) took its first steps in scientific editing. In that prestigious unit, the first editors (Profs. Grau Veciana, Eduardo Tolosa and José Bercian) carried out notable efforts to reach a high degree of development. This change comes from the hand of the last editor, Prof. Eduardo Martínez-Vila, in his capacity as president of the SSN. Without disputing the great work carried out at *Ars XXI* and the remarkable progress that took place in that period, the return of *NEUROLOGY* to Elsevier and the incorporation of its English version to Science Direct cannot be regarded as anything else than a quantum leap in the Journal's internationalisation process and the professionalisation of its operation. If this was already true, future issues of the Journal will have greater visibility and the editors' care in accepting its contents should therefore be, if anything, even greater.

Several months ago, *NEUROLOGY* received an allegation of fraud. According to the complainant, in the last ten years *NEUROLOGY* published three articles in the form of clinical cases that had been plagiarised from other works published in a high-impact international journal. The first signatory of these three items was the same and this had apparently occurred in other journals as well. The *NEUROLOGY* editorial team carefully analysed the complaint, reviewing both sets of articles, and was able to clearly establish its veracity. The cases were exactly as published in English by other authors and had even included figures that were probably exported from the original publication.

This is not the channel for reporting such plagiarisms (there are other channels for that), but it is a forum in which to review, discuss and establish the position of the editorial team with respect to author misconduct. That this term appears in the literature gives it even greater relevance, as the new situation of the publication in terms of visibility may make it more attractive for those who seek an easy, effortless curriculum.

The editors of scientific journals have traditionally been unaware of the existence of fraud and inappropriate behaviour¹, being more concerned with issues related to impact² or editorial review³. However, that inadequate scientific behaviour⁴ in the field exists and is not infrequent⁵ has been verified and denounced in recent years. The debate about author misconduct has been widespread in

the correspondence of scientific publications⁶⁻¹³ and has brought with it messages from editors in an attempt to avoid it¹⁴.

Author misconduct includes a range of actions considered to constitute a breach of the conditions that an academic work must fulfil: fraud¹⁵⁻¹⁸ such as plagiarism¹⁹, repeated publications^{20,21} or redundant publications (that are, in fact, repeated publications with some new, irrelevant material added to make it seem like another article)²². In addition to these frauds, distortions in the definition of authorship, which have been recently reviewed²³, such as "ghost authors"²⁴⁻²⁷, covert authors^{28,29} or "gift authors", can also be included among the definitions of author misconduct.

Within inappropriate author conduct, repeated publications³⁰ have traditionally been regarded with greater tolerance, as long as they have taken place with the knowledge of the Journals. In fact, there are situations where the duplication of an article is justified³¹, such as in special communications in different languages, the dissemination of rules by agreement of the journals or scientific societies themselves or clinical practice guidelines. However, when this is done to extend a curriculum or to obtain another kind of benefit, it is considered author misconduct³², and its frequency is not low in the literature³³⁻³⁶. In any case, this type of behaviour tends to be diminishing, especially in visible journals, because the reviewers have more information to detect it, and their increased specialisation tends to prevent it.

Another issue is that of redundant articles. Multiple publication of full or partial material^{37,38} has scientific implications because it distorts the proper assessment of the results of investigations³⁹, which has a special connotation in the case of clinical tests⁴⁰⁻⁴³. The term "salami articles"⁴⁴ refers to those authors who "chop" their research into many articles with common methodology to obtain a greater number of publications, without sufficient differences between them to justify this. In a systematic review of antiemetic drugs, Tramer et al.⁴⁵ found that 17% of the articles included repeated randomised trials, representing 28% of duplicated patients; this means that the benefit of the drug being studied was overestimated by 23%. Von Elm et al.⁴⁶ have established the following classification of types of duplicated publications:

- a) identical groups with equal results, which generally correspond to a copy of the article (sometimes

published as supplements), without carrying out the corresponding review process⁴⁷⁻⁴⁹; this would only be admissible if the reader is clearly warned that it is a reproduction of the original article.

- b) identical groups, but with different results, which tends to seek less validated findings that would not have been admitted in the initial article⁵⁰ and distorts the real effect of the research.
- c) distinct groups, but with identical results, in what have been called *meat extender* articles. These intend to expand the original article with partial additional information, but with the same purpose and conclusions⁵¹; this has the same distorting effect on the literature.
- d) different groups with different outcomes, which represents the most absurd situation of duplication.

The impact of the redundant publication is not small for the author, as there may be advantages such as making it easier to obtain economic aid for research and, sometimes, a greater academic recognition⁵². In the case of the pharmaceutical industry, redundant publication represents a formula for product promotion⁵³; this may be legitimate in the competitive market but violates the precepts of competition among researchers and, consequently, negatively influences scientific progress. This has led to a search for consensus to avoid such duplications⁵⁴.

Another type of author misconduct is data invention or falsification. The literature has shown occasional cases in which researchers have invented or modified their data. The case of Reuben corresponds to an American pain researcher who published 21 fraudulent articles over 15 years, some of which had implied alleged progress and were questioned later on⁵⁵. The case of Jan Hendrik Schön refers to a German physicist who published a series of manuscripts indicating progress, which were later found to be fraudulent⁵⁶ after having brought him a high degree of notoriety⁵⁷. Other examples are the scandal of Woo-Suk Hwang in a cloning study in Korea⁵⁸ or the case of Lomborg, a Danish author who invented data and distorted statistical studies in the publication of a book. These are all examples of a small part of the probable reality. The issue is obviously the frequency of these frauds in the literature⁵⁹ and how to prevent them⁶⁰. In a recent study, Fanelli et al.⁶¹ indicate that 14% of manuscripts can contain falsehoods. According to these authors, society has high level of confidence in scientists, thus making fraud difficult to prevent, in what is called the "Muhammad Ali effect". The famous military saying "validity is assumed" seems to be an umbrella of protection for the fraudulent in the academic world.

Plagiarism is probably the most objectionable author misconduct, not only because it is detrimental to science, but also to the authors themselves. In some way, it represents a form of usurpation of authorship and must be radically condemned. Plagiarism is not only copying an entire article, but also the use of a previous text for the completion of another article⁶². Copying entire paragraphs from one article to another also constitutes author misconduct, and the frequency of this practice does not seem to be low or difficult to detect. The arrival of CrossCheck—an initiative by the entities included in CrossRef

for detecting copying of articles published in the database—will be very important in preventing such inappropriate author actions. All the articles included in their publication databases will be checked by a comprehensive computer system that can even detect copying of whole paragraphs. Elsevier-ScienceDirect is one of the entities participating in the CrossCheck project, which will be an important tool in the hands of the publishers whose journals are included (as *NEUROLOGY* will be) in the CrossRef environment and a method of monitoring fraud⁶³. However, it is not only detection that is important; ways have to be found to repair the consequences of inappropriate author behaviour⁶⁴.

Many publishers are demanding clear regulations to prevent author misconduct⁶⁵, but this is not easy to detect. Editorial review and facilitating evaluation tools to reviewers are undoubtedly means of prevention, but they are not infallible. It might be important for editorial teams to be aware that inappropriate behaviour by authors does exist and to try to detect it, which is surely already the case in *NEUROLOGY*.

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