INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH IN MULTIDISCIPLINARY EDUCATION

ISSN (print): 2833-4515, ISSN (online): 2833-4531

Volume 03 Issue 12 December 2024

DOI: 10.58806/ijirme.2024.v3i12n01, Impact factor- 5.138

Page No. 1847-1851

Researchers and Journals – What are Their Responsibilities?

Homaile Mascarin do Vale[1], Cassia Fernanda Estofolete[2], Ana Elisabete Farinha Ferreira e Dias Pereira[3], Edla Polsinelli Bedin Mascarin do Vale[4]

[1] Postdoctoral Researcher – Faculdade de Direito da Universidade de Coimbra, Portugal, Street Dr. Raul Silva, 347, Redentora, Zip Code: 15015-020, City: São José do Rio Preto/São Paulo – Brazil

[2] Professor of Infectious Disease Departament, Faculdade de Medicina de São José do Rio Preto (FAMERP), SP, Brasil

[3] Post Doctor - Faculdade de Direito da Universidade de Coimbra - Palácio dos Melos - 3004-534, Coimbra, Portugal

[4] Professor of Gastroenterology and Hepatology Department, Faculdade de Medicina de São José do Rio Preto (FAMERP), SP, Brasil

ABSTRACT: The article examines the ethical and professional obligations of researchers and scientific journals in the context of exponentially growing scientific literature, particularly in the medical field. With an 86% increase in publications from 2010 to 2021, spurred in part by the COVID-19 pandemic, the study highlights concerns regarding transparency, data integrity, and the peer review process. The pressure to publish, often exacerbated by the "publish or perish" culture, can lead to ethical compromises such as data manipulation, publication bias, and conflicts of interest. The critical role of journals in ensuring the quality, safety, and accuracy of published research is emphasized. Greater accountability between journals and researchers to maintain scientific integrity, avoid retractions, and manage conflicts of interest is advocated. In addition, the research addresses the limitations of rigidly applying clinical guidelines without considering individual patient needs, highlighting the importance of personalized medicine and the judicious use of evidence-based practices.

KEYWORDS: Ethics, responsibility, conflict of interest, bias

I. INTRODUCTION

In recent years, there has been an exponential growth in the number of scientific publications, particularly in the medical field. Data from PubMed indicate a substantial increase in the volume of articles published over the past decade, reflecting a significant rise in research and innovations within the health sector. It was found that, in 2021, there was an approximate 86% increase in the number of publications compared to ten years earlier (National Library of Medicine)[1]. His growth can be partially attributed to the COVID-19 pandemic, which accelerated scientific investigations and the development of new therapies and vaccines (Gionola, 2020)[2]. Furthermore, advancements in information and communication technologies have facilitated global collaboration among researchers, resulting in an increase in scientific output.

Scientific publications play a crucial role in the development of clinical guidelines, providing the evidence base necessary to support practical health recommendations that reflect best practices and are continually updated with the latest advancements in medicine. The transparency and replicability of published research allow other researchers to verify and expand on findings, thereby strengthening the scientific foundation of these guidelines (Munafó, 2017)[3].

In medicine, one of the most rapidly expanding fields during the 2010s was artificial intelligence. According to Nature, the number of publications on this subject increased more than twentyfold—nearly 2,500%—from 596 publications in 2010 to 14,422 in 2019. During this period, the FDA (Food & Drug Administration) approved 29 applications/systems for use in cardiology, endocrinology, radiology, neurology, intensive care medicine, ophthalmology, emergency medicine, and oncology (Benjamens et al., 2020)[4].

While the surge in scientific publications has led to significant advancements, it has also exposed the vulnerabilities in the rapid dissemination of scientific findings. Scientific publications must adhere to principles that ensure the integrity, transparency, and reliability of research (Moher, 2020)[5]. Ethically, one of the foremost principles is honesty in conducting and reporting research, which involves accurately presenting data and results without fabrication, falsification, or omission of relevant information (Ioannidis, 2005)[6]. In 2005, a South Korean scientist who had announced the creation of human stem cells through cloning—an achievement that would have represented a significant medical breakthrough—was forced to retract his findings due to data falsification and the coercive use of eggs from female researchers on his team, without proper ethical consent (Hwang et

al., 2004)[7]. Although the retraction was crucial in preserving the integrity of stem cell research, public trust in biotechnology was deeply affected.

The unchecked proliferation of articles can lead to a decline in research quality, with studies being published rapidly without thorough peer review. This may result in the dissemination of erroneous or incomplete information. Additionally, the phenomenon of "publish or perish," first described by Logan Wilson in 1942, places immense pressure on researchers to publish continuously, which can encourage unethical practices such as the fragmentation of results into multiple articles or the repetition of studies without any significant new contributions (Warsy, 2019)[8].

This scenario also overwhelms peer reviewers, who face an increasing volume of manuscripts to evaluate, often without adequate compensation, potentially compromising the quality of the peer review process. Peer review remains a central pillar, ensuring that manuscripts are critically assessed by independent experts before publication. Another crucial premise is the protection of research subjects, guaranteeing that studies involving humans or animals adhere to the highest ethical standards and obtain proper informed consent.

Transparency and impartiality are essential, requiring full disclosure of methods, results, and funding sources to allow for the replication of studies and the identification of potential conflicts of interest or undue influence from commercial or personal interests. Conflicts of interest in research pose a serious threat to scientific integrity and credibility. They occur when researchers' personal, financial, or professional interests interfere with the objectivity of their studies, potentially leading to data manipulation, biased interpretation of results, and publication bias (Choudhry, 2022)[9].

Particular attention must also be given to the selection of studies included in systematic reviews or meta-analyses, which can be subject to bias. Studies with negative results are less likely to be published (publication bias), which can distort conclusions. Even when data is selected impartially, the interpretation of results can be influenced by authors' biases or external pressures. Ambiguous language or the emphasis on certain findings can improperly steer conclusions. A lack of transparency in methodology may conceal potential biases and conflicts of interest. This lack of clarity can lead to the implementation of ineffective or harmful clinical treatments, misdirect health resources, and jeopardize patient safety. Therefore, ensuring transparency and properly managing conflicts of interest are critical for maintaining the integrity and trust in scientific research.

Impartiality in the creation of guidelines and scientific articles is essential for evidence-based medical practice. While the formulation of guidelines is challenging, their application is even more so. Strict adherence to clinical guidelines offers numerous benefits for both physicians and patients. For physicians, guidelines provide a solid foundation of recommended practices based on the best available evidence, facilitating clinical decision-making and reducing uncertainty in treatments. This can improve consistency and standardization of care, ensuring that all patients receive care based on robust evidence, regardless of the doctor or location. For patients, adherence to guidelines can enhance confidence in the treatments received, as they are designed to maximize effectiveness and minimize risks. Moreover, the use of guidelines can expedite the diagnostic and treatment process, ensuring that patients receive timely and appropriate interventions (Murad, 2017)[10].

However, the rigid application of these guidelines, without individualizing care, can compromise the efficacy, safety, and satisfaction of the patient. It is crucial that healthcare professionals use guidelines as a tool while maintaining clinical judgment and prioritizing the individual needs of patients in clinical practice. The application of guidelines without considering the patient's uniqueness can result in less effective or even harmful treatments. Patients present with different comorbidities, adverse drug reactions, and socioeconomic factors that may affect their response to treatment (Coulter, 2015)[11]. Between 2011 and 2014, a series of publications reported the success of synthetic trachea surgeries. Over the years, it became clear that positive results were emphasized while complications, including patient deaths, were overlooked, and ethical procedures were not followed (Macchiarini P et al., 2011)[12].

Medical practice must respect patient autonomy, allowing their preferences and values to be considered in decision-making. The strict application of guidelines can disregard this autonomy. Standardized treatments may not be cost-effective for every patient. Personalization can optimize resources by avoiding unnecessary treatments and focusing on interventions that are more beneficial. Patients who feel heard and whose individual needs are addressed tend to experience greater satisfaction with their care, which can improve adherence and clinical outcomes. For patients, the inflexible application of guidelines may result in care that does not take into account their preferences, values, and specific circumstances, potentially undermining satisfaction and adherence to treatment (Goldberger, 2013)[13].

For physicians, the rigidity of guidelines can limit flexibility and hinder their ability to tailor treatments to meet the individual needs of patients. This is especially problematic in complex cases or when patients present with comorbidities that are not fully addressed by the guidelines. Additionally, in situations where evidence is limited or still emerging, excessive reliance on guidelines may lead to decisions that are not optimal for unique or rare cases. Thus, while guidelines are valuable tools, it is crucial that physicians retain their clinical judgment and the ability to adapt treatments to the specific needs of each patient.

The strict use of clinical guidelines without proper individualization can pose significant challenges for both doctors and patients. Although guidelines are designed to standardize care and ensure that all patients receive treatment based on the best available evidence, the lack of flexibility can be harmful. Each patient has unique characteristics, including comorbidities,

personal preferences, and socioeconomic contexts, which may not be fully addressed by standardized guidelines (Hughes, 2013)[14]. Consequently, the rigid application of these guidelines may result in inadequate or unsatisfactory treatments, ignoring important nuances of clinical management. Therefore, it is crucial for physicians to use guidelines as a foundation, but also apply their clinical judgment to adjust recommendations to the specific needs of each patient.

Evidence-based medicine (EBM) offers a more balanced and personalized approach to clinical decision-making. EBM is an approach to clinical practice that emphasizes the conscious, explicit, and judicious use of the best available evidence in making decisions about the care of individual patients (Djulbegovic, 2017)[15]. Its principles include the integration of the best available research with clinical expertise and the values and preferences of patients. EBM advocates for the use of a hierarchy of evidence, where systematic reviews and randomized clinical trials are considered the most reliable, while expert opinions and observational studies occupy lower tiers. This approach ensures that clinical decisions are informed by robust and up-to-date data, thereby promoting the efficacy and safety of treatments. Moreover, EBM encourages continuous practice of updating and learning among healthcare professionals, ensuring that they remain aware of the most recent and relevant advances in medicine.

Journals carry the fundamental responsibility of advancing knowledge, and this premise cannot be separated from the researcher's and reviewer's commitment to data integrity, analytical transparency, originality of the study, adherence to ethical principles, and, ultimately, the dissemination of results. When necessary, this also includes the correction of errors through retractions or errata.

Articles published in journals remain the primary channel for sharing research findings. This is evident when considering the vast number of scientific journals worldwide—over one million across all fields of science[16].

In light of the exponential growth in the number of journals and studies within the scientific community, which fosters academic and social progress, this analysis aims to examine the responsibility that journals bear for the quality and dissemination of the research they publish.

II. DISCUSSION

Journals, in their vast majority, do not assume responsibility for the safety, data, and accuracy of the studies they publish. For example, in the context of clinical trials, the National Library of Medicine, through clinicaltrials.gov, states the following:

The U.S. government does not review or approve the safety and science of all studies listed on this site. The sponsor or investigator of the study submits information about their study to ClinicalTrials.gov and is responsible for the safety, science, and accuracy of any study they list. ClinicalTrials.gov is an online database and website for clinical research studies and their results. The National Library of Medicine (NLM) maintains the site. A wide range of public and private organizations worldwide sponsor (oversee) and fund (cover the costs of) studies listed in the ClinicalTrials.gov database[17].

The issue at hand concerns the role of social actors involved in the production of journals and scientific articles. Social responsibility encompasses ethical principles, moral values, and cultural context in carrying out practical activities, policies, and expected behaviors (in a positive sense) or prohibited ones (in a negative sense) by members of society, regardless of their inclusion in formal codes of ethics[18].

The credibility of a journal is directly linked to the strength and reliability of the research it publishes. Undoubtedly, an article published in journals such as The Lancet, The New England Journal of Medicine, British Medical Journal, Cochrane Library, Science, National Library of Medicine, JAMA, or Nature (for instance) commands more respect than one in lesser-known or low-impact journals. However, as mentioned earlier, there have been numerous retraction cases in these prestigious journals, particularly because they are sought after for publication due to their prominence in the scientific field.

In 2010, a globally significant case emerged. A 1998 article published in one of the world’s largest journals linked vaccines to autism. After extensive investigations, financial conflicts of interest were revealed concerning the author, who was involved in a legal case against vaccine manufacturers and held a patent for an alternative vaccine (Wakefield et al., 1998)[19]. The impact of the original publication, however, extended far beyond the retraction, as it bolstered the anti-vaccine movement, which persists to this day. This case underscored the importance of impartiality and transparency in conducting scientific studies and marked a turning point in the need for more rigorous reviews and increased responsibility within the scientific community, both for those who produce the studies and for those who consume the research.

The disclaimer of responsibility by journals does not align with the offer of knowledge and the protection of collective interests across all fields of science. When peer review is provided, a relationship is established between researchers and reviewers that cannot be disregarded by a statement of non-liability. In summary, the primary responsibilities of an impartial reviewer include evaluating scientific quality, verifying originality, assessing relevance, providing suggestions for improvement, ensuring confidentiality, and guaranteeing scientific integrity. If a reviewer is able to suggest and guarantee integrity, they should, institutionally, be held accountable.

This cause-and-effect relationship is not adequately supported in the current international scientific landscape, primarily because the enjoyment of social rights remains a mere expectation. Since the Declaration of Helsinki (1964), the following research

condition has been stipulated: "All other provisions of the Declaration of Helsinki must be followed, particularly the need for appropriate ethical and scientific review"[20].

A notable assumption of responsibility occurred with the scientific journal The Lancet, which, during the Coronavirus pandemic, changed its article evaluation process to prevent the publication of papers based on large datasets that could not be audited. During the COVID-19 pandemic, it was discovered that the data used to evaluate the use of hydroxychloroquine against SARS-CoV-2 in a high-profile study were questionable and unverifiable (Mehra, 2020)[21]. A similar article was published and quickly retracted (Mehra MR et al., 2020)[22], raising serious concerns about peer review processes and the rush to publish, especially during global crises.

The announcement of this vulnerability stated:

With the new rules, the journal seeks to correct flaws in its review process that became evident with the publication, in May, of a paper that gained significant attention for concluding that hydroxychloroquine was ineffective against the novel coronavirus infection and could cause heart problems. In June, the article had to be retracted when it was discovered that its primary data had such questionable origins that it was impossible to determine whether the data even existed[21].

The responsible conduct of research cannot be attributed solely to the researcher, as they often respond to requests and suggestions from reviewers and the editorial board, who may shape or alter the understanding of the content. Some countries, such as Brazil, have institutions dedicated to improving the publication of technical and scientific journals. It has been proposed that a Code be established, which, in summary, includes: (a) the responsibility to make decisions about manuscripts based on objective and scientific criteria, in a timely manner; (b) the protection of the rights of both authors and reviewers; (c) impartiality in the selection of reviewers; (d) responsibility for maintaining the confidentiality of submissions and ensuring fairness in the evaluation process; and (e) ultimate responsibility, in a judicious manner, for what is published in the journal[23].

If relevance and impact, grounded in social responsibility, are inherently linked to the sustainable development of the sciences—which themselves rely on the scientific community to achieve the common good—then an interface and necessary dialogue arise in the realm of protecting human rights. Society, including doctors and other professionals, is at the mercy of a productive coexistence focused on promoting health and safety within the social fabric. Therefore, the responsibility of a journal cannot merely be limited to the dissemination of content.

The goal of this productive tension is to expand and enhance the protection of human rights from a plural, complex, and integrated perspective, fostering complementary coexistence that always acts for the benefit of protected individuals and their rights[24]. Authorship, sensationalism, and plagiarism must be both enforced and deterred, respectively. However, the concern addressed in this article is that the direction of science, particularly in the health sector, is often at the service of journals that do not take responsibility for what they publish, even though their core mission is to propagate knowledge and safeguard collective interests.

V. CONCLUSIONS[25]

The critical importance of scientific integrity and the shared responsibility between researchers and journals in publishing evidence forms the foundation of medical practice. The exponential increase in scientific publications brings both advancements and ethical challenges, as the relentless pursuit of publication can compromise the quality of studies and the peer review process. Retraction cases, such as the vaccine-autism study and the hydroxychloroquine research during COVID-19, highlight the negative impact that a lack of transparency and misconduct can have on science and public health. Thus, striking a balance between volume and rigor is essential to ensure that scientific progress aligns with ethical principles and contributes safely and effectively to the well-being of society.

Equally important is the need to highlight the risks associated with the inadvertent application of clinical guidelines without considering the individual nuances of patients. While guidelines provide a solid foundation for evidence-based medical practice, following them mechanically without exercising clinical judgment can lead to inadequate or even harmful treatments. Each patient has unique characteristics, such as comorbidities, personal preferences, and social circumstances, which must be taken into account. Therefore, rather than rigidly adhering to standardized protocols, it is crucial to individualize treatment to ensure that it meets the specific needs and conditions of each person, thereby promoting more effective and safer care. Personalized treatment strengthens patient trust and improves adherence, leading to better clinical outcomes.

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