

Plagiarism in medical publishing: each of us can do something about it

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Everyone has the right to the protection of the moral and material interests resulting from any scientific, literary or artistic production of which he is the author.

– United Nations, Universal Declaration of Human Rights

Science is built on original thoughts building on prior knowledge. However, developing original material is difficult. It requires time and dedication. This is true for a case report no less than for a novel. As a result, while we hope that our contributions will help push forward the boundaries of research or patient care, we have the right and expectation that our original work will not be copied without clearly acknowledging our efforts.

Plagiarism: a form of misconduct and dishonesty

The copying of written work or ideas without appropriate attribution is termed plagiarism and has been named as ‘one of the most serious crimes in academia’.¹ Plagiarism in academic publishing is a problem for a number of reasons. First, legally it may violate national or international laws regarding copyright (e.g. the Copyright, Designs and Patents Act 1988 in the UK and the 2019 EU Directive).^{2,3} Second, and perhaps more personally displeasing, it allows others to use ideas or words not of their own construction to their benefit. Given that originality is hard, plagiarism is easy, plagiarism is cheating.

Different groups have attempted to categorize the spectrum of plagiarism. Notably, the American Medical Association (AMA) uses four groups: direct plagiarism, mosaic plagiarism, paraphrasing, and insufficient acknowledgement.⁴ These categories highlight that not all offenses are of equal severity.

Direct plagiarism represents word-for-word transactions of selections of text without appropriate attribution and quotations.

In comparison, paraphrasing results when taking the original text and restating it using new vocabulary; the ideas described by the paraphrased text should still be appropriately attributed to the original author. Mosaic plagiarism occurs when different forms of plagiarism or original and borrowed ideas are mixed together (Figure 1).

Multiple causes contribute to plagiarism. Factors such as lack of awareness, inadequate writing skills, pressure to publish (e.g. as a requirement for promotion), unfavourable personal character, and poor team culture play a role.^{5–7} Plagiarism may be the easier path for some to take. Moreover, cultural differences and language skills (e.g. in non-native English speakers) may also contribute to the lack of awareness and skills.^{8–10}

The concept of self-plagiarism, the copying of one’s own work, also exists. The ethical ramifications of this may be less clear. Indeed, some would consider the duplication of small passages of material that are consistent across publications (for example, core methods in two papers that are the same) as being acceptable. However, once it reaches the extent of duplication of submissions and/or publications, this is certainly dishonest behaviour.⁴

Ways to detect plagiarism

Several guidelines are available to health research authors.¹¹ *European Heart Journal—Case Reports* follows the CARE (CAse REport) guideline, developed in 2013.¹² Containing a flow diagram and an accompanying checklist, the guideline is a practical tool to approach and report patient’s health data when considering a publication. While this tool does not explicitly refer to plagiarism, it recommends ensuring that manuscript text and/or images are appropriately referenced to ensure that the contributions of previous researchers are acknowledged.¹²

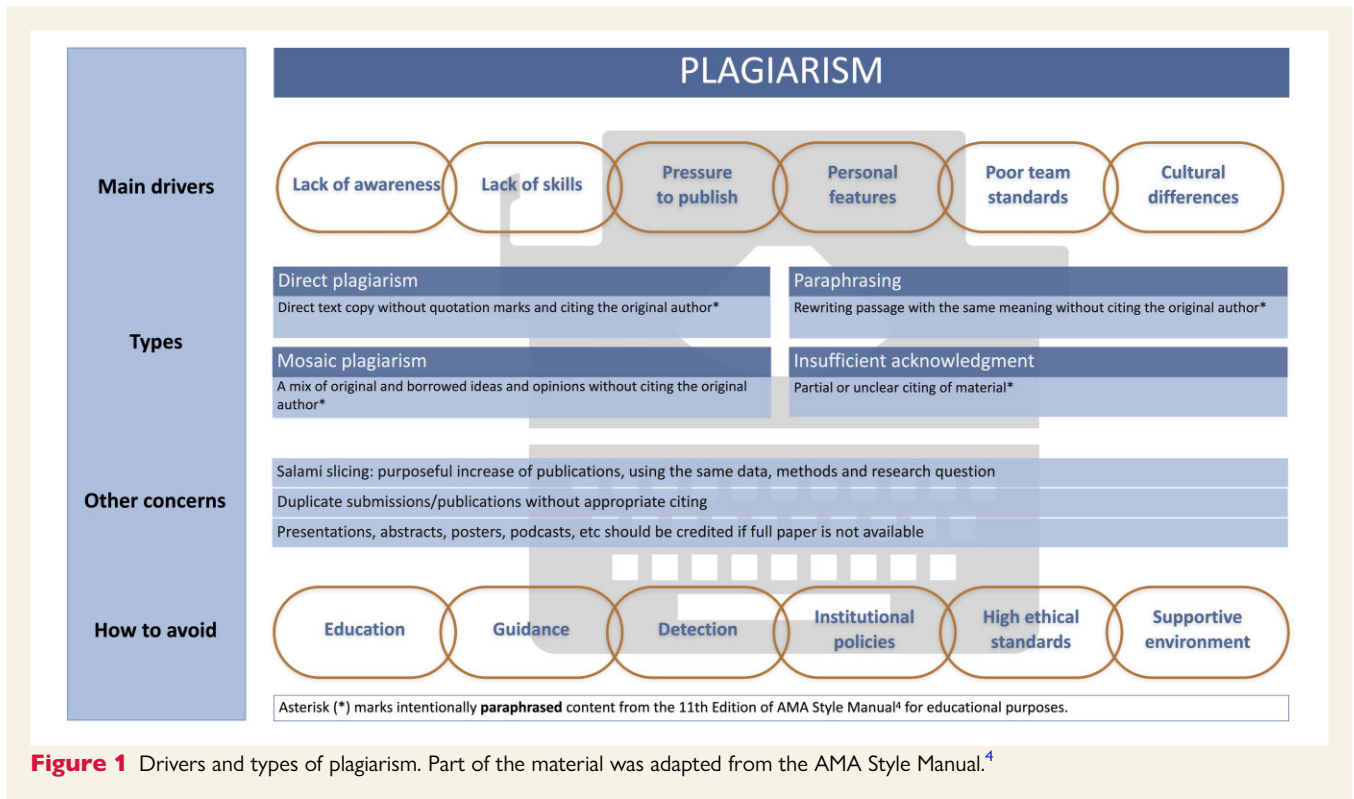
Automated detection tools have been developed and are routinely used by many, if not most, reputable scientific journals. *EJ-CR* is no

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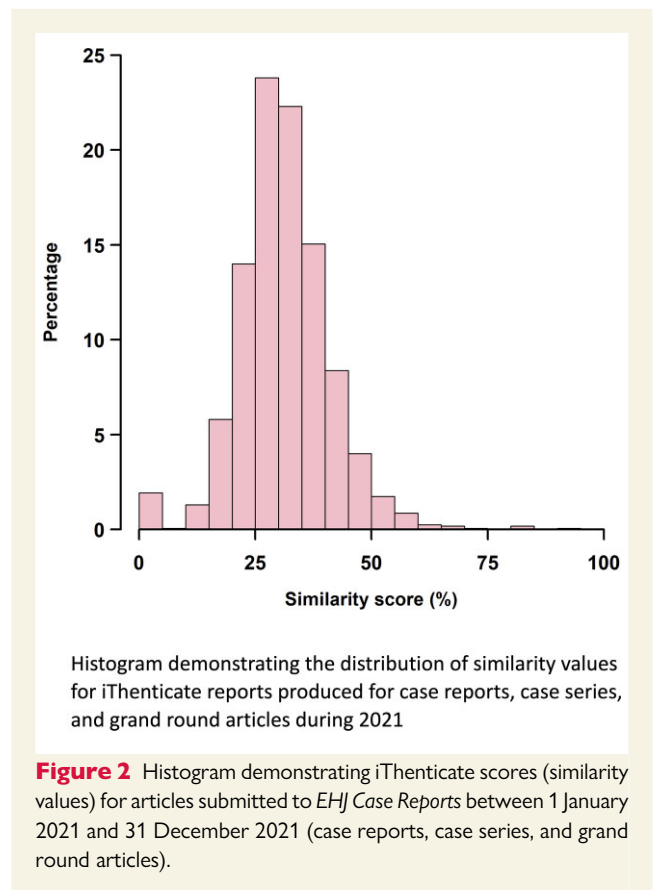
exception, with every manuscript undergoing a check against other publications and Internet content after submission. This report is provided to editors and reviewers who can assess similarity scores and passages of potentially duplicated text. Finally, after a revision round, the resubmitted manuscript is re-evaluated.

In 2016, Higgins *et al.*¹³ analysed the automated tool detection scores in a major American medical speciality journal; they found 17% of the journal's submissions met the criteria for plagiarism, and the majority of plagiarized content originated from non-English-speaking countries. The *American Journal of Roentgenology* has recently published its detection report, with 48% of the manuscripts scoring 20% or more in duplicated content.¹⁴

Out of 1852 submissions received between 1 January and 31 December 2021, *EJ-CR* has detected 50.5 and 88.7% of them scoring $\geq 30\%$ and $\geq 20\%$ in similarity checks, respectively (Figure 2). When interpreting these data, it is essential to note that obligatory structured submission files such as CARE guidelines and references are part of the manuscript and thus significantly raise the overall score. As case reports are often much shorter than original research articles, such passages make up a greater proportion of the total manuscript file.

The other reason for higher score values is that articles published as pre-prints can often come up with very high scores (this is the case for at least one of the articles with a score $>75\%$ in the histogram).

As in our example, there are limitations to automatic detection methods, which require editors and editorial policy to evaluate manuscripts individually and avoid setting specific percentage cut-off values for determining plagiarism. In particular, not every similarity is plagiarism (for instance, necessary guidance content, references, or



common technical words and phrases may increase the similarity check score). A developing reason for high scores is the detection of articles published online as pre-prints or abstracts published by congress or meeting organizers.

There are fundamental differences between an algorithm and the human element. For example, an algorithm can fail to detect a heavily paraphrased, not original text as opposed to merely technically matching text: as Weber-Wulff¹⁵ outlines, this aspect requires an active input by honest authors, peer-reviewers, and editors and should involve a careful review of references. In addition, a lack of a human element in such systems may not aid in fostering the morale of honesty and honour among authors.¹⁶ In other words, over-reliance on automated tools is merely symptomatic and does not treat the cause of the problem.

Plagiarism is not taken lightly

When a potentially plagiarized article is flagged, the majority of reputable journals take such claims very seriously. Even if the problem falls through the cracks during the editorial assessment and peer review, articles may be rejected at any phase of the publication process or retracted after publication. The Committee on Publication Ethics, of which *EHJ-CR* is a member, sets out a clear protocol for dealing with such issues.¹⁷

EHJ-CR expects all submitted manuscripts to be original as specified in the General Instructions.¹⁸ Upon detecting features of plagiarism, the journal writes to the authors with a decision to reject and a clearly stated request to provide an explanatory letter. The journal then evaluates the explanation and may or may not issue a formal letter to the author's institution expressing misconduct concerns. Failure to respond and offer an explanation would encourage editors to communicate with the author's institution.

Collective effort to maintain scientific integrity

As outlined above, scientific journals can maintain the high integrity of publications by providing clear guidance to combat plagiarism, adopting automated detection tools, and manually reviewing high similarity scores and the articles themselves. In addition, regular auditing should aid in maintaining effectiveness.

On the other hand, the wider academic community could and should also actively participate in the prevention of plagiarism. Early and sustained education in publishing ethics is probably the most important preventive measure and can be applied from personal to institutional levels. Examples of such educational activities include the comprehensive modules by the US Department of Health and Human Services,¹⁹ and the online course provided by Oxford University.²⁰ In addition, several word processors and downloadable commercial editing tools provide similarity checkers, which may aid novice authors. Finally, a supportive and ethical departmental culture with set policies on academic misconduct is no less important in helping to maintain high levels of scientific integrity.

Lead author biography



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