



Writing for “International Orthopaedics”: authorship, fraud, and ethical concerns

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The high number of submitted papers in scientific journals is an indicator of the amplification of research worldwide. Writing papers has become a part of our life as physicians. A couple of decades ago, authorship was reserved to “academic surgeons” while many colleagues were resuming the publishing experience to one paper finished during residency or fellowship. Current rules in medical schools made publishing compulsory for professional advancement; therefore, an important number of colleagues found themselves in a delicate situation where achieving professional status was related to publishing and bringing evidence of projects of research. With the augmentation of publications, some ethical issues arisen and they are too important to ignore.

Our experience with *International Orthopaedics* brought cases and situations where ethical concerns were important and resulted in rejection. We had cases of authorship conflict within a Department where colleagues were arguing about order or priority as authors. Other publications were submitted in revised forms with new authors. Cases of papers with obvious plagiarism are seen every month. We rejected those submissions and wrote to the heads of Departments and to the University to make sure those cases are discussed. We do not take action against authors as generally we consider writing an intellectual incentive and we believe that the researcher is motivated by good deeds. However, professional promotion based on fraud should be avoided and honesty should prevail.

Research integrity is the cornerstone of academic medicine. The basic principles of research integrity are ethical writing and peer review, and honest authorship [1, 2]. Articles with questionable data are rejected or retracted. In

a review of 2047 retracted articles, 67% had evidence of some type of scientific misconduct (fraud) [3]. Authorship disputes represent the most common pitfalls in medical writing with 6% of fraud being attributed to authorship issues in > 1000 retractions on PubMed from 2013 to 2016 [4], 21% of inappropriate authorship in articles published in 2008 in high-impact general medical journals, and nearly 8% of an unnamed important contributor in the same articles [5–10]. In the current era of collaborative research, fraud related to authorship has been attributed to the system that requires researchers to publish a lot, because publications are important for the rankings of individual scientists, institutions, and universities. In almost every academic discipline, the number of publications is the most important measurable output for the authors and their universities. Mass education, teaching, and research programs are an explanation for the increased demand for publications, rankings, and citation metrics. An example is the mass paper production on COVID-19 epidemic with millions of papers published in various languages. Therefore, no wonder why scientists do everything to publish as much as possible no matter the cost, importance and novelty of the topic, and format of scientific writing [11–22].

Authorship refers to the attribution of responsibility for planning, conduct, analysis, and publication of a scientific paper [23, 24]. Authorship confers credit and has important academic, social, and financial implications. However, the listed authors in the authorship should be able to take responsibility for all aspects of a published scientific paper, and should be able to defend the entire study or in cases of multidisciplinary articles to defend their individual part. If there is disagreement about the authorship of the paper, brought to the attention of the journal editor by any of the authors, then this brings the integrity of the entire work into question. A high prevalence of authorship issues can have a severe impact on the integrity of the research [25]; often, the International Committee of Medical Journal Editors

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(ICMJE) criteria are ignored and fraud in authorship is frequent [26, 27].

The literature on authorship practices has increased substantially over the years and questionable practices have been identified. This editorial discusses the authorship issues and considerations in medical writing with emphasis on authorship-related scientific misconduct.

Authorship criteria

The ICMJE, formerly known as the Vancouver group [28], and the Committee on Publication Ethics (COPE) have provided guidelines and criteria for ethical conduct and authorship disputes [29]. A recent initiative, the Contributor Roles Taxonomy (CRediT), also aims to present author contributions clearly under 14 different headings, ranging from designing a study up to the stage of writing or editing a manuscript [30].

The ICMJE criteria for an author to be included in the authorship of a submitted paper are as follows: (1) substantial contributions to conception, design, analysis, and interpretation or acquisition of data; (2) drafting or revising critically the article for important intellectual content; (3) final approval of the manuscript; and (4) agreement to be accountable for all aspects of the research [28]. The ICMJE authorship criteria have evolved since 1978. The first three versions of these guidelines in 1978, 1979, and 1982 only referred to authorship fleetingly, wherein a statement was required from the submitting author to confirm that the manuscript had been perused by all the listed authors, who agreed to its contents. The fourth version of this document in 1988 mentioned for the first time the three mandatory criteria for authorship including (1) planning and designing the study, or analysis of the study results or their interpretation; (2) drafting the manuscript for submission, or contributing to its revision; and (3) approval from all authors of the submitted version of the manuscript. This version also introduced the concept of group (collective) authorship, as well as the concept of acknowledging those who might not fulfill authorship criteria, but nevertheless have contributed intellectually to the study. The 1994 version of the ICMJE guidelines introduced the consideration of order of authorship to be a mandate of the group of authors. The August 2013 version expanded the existing authorship criteria to include a fourth criterion that is the confirmation that the listed authors are responsible for all aspects of the said manuscript and agree to answer any future questions regarding either the integrity or correctness of the study in question. A suggestion was also made to decide on authorship before starting the study in large, multi-author papers. Also, it outlined processes for any correction to the author list after submission of the manuscript, as well as the responsibilities of the corresponding

author. Additionally, it mandated the requirement of authors to declare potential conflicts of interests, and made available an ICMJE form synthesized for this purpose. The following versions remain principally the same with respect to authorship [24, 28]. The inclusion of the latest fourth authorship criteria is especially important, as in cases of scientific misconduct detected after publication of the article, often the corresponding author and the first author are held responsible, and the remaining co-authors may shy away from the responsibilities of authorship [6, 7]. Additionally, the latest ICMJE guidelines do not mention specific considerations for the use of external editing agencies, and this issue may need to be addressed in a future revision of these guidelines.

Inappropriate authorship practices

It is important to declare clearly the contributions of all authors towards different aspects of a particular manuscript. Attributing authorship to a person who does not fulfill the four ICMJE criteria is inappropriate. Only those who meet the four ICMJE criteria should be designated as authors. Those who meet fewer than all four ICMJE criteria for authorship such as those who provided purely technical help; activities such as acquisition of funding; general supervision of a research group or general administrative support; simple data collection; writing and statistical assistance; language editing, and proof-reading, or a department chair who provided only general support, do not qualify for authorship and should be acknowledged, instead [28].

The literature suggests that inappropriate authorship practices are current [2]. These include maneuvering the authorship using different practices such as “guest authorship”, “gift authorship”, “ghost authorship” or “ghostwriting”, “coercion authorship”, “honorary authorship”, and “selling authorship” (Table 1) [31–40]. Maneuvering the authorship is used frequently to obtain academic promotion or research funding without merit, taking also advantage of junior researchers [38]. On the other hand, junior researchers may practice honorary authorship to improve the chance their manuscript will be accepted for publication [31]. In a survey of 1246 corresponding authors (response rate: 15.75%), 33.4% admitted that they performed honorary authorship for complimentary (39.4%), to avoid conflict at work (16.1%), to facilitate article acceptance (7.2%), or other (3.6%) reasons. In retrospect, 75% of the authors stated that they would remove unjustified names from the authorships [41]. In another study of 809 corresponding authors of articles published in prestigious journals, the authors reported honorary authorship in 19% of articles, ghost authorship in 11%, and combined honorary and ghost authorship in 2% [42]. An analysis of the responses of > 1200 scientists concluded that the most commonly perceived academic

Table 1 Common types of inappropriate authorship practices

Authorship practice	Definition
Guest authorship	Using the name of a well-known researcher in an effort to change the status of the article and increase the chances of publication
Gift authorship	Offering authorship to friends or colleagues as a gift, without substantial contribution, with the authors expecting a future counter-gift, future collaborations, good relations, return a favor in work and promotion, or similar inclusion of their names in another authorship in return
Ghost authorship (ghostwriting)	Someone other than the named authors (ghostwriter) makes a major contribution but is not mentioned in the authorship. Typically done to mask contribution from pharmaceutical industry, so as to hide a potential conflict of interest. Dissertation ghostwriters are another deceitful practice among postgraduate students
Coercion authorship	Superiors with no direct involvement in the work demand or presume that they should be authors of any article originating within their department. The same applies when a senior researcher forces a junior researcher to include a gift or guest author
Honorary authorship	Combined gift, guest, and coercion authorship
Selling authorship	Submitting papers by external editing agencies on the behalf of authors, which have undergone a round of peer review with a revision suggested by the journal editor, are then advertised to potential authors. Authorship is then offered for a fee paid to the editing agency, and a change of authorship including this new author is then requested while submitting the revised manuscript

misconduct was the inclusion of authors without obtaining permission (guest authorship), along with the inappropriate use of others work as one's own (plagiarism) [43].

The order of authors in the authorship is also important, and may be a point of disagreement. It may be useful to sign a formal co-author agreement prior to initiating the work in so that conflicts do not occur later [44]. Additionally, quantification of the extent of authors' contribution at each stage of the manuscript may help avoiding dispute in the order of authors [45, 46]. Eventually, the authors should decide early on the order of authors based usually on the magnitude of contribution, with the first author adding the most value and the last author representing the most senior, predominantly supervisory role, even though not always fulfilling explicitly the four aforementioned criteria. No department chair or research director should insist on his name to be included in the authorship unless he has contributed significantly to the study. Authorship listing by administrative fiat is academic malpractice. Any change in the list of authors after initial submission, revision, or acceptance of the manuscript should be made only with the full written consent of all authors, including the author whose name was added or deleted. Inappropriate authorship identified by editors by virtue of their experience, and disagreement about the authorship of the paper brought to the attention of the editor by any of the authors, brings the integrity of the entire work into question and could result in rejection.

At *International Orthopaedics*, we feel responsible to our readers for publishing honest research and useful papers on specialized topics, as well as general orthopaedic knowledge for practice. In this context, we help the submitting authors with a constructive, transparent, and informative peer-review process. We are in debt to our reviewers for their pro bono work and whistleblowing in instances wherein the integrity

of peer-review processes has been compromised. However, when we detect inappropriate practices, we communicate with authors with the intention to avoid potential misbehavior. Publishing honest science and research is capital for readers and also for authors. Being aware of misbehavior or mischievous maneuvers, we eventually protect both writers and readers.

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