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Disregard the authorship criteria or perish

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Commentary

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Publish or perish

'Publish or perish' is an oft-used aphorism describing the necessity to publish as many research articles as possible in order to achieve and maintain an academic or clinical career (Yuan *et al.*, 2003). There is general consensus in the medical field that the publication pressure reflected by this aphorism is more or less directly related to unethical practices such as duplicate publication, 'salami slicing', or outright fabrication/falsification of data (Martinson *et al.*, 2005; Kleinert, 2011).

Disregard the authorship criteria or perish

As if this was not bad enough already, it is my impression that the publication pressure has led to another unfortunate modus operandi that is perhaps best described as 'disregard the authorship criteria or perish'. By authorship criteria, I refer to the criteria published by the International Committee for Medical Journal Editors (ICMJE) (International Committee for Medical Journal Editors, 2020) – previously known as the Vancouver Group. These criteria state that authorship must be based on the following:

- *Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work;* AND
- *Drafting the work or revising it critically for important intellectual content;* AND
- *Final approval of the version to be published;* AND
- *Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved* (International Committee for Medical Journal Editors, 2020).

The vast majority of scientific journals in the medical field require the contributing researchers to adhere strictly to these criteria, but the researchers seem to 'forget' this rule relatively often. This was demonstrated by Bates *et al.* (2004) based on a study in which they had assessed the authorship contribution paragraph of all articles published in three major general medical journals in 2002. They found that 10% of the authors did not meet the ICMJE criteria – not counting authors who had stated that they met the authorship criteria without actually doing so. Their analyses showed that it was especially the second ICMJE criterion '*Drafting the work or revising it critically for important intellectual content*', which was not met – a finding that resonates well with my personal experience from current practice. Bates *et al.* (2004) refer to authors not meeting authorship criteria as 'honorary authors'.

A growing problem

Since 2002 both the number of published articles and the average number of authors on each article have increased substantially in the medical field (Mallapaty, 2018). While part of this development is likely to reflect an increased production of research and growth in translational/consortia-based research projects, that sometimes require more people, it is my clear impression that the number of honorary authorships has also significantly increased. The findings presented in a recent report by Ioannidis *et al.* (2018) support this assumption. Ioannidis et al. identified researchers who had published more than 72 full papers in any calendar year (>1 every 5 days) in the period from 2000 to 2016 – reflecting a productivity that many researchers will consider implausible (Ioannidis *et al.*, 2018). After sorting out researchers from physics (a field with a somewhat different authorship tradition), Ioannidis et al. sent a questionnaire to the 81 researchers – mainly from the medical/life science field – who had published more than 72 full papers in 2016. Twenty-seven responded and 19 of those admitted that they had not met at least one of the four ICMJE authorship criteria (i.e. they were honorary authors according to the definition of Bates *et al.* (2004)) more than 25% of the time (Ioannidis *et al.*, 2018). This number is most likely an underestimation due to selection bias (those with the 'worst' behaviour not responding to the survey) and underreporting due to social desirability bias.

Metrics run the game

Readers unfamiliar with the academic field may rightfully ask *why* researchers behave this way. Is it not the quality of the scientific output that matters rather than the quantity of publications? The answer to this question is unfortunately not a clear 'yes'. Indeed, the number of publications as well as the number of times these publications are cited in the literature (often merged into the so-called h-index proposed by Hirsch (2005)) are widely adopted metrics used to quantify and compare the productivity and impact of individual researchers (Saleem, 2011). Therefore, these metrics also play a major role in decisions regarding academic funding and appointments (Saleem, 2011). Hence, disregarding the authorship criteria (to obtain more publications and citations) is likely to further a researcher's career and it is my impression that this behaviour is now so common that it has effectively become a prerequisite for survival in the field of medical research. In other words, young medical researchers aiming for a career in academia are basically forced to adopt this behaviour if they are to compete on equal terms with their peers who are willing to bend these rules.

So what?

Is this not merely a minor technical detail with consequences only for the small minority working in medical academia? Quite the contrary I would say. In fact, the tendency towards disregarding the authorship criteria combined with the widely adopted use of authorship-based metrics to allocate research funding and academic appointments poses a significant threat to a fundamental aspect of (medical) academia, namely the meritocracy – i.e. that it is in fact the most qualified researchers who get the best opportunities to conduct research. This meritocracy is absolutely essential in order to obtain the biggest bang for the buck in a system where the bang can save lives and the buck – to a large degree – represents public funding. Hence, this matters to all of us.

Is there a solution to this problem?

Since we are dealing with a collective action problem, a solution would most likely require a global top-down initiative to reduce the incentive for disregarding the authorship criteria – and for other unethical behaviours related to the publication pressure. The power to do so lies with the academic institutions and grant agencies that should take steps towards relying less on metrics such as the H-index (which has effectively lost its validity in my opinion – for the reasons outlined above), and rather allocate promotions and give grants based on more qualitative, in-depth assessments of researchers' merits and ideas. This should be accompanied by a concomitant bottom-up initiative, where individual researchers – especially those at the senior level – should act as better examples than is currently the case. For instance, when receiving an invitation to take part in a study (and being an author on the resulting paper), researchers should ask themselves the following questions: 'Will I be able to make an actual contribution to this study?', 'Will my contribution make a difference?', 'Is the (younger) colleague who is proposing the study effectively being forced to invite me due to written or unwritten rules in the research group?' (I see this happening a lot), and finally 'Will it be an advantage for the younger colleague conducting this work, if I do not request authorship?'. In many cases, the answers to these questions should lead to the conclusion that authorship is *not* merited and that being recognised for a contribution to, for example, funding or collection of data in the acknowledgement section, is a more appropriate outcome. Being an honorary author in the definition of Bates *et al.* (2004) is in fact not honourable at all.

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