

# The scientific plague affecting medical and dental research: from fake news to fake studies

## ■ The problem

In my position as the editor of a scientific journal with an attractive impact factor in its limited field, and as a researcher with some decades of direct experience in the same field, I am exposed to a substantial and possibly increasing number of manuscripts that present fake research. The problem is how this fake research will impact on the lives of both professionals and patients.

According to a recent study evaluating articles withdrawn from PubMed between 2000 and 2010<sup>1</sup>, reasons for withdrawal were serious errors (545 publications) and fraud (243 publications). Faked articles were more likely to appear in prestigious publications with a high impact factor and were significantly more likely to have multiple authors. Each first author who had multiple articles retracted had an average of six co-authors, each of whom had had another three retractions.

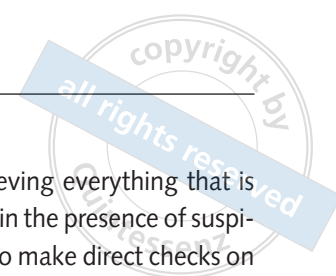
## ■ Description of the phenomena

I cannot provide an exact or even an estimated percentage of how many studies are fully or partially faked, but I can say that I have received manuscripts and read articles published in other prestigious journals that were never actually conducted; retrospective studies that became prospective randomised controlled trials; studies with manipulated data (failures and complications removed or under-reported); studies with follow-ups that are impossible since the dental implants being evaluated were not in physical existence or clinically available at the time described; studies conducted in countries where the tested materials cannot be sold or used; authors finding statistically significant differences in any study they publish while the remaining authors have not found any differences, etc.

In a few previous editorials I have made some specific examples. Identifying studies when they are professionally faked can be complex, if not impossible, and would expose possible "inquisitors" to be considered traitors, especially in the Mediterranean culture. Retraction is the strongest sanction that can be applied to fake research published by a journal.

## ■ Possible causes and con-causes

Reasons for this malpractice are likely to be multiple and overlapping: the desire of some authors to become famous in a short time and to push their unique discoveries, techniques or inventions or to appear productive towards the sponsor; pressure from sponsors to alter unfavourable data; and, not least, the wish to achieve academic promotion without actually deserving it. The phenomenon is favoured by ignorance, fear and an unwillingness to expose ourselves even when we know what has gone on behind the scenes, preferring to avoid unpleasant consequences by not acting. In addition there are too many online and obscure journals that will publish anything for a modest fee. The Canadian journalist Tom Spears defined this publish-for-a-fee model as "a fast-growing business that sucks money out of research, undermines genuine scientific knowledge, and provides fake credentials for the desperate". It is also interesting to quote the term used by Wikipedia to describe these journals: "predatory open-access publishing".



## ■ Possible implications and consequences

The implications and consequences of this misbehaviour can be devastating to both clinicians and patients. Techniques and materials that are poorly effective or even dangerous are proposed and accepted over safer and more effective procedures. Sometimes it takes decades to realise and correct the problems that this insane attitude has generated.

## ■ Possible solutions

Authors should try to think whether it is really correct and advantageous to fake studies. Co-authors should engage themselves in open discussion if they feel something has not been reported as it should have been. When this is the case, referees should raise legitimate suspicions to editors. Finally, editors should ensure that all studies are credible and, if in doubt, they should investigate the matter more deeply, asking authors for original radiographs, pictures and data, and seeking related relevant information from independent parties. Readers should also seek possible explanations from editors if research appears to have some obscure aspects. Once fraud has been proven, the fake articles should be withdrawn by the journals that published them.

## ■ Conclusions

There is a serious problem within scientific literature that cannot be easily quantified. Readers must keep a substantial degree of healthy scepticism and

critical sense and avoid believing everything that is published. As editor of EJOI, in the presence of suspicious data, I shall be asking to make direct checks on original data to discourage authors from submitting fake studies. Editors of other prestigious scientific journals should do the same.

## ■ Related phenomena

There are other plagues affecting research, but which are less likely to directly affect the lives of patients and professionals, such as listing authors who never actually contributed to the research. This could be done either to increase personal prestige (this is an ethical problem that does not necessarily have negative consequences to professionals and patients), or to favour the academic promotion of those people who do not actually deserve it, to the detriment of other more competent and motivated candidates. This phenomenon may explain why university systems in some countries are far behind those of others. This system has further negative consequences for those countries hosting universities whose teachers are not employed because of their own merits, since they will be relegated to a marginal role, if any.

Please do reflect on these random observations.

Marco Esposito

## ■ Reference

- 1 R Grant Steen: Retractions in the scientific literature: Do authors deliberately commit research fraud? *J Med Ethics*, 15 November 2010 DOI: 10.1136/jme.2010.038125.