

# Can editors police scientific misconduct?

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No universal definition exists of research misconduct but it generally includes fabrication or falsification of data, plagiarism, unethical treatment of research subjects and attempted or actual duplicate publication. Deceit, rather than honest error or naivety is the key.

Over the decades, editors of science journals have had the wool pulled over their eyes by numerous serial fraudsters. For example, 17 papers published between 1979 and 1981 by John Darsee were retracted because investigations showed the data had been invented or dishonestly manipulated. They had been published in high impact journals including the *New England Journal of Medicine*, *American Journal of Physiology*, *American Journal of Cardiology* and several others. Also in the eighties, Robert Slutsky was found to have published 12 definitely and 49 questionably fraudulent papers in radiological and cardiological journals before his activities were discovered. In 2003, *Nature* and *Science* retracted eight papers by Schon and others at Bell Laboratories on superconductivity. Hwang Woo-suk, at the time considered a pioneer in stem cell research, provoked an international outcry when he was discovered to have published fraudulent work in *Science* during 2004 and 2005.

Together with Jon Sudbø, they represent some of the most publicised scientific fraudsters. But ask any experienced editor of a medical peer-reviewed journal and he or she will tell you of many more, less high profile papers, about whom they have grave suspicions.

## Editors' dilemmas

However, editors are probably the least likely persons to first raise an alarm: colleagues of the researcher – often junior, reviewers, readers and statisticians are more likely to do so, although the mere fact that so much spuri-

ous research has been published does not speak well for the skills of many of those who review or read scientific papers.

The main problem for editors is that the whole system of science publishing is based on trust. They do not expect authors to commit fraud, even if now more alert to other areas of misconduct such as failure to declare competing financial interests, guest and ghost authorship and the more subtle attempts at redundant publication ('salami slicing'). Moreover, editors of general medical journals cannot be expert in the many fields of research which come their way. To a lesser extent, the same is true of editors of major speciality journals. Only in particularly small and esoteric fields can the editor be his own expert reviewer.

Initial triage in journals receiving a large number of submissions looks for such criteria as originality, concordance with the journal's vision and likely citability, rather than giving close attention to the methodology or statistical analysis – a process usually outsourced to reviewers and biostatisticians.

Editors may have a conflict of interest over and above their desire to enhance the reputation of their journal, for example a connection with the author or author's institution, which may override necessary scepticism. Hunger for high impact papers might also influence judgement. An example is a fraudulent paper published in the *British Journal of Obstetrics & Gynaecology* where the potential importance of the findings (had they been true) may have led to the submission (on which the editor-in-chief, from the same institution as the perpetrator was invited to be a co-author) to be dealt with in a way which avoided the normal checks and balances of the editorial and peer review process (1).

### **Peer review may not protect**

Despite the filter of the peer review process, papers in which data have been manipulated improperly continue to find their way into the literature. Given the problem even 'trained' reviewers have in detecting major errors in papers, it is unsurprising that suspicions may not be aroused (2). Reviewers are likely to be more effective where their specialty is a small one so that their chance of recognising a pattern of misconduct in the work of an individual or a team is greater. Indeed the *Committee on Publication Ethics (COPE)* has been alerted by such a reviewer, so concerned about several papers by the same group sent to him from different journals, that he undertook a MEDLINE© search of their publications. The total was extremely high (itself a matter for concern) and the scatter between numerous low impact journals was great. Statistical analysis by his colleague of a

random selection of the group's publications suggests a possibility of wholesale fraud.

Misconduct of the types often assumed to be less serious – redundant publication and plagiarism, for example - is more likely to be noticed by experienced reviewers. Searching the databases when conducting systematic reviews is an obvious route (3). A short cut might be to type a series of words from a suspicious paper into Google to see if they have been used before (4). 'Less serious' may be a dangerous classification, however. Those experienced in dealing with dishonest persons frequently discover that their dishonesty is rarely circumscribed and recurs in various areas of their personal and professional lives. Thus, detecting plagiarism could be a first step to detecting other misconduct.

Skilled fraudsters may manipulate data in a manner which may elude detection unless specific techniques are deployed. Al-Marzouk et al used baseline comparisons of means and variances in baseline data and examination of patterns of digit preference to detect fabricated or falsified data in a randomised controlled trial where referees had raised concerns about suspicious inconsistencies (5). Unfortunately, routine use of such analyses are likely to be beyond the resources of most journals.

### **How editors can be on guard**

Information from the database of cases discussed at the regular meetings of COPE (6) suggest there are warning signs which suggest editors should perform extra scrutiny:

- Submissions where it seems unlikely that the authors could have the resources to undertake the reported trial: a group of authors, widely scattered geographically through the developing world, reported a large, multicentre prospective randomised trial but without being able to provide evidence of the necessary funding. MEDLINE© search revealed a previous similar exercise.
- Data 'too good to be true': Two authors submitted a study on 15 000 newborn babies born in a socially deprived area of a large city. They claimed 97 % follow up at age 18 months – an impossible target given the proportion of residents who were known to move out of the area each year, the expected number which traditionally avoids follow-up and the scanty details of the system used to trace patients.
- Findings that are hard to believe: a study producing a counterintuitive result is always likely to spark an editor's interest, especially if the topic

is one where there is otherwise a consensus. While such a finding may be true or the result of a methodological or computational error, the possibility of fraud needs to be considered.

- Authorial pressure: in a competitive arena, editors often welcome approaches by researchers with an interesting story to tell. But they should have a degree of scepticism about those whose entreaties are persistent, repetitive or even threatening. Bullying is a well-recognised method of covering up for dishonesty.

Following a review of the journal's procedures after the withdrawal of the fabricated papers by Hwang Woo-suk, the editor of *Science* described the journal's development of criteria for being alert to submissions needing special attention. These included "papers that are of substantial public interest, present results that are unexpected and/or counterintuitive, or touch on areas of high political controversy..." (7). The last is exemplified by a recent COPE case involved publication in a high impact journal of a survey of household violence following a coup against a country's elected president showing high levels of violence and human rights abuse. Complaints followed that the author had not declared knowing and supporting the deposed president and may not have reported similar violent acts conducted by his supporters.

### **Avoiding trouble**

There are many general tasks which editors can carry out in an attempt to reduce misconduct. Clear instructions to authors, requiring them to complete a checklist, may not deflect determined fraudsters but at least offers editors evidence of dishonesty in their declarations to offer to any investigatory authority subsequently involved. For example, insistence on a clear account of any conflicting interest which might prejudice a reasonable reader as to whether the interpretation of data is likely to be reliable (8). Similarly a requirement to declare if the paper has been submitted elsewhere and for sight of any related papers by the authors may help deal with deliberate or unwitting redundant publication. There should be precisely stated rules on authorship or contributorship, ethical approval and trial registration as laid down in guidelines such as those from the *International Committee of Medical Journal Editors (ICJME)* (9).

One major academic publisher has produced guidelines for its journal editors on handling breaches of publication ethics (10) including access to COPE's flowcharts on dealing with commonly encountered issues.

Editors need to be aware that new techniques may bring new problems. For example, not only text and figures can be manipulated: images such as photomicrographs can be altered using standard software such as Photoshop®. A 2006 report from the *Council of Science Editors* states that ‘clear guidelines are important because some level of image manipulation is accepted practice, (for example image cropping or limited adjustment of brightness and contrast...’ Production editors (technical editors) may become suspicious when conducting a forensic analysis to check figures for compliance with journal requirements (11). The *Rockefeller University Press* has defined digital-image related misconduct and provides pertinent examples (12).

### **Post-hoc action**

ICJME guidelines state that editors have a responsibility to ensure that any question of misconduct is pursued, usually by the author’s institution [9] COPE requires of its members that they must follow the principle of their prime duty being to maintain the integrity of the scientific record. This must take precedence over their other duties – for example, making sure their publication is readable and profitable (or, at least not a financial burden for the society, academic institution, government body or publisher to whom they are responsible). Because they take final responsibility for everything in the publication they edit, they have a duty to detect and investigate misconduct.

This duty is initially carried out by communication with the authors, all of whom should be copied into the correspondence. In many cases, misconduct has not occurred and innocent or understandable errors or misunderstandings aroused initial concern. Where an editor remains unsure after any exchange of correspondence, he or she may be helped by consulting others, such as his journal’s or publisher’s ethical committee or an outside body, such as COPE. Being able to quote advice from an external source can be powerful support, particularly for a relatively junior editor or one who feels professionally vulnerable. Do not be too hopeful of reaching a satisfactory outcome, however. In 1992, the *BMJ* published a paper by Ram B Singh. Subsequently doubts were raised about the paper and others by the same author published elsewhere. Despite 7 years of effort by the editor, no legitimate authority was prepared to investigate the case (13). An analysis of the first 79 cases reported to COPE as showing prima facie evidence of misconduct showed that 15 reached an impasse where no resolution proved possible and a further 36 took over a year to resolve (14). A current cause célèbre involving fierce argument between a principal

investigator, his previous employer the University of Sheffield, the editor of the journal publishing the papers involved and the pharmaceutical giant Proctor & Gamble over alleged manipulation of properly acquired data, is unresolved after 5 years. [15].

Most editors would agree that while they have a duty to be whistle-blowers, investigating cases should be in the hands of others so that due process and a fair hearing may be ensured. Where the author's explanation is unsatisfactory, this involves alerting the author's employer or funder and requesting they investigate. Experience dictates that it may be necessary to enquire regularly, perhaps 6 monthly, as to the outcome of any investigation. Where no institution can be identified, for example in the field of private practice, any regulatory body having control over the author's professional accreditation should be contacted. Formal governmental mechanisms exist in some countries, especially Scandinavia and the USA while others have more ad hoc processes (16).

Once an investigative body has issued its report, editors should be prompt in correcting the literature. *The National Library of Medicine* uses three indexing terms: *correction* (generally where there is no element of deception but rather an error in the publication process or methodology); *retraction*, where the author, editor, publisher or academic or institutional sponsor requires it because of pervasive error or unsubstantiated or irreproducible data (regardless of deliberate dishonesty); or an *expression of concern* where the editor wishes to draw attention to a possible problem short of correction or retraction (17).

Meanwhile, alas, corrected and retracted papers continue to be cited without drawing attention to the original error or fraud.

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