An Ethical Analysis of the Phenomenon of Misconduct in Research

Birgitta Forsman

From the Department of Medical Ethics, Lund University, Lund, Sweden

Corresponding author: Associate Professor Birgitta Forsman, Department of Medical Ethics, Lund University, Stora Gråbrödersgatan 16, SE-222 22 Lund, Sweden. Tel: +46 46 22 21 284. Fax: +46 46 22 21 285. E-mail: Brigitta.Forsman@medetik.lu.se

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Ethical problems of research misconduct can be viewed in many ways. The main issue at stake is the reliability of what is presented as scientific facts. If we cannot trust research findings, the consequences can be fatal for all affected parties. There are several actors in the context of research integrity and misconduct, especially the individual scientist and the scientific community. The honesty of scientists is important but this in itself is not a sufficient condition for research integrity. We need guidelines and rules. Researchers accused of misconduct must be guaranteed legal security. A closed definition of scientific misconduct seems to be the best one for protecting the legal security, but on the other hand, an open definition is better for the protection of science. There is a gap between ethics and law in the view of research misconduct. Some actions that are regarded as unethical are quite well within the law. In order to deal with real cases of alleged research misconduct, there must be a way of closing this gap.

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The most well-known definition of scientific misconduct is that of the American Office of Research Integrity:

> Fabrication, falsification, plagiarism, or other practices that seriously deviate from those that are commonly accepted within the scientific community for proposing, conducting, or reporting research. It does not include honest error or honest differences in interpretations or judgments of data (1).

The main elements in this are Fabrication, Falsification, and Plagiarism, the so-called FFP. These elements are also at the core of most other existing definitions of misconduct in research.

If we look at these elements, we can discern two main categories of problems, namely:

– a threat to the reliability of scientific results;
– a lack of consideration and justice towards colleagues.

Fabrication and falsification of results are, of course, pernicious to scientific reliability. Plagiarism, on the other hand, is not—at least not in the short run. On the contrary, plagiarism can promote the proliferation and implementation of research results. Thus, the protection of research integrity calls for consideration of different kinds. Sometimes these considerations can conflict with each other, and I will return to that later.

PROTECTION OF SCIENTIFIC RELIABILITY

Let us first look at the protection of scientific reliability and—to begin with—limit our reasoning to *prevention* of misconduct. First, why is it important to protect the reliability of scientific results? There are many good reasons for doing this. Generally, the whole enterprise of science loses its meaning if scientists are free to fabricate results or make them more interesting and to adapt them to suit a preferred result. Why would we have something called science if not for seeking the truth? And who is to seek for the truth, if not the scientists?

The credibility of research results is also very important for more practical reasons, since misleading data can hurt people, prove fatal for the environment, and lead to wrong decisions and economic waste. It is a fundamental, ethical demand that science be reliable. Thus, there are good reasons for upholding the production of reliable scientific results.

How, then, can misconduct be prevented? I believe there are at least three necessary conditions for this:

1. An awareness of scientific ideals
2. Certain virtues in the individual researcher: and
3. Organizational structures that do not facilitate scientific misconduct.

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A scientific ideal

The NIH states in its *Guidelines for the Conduct of Research in the Intramural Research Program at NIH* in the early 1990s that scientists 'should be committed to the responsible use of the process known as the scientific method to seek new knowledge' (2).

Of course, it is easy to laugh at this, as would many social scientists do, reminding us that there are many scientific methods and several divergent ideals of science. Nevertheless, I think it is a good starting-point if researchers can rely on at least some basic principles for their work.

In 1942 Robert Merton, the sociologist of science, presented—in direct opposition to the ideologized Nazi science—some principles that are commonly called 'the CUDOS norms' or 'the ethos of science' (3). I believe that at least some of these norms are still very useful and important for research work. I am thinking particularly of the principle of *Disinterestedness*.

Disinterestedness means that, in their work researchers must not be influenced by their own economic, religious, or ideological interests. They are not allowed to let their own desires affect the results of their research.

What Merton wanted to do was to purify science from irrelevant influence. If we are to rely on scientific results, we must liberate science from social influence, he thought. He embraced a disembodied and unbiased ideal of science. And I think he was right in doing so. Behind many unreliable results in science, we can trace that the norm of disinterestedness has been violated or neglected.

Virtues of the individual researcher

The role of the individual researcher is, of course, very important. Researchers are supposed to be well educated and have certain virtues, such as honesty, carefulness, and courage.

This is an ideal, and many people in the scientific community seem to believe that it is also a true image of the real scientist. Consequently, they think that every scientist has to mind his own business, and that nobody outside should interfere.

I fervently wish that this beautiful image were also a true picture, but unfortunately I cannot believe it.

When we look at causes behind publicized cases of scientific misconduct, we find among other things that fear, greed, politeness, arrogance, ambition, and vanity have come into play—all of them human psychological characteristics that have been allowed to play a part in a context where they should have been disallowed.

History shows that there are many reasons for rejecting the belief in a *voluntaristic individualism* in research ethics. It is an attractive idea that all researchers have the power to choose independently their research area, their problem, and their method, and that they are able to grasp fully the morality concerning both the means and goals and consequences of their work. Unfortunately, such pure-hearted persons with unlimited power and integrity are extremely rare (4).

Most people tend to adapt to their culture and subculture. Obedience to authority is a common behavior, something that Milgram and others have found in their studies (5).

Furthermore, in protecting research integrity, we have to face the real human psychology. And we have to take the structures in the scientific community into consideration.

Organizational structures

In order to prevent scientific misconduct, we need to set standards that foster honest behaviour among individual scientists. These standards could very well be constructed on an international macro level. Since science is international, it is important that the same basic rules are accepted and known by scientists in different countries. Of course, these rules and guidelines also have to be implemented on the micro level within each university, institute, and department.

Rules and guidelines can help to strengthen young and insecure researchers and give them courage to fend off coercion from more powerful actors. There are other advantages, too. For example: If a university department has working rules for filing records, a researcher at that department can feel much more secure if he is ever accused of fabrication or falsification.

CONSIDERATION AND JUSTICE TOWARDS COLLEAGUES

Plagiarism is an element of scientific misconduct which, as I said earlier, does not necessarily constitute a threat to the reliability of research results. Instead, this problem deals with justice and fairness towards colleagues. Researchers, like everybody else, need appreciation for what they have done. If they do not get credit for their work, they probably would tire of doing it. In the long run, this would not be good for scientific production.

This area deals very much with publication ethics. Who should be included as an author of an article? This issue has been widely discussed for several years, but there are still substantial problems. There are certain official demands regarding authorship, regulated in the 'Uniform requirements for manuscripts submitted to biomedical journals'.

> Authorship credit should be based only on substantial contributions to (a) conception and design, or analysis and interpretation of data; and to (b) drafting the article or revising it critically for important intellectual content; and on (c) final approval of the version to be published. Conditions (a), (b), and (c) must all be met (6).

These requirements are perhaps too rigorous, but even so they are officially accepted by more than 500 journals and should therefore be followed. Nevertheless, honorary authorship seems to flourish and for at least two reasons. First, a young researcher who is dependent on help from more established scientists, doctors or others, does not always dare to refuse a person who wants to be a co-author as a compensation for providing, for example, material from operations. Secondly, many junior scientists want to have a more established, well-known scientist as a co-author, even if this person has made only a tiny contribution to the work. It is generally thought that it is easier to get an article accepted if there is a well-known name attached to it, and the article is also likely to be more frequently cited and referred to.

This last situation is a break from another of Merton's principles, namely that of *universalism*. Universalism tells that a truth is a truth and a lie is a lie, irrespective of who pronounces it. Good arguments must be considered whoever presents them, and bad arguments must be rejected even if they come from an eminent scientist.

In both of these cases of co-authorship, the contribution of the established scientist is not sufficient according to the 'Uniform requirements', but nonetheless such practices seem to be generally accepted in the scientific community. Certainly, it is a problem that the scientific community uses double standards like this. Officially, it embraces the 'Uniform requirements', yet this document is not seen as a guideline that scientists have to follow.

However, it is equally important not to exclude a deserving person from authorship; for a junior scientist, who knows very little about unwritten rules, it is important to give him a fair position in the line of authors.

POSSIBLE COLLISIONS BETWEEN CONSIDERATION FOR SCIENCE AND CONSIDERATION FOR COLLEAGUES

I have now pointed out the importance of being fair to colleagues and have shown that fairness is also about *not* giving persons credit for what they have not done. There is a risk of irrelevant influence on science in being *too* kind and tolerant to colleagues who in reality do not deserve it. This can happen, if researchers are afraid of being badly treated by others if they do not close their eyes to the mistakes made by a powerful person. It can also happen as an act of kindness to a weak doctoral student or another subordinate.

I think that comradeship in the scientific community *can* be fatal to science as a truth-seeking enterprise. Fairness is not the same as kindness.

WHEN PROBLEMS HAVE ARISEN

Misconduct in science is mostly discussed when something has already happened. The best we can do is to prevent it, but if there is a case of fabrication or falsification, what can be done about it? I am not going to discuss the Swedish organization for handling scientific misconduct in medicine, or any other organizations. Let me just make some comments that I believe are ethically relevant.

Protection of science

The most important thing is not to punish scientists who have done something wrong. This may be necessary, not the least for prophylactic reasons, but the most urgent objective in this context is to protect scientific reliability. If incorrect 'facts' have been published, they have to be corrected. In this case, I cannot see the relevance of intention. Even if it is an honest error, the consequences can be serious for patients or other affected parties.

Retraction of articles or books is one way of rectifying errors. This has become more common in recent years, but there is no perfect way to do it. You cannot physically retract an article in a journal, but you can put a warning into a data-base (4).

Books are easier to retract, and lately there have been examples of at least metaphorical book-burning. Chris Brand's book *The G Factor: General Intelligence and its Implications*, published in 1996, was retracted by the publisher because it caused very strong objections and was said to be racist (7, 8).

I think it is important to limit retractions to articles and books that have presented incorrect facts. Whether Brand's book presented wrong facts, or if it was only politically incorrect, I cannot say. I have only skimmed through it.

Protection of accused researchers

If a researcher has been accused of scientific misconduct, it is extremely important to pay attention to his or her legal security. In this context, I think it is appropriate to say something about definitions again.

Definitions of scientific misconduct can be *narrow*—for example, including only fabrication, falsification, and plagiarism. They can be *wide* and include also 'other practices…' and sometimes even sexual harassment. Furthermore, they can be *closed*, that is a fixed list of unaccepted actions, or they can be *open* also to unforeseen bad actions. All of these options have advantages and disadvantages.

For the legal security of accused researchers, a closed definition seems to be the best. If a scientist is accused of something that he or she did not know was wrong, it can lead to a tragedy for this person.

For science, on the other hand, there can be an advantage in open definitions. Since nobody can anticipate every possible defective action that might be perpetrated, it must also be possible to combat previously unknown faults.

This shows that the protection of science and the protection of scientists do not always mean the same thing. In order to protect both, it is important not only to punish scientists who have done something wrong. The protection of science must not lead to terrorism against individual researchers.

Protection of whistleblowers

However, there is another party too, the whistleblower, who must also be protected against retaliation (9, 10). Striking a balance between all these interests can be difficult—science, the patients or other users of scientific results, the accused scientist, and the whistleblower.

Finally, the borderline cases between ethics and law can be problematic. For example, it is not easy to know how to deal with the theft of ideas and hypotheses or the manipulation of a scientist's own data. These acts have lately been mentioned as lawful, but, on the other hand, they are condemned by those who have to deal with the issue of scientific misconduct (11). I think it is a considerable ethical problem that there is such a gap between ethics and law in research ethics. This issue calls for much more attention in the future, if cases of research misconduct are to be dealt with appropriately.

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