

Sanjay Singh

Be a light unto yourself.

~The Buddha

A CANDLE IN THE DARK

To know the truth, we require a reliable and consistent way of thinking, which is not dependent on subjective assessments and whose conclusions are independently verifiable or falsifiable, thus making the discovered knowledge self-correcting. The term 'science' usually refers to this method and to the organized body of information that has been derived from using this logical approach to thinking and investigation. Rational, open-ended, honest inquiry^[1] is the means by which science unravels the truth. Hence, science has been called "a candle in the dark".^[2] Scientists are usually believed to be the torchbearers of this quest for truth. However, the purpose is defeated when sometimes researchers do not stick to truthfulness in research. The terms "ethics" and "truthfulness" may be used interchangeably in the context of research. In medical research, the departure from truth may directly entail serious, even life-threatening, consequences for patients.

WHAT IS ETHICS?

Ethics encompasses concepts and principles of right conduct. Ethics or morality has been defined as not

committing any deed that definitely and deliberately harms others,^[3] and a concern for human well-being is the only intelligible basis for ethics or morality.^[4] Different principles of ethics in research include honesty (honestly reporting methods, procedures, data and results), objectivity (avoiding bias in experimental design, data analysis, data interpretation, peer review, grant writing, expert testimony, and other aspects of research, disclosing personal or financial interests), integrity (keeping promises and agreements, acting with sincerity, striving for consistency of thought and action), carefulness (avoiding careless errors and negligence, carefully and critically examining one's own work, keeping good records of research), openness (being open to criticism), respect for intellectual property (giving credit where credit is due, never plagiarizing), confidentiality, and responsible publication (publishing in order to advance research and scholarship, not to advance just own career, avoiding wasteful and duplicative publication), among others.^[5] Taking truly informed consent from patients, not including data of other's patients in one's own work, confining conclusions to the evidence generated by the study and the ethics of authorship^[6] are also equally important.

WHAT IS SCIENTIFIC DISHONESTY?

Not sticking to ethical principles as mentioned above while doing research constitutes scientific dishonesty. Scientific dishonesty may be classified^[7] into fabrication (invention of data or cases), falsification (willful distortion of data or results including selective publication of data), and plagiarism (copying of ideas, data, or words without attribution; in other words, taking other's data and ideas and publishing them as one's own). Plagiarism is qualitatively different because it does not distort scientific knowledge although it has important negative consequences for the careers of the people involved, and thus for the whole scientific enterprise.^[7] Such dishonest behaviors may be called carelessness, bias, misconduct, or fraud.

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As the damage done is similar, the difference in their meanings in the context of research is mainly a matter of semantics.

IS IT EASY TO DO SCIENTIFIC MISCONDUCT?

Once an article is submitted for publication to a journal, it is almost impossible for the editor or the referees to identify presence of scientific dishonesty if it is there. Hence, the answer to this question is, unfortunately, yes, as the following section shows.

RESEARCH ON ETHICS IN RESEARCH

The frequency with which scientists fabricate and falsify data, or commit other forms of scientific misconduct is a matter of controversy.^[7] Surveys have been conducted asking the scientists whether they have themselves done research misconduct or know a researcher who has done so. The first systematic review and meta-analysis of these surveys^[7] determined a pooled weighted average of 1.97% [95% confidence interval (CI) 0.86% to 4.45%] of scientists admitting to have fabricated, falsified or modified data or results at least once and up to 33.7% admitting other questionable research practices. In surveys asking about the behavior of colleagues, admission rates were 14.12% (95% CI 9.91% to 19.72%) for falsification and up to 72% for other questionable research practices. Research misconduct was reported more frequently by medical and clinical researchers than respondents in biomedical research and other fields. Needless to say that these misconducts and their frequencies are sobering, if not alarming. The actual frequencies of misconduct could be higher than these figures, with known frauds being just the “tip of the iceberg”.^[7]

The first systematic review and meta-analysis of research on authorship^[8] found that the pooled weighted average of ethical problems in authorship was 29% (95% CI 24% to 35%), which was greater than 10-fold compared to the 1.97% prevalence of research misconduct (fabrication, falsification or data modification).^[7] Authorship misuse was more frequent in studies from France, South Africa, India and Bangladesh (55%, 95% CI 45% to 64%) compared to USA, UK or international journal settings (23%, 95% CI 18% to 28%).^[8] Authors suggested that the high prevalence of authorship problems may have a greater impact on research than ‘classical’ misconduct activities of fabrication, falsification, and plagiarism.^[8]

PROBABLE REASONS FOR ACADEMIC DISHONESTY

Probable reasons, which encourage academic or scientific dishonesty may be accepting the pressure to publish or perish; existence of a system which lacks good research atmosphere and infrastructure for research; desire to consider oneself superior to others by publishing more articles; lack of a good and scientific method of evaluating the quality or impact of research work and consequent main focus on the number of articles published by an individual for selection or promotion; and the low probability of detection, and hence reinforcement, of dishonesty.

INSTITUTIONAL ATTEMPTS TO DECREASE ACADEMIC DISHONESTY

Many academic institutions now have ethics committees or institutional review boards. Indian Council of Medical Research (ICMR) has published a document called “ethical guidelines for biomedical research on human participants”.^[9] Strong ethics committees and effective implementation of the ICMR guidelines will help in minimizing academic dishonesty. ICMR has launched in 2009, a Clinical Trials Registry-India (<http://ctri.nic.in/Clinicaltrials/login.php>) to increase ethical practices and transparency in clinical trials. The trials are to be prospectively registered before enrolment of the first patient. The registered trials will be required to disclose all items in the register. The items have been selected to improve transparency and accountability, to improve internal validity, and to conform to accepted ethical standards. Efforts are being made to ensure reporting of all relevant results of registered trials in collaboration with World Health Organization International Clinical Trials Registry Platform (WHO ICTRP) so that these are publicly available.

In Denmark, the Danish Committees on Scientific Dishonesty (DCSD) investigate complaints related to academic dishonesty. DCSD has 3 subcommittees, health and medicine; social sciences and humanities; and natural, agricultural, veterinary and technical sciences. Many complaints received by DCSD were found to be related to health and medical science.^[10]

These efforts are mainly directed towards identifying and penalizing academic dishonesty and do not aim to reward an honest work. It may be more fruitful to develop mechanisms to reward ethical research as

reward is likely to be more effective in encouraging desirable behavior.^[11] In addition, institutions may also make more efforts to correct various factors which promote academic dishonesty.

PERSONAL EFFORTS

Personal efforts by individual scientists to uphold the ethical principles are likely to be the most effective measures to minimize scientific dishonesty.

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