Research ethics for young researchers

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Sir,

Ethical issues and its violation in research are well documented in the history of research and have been documented in the recent research ventures around the world.[1-3] Young researchers knowingly, unknowingly violate research ethics (RE) and become the victims of research misconduct. Scientific research is built on a foundation of trust. But this trust will endure only if the scientific community devotes itself to clarify and transmit the values associated with ethical scientific conduct. Ethical lapses in research can significantly harm human/animals, public and society. RE will help them to build a clean scientific attitude, to boost their professional morals and social value for a positive contribution to society.

RE involves the applications of fundamental ethical principles to a variety area of scientific research such as planning, conduct, reporting of research involving animal/human subject experiments, proper publication process, and various aspects of research misconduct. The code and policies of RE that need to be followed by the young researcher are — honesty, objectivity, competence, integrity, openness, confidentially, respect for colleagues, honest publication, good mentoring, respect for intellectual property, legality, animal care, human subject protection, non-discrimination and social responsibility.[4-7]

Publication is one of the most controversial subjects of RE, where mentor and mentee face difficult situations that lead to research misconduct. The young researchers should follow 10 simple rules of research publication: (1) Review the relevant literature, analyze them critically; (2) be objective with your work that you intend to publish; (3) decide early where to publish (a peer review journal with good impact factor should be preferred) with prior consultation with your mentor; (4) do not compromise with the quality of work; (5) submit the proposed publication to mentor for review; (6) take care of the language, figures, table, acknowledgement, ethical issues, conflict of interest, references; (7) involve your co-authors in the preparation and publication of manuscript; (8) use the critical comments of reviewers to improve the quality of your paper; (9) learn to accept rejection and (10) do not give up after rejection.[8]

According to publication ethics, the mentor decides the order of authorship, i.e., who will be the first, second author. In many cases, the mentor places the researcher in the first position whose contributions are maximum in the work. The mentor is the correspondence author in all the publications of a laboratory. A co-author shares responsibility for the scientific integrity of a good paper at different stages of the publication by providing key ideas, implementation, running of experiments, collection of data, analyze data, write up and corrections. It is important to remember that gift of an authorship is an offence. People who made a contribution that does not merit co-authorship must be acknowledged. Acknowledgement are made to those who has provided key ideas, resources for the experiments, helped in typesetting, illustrations, and of course the funding agencies. My advice to the young researchers in publication – it is not the impact factor what is important, but it is an honest publication that you will enjoy the rest of your research career.[9,10]

Research misconduct is defined as fabrication (altered data), falsification (created data), plagiarism (borrowing ideas/words without proper attribution). Several examples of research misconduct that are observed are – failure to keep good research records, not reporting on adverse drug effects, wasting/stealing animal in research, stealing supplies/books/data/computer programs, unauthorized copies of papers, acceptance of bribes from suppliers, etc.[11]

It has been observed that researchers publish or submit the same paper to different journals, present the same paper at different conferences, include colleagues or relatives on a paper as co-author without any contributions, not inform the collaborator about paper or patent, discuss confidential data/report/paper with colleagues, bypassing the mentor and publishing the paper without prior permission from mentor, bypass due acknowledgement, use inappropriate statistics to enhance the level of significance, publish fabricated data, bypass peer review process and announce results through media or press.[12]

Plagiarism is another important area of research misconduct observed. It is a word derived from the Latin word for kidnapping. It involves the appropriation of author's work as one's own without the actual author permission. In other words, burrowing a sentence or two, without proper acknowledgement is plagiarism. Plagiarism could be easily avoided through citation. According to some authors, falsification involves willful misinterpretation of data that was never produced by the authors.[13,14] Competition for job promotion, grants, academic rewards and similar other factors encourage plagiarism. It is the responsibility of the society, the teachers, mentors, and academicians to identify the cause and combat such fraud. This could be achieved through RE awareness program, socio-psychological analysis and counseling, good mentoring, self-reflection and spirituality. Good mentoring is an effective tool in promoting ethical conduct in science and research. Effective mentoring is essential to promote a positive attitude and understanding of the responsible conduct of research.[15,16]

Promotion of ethical conduct in research is a shared responsibility of the academicians, research institutes and the society. Institutional responsibilities include formation of research ethical cell, monitoring and sensitizing the issue of RE through awareness program, seminar/symposium,

course study, interactive class lectures, and research on RE, appropriate measures to address violation of ethics and development of inter-/intra-departmental and institutional research integrity.[17]

Ethics education should help young researchers understand the rules of professional behavior in research, to known their rights and to fulfill their responsibilities.

Antony Gomes, Archita Saha, Poulami Datta, Aparna Gomes[1]

Department of Physiology, Lab of Toxinology and Experimental Pharmacodynamics, Rajabazar Science College, University of Calcutta, [1]Drug Development Diagnostics and Biotechnology Division, Indian Institute of Chemical Biology, Kolkata, West Bengal, India

Correspondence to:
Prof. Antony Gomes,
E-mail: gomesantony@hotmail.com

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