

Watch out for retractions

Partha P. Majumder

This year has been a year of great misconduct. Scientific misconduct. Stephen Hawking has said that “Science is not only a disciple of reason but also one of romance and passion.” The vast majority of scientists work hard and passionately to make a discovery or invent something, using reason as the cornerstone. They design experiments, generate data and draw widely-applicable conclusions using logical reasoning. These conclusions are published in scientific journals, after the methodologies and conclusions are deemed acceptable and appropriate by peers. Some scientific conclusions lead to invention of tools, such as, submersible pumps, diagnostic tests for diseases, etc.. Science is considered to be a noble profession. It is a key to upliftment of our lives and society. Scientists are highly regarded by citizens.

In their pursuit of science, scientists can make errors. When these errors are detected after publication, the publications are “retracted.” The journal loudly announces the retraction. Retractions play an important role in keeping only valid scientific inferences in public view and in preventing repetition of similar errors.

Competition in science has increased fiercely. Many scientists often work independently to solve a problem. Whoever publishes first wins laurels. Consequently, there is a often great rush to publish. This rush has resulted in a larger number of papers being retracted. While most of these retractions are due to honest errors, many are due to scientific misconduct – violation of standard codes of ethical conduct of scientific research. Violations include, fabrication of data, falsification of methods or results, and plagiarism, that is, publishing of work done by others as one’s own. Scientists who indulge in misconduct are abhorred. Of concern is a recent surge in retractions, due especially to fraudulent scientific practices. To stamp bad science, two veteran health journalists – Ivan Oransky and Adam Marcus – began to catalogue retractions, with an investigative report on the cause of retraction. In 2010 they created a database called Retraction Watch.

On December 15, 2020, Retraction Watch listed 24561 retracted scientific publications. A large proportion of these retractions is due to scientific misconduct; manipulation of images of scientific experiments usually to suit a pet scientific hypothesis being very popular. This year has witnessed a flood of scientific publications on various aspects of the coronavirus. Of the total of about 1650 articles retracted this year, about 40 pertained to the coronavirus. The founders of Retraction Watch have stated that this is an “exceptionally high” rate and is “alarming.” Among the articles retracted, two published in the highly prestigious journals – The Lancet and New England Journal of Medicine (NEJM) – have attracted the highest attention and the wrath of scientists and the public. Both articles were published by a team of scientists from renowned U.S. institutions, including the Harvard Medical School and Baylor College of Medicine. The database used to underpin these studies is owned by Surgisphere Corporation, a data analytics company. Sapan Desai is the founder and CEO of Surgisphere Corporation. When an outcry against the data was raised by scientists, The Lancet retracted the paper stating that all authors of the paper other than company founder and CEO Sapan Desai were “unable to complete an independent audit of the data.” The co-authors, excluding Desai, said that they are unable to “vouch for the veracity of the primary data sources.” To NEJM, all authors – that interestingly included Desai – wrote a letter stating that “Because all the authors were not granted access to the raw data and the raw

data could not be made available to a third-party auditor, we are unable to validate the primary data sources underlying our article.” NEJM issued a retraction notice.

Flawed and possibly fabricated data were used to draw scientific conclusions on the controversy surrounding the use of hydroxychloroquine (HCQ) in COVID-19. In May, the US President Donald Trump told reporters that he was on a two-week course of the drug as a preventive measure. This self-declaration was widely criticized. The Surgisphere studies showed that COVID-19 patients taking HCQ were dying at higher rates than other patients with the disease. The Lancet study analysed data on 96,032 patients admitted to 671 hospitals across six continents. Of those patients, 10,698 had died in hospital. An alarmingly high rate of death! This study recorded 600 Australian COVID-19 patients and 73 Australian deaths as of 21st April, 2020. However, actual numbers recorded by Australian health authorities were smaller. Similar problems were also noted with data from Africa. That numerous later studies showed HCQ to be ineffective for prevention or control of COVID-19 does not absolve the authors, particularly Sapan Desai, of the Surgisphere study of scientific misconduct.

Most retractions don't impact on our lives. Some do. Among these, the most prominent is a series of scientific publications by a once-renowned anaesthesiologist, Joachim Boldt. He led research in a hospital in Germany, Klinikum Ludwigshafen. In 2009, Boldt published a paper that came under scrutiny. It contained fabricated data and was retracted. Subsequently, 96 of his 98 publications were retracted for scientific misconduct. Boldt asserted in many of his publications, using flawed and fabricated data, that hydroxyethyl starch, or hetastarch, if used in a form containing synthetic molecules called colloids, can be safely used to stabilize the blood pressure of patients during surgery. Hetastarch with colloids was widely used. Later studies carried out carefully by other scientists showed that hetastarch with colloids often caused deaths. Thus, scientific misconduct placed lives of patients in danger.

It is important that scientists remain vigilant against misconduct of their peers. We have contributed a fair bit to retracted publications; 25 publications from India in journals have already been retracted this year. Lives of scientists are tied to the quantity and quality of their publications. In science, employment, promotion, awards and other recognitions, all depend on what we publish. Therefore, in our zeal to obtain these rapidly, we sometimes take recourse to foul means. That discredits the entire profession. The science academies of India and elsewhere have started to play a leading role against scientific misconduct. The eminent U.S. geologist Thomas Chamberlain had said, “Falsity in intellectual action is intellectual immorality.” Science is an integral part of our social fabric. All citizens have a role to play in retaining standards of high intellectual morality of our society by being vigilant against scientific misconduct. Otherwise, our lives may be in peril.