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Emergence of Global Scientific Misconduct Relevant Ethical Concerns and Step Forward

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ABSTRACT

Over the last five decades or so, the structure, conception and practice of science have undergone a complete transformation and paradigm shift accompanied by myriad issues, including moral, ethical, administrative, universal applicability and feasibility and so on. The crux of such a dazzling array of aforementioned issues lies in the pace of advancement of scientific knowledge over the half century compared to the preceding era, which lends itself to be reasonably followed and assimilated by the society. Although, the preceding era of science was not completely devoid of falsehood and immorality, such issues, if any, were timely comprehended, thought through and resolved by concerned stakeholders with topmost priority and urgency following rational debate and open deliberation. Owing to selfishness, self-morality and high ethical standing of intellectuals, the reports of scientific misconduct were very rare, and if any, received high magnitude of condemnation and denigration, and hence such malpractices could not insidiously spread their hideous tentacle of falsehood into the very deep of our society. However, research practices in current period, irrespective of academic or science domains and area, have come off worst and gone through plethora of complications replete with frequent reports of increasingly complicated scientific misconduct/malpractices, manipulation, fabrication, self/non-self plagiarism and broken science integrity, textual recycling from all over the world. Apart from unproductive spending of the public money, such cases of scientific malpractices are drawing widespread global attention and irreversibly jeopardising the hard-earned reputation of persons concerned in particular and institutions and nations in general. Moreover, scientific misconduct not only compromises scientific integrity by distorting empirical evidence, but also weakens the very foundation of our global scientific repertoire, shattering people's faith and belief in scientific value for society with very dark prospect for the future generation to come. Therefore, it's time to think science and research conduct over so as to bring back the correct and universally feasible and practicable scientific discoveries for the larger benefit of all sections of society irrespective of cast, creed, socio-economic status and geographical locations.

Keywords: *Scientific Misconduct, Textual Recycling, Unethical Issues, Scientific Integrity*

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Introduction:

Like various human' habits and behaviour, the tendency of copying, falsifying and the worst of all pretending someone else's answer as ours during

internal and external examination starts ingraining in our brain from as early as ones starts going to the elementary school and learn language. Such wily, unpunished behaviours continue through ones entire academic carrier and slowly but steadily lead to



development of thought of escapism and notion of shortcut to achieve success in academic carrier. This inherent, unchecked pedagogical flaw has potential of undermining our very core academic structure and foundation with ripple effect, and culminates into a society replete with the critical challenges and issues, such as illegitimate act of scientific misconduct. In simple way, scientific misconduct means “violation of scientific integrity” and broadly includes plagiarism, fabrication, textual recycling/rephrasing and falsification, in proposing, performing, or reviewing research, or in reporting research findings, and excludes honest error and differences of opinion (<http://ori.hhs.gov>). Besides, underreporting research findings, wherein authors do not intentionally provide sufficient details so as to show desired results and thereby unable the correct judgment or informed consent to be made is also one of the multiple aspects of scientific misconduct (Chalmers 1990). This might lead other researchers and clinicians to arrive at inappropriate decision and hence ill treatment strategy and eventual death of patients (Chalmers 2006). Increasing concern, due to scientific misconduct (SMC), has led to the creation of multiple platform and initiative aiming to raise issues and make society aware of prevailing situation. For instance, Society for Scientific Value (SSV) is one of the currently functional platforms, initiated by a group of the country's distinguished scientists with high international and national credentials, led by Prof. Avtar Paintal, FRS in 1986 (<http://www.scientificvalues.org>). Albeit, Society for Scientific Value is not entrusted or backed with legal, constitutional or administrative powers, but it enjoys top notch moral credibility and people's belief owing to the management, cataloguing and raising several cases of compromised, doctored academic cases published in high impact factor journal from time to time, thereby helping people morally restrain themselves from following the unethical scientific path for short-term success.

Root Cause of Scientific Misconduct

Revelation of the causes of scientific misconduct could lead ones to the multiple directions with varied hierarchical magnitude and dimensions which may be attributed to a dazzling range of reasons. One of the most important, which we all agree to, is “increasing dependence of our very existence on science” and good scientific practice with definite framework is not a straightforward task (Kaiser 2014). Other reasons, with varying degree, may include limited public and private agency-sponsored funding, cut-throat competition, and lack of inter-laboratory and

transnational collaborations, flawed and outdated pedagogical system and ill-trained scientific staffs, unwavering family and societal expectation, free access to information and scientific repertoire of knowledge and absence of checking and screening mechanism. Factoring in all together, put immense pressure on researchers that they often find themselves incapable of managing within a framework of accepted and reasonable norms of behaviour (<http://www.scientificvalues.org>). Owing to the multilevel phenomenon, intervention to mitigate scientific fraud and misconduct ought to target and adopt holistic approach spanning micro, meso, and macro levels of the research/academic systems (Fierz, Gennaro et al. 2014).

Global Occurrence of Scientific/Academic Misconduct

As no area of academic/non-academic and science is totally free of scientific misconduct (SMC), so the country, and it has been an increasing concern to the entire world. As per the recently published article entitled “Misconduct accounts for the majority of retracted scientific publications”, there are over 56 countries with varying number of retracted articles. The United States, Germany, Japan and China put together were having three-quarters of total retracted articles related with biomedical sciences and life sciences as indexed by PubMed till 2012. More specifically, India figured at number 5th in scientific misconduct category of plagiarism and 6th in fraud or suspected fraud and duplicate publication. Further study revealed that 21.3% of retractions were attributable to error/misinterpretation and remaining 67.3% included fraud, duplicate publications and plagiarism (Fang, Steen et al. 2012). Besides, there are several cases of scientific fraud and misconduct which have gone unreported or underreported, leading to the casual practice in academia and science research. The retracted articles, owing to different reasons, have been published in various internationally reputed journals, including Science, Cell, Nature, Blood, The Lancet, Proceedings of the National Academy of Sciences, the EMBO Journal Molecular and Cellular biology, Infection and Immunity, to name a few.

Conclusion and Remedial Steps

Nowadays the integrity of academia and research is seriously challenged and compromised, and literally on the verge of extinction owing to the multiple factors of varying magnitude and dimensions. The reasons could be highly subjective and variable

depending on the sort of illegitimate science practice and conduct, domains, temporal, geographical, and socio-economic, educational structure and so on. However, the most important question which comes to mind first, what does lead to unethical scientific misconduct in the first place? To unveil the highly variable underlying reasons, we need to decisively look at and dig deeper in to the country-specific circumstances and area of research. Irrespective of domain concerned, scientific misconducts such as plagiarism, textual recycling, duplicate publication, manipulation and fabrication of data to get desired results could lead to undermining of the intellectual repertoire. Apart from irrational and unproductive spending of money, it certainly proves an insurmountable hindrance in the science progress and advancement. Promoting science and research is a good idea for any country, but progressing on right path with acquisition of true knowledge would be unparallel and unmatched for the entire world.

Though, on the one hand recent technological advances facilitating access to electronic repertoire of knowledge have been quite helpful, but on the other, may have also made plagiarism way too easier to perform. Fortunately, recently developed multidimensional electronic surveillance software, such as Turnitin and iThenticate, have come to the rescue and have made detection of wrongdoing easier, and hence have deterrent effect on such activities whatsoever. However, these newly developed word/image processing softwares have flip side and certain limitations which need to be worked on and improved with high priority. We also need to reasonably understand the pace of science progress so as to avoid any rush to any certain conclusion regarding scientific findings, which may have high probability of turning out other way at later point of time, and therefore, using it as stepping stone could be devastating. During research, ones encounters lots of frustrating experimental failures owing to mistakes that makes us learn the various aspects of knowledge and truth, which can be passed on to be taken forward to the next level of unveiling the complete truth. "In all science, error precedes the truth, and it is better it should go first than last," said Hugh Walpole. To promote integrity, ethical values and objectivity in the pursuit of science, we have to work in unison with truth and self-instilled moral values. Most

important than all, we need to be honest to ourselves. Furthermore, public and private organisation and institutions must set-up their own checks and balance mechanisms through legally constituted and harmoniously working national and international committees and academic/research adjudication forum to screen, verify, validate the textual and image content of an written articles before being sent to outside world for publications and dissipation. It is important to understand that we seek and progress on right path slowly, and acquire the little but truth than lots of untrue knowledge. And our objective should aim at promoting society's welfare first. We should march towards the promotion of the aims and objective of the society than ourselves. Most importantly, our educational systems may need to come up with more innovative formats, conduct workshop and training, hold open deliberation and scientific ethical talk from time to time so as to improve and instils ethics in science and academia and bridge the gap between educated and laymen. Besides, some chapters on good science practice can be added in educational syllabus may be the only practical remedy. In nutshell, "Healthy, moral and ethical academic and research conducts and practices are vital for progress of science and humanity".

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