

Anatomy and physiology of peer review process, can it be unbiased?



Peer review is the process of evaluating someone's work by at least one or more respective subject experts, which has several formats and is currently applied in several domains. I will limit my focus to two major areas, namely peer review of scientific publications and grant applications, as these are the two major experiences, which every scientists has during his/her professional life. The primary aim of the peer review is to approve scientific quality and credibility of the work. The process of peer review can only be valid if it is 100% unbiased and this has emerged as a major limitation of the peer-review process. How can we ensure the peer-review process is unbiased, who peer-reviews the peer-reviewer? To get some insight into this let's look at the history [Figure 1] of scientific publication process. Back in the ancient times much before the journals started, scientific inventors demonstrated their work to respective authorities and received suitable rewards (equivalent to current Grants system), this changed into documentation systems when the technology became available in various formats and over time has considerably evolved into the current system of journal (print, video, and/or online) based publications [Figure 1]. The peer review system was integrated into this as a means to ascertain scientific quality and credibility. However if the peer reviewers are biased, the system of peer review fails, which has been the case with several manuscripts subjected to peer review process and unethically denied publication due to biased peer review process. This biased peer review process is scientifically and ethically wrong. How can someone with collateral interest (subject experts) in the research areas of the scientist's work he/she is reviewing give unbiased opinion on the scientific work, which potentially impacts his/her research as well? If such a person does indeed exist, then it is not peer-review. Over time the peer review

system can give rise to a vicious cycle of peer reviewers and authors, who mutually favour each other eventually leading to raise in pollution of scientific literature (Infollution) and skewing the scientific facts (several examples of these are available in the scientific domain). Such biasness in the peer review process can drastically dampen the innovative thoughts of scientists and hence weakening the scientific innovation process. Innovation can evolve only in a fair and unbiased environment. Moreover biased peer review system can significantly impact ones scientific carrier, which is not only unfair but also unethical. The impact of biased peer review system is much drastic in the peer review of grant application by funding bodies, wherein reviewer's opinion (which potentially can be biased) outweighs scientific credibility and impact. If these problems with peer review process are not addressed we will eventually reach a stage when general public will lose faith in scientific publications and scientific research will be regarded as fancy rather than a rigorous dedication to understand facts. How can we overcome this burgeoning problem? Here are few thoughts:

Can we develop software or an APP for the peer review process, as this will remove the element of biasness? I would be delighted to see authors contributing to JNSBM on this topic.

Furthermore looking into the history of scientific publication [Figure 1], the fundamental innovations happened in the era when peer review didn't exit and were rather reviewed openly in public domain. Hence should we move toward re-adopting this system with modifications? For instance publications can be made in a public platform (YouTube, Tweets, Facebook, LinkedIn) and once it is rigorously and openly reviewed, a decision to archive it in journal (print or online) for future referencing can be made if necessary. On a collateral note I think it's time to scrap impact factor index of journals, as in my opinion it's a very biased index, lacks scientific credibility and to an extent contributes to biasness in the peer review process.

In this issue new have included some exciting reviews, research articles and case reports. Among them are thought

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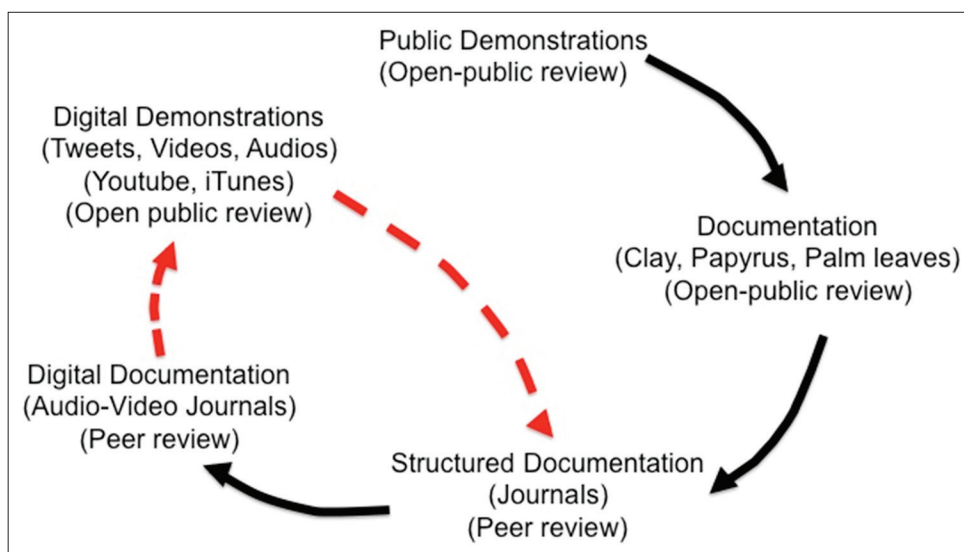


Figure 1: History of scientific publication process

provoking reviews on the use of green tea in oral cancer therapeutics and therapeutic application of botulinum toxin and its safety concerns. We also have a research article on dentin hypersensitivity, which is surprisingly higher among women. We also have an article on neuronal regeneration potential of glycyrrhiza glabra in hippocampal pyramidal neurons. In general, the regeneration capabilities of plant extract is less explored and I encourage our readers to actively look into research in this area as it has enormous untapped therapeutic potential. We also have a few articles in the area of bioinformatics platforms and computational drug evaluations for discovering activators of anti-thrombin and novel anti-cancer drugs. We also have an article on how zinc influences vitamin A levels in tuberculosis patients. The ability of micro/macro-minerals to influence pharmacokinetics and bioavailability of molecules or medicine and their ability to influence systemic health are therapeutically an interesting area. For instance one of the article in this issue highlights the impact of iron deficiency anaemia on cell mediated and humoral immunity. There is also an article on oral candida infections among diabetic patients. Considering the higher incidence of infections among diabetic patients it is necessary that in addition to their systemic health checks, their dental health checks be routinely performed. Emphasis must be placed on oral hygiene, care and checks as identification of dental nutrient canals can predict hypertension (higher incidence among diabetic patients) as highlighted in one of the articles. We have also included an article on

antibiotic resistance, which is probably one of the biggest medical problems to be addressed urgently. We have also included articles on hepatitis C frequency distribution, dental care among students studying dentistry, plant genetics (computational analysis of American and African oil palms), immunoglobulin's in oral cancer, atopic dermatitis and novel assay methods (ultraviolet-spectroscopic detection of metronidazole) which I believe will be of interest to our diverse audience and scientific community. We also have included a variety of case reports for our clinical audience covering topics from stress fracture of ulna, fibroma of mandible, tubercular mastitis, myxoid liposacroma of gastrointestinal tract, oral myiasis, pneumopericardium with epidural pneumatosis, laparoscopic appendectomy, augmentation cystoplasty in genitourinary tuberculosis and endometrial stromal sarcoma.

I wish you all a very happy new year 2014 ahead and keep enjoying the exciting scientific knowledge published in JNSBM.

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