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FOREWORD

PUBLISH OR PERISH

Advantages and Challenges of Publishing in Medical School

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ABSTRACT • Once accepted into medical school, students find themselves facing numerous expectations: coping with tremendous study burden, completing internships and participating in the race for publishing are only to name a few. It becomes hard for the medical student to focus on research; it is often easier to postpone publication and involvement in research to a later stage in their career. In fact, there are many advantages to publishing in the current publication system but there are many disadvantages as well. With the widespread of social media and open access systems, new challenges have arisen.

We will discuss the advantages and disadvantages of publishing in the current system while highlighting the new challenges that the students might need to overcome.

Our aim is to provide medical students with information to enhance their understanding of the current publication system and thus most importantly, probe their desire to publish.

Keywords : publish; medical students; challenges; limitations; advantages

INTRODUCTION

Throughout history, highly successful physicians have always been defined by their medical knowledge, reasoning skills and ability to communicate properly with their patients. A new factor has recently been added to that list: a physician's publication record. The rapidly expanding numbers of indexed new articles every year demonstrates the growing attention physicians have for academic publications [1]. The main aim is to urge medical students to publish, all the while highlighting advantages alongside the drawbacks publications present. Also, we aim to expose the newest challenges we face in adopting new models for publication. We have published one year ago, a similar paper with the same purposes in *Bulletin du Cancer* (Bull Cancer 105 (6), 2018).

ADVANTAGES

Publications nowadays are becoming a focal point of medical careers. This observation might still startle some. It almost seems like diagnosing and treating patients and keeping up to date with advances of medical knowledge are not enough anymore. Managing the enduring pressure is a challenge by itself, why add another dimension to the work? An obvious comeback to that statement would be to contribute to scientific progress and development. On one hand, it is a noble cause to work for the growth of science and direct our daily efforts towards its advancement. On the other hand, scientific publication does bring out some benefits. Redirecting one's efforts to publish is not only a convenient tool to make oneself and one's talents known, but also an engaging way to improve one's curriculum vitae. Universities and institutions highlight the personal advantages of publishing; some offer higher ranks in their faculties while others provide titles in their institutions. As a matter of fact, in numerous universities the professorship title is linked to active research and publications. Having a

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strong publication record would also grant better job opportunities and more acceptances when applying for preceptorships and masterclasses.

Nowadays youth involvement is highlighted in multiple fields including in medical publishing.

The new generations are daily encouraged to engage in the advancement of research; however, they do not always recognize the importance of it. Why would someone, who continuously has books to memorize and exams to pass, offer his/her time to a lengthy and laborious process, when he/she could "do it later" ? One could answer this question by stating that research is stimulating for medical students and represents a great interest for multiple reasons. Research experience gives a significant advantage in being accepted in certain residency programs. It proves that the student developed a scientific mindset in addition to the clinical mindset that everyone develops in medical school. It is a great tool to effectively learn, understand and remember medical knowledge especially when it comes to staying updated on the newest medical progresses. It is never too early to start building your research experience. Developing expertise requires time and the earlier your start, the better your chances will be at excelling in your research career. Moreover, students involved in research are always supervised and supported by faculty researchers, which eases the initiation procedure for them. The process might be lengthy but the advantages are numerous and it sure is an opportunity to stand out from the crowd.

DISADVANTAGES

These up mentioned advantages often drive scientists to publish more, and more is not always better. Another incentive to publish would be the addictive aspect of publishing. This " impact factor mania"/" impactitis" [2] can be associated with different causes. One motive for this addictive behavior would be the increasing competition physicians face nowadays regarding job selection process. The constant pursuit for grants and funding for research projects only strengthens the race for high impact factor (IF) journals. Another element that contributes to the addiction behavior is the lack of objective way to measure the importance of scientific work. Currently, the only way to evaluate the performance of two researchers from different sides of the world is by comparing their publication record.

As all addictions have harmful side effects, it is not surprising that addiction to publications also hold adverse secondary reactions.

The first notable downside of publishing in high IF journals is the apparent delay in the communication of scientific findings. High IF journals reject a lot of submissions; if you are not lucky enough to be published from the first time, there will be an obvious delay in the reception of your findings by the scientific public. On another note, the full impact of a scientific discovery may not be apparent for many years. However, the impact factor relies highly on the number of citations the average article in a journal has two years after the publication. Therefore, the IF is not a long-lasting system to assess the value of a scientific discovery. Moreover, despite the very efficient article selection process in high IF journals, we sometimes find out that journal IF poorly correlates with individual article citation rate. Over and above that, the peer-review system has been facing a spectrum of difficulties starting from the level of expertise of reviewers and ending at their insufficient number. Considering all the advantages stated above and more, scientists will always publish more papers if given the opportunity.

The numbers of academic papers and scientific journals have grown significantly in the past few years without concomitant growth in the number of reviewers. Thus, reviewers are facing increased pressure which causes a misallocation of papers to nonexperts in the area [3]. A scientist spends months of work and years of experience trying to contribute to the growth of science. Generally speaking, we cannot but agree that assessing the quality of scientific results is a hard task even for trained scientists. In a more narrow perspective, it is difficult for reviewers to offer enough time for that task considering that they are themselves

developing their own scientific "discovery" [4]. Being a reviewer is a task completed as "voluntary" work in addition to their daily responsibilities; therefore, a journal editor will most probably have a hard time finding competent and free reviewers. In these cases, some journals offer authors the possibility to suggest "preferred reviewers". This option helps editors find suitable reviewers in addition to tranquilizing scientists. The other side of the coin is when scientists misuse this feature and suggest collaborators or even the authors themselves with separate accounts as reviewers.

NEW CHALLENGES

The publishing process has evolved throughout history, first involving social media and second allowing the open access models in the process.

Social media has highly affected society as a whole in the past decades. It is a powerful communication tool that has permitted mass information relay and granted us the ability to reach a larger number of people at very low cost. It is no passing trend and the research community acknowledges this. To please the "social media generation", new platforms have been created such as ResearchGate [5] or Google Scholar [6]. These websites allow scientists to share their work, be it research proposals, methods or negative results. ResearchGate has created a metric that measures scientific reputation, RG score. Its calculation is based on not only the published work but also how the research is received by peers.

Members from around the world use these platforms to connect with each other, engage in discussions and thus, improve research collaboration. These sharing means present another convenience as the displayed information are now accessible publicly. It allows the information to be available for the general public rather than being restricted only to people who receive your curriculum vitae.

The adherence to these platforms might still be slow as the established/old scientists may have a challenging time adapting to the new publishing trend. However, the designers of these websites have high hopes for future generations.

Subscription-based publication model has been traditionally followed in the academic publishing industry. It demands readers to pay for the content they read while being free of charge for the publishing author. However, this publishing model has been disputed for a while. It is considered to promote social inequality as it restricts the access to research and education to the members of large and wealthy institutions. For instance, over 16 000 academics have signed "The Cost of Knowledge" petition to protest against the for-profit publisher Elsevier. This new wave of researchers believe that knowledge should be free and accessible to everybody.

With the rise of the Internet and the World Wide Web, the open access model is developing and slowly taking over the research community. It allows free online access to the content to the public and thus provides a broader readership. Keeping in mind the expenses of publishing a typical journal article, we have come to realize the financial burden that comes with open access. On one hand, publishers claim to need the subscriptions and paywalls to cover the costs for editorial work, marketing, upkeep of online systems and many more. On the other hand, the budget of scholarly societies who produce the journals relies on the revenue from journal subscriptions. To overcome these barriers, multiple models have been created for open access.

First, the Gold Open Access permits the access to the final edited version of a peer reviewed journal publication. It is funded either by the researcher's publishing fee known as 'article processing charges' (APCs) or by the institution's annual membership fee that permits its members to publish. Second, the Green Open Access allows scholars to publish not only an edited and peer reviewed article but also an early version of an article that has not gone through peer review. It is similar to publishing in a traditional subscription journal followed by self-archiving the article in a repository where it can be accessed for free. Lastly, the Platinum Open Access is a combination of both Gold and Green Open Access. Similarly

to the Gold, the article goes through the journal's processes of peer review and is openly available to readers whereas, like Green, the researcher pays no fee to the journal.

CONCLUSION

Exploring advantages and disadvantages aids to develop a deeper understanding of medical publishing and to identify improved measures that can be taken to join the medical publishing wave. All advanced and technology-friendly processes ease the youth inclusion in this domain. Youth are a key element in pursuing sustainability, which is a lasting goal in science development. Research progresses with the aid of youth, which in turn benefits from research. There is only one step to take.

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