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Commentary



A commentary on “Impact of the coronavirus (COVID-19) pandemic on scientific research and implications for clinical academic training – A review” (Int J Surg 2021;86:57–63)*

Dear Editor

The COVID-19 outbreak has posed an unprecedented challenge to humanity and science. Public and private incentives have been put in place to promptly allocate resources toward research which is strictly related to the COVID-19 emergency. However, research in many other fields which are not directly related to the pandemic has been displaced. We read with great interest the article by Sohrabi et al. [1] wherein the authors carried out a comprehensive review with the aim to provide a critical evaluation of the COVID-19 pandemic on scientific research and funding, and on academic clinical and surgical trainings.

At the height of the first wave of the COVID-19 infection, restrictions were greatest, resulting in partial or complete closure of teaching rooms, libraries, and laboratories [2]. Such changes posed significant challenges to learning methods and environments, and left trainees with reduced core skills compared with their colleagues who had completed their trainings in the pre-COVID years. For example, medical and nursing students received limited clinical exposure because of suspension of trainee participation in hospital rounds, whereas graduate and undergraduate students were left with limited experience on practical laboratory techniques following cessation of laboratory and research activities [3]. Furthermore, a switch from in-person classes to virtual sessions brought technical issues and has shown to bring problems in audience contribution and two-way interactions. Direct and regular mentor/mentee exchanges were also interrupted because of redeployment of institutional workforces to manage rapid increases in COVID-19 patients and COVID-19 related research. Although these transformations were, and are still challenging, necessity has driven their adoption. Indeed, uncertainty over the future course of the pandemic means these challenges are likely to continue for a longer time.

In clinical research, using a practicing control over an independent variable can ensure that any resultant effect on a dependent variable is related to the intervention [4]. Control in research increases the internal validity. However, demonstrating control during the COVID-19 pandemic is challenging. Researchers may have lost control over fundamental resources, such as physical access to experimental settings, human resources, assessment of outpatient-clinic appointments, and intervention on clinical appointments. The COVID-19 pandemic may have a significant impact on the study's physical setting through either a change in research location, or an un-changed location but with application of infection control measures [5]. Such loss of control during the COVID-19 pandemic poses risks on internal and external validation of studies.

Finally, the economic impact of the COVID-19 pandemic on scientific

research and clinical training should not be underestimated. Although the pandemic initially brought additional funding opportunities, financial revenues and research expenditures have been projected to be reduced in the foreseeable future. Unless preventive actions are undertaken, this can lead to a decrease in the number of doctorate students and early career researchers, with the potential hindrance to scientific research after the pandemic passes.

In conclusion, COVID-19 has already changed the world, not only because of the disease itself, but because of its long-term impact on the world's reaction to the pandemic. It is crucial that the scientific community should be aware of the problems facing them, or lest inadequate preparedness in research in facing future pandemics will repeat the painful lessons of today.

Ethical approval

This manuscript were based on previous published study, thus no ethical approval are required.

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Author contribution

Chenyu Wang: draft the article, Xueping Zhao: design the study, Limin Pan: review the article.

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