



Perspectives

Covid-19 and How it has Changed Research

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Abstract

COVID-19 has left a significant impact on clinical research. With previously ongoing research coming to a halt, researchers directed their attention to COVID-19 related research. The quality of research published has been inadequate at large for multiple reasons discussed in this manuscript. One hopes that common sense will prevail and quality of research will continue to improve.

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Introduction

COVID-19 pandemic has almost affected every field: finance, education, politics and even research. The number of COVID-19 cases tends to rise exponentially, hence there has been an urgent need to undertake research on various aspects of this deadly contagious disease.¹ Research undertaken however has had mixed impact: positive and negative.² Negative consequences have however been predominant in the initial phase such as use of bad methodology, clinical trials with no control groups, small sample sizes.³ It has been estimated that 85% of the research during the pandemic was wasted due to poor methodology and study design, inadequate regulation and conduct, poor analysis, and non-reporting of results.⁴ e.g. World Health Organization (WHO) sponsored randomized clinical trials that were conducted in five countries aiming to recruit 12,000 participants but 42% of these trials were poorly designed aiming at single-armed trials with no standard care arm.⁵

Waste in COVID-19 research has not only been about sustainability, methodology, and missed

opportunities. Like any other case of inappropriateness, it has had the potential to do more harm than benefit through its behavioral, communicative and clinical consequences.⁶ Covid-19 pandemic has also affected research funding. Funding bodies and politicians must stay committed to sustained research and development funding in the post COVID-19 era.⁷ Also, the process of peer review has been adversely affected. The evidence suggests that peer review has at times been ineffective at identifying important research and even less effective at detecting fraud.⁸ Even tier-1 journals such as Lancet, JAMA had to retract published articles quoting that we are unable to validate the primary data source.⁹ European union (EU) has also tried to cut research budget, but European Parliament President David Sassoli resisted it as being not acceptable.¹⁰ The economic consequence of COVID-19 has resulted in decreased funding allocations and major research projects had to come to halt.

The aim of this article is to highlight out how various aspects of the research are affected by the COVID-

19 pandemic and what will be the future of the research after a pandemic.

Discussion

Impact of COVID-19 on Research

Covid-19 has a significant impact on basic science and clinical research. Many scientists have redirected their efforts to combat SARS COV 2 infection via research activities. Many clinical trials have been paused to maximize social distancing and minimize the spread of infection to research staff. The work of many scientists had however to come to a halt. Medical researchers were redeployed to clinical work. Clinical researches that have come to halt will take months to resume. The speed at which COVID-19 research has been conducted has increased risk of associated mistakes. The quality of research published before and after period of pandemic differs significantly in being of inadequate quality in the latter phase and robust data being severely limited.

Research Funding and Economic Problems

Research is severely affected due to the suspension of research grants and funding. British heart foundation has significantly cut down its budget for the coming year. Cancer Research UK has already confirmed that they are going to cut down £150 million funding. This has negative implications on research teams doing foundational research. Governments, pharmaceutical and device manufacturing industry should come forward to maintain funding for ongoing and future scientific research. Although government is investing heavily in Covid-related research, other basic and clinical sciences researchers have suffered immensely. Many researchers will be unable to continue or completely resume their research during 2020-21.

Research Communication Gaps and Distant learning

Means of communication and interaction between researchers has witnessed a paradigm shift to distant learning methods. The rapid transition to distant learning was initially challenging. Asynchronous communication and time expressing one's content have

been some challenges faced during distant learning. Advances in the field of telecommunication have offered significant support in this regard. Zoom has emerged as one of the most effective video conferencing platforms with unique features that help in qualitative and mixed-method research.¹¹ Covid-19 crisis has increased the demand for teleconferencing-based interaction, collaborations, symposiums, and webinars. The company's net profit totaled \$259.0 million for the quarter.¹² Findings suggest viability of Zoom as an excellent tool for the collection of qualitative data because of its cost-effectiveness, relative ease of use, security options, and data management features. These teleconferencing tools have limitations too such as widespread outages recently that took hours to resolve it, leaving many workers and students unable to log in to meetings. In a survey regarding effectiveness of Zoom, several participants have reported technical difficulties, but most found it satisfactory.¹³

Research Quality

Since the beginning of the COVID-19 pandemic, the rate of publication of the COVID-19 articles is proportional to the increase in the number of infected patients.¹⁴ As of October 30, 2020, more than 65,000 articles including the term "COVID-19" were published in PubMed. The quality of research went from good to ugly. Single case studies have managed to get media limelight. Most published articles have fallen short of good scientific standards. These raised public expectations but later proved a disappointment. It is advisable for researchers to establish coordination groups and publish results from pooled data of decent sample size for meaningful interpretation.

Opportunistic Researchers and Retraction of published Articles

Most researchers aspire to publish in tier-1 journal such as Lancet, but COVID-19 has demonstrated limitations in peer-review process of these journals. Some of these journals had to retract papers claiming significant results of various Covid-19 treatment, which were later found to be non-verifiable. Besides the greed by non-serious researchers looking to make a quick impact in media limelight, editorial boards

have also failed to an extent in delivering appropriate peer-review.

The rate of publication for COVID-19 related research has been high, so has been the retraction rate of such publications. The retraction record using the keyword 'COVID-19' from PubMed, is 0.074%. Even the top journals like Lancet and NEJM are not spared.^{15,16} Policymakers and the public health system of different countries relied on published articles to guide their national public health policies, only later to have found non-reliability of published results.

Conclusion

COVID-19 pandemic has diversely affected research. It has provided a new area and field of research opportunities for the researchers and at the same time exposed the dark aspect of ineffective methodology, greed for publication, and irresponsible editorial board review of even some famous journals. Funding for the researches has been cut short. There is a difficult time ahead for academic, but with effective methodology, following scientific standards best of COVID-19 research is yet to come.

Salient points

1. The quality of research published has been inadequate at large for multiple reasons
2. The speed at which Covid-19 research has been conducted has increased risk of associated mistakes.
3. Research is severely affected due to the suspension of research grants and funding
4. Zoom has emerged as one of the most effective videoconferencing platforms with unique features that help in qualitative and mixed-method research
5. The retraction record using the keyword 'COVID-19' from PubMed, is 0.074%

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