

Chapter 6

Covid-19 Lockdown: A Study on the Effect of the Pandemic on Engineering Researchers in Kerala

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Abstract

The motivation for the work is to assess the current scenario of research works after the effect of the pandemic. The article presents the state of functioning of research scholars coming under the engineering fraternity in Kerala. The study focused on analysing the effect of lockdown on the progress of research works of the researchers, the disruptions caused to the researchers reflecting on their research works, researchers' concern on the future of their research and job, the factors that affected their research during this lockdown period, and their expectation to work after the lockdown period. The study focused on contextualizing the work status of the researchers in the situation of catastrophe.

Keywords: Covid-19 Impact, Engineering, Lockdown Impact, Researchers, Survey

Introduction

The Covid-19 pandemic has impacted almost every human activity in one or the other way. Significant transformations occurred in various organisations, business processes, operational technologies to adhere to the change in the panorama in line with the pandemic aftermath. The lockdown due to the pandemic outbreak has made momentous interferences in almost all human activities [9]. Psychologists advocate that the psychological impacts of the pandemic lockdown will remain for an indefinite period of time [7]. The pandemic forced the mode of teaching-learning experience to shift to the digital one. The pandemic also caused a quantum jump in the learning experience due to the availability of different types of digital learning platforms and

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easier assessment means. Nevertheless, the lockdown has affected the productivity of young minds. Though technology has advanced enough to cope up with the threat posed by the pandemic in terms of slowing down academic activities, several students are reportedly facing varied issues related to depression, anxiety, poor internet connectivity, and an unfavorable study environment at home. [6]

A study on the assessment of the fragility of digitally immature organisations during the pandemic leaves behind the reflection of the need for digital literacy not only for organisations but also for various other sectors like students, academics, etc. The study suggests digital maturity as a necessity rather than an option or add-on in any organization and recommends to make it in main agenda for meeting the required level of digital maturity [4]. Researchers also suggest that the opportunities for digital technologies are noteworthy in this pandemic-stricken period since digital technologies are the major platform of service for various sectors [2,3].

Kerala state has not yet relieved from the pandemic effect significantly. Even though the business activities have started in the state, the level of business has not yet returned to the previous level as before the lockdown. According to GoK Direct – Kerala app that provides information from Kerala state government straight to state's residents, as of 31.01.2021, out of various districts in Kerala, 2,18,874 people are under Covid19 observation, in which 2,07,392 are on home/institutional quarantine and 11,482 people are on observation at the hospital. 375 places are declared as hotspots in Kerala [5]. Research not directly related to Covid-19 has been on a slow pace during the lockdown period. The remote working practice that was suddenly imposed on the researchers has placed substantial restrains on the efficiency of the operations [8]. For a wider understanding of the work done by the research fraternity of the state, it is to be analysed whether the research activities will pass the test of time.

India declared lockdown in the prospect of the pandemic on 23rd March 2020 due to which there has been a drastic change in the research activities. For analysing the existing scenario of research activities an online-based survey was conducted among research scholars in Kerala in January 2021. Survey-based studies on the impact of lockdown on various focal groups have been conducted by various researchers. The methodology of survey adopted in the study is enthused from a UK based study on relatively similar grounds [1]. A survey has been conducted to assess the impacts of the pandemic lockdown on the research activities of the research scholars in Kerala. The observations from the responses from the participants are described in the paper.

Outline of the Survey

The data was collected on assessing the impact of lockdown on researchers in Kerala. Questions asked were to cover the individual researcher's perspectives on the lockdown. An online survey was conducted relying on the researchers who were willing to respond. The data has been collected to assess the current and expected impact of Covid-19 on research activities and the researcher community of the state.

The study could be helpful for the potential interventions of concerned authorities, Government, and others to support researchers in Kerala, research institutions, and facilities. The survey provides indicative data. The data do not represent the entire research fraternity in Kerala. However, it is a snapshot of views from researchers concerning their level of experience in research activities.

Background of Participants

The participants who responded were predominantly part-time and full-time research scholars from the engineering fraternity across Kerala. 59.1% of the participants were females and 40.9% of the participants were males. 54.5% of the participants were part-time scholars and 45.5% of the participants were full-time scholars. 77.3% of the participants had crossed the early stages of their research and the rest that comprise 22.7% of the participants were beginners in research. Figure 1 represented below shows the type of research of various participants, expressed in percentage. A majority of 59.1% of participants were doing experimental research. The participants with research types as observation, survey, analytical, and numerical consisted of 4.5%, 9.1%, 13.6%, and 4.5% respectively (see figure 1). Among the participants, a majority of 77.3% of participants had caring responsibilities. The caring responsibilities involved the role of a primary or secondary carer for a child, disabled, or older person. All the female participants and 44.4% of the male participants had caring responsibilities.

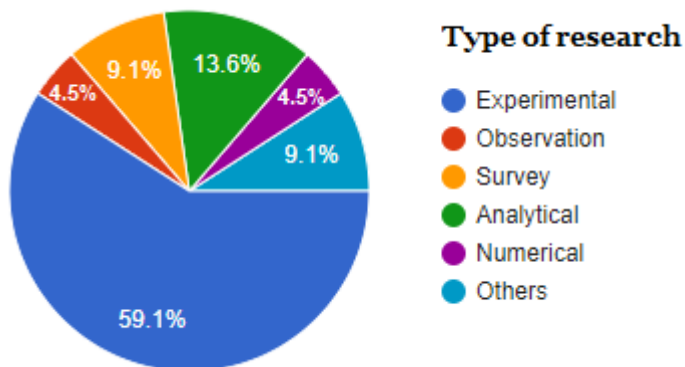


Figure 1. Graph showing the type of research of participants

Impact of Lockdown on Researchers

The Covid-19 lockdown has affected the researchers in many means. Few focal areas of impact on researchers were studied and described as follows

Progress of Research

Many of the participants expressed that the pace of progress of research works was less than expected during the lockdown period. 9.1% of the participants responded that they had no progress in their works during the lockdown period. 77.2% of participants reported that they had progressed within 10%, and 13.7% reported to have progressed between 10% to 30%. All the participants reported having an increase in work from home research activities and a decrease in non-work from home activities. About 22.7% of participants reported having no involvement in non-work from home activities during this period. All the participants faced a decrease in academic activities. Researchers were able to devote more working hours on preparation of articles and project proposals for research grant during the lockdown period when compared to the pre-lockdown period.

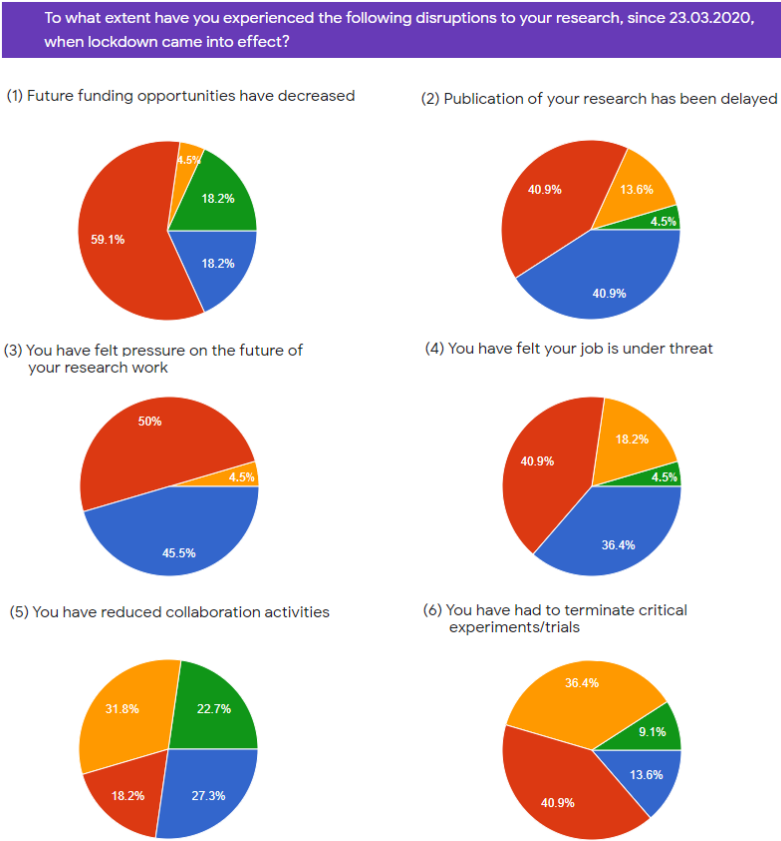


Figure 2. Participants response on the extent of disruptions in research due to lockdown (questions 1 to 6)

Disruptions in Research

The survey covered a few questions to investigate the disruptions caused to the researchers during the lockdown period. The responses to the questions asked to the researchers are depicted in figures 2 & 3. 77.3% of the researchers indicated the chances for a decrease in future funding opportunities as a result of the lockdown. 81.8% of the participants recorded that they have experienced a delay in the publication of research articles. 95.5% of researchers expressed their concern on the future of their research work. 36.4% of the participants indicate a threat of job loss to a significant extent whereas, 40.9% fear the threat of job loss to some extent. 18.2% of the participants do not experience this distress. 27.3% and 18.2% of the participants experienced a decline in collaboration activities to a significant extent and some extent respectively. 54.5% of participants had to terminate critical experiments/trials as an aftermath of the pandemic (see figure 2).

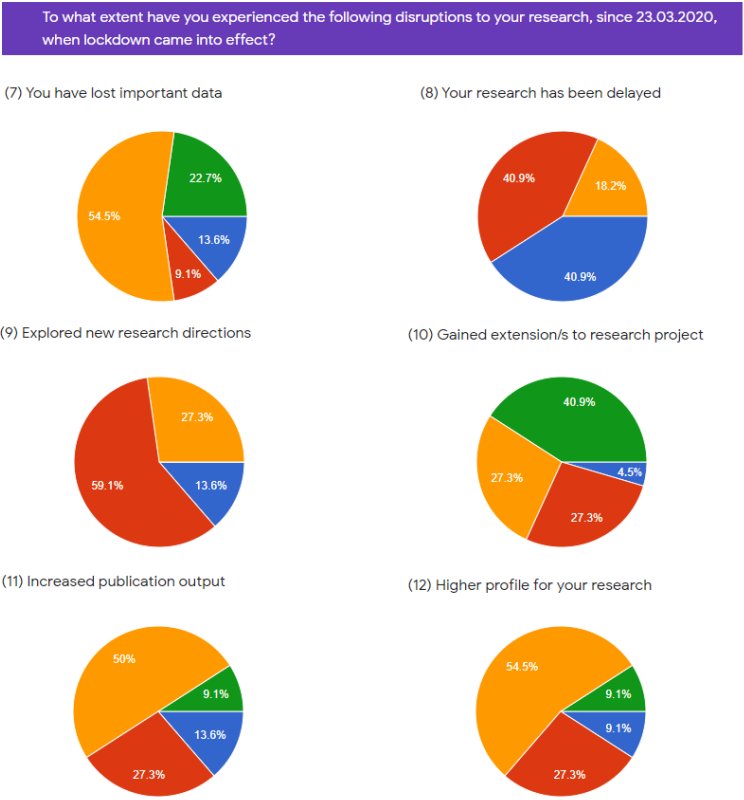


Figure 3. Participants response on the extent of disruptions in research due to lockdown (questions 7 to 12)

22.7% of the participant researchers have lost important data and 81.8% of the participant's research has been delayed. 13.6% of the participants discovered new research directions to a significant extent and 59.1% of the participants discovered new research directions to some extent. 31.8% of participants gained an extension to their research project and 40.9% increased their publication output during the period of lockdown. 36.4% of participants responded that they have come across a higher research profile (see figure 3).

Since lockdown researchers have postponed important meetings and conferences, have been unable to access laboratory facilities and archives, and reported an unfavorable work atmosphere at home. Scholars associated with teaching activities experienced reduced research time due to increased teaching load. The switching to a digital platform for teaching has demanded more of their time. Researchers on the verge of completion (18.2%) were allowed to extend the Ph.D. registration. No researchers indicated the cancellation of their research during this period. 4.5% of researchers received support from government schemes and 9.1% of researchers received an extension for research grant activities. 77.3% of the researchers were able to attend various research-oriented workshops and seminars.

The Expectation of Researchers Towards Returning to Work After Lockdown.

A question was put forward to the research scholars to know their expectation of the future of their research works after returning to work within Covid-19 protocol and social distancing. 23.8% of the participants recorded that they will be adjusted back to the pre-lockdown period. 33.3% of participants expect an improvement than the lockdown period but not up to the level of the pre-lockdown period. 9.5% of participants envisaged the research activities to be the same as before. 4.8% of participants expressed concern about the reduction of activities further from the current level (see figure 4).

Returning to work within Covid protocol and social distancing, how may your research works be affected?

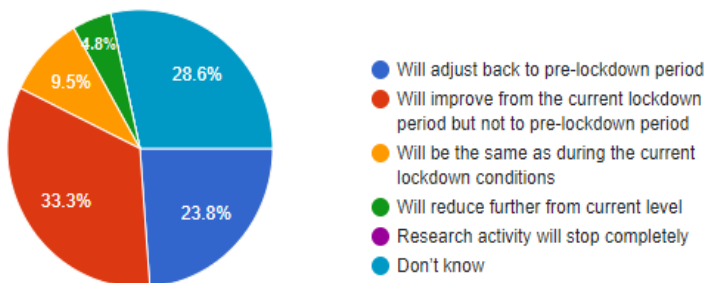


Figure 4. Expectation of researchers towards work after lockdown

Inferences

The study was able to bring out a comprehensive idea on the effect of lockdown on the research scholars in the engineering fraternity in Kerala. The investigations to find out the challenges to sustain the research activities has led to the following presumptions: It has been observed that the pandemic has highly affected the researchers irrespective of the gender experience level of the participants. Researchers have developed the flexibility to work from home conditions to some extent. Sudden retraction of access to laboratories, archives, and working spaces has been the biggest challenge for the researchers. The researchers had to undergo mental agony, anxiety, and fear in various cases. Unsuitable home environmental conditions including lack of office equipment, inability to access appropriate digital platforms, and caring responsibilities were observed as a barrier to progress in research. The increment in the work-from-home research activities denotes an increase in flexibility and adaptability of working. Even though the researchers experienced several disruptions during the lockdown period, the fact that this period gave the researchers a chance to be more resourceful cannot be overlooked. As a result, few researchers explored new research directions. Researchers have tried to improve their research profile during the lockdown period by preparing research articles and gained knowledge and experience through a greater number of research-oriented workshops and seminars. However, the uncertainty of researchers on the future of their research is prevailing.

Conclusions

The Covid-19 pandemic has produced erratic changes to almost all aspects of lives. The study attempted to learn the impact of the pandemic lockdown on the research scholars in the engineering fraternity. The study was an online survey that focused on the research scholars in Kerala. The study reveals that the researchers have been affected by the pandemic lockdown in many aspects like disruptions to research work culture, a pattern shift in research activities, reduced access to laboratories and archives depressingly. At the same time, the lockdown period allowed several researchers to explore newer research directions, and opportunities were allowed for improving one's research profile. Even though the post lockdown period may not bring back the level of research activities within the Covid-19 protocol, it is expected of the researchers to carry out their work with a new research direction.

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