



Viewpoint

Impact of the COVID-19 pandemic on radiologists

Ganesh Hegde¹, Christine Azzopardi¹, Patrick Hurley², Harun Gupta³, Naga Varaprasad Vemuri⁴, Steven James¹, Rajesh Botchu¹

¹Department of Musculoskeletal Radiology, Royal Orthopaedic Hospital, ²Birmingham Medical School, Royal Orthopaedic Hospital, Birmingham, West Midlands, ³Department of Radiology, Leeds Teaching Hospital, Leeds, United Kingdom, ⁴Department of Radiology, Global Hospital, Vijayawada, Andhra Pradesh, India.



*Corresponding author:

Rajesh Botchu,
Department of Musculoskeletal
Radiology, Royal Orthopaedic
Hospital, Bristol Road South,
Birmingham - B31 2AP, United
Kingdom.

drbrajesh@yahoo.com

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ABSTRACT

COVID-19 pandemic is one of the biggest crises faced by health-care systems in the recent times. The aim of this study was to assess the impact of the COVID-19 pandemic on radiology workflow, working pattern, training and continuing professional development (CPD) activities, as well as personal well-being of the radiologists during the pandemic. Material and Methods: Questionnaire designed to gather the opinions regarding the impact of the COVID-19 pandemic was distributed to radiologists throughout the world in electronic format. Anonymized responses were obtained and analyzed. Two hundred radiologists, working in 17 different countries, responded to our questionnaire. Majority of the respondents were from India (72.8%) and 70% of them were in the age group of 25–45 years. About 80% of respondents felt that they were well protected or moderately well protected in terms of the personal protective equipment (PPE), however, most of them felt that the use of PPE had affected their ability to work. Similar number of radiologists felt that there was significant reduction in the radiology workload. More than half of the respondents felt that their working patterns were altered by the pandemic with drastic impact on teaching, CPD activities, and personal well-being. COVID-19 pandemic has had profound impact on the radiologists all over the world. Learning from the experiences of the first wave should be used to provide innovative solutions to some of the challenges posed to provide better radiology services, training, and improve the well-being of radiologists if we encounter a similar situation in the future. COVID-19 pandemic had significant impact on radiologists. Radiologists felt that they were well or moderately well protected with PPEs; however, PPEs affected their ability to work. Radiology workflow was significantly reduced in the pandemic with more radiologists working from home. COVID-19 pandemic had deleterious effect on radiologist's well-being, education, and CPD activities.

Keywords: COVID-19, Effect, Radiologist, Workload

INTRODUCTION

The COVID-19 pandemic reflects an unprecedented challenge for health-care systems all over the world. The scale with which disease transmission occurred led to the implementation of never before seen policy measures to bring the infection rate under control and reduce the transmission of the virus. These drastic interventions resulted in significant changes in the working pattern and health-care delivery system. Radiologists, being an integral part of this system, were inevitably affected. The aim of this survey was to capture the impact of the COVID-19 pandemic on radiology workflow, working pattern, training and continuing professional development (CPD) activities, as well as personal well-being of the radiologists during the pandemic. Understandings from these experiences may facilitate better preparation for the future, to enable better provision for a second wave of COVID-19 or other similar health emergencies.

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MATERIAL AND METHODS

A questionnaire was designed to gather the opinions regarding the impact of the COVID-19 pandemic on various aspects of radiology practices and training and these were distributed to radiologists throughout the world in electronic format. Anonymized responses were obtained and analyzed. Dedicated spaces were provided for the respondents to provide suggestions on improving training/CPD and to maintain personal well-being were a second wave of the disease to occur. Web-based platform (SurveyMonkey) was used to collect the data. The questionnaires were sent in July 2020 as this reflected a time when many countries were coming out of the lockdown phase and attempting to return to “normal” radiology practice. Most of the radiologists surveyed had gone through the first disease wave and had time to reflect on the events which unfolded.

RESULTS

We received a response from 200 radiologists, working in 17 different countries. The majority of the respondents were from India (72.8%) followed by the United Kingdom (15.5%) [Table 1]. About 70% of the respondents were in the age group of 25–45 years with half of them working in teaching hospitals. About 80% of respondents felt that they were well protected or moderately well protected in terms of the personal protective equipment (PPE), however, most of them felt that the use of PPE had affected their ability to work. When asked about changes in their working pattern due to COVID-19, half of the surveyed radiologists said that at least part of their work had been done remotely compared to only a quarter before the pandemic. COVID-19 pandemic has had drastic impact on the workload with up to three-quarter of the respondents reporting reduction in the workload and almost one-fifth of them having >50% reduction in the workload. Reduction in the work load was more marked in ultrasound and interventional radiology.

The pandemic has had a devastating impact on training and CPD activities with almost 60% of the respondents reporting moderate-to-severe impact on these activities. A similar trend was noticed in their ability to teach during the pandemic. Close to half of the respondents reported adverse

impact on the personal well-being. Surprisingly, only a small percentage of the responders noticed an improvement in their personal health in this period.^[1]

DISCUSSION

COVID-19 pandemic had a substantial impact on the radiologists and radiology workflow. Many surveys have been published recently describing the effects of this pandemic which have concentrated on the training aspect of radiology and some analyzing the effect on the well-being of the radiologists who were working in a small group or regions.^[2,3] Our survey reports the opinion of the radiologists working in different countries about their experience in this pandemic.

In a pandemic of this proportion, protecting health care workers is vital to maintain continuous, safe, and effective patient care. Initially, a shortage of PPEs was a major concern and frequently changing guidelines regarding PPE use added confusion. However, the supply of PPEs improved and policies became more consistent. The majority of the respondents felt that they were either well protected or moderately well protected at work. Although they were happy with the protection at work, up to 75% of the responders felt that PPE use has adversely affected their ability to work. This could be because of the additional time and effort required for donning and doffing of the PPEs between the patients, time spent on sanitization post-PPE use such as cleaning the face shields and sanitizing the equipment and rooms. This could also be due to the fact that the extensive use of PPEs in radiology procedures was not routine before the pandemic and one needed to acquaint with this new normal. In addition to these, some of the PPEs were uncomfortable to use for long periods and created some practical challenges such as face shield hampering the visualization of the screen/monitors while performing ultrasound or interventional procedures. In addition, doctors using spectacles felt that their glasses were getting fogged after prolonged use. Recent studies have shown that concerns regarding inadequate PPE during the pandemic have had adverse effect on mental health.^[4] It is essential to educate health care workers about the type of PPEs to help reduce transmission of the disease within hospital. It is also important to teach the proper donning and doffing techniques for PPE use to cut down the risk of infection.

As the pandemic grew, one of the challenges faced by the hospitals and radiology departments was safeguarding the radiologists to provide continuous diagnostic support in patient care. One of the options utilized by the hospitals was allowing radiologists to work remotely from home during the pandemic. Our survey clearly shows that there was a significant increase in the proportion of radiologists working remotely. Remote working comes with its own challenges. A

Table 1: Country of work of respondents.

Country	% of total response
India	72.8
United Kingdom	15.57
United Arab Emirates	2
Pakistan	1.5
Others	7.5
No answer	0.5

good IT support to have adequate home reporting stations which are connected with PACS is essential. Apart from the image transfer, there is a need for rapid communication between radiologist and radiographers for optimal planning of the scans and prioritization of patients. It is vital to have communication between radiology colleagues and discussion about day-to-day working to keep remotely working radiologists a cohesive unit.

It is evident from the responses in the survey that there was a reduction in the imaging volume. Although the extent to which it reduced differed in different hospitals, reduced volumes were seen in all modalities, especially ultrasound and intervention. The outcome of our survey was consistent with some of the recently published literature.^[5] This was due to cancellation of non-urgent elective operations,^[6] clinical and imaging appointments. Some of the patients themselves were apprehensive and chose to defer their appointments. Although there was a significant reduction in the radiology imaging volume, many departments faced a shortage of the radiology workforce due to the disease related self-isolation. In the initial stage of the pandemic, with a high volume of COVID-19 patients in the emergency and critical care, delays occurred in the receiving of nasal swab reports and further challenges were seen regarding the unpredictable nature (reduced sensitivity of the PCR), imaging modalities such as radiographs and CT scans were used in clinical decision and to exclude alternate diagnosis.^[7] This along with redeployment of doctors from various other specialties, who were less familiar with interpreting the imaging studies, resulted in increased pressure on the radiologists to report the studies quickly (hot reporting) and to communicate the report to the referring clinician to aid in patient care and prevent cross-infection within the hospital.

Adverse impacts of the COVID-19 pandemic on training have been well documented in some of the recent publications^[3,4,8] and results of our survey substantiate this. More than 60% of the responders believed that their CPD activity and ability to teach were also impacted. Due to social distancing measures, traditional teaching methods such as one to one teaching and teaching in groups were adversely affected and in fact non-existent. Furthermore, consultants opting to work from home, reduced subspecialty work in the some of the fields of radiology, and redeployment of the trainees were also possible reasons for negative impact on training. Lockdown resulted in cancellation of many courses and conferences, hampering CPD activity. In addition to this, some of the hospitals/trusts revoked Supporting Professional Activities, which also could have affected CPD activities. When asked to recommend ways to improve the training and CPD, the most frequent suggestion from respondents was to use the online platform for teaching and CPD. Some of the other interesting responses include using web-based platforms for teaching,

recording of webinars, and providing access to them for a week as well as case discussions.

In accordance with some of the surveys, approximately half of the respondents reported a deleterious effect on their personal well-being.^[3,9] Possible causes could be anxiety and fear of contracting the infection either themselves or their family members, lost educational opportunities, and uncertainties about the future. Social distancing may be an effective tool to reduce the disease transmission, however, it also significantly reduces social connections and interactions which helps regulate emotions, cope with stress, and remain resilient during difficult times. Social isolation and reduced human interactions could which could worsen the burden of stress and often produce deleterious effects on mental, cardiovascular, and immune health.^[10] Some of the suggested recommendations to safeguard well-being, if there is the second wave, included more occupational and psychological support to improve the mental well-being and improve the personal health with good diet and regular exercise.

During the outbreak of severe acute respiratory distress syndrome (SARS) of 2003, approximately a third to half of the health care workers in the hospitals that treated SARS demonstrated clinically significant stress even after 2 years of the outbreak.^[11] Similarly, the COVID-19 pandemic is likely to increase the risk of mental health disorders such as post-traumatic stress disorder or depression, other anxiety disorders in the health care workers,^[9,12] including radiologists. A tailored psychological intervention based on the needs of individual staff, which is culturally sensitive, and focused on safety, comfort, and connection with social supports and resources is required for the acute management of psychological trauma. There is a need to stress the importance of self-care among the radiologists with healthy diet, regular exercise, and sound sleep. There is a need to stress the importance of mental health support and self-care among the radiologists with healthy diet, regular exercise, and sound sleep.^[4,13] Having a “Staff buddy” system to support personal precautionary measures, checking in with other colleagues to discuss work experiences, taking time-outs for basic bodily care and refreshment, opportunities for reflection on the effects of stress, and avoiding negative coping strategies such as alcohol, illicit drugs are some of the recommended strategies to deal with psychological problems. Yoga has been shown to improve well-being and reduce the stress^[11,12] and could be used as a destressing technique. Yoga and meditation could be used as a destressing technique.^[1,14]

Our study has a number of limitations. Although we had 200 responses, respondents were practicing in various countries with different guidelines, various stages of evolution of the pandemic and different working conditions. Our study was aimed at understanding the wider impact of the pandemic on

multiple aspects of radiology practice, rather than targeted deep analysis of its impact on a few topics.

CONCLUSION

COVID-19 pandemic had widespread impact on radiology practice with considerable changes in the way radiology was practiced. With uncertainties associated with the future course of the pandemic, learning from the experiences of the first wave should be used to provide innovative solutions to some of the challenges posed to provide better radiology services, training, and improve the well-being of radiologists if we encounter a similar situation in the future.

Declaration of patient consent

Patient's consent not required as there are no patients in this study.

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Conflicts of interest

There are no conflicts of interest.

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