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Original Article

Single Center Experience of the Impact of the COVID-19 Pandemic on Education and Career Outlook of Radiologists

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Abstract

Background: The COVID-19 pandemic mandated social distancing and contact isolation. There is limited data on the impact of such changes on the clinical and educational experience of radiologists. This study aims to understand how the pandemic affected the education, careers, and mental well-being of resident and attending radiologists. **Methods:** A 17-item questionnaire was distributed to resident and attending radiologists at a single academic center. Responses were collected from October 2020 to January 2021 and a follow-up survey was distributed in December 2021. Outcome measures were analyzed using measures of central tendency in Microsoft Excel. **Results:** There were 26 responses, 20 from attending physicians and 6 from residents. Of these, 70% of attendings and 66.7% of residents perceived a negative impact on educational experiences. Among those who completed the depression questionnaire, 85% denied symptoms in themselves or colleagues. In the follow-up survey, all participants reported increased imaging volume, and 57% were working remotely. While 57% saw no impact on mentorship from remote interactions, 29% reported a negative effect. A sense of being overworked was noted by 86%, and 43% reported reduced job satisfaction. Depressive symptoms related to the pandemic were endorsed by 71%. **Discussion:** While schedule flexibility was a notable benefit to remote work, a significant negative impact on educational experiences was reported. Career dissatisfaction was also significant in the follow-up questionnaire, likely due to sustained increased volume and remote education. Future studies should explore workload, mental health, and career satisfaction to improve structuring of radiology workflows.

Introduction

The coronavirus disease of 2019 (COVID-19) pandemic forced rapid adaptation of the healthcare industry to a new environment to mitigate spread of the virus. Social distancing and contact isolation measures have impacted the clinical, educational, and patient care goals of medical institutions.[1,3] Particularly, emergency departments and intensive care units were met with increasing volumes of critically ill patients and resource shortages.4-6 While workflow changes on medical floors due to the pandemic are well-documented, there is limited data on the adaptations individual health care centers implemented and the consequences of such changes on radiology teams.[6,7] Radiologists continue to have a crucial role in multidisciplinary patient management as they consult physicians of various specialties on diagnoses and management. However, their physical interaction with patients and consulting physicians has been limited with the inception of the picture archiving and communication system (PACS), increasing study volumes, and improved communication systems.[8,9] Notably, many radiologists can work remotely with relatively high proportions of radiology practices offering teleradiology services in the early 2000s.[10] Therefore, it is appropriate to determine if, and how, the COVID-19 pandemic impacted the field of radiology.

A 2020 study analyzed the use of radiological resources before (2019), during (January-March 2020), and after (April-June 2020) the pandemic.[11] The researchers found a decrease in the number of examinations during the peak of the pandemic but a return to normal pre-pandemic levels after the peak. Moreover, although the volume decreased during the peak, there was greater turnaround time due to PPE and safety precautions necessary to use the resources. This supports the tendency of the public to refrain from seeking care during the pandemic, but the longer turnaround time for assessments may not have relieved the burden on healthcare providers. Similarly, a 2021 study found a 60% decrease in radiology report volume per day overall.[12] Within subspecialties, musculoskeletal, breast, and cardiovascular imaging experienced reductions of >75%. Consequently, 22% of radiologists at this institution were reassigned to other hospital duties.

Among subspecialties with a higher proportion of patient contact, such reductions in patient volume may have implications on

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compensation, burnout, and overall career satisfaction. A cross-section survey distributed to members of the Society of Breast Imaging (SBI) to assess the impact of the pandemic demonstrated significant psychological distress and anxiety in 2020, with slight reductions in 2022.[13] Such distress was correlated with financial strain, childcare responsibilities, decreased research collaboration, and less time with patients. Meanwhile, a similar survey eliciting perspectives of SBI members on remote and in-person work found that hybrid work was preferred over solely in-person or virtual work.[14] This finding was largely driven by feelings of increased efficiency and reduced burnout from remote work; career growth or communication with colleagues and patients were also perceived to not be negatively impacted by this work modality. Importantly, a minority of the respondents were engaged in or had the option of remote work at the time of the survey. Such a difference between the perception of remote work and the experience of remote work highlights the need for more qualitative inquiries on the impact of COVID-19 on radiologists' work.

In addition to imaging volume and work modalities, the impact of the pandemic on the educational environment within radiology residency programs has been studied. Chong et al. provided guidelines, including a list of resources for distance learning and well-being, for programs, offering specific examples from three programs.[15] On a national level, Robbins et al. administered a 22-question survey analyzing the impact of COVID-19 on radiology residencies; 70% of the participants reported a negative impact and 45% perceived a decrease in resident morale.[16] Alhasan et al. report similar perceptions among radiology trainees in Saudi Arabia, noting a severe or moderate negative impact on educational activities felt by a majority of trainees.[17] Regarding changes to clinical workflows, Matalon et al. reported movement of an academic radiology service from 14 traditional reading rooms to 36 spaces across the hospital system.[18] The practice developed a system of "remote readouts" between trainees and attendings, which included video conferencing and screen sharing, as well as an in-house peer learning platform. A survey administered 3 weeks following implementation of this workflow found that social distancing and autonomy/competency was favorable while efficiency was debatable among respondents.[18]

The purpose of this study is to expand on the impact of the COVID-19 pandemic and better understand its effect on lifestyle, education, careers, and mental well-being of resident and attending radiologists at a single academic tertiary care center in the United States. As radiologists continue to work through the COVID-19 pandemic and within a field undergoing rapid technological innovation, the data presented in this study addresses the knowledge gap on the pandemic's impact on radiologists' education and provides insight into important considerations regarding radiologist career outlook.

Methods

Study Design and Setting

This study utilized a cross-sectional survey design to assess the impact of COVID-19 on various aspects of radiologists' careers and professional work. The survey was conducted at a single academic tertiary care center and included both resident and attending radiologists. Two surveys were distributed: the initial survey was distributed via email in October 2020 and voluntarily completed by January 2021, while a follow-up survey was distributed in December 2021 to participants of the initial survey. As this study is a cross-sectional study, it adheres to the STROBE checklist and follows the SQUIRE 2.0 guidelines for reporting healthcare improvement research as described in the subsequent sections.

Participants and Study Size

The target population comprised radiologists at the institution, including residents and attending physicians. Inclusion criteria required participants to be employed at the center during the survey period and willing to voluntarily complete the survey. Exclusion criteria included individuals who were no longer affiliated with the institution or declined to provide informed consent for the follow-up survey. The study size was determined by the total number of radiologists employed at the institution during the survey period. All eligible individuals were invited to participate, with no formal sample size calculation performed due to the descriptive and exploratory nature of the study.

Variables and Data Sources

The primary outcome variables included changes in the volume of imaging, remote work and its duration, effects on relationships between attendings and residents, effects on relationships among colleagues, effects on relationships between physicians and other healthcare providers, effects on relationships with patients, overall job satisfaction, and depressive symptoms among radiologists secondary to the pandemic. Outcome measures were collected as non-binary qualitative data, with categorical and ordinal variables analyzed to assess relationships and trends.

The survey consisted of 17 items with both closed-ended multiple-choice questions and open-ended free-text fields. The survey items were designed to capture qualitative and quantitative data regarding the aforementioned variables. No formal pre-testing of the survey instrument was conducted due to the small target population size, which could have limited the availability of respondents.

To minimize bias, the survey was distributed to all eligible participants at the institution. Responses were anonymized during data collection for the initial survey to encourage honest reporting. For the follow-up survey, participants provided an identifier to enable longitudinal analysis while ensuring confidentiality.

Statistical Methods

Descriptive statistics, including measures of central tendency (e.g., mean, median), were used for exploratory data analysis. Data were analyzed separately for the initial and follow-up surveys using Microsoft Excel (version 16.0.18512.42303). No inferential statistical analyses were performed due to the small sample size and the primarily qualitative nature of the data.

Ethical Considerations

The study was exempt from institutional review board (IRB) approval due to the use of de-identified data in the initial survey. Informed consent was implied through voluntary participation. For the follow-up survey, identifiers were collected solely for linking responses over time and were kept confidential.

Results

Initial Survey:

A total of 26 responses from faculty physicians (n=20) and residents (n=6) were collected on the initial survey ***(Table 1).*** 84.6% (22/26) of the participants reported decreased imaging volume at the start of the pandemic and 46.2% (12/26) reported that the volume was currently increased. 69.2% (18/26) initially worked remotely; 53.8% (14/26) are not currently working remotely. 70% of attending physicians (14/20) and 66.7% of residents (4/6) perceived a negative impact of the pandemic on educational relationships. 50.0% (13/26) reported decreased communication with other radiologists. 38.4% (10/26) reported a decrease or no change in communication with other healthcare workers. 30.8% (8/26) endorsed feeling overworked compared to before the pandemic while 34.6% (9/26) felt less overworked. 50.0% (13/26) reported no change in job satisfaction. Summary of select data from the Initial Survey is shown in ***Figure 1.*** Only 20 participants completed a questionnaire concerning depression, and 85% (17/20) denied depressive symptoms in self or colleagues. Free text responses favored remote work due to increased efficiency and accessibility through web-based interactions, but recognized negative effects on teaching, burnout, isolation, and personal stress

Follow-Up Survey Results:

The follow-up survey received responses from 7 faculty physicians ***(Table 1).*** 100% (7/7) reported that imaging volume increased over the one year timeframe and increased compared to pre-pandemic volume. 57% (4/7) are working 1-2 days per week remotely. Regarding resident mentorship, 57% (4/7) reported no impact on these relationships by remote interactions and 29% (2/7) reported a negative impact. 86% (6/7) stated the department is continuing to use virtual platforms for meetings, conferences, and other peer discussions. Notably, 86% (6/7) reported feeling overworked and 43% (3/7) reported decreased job satisfaction compared to one year ago. Summary of select data from the Follow-Up survey is shown in ***Figure 2.*** 71% (5/7) endorsed depressive symptoms related to the pandemic in self or colleagues. Free text responses stated there are less one-on-one teaching, decreased awareness of strengths and weaknesses in trainees, and overall higher stress levels. Particularly, one response stated that increasing volume and ongoing pandemic are contributing to depressive moods.

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Figure 1. Summary of Select Data Regarding Changes in Workload, Interpersonal Communication, and Job Satisfaction Among Radiologists at the Start of the COVID-19 Pandemic to the Initial Survey Period.

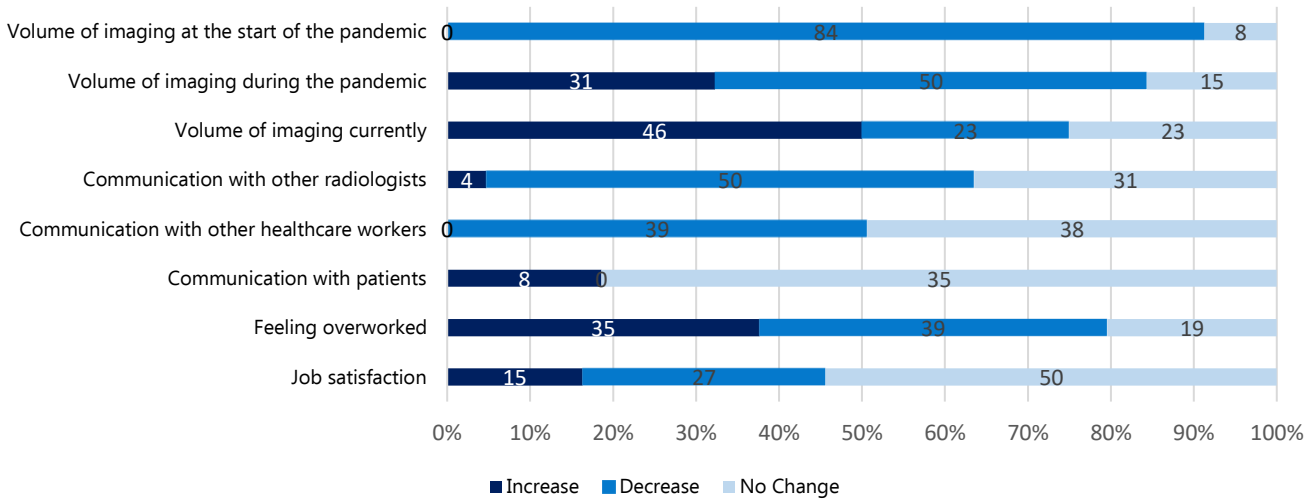


Figure 2. Summary of Select Data from the Regarding Changes in Workload, Interpersonal Communication, and Job Satisfaction Among Radiologists at the Start of the Initial Survey Period to the Follow-Up Survey Period.

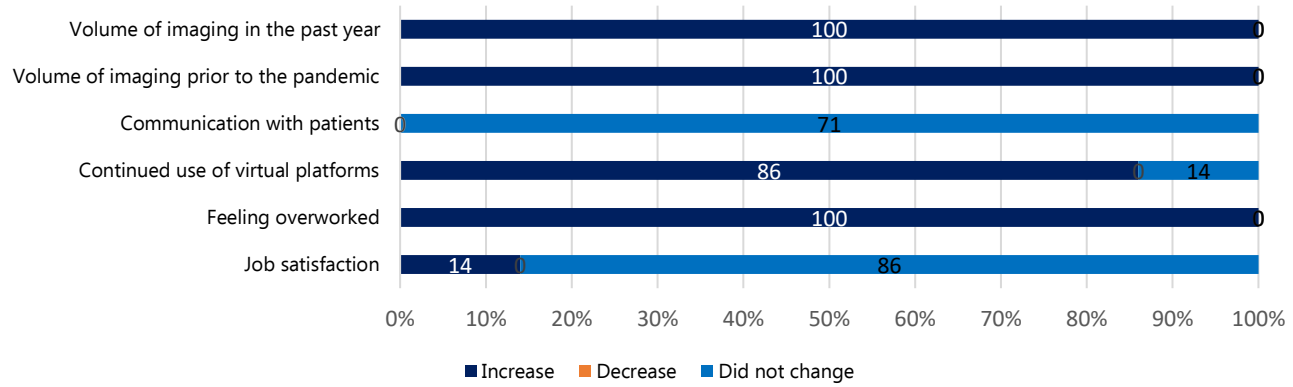
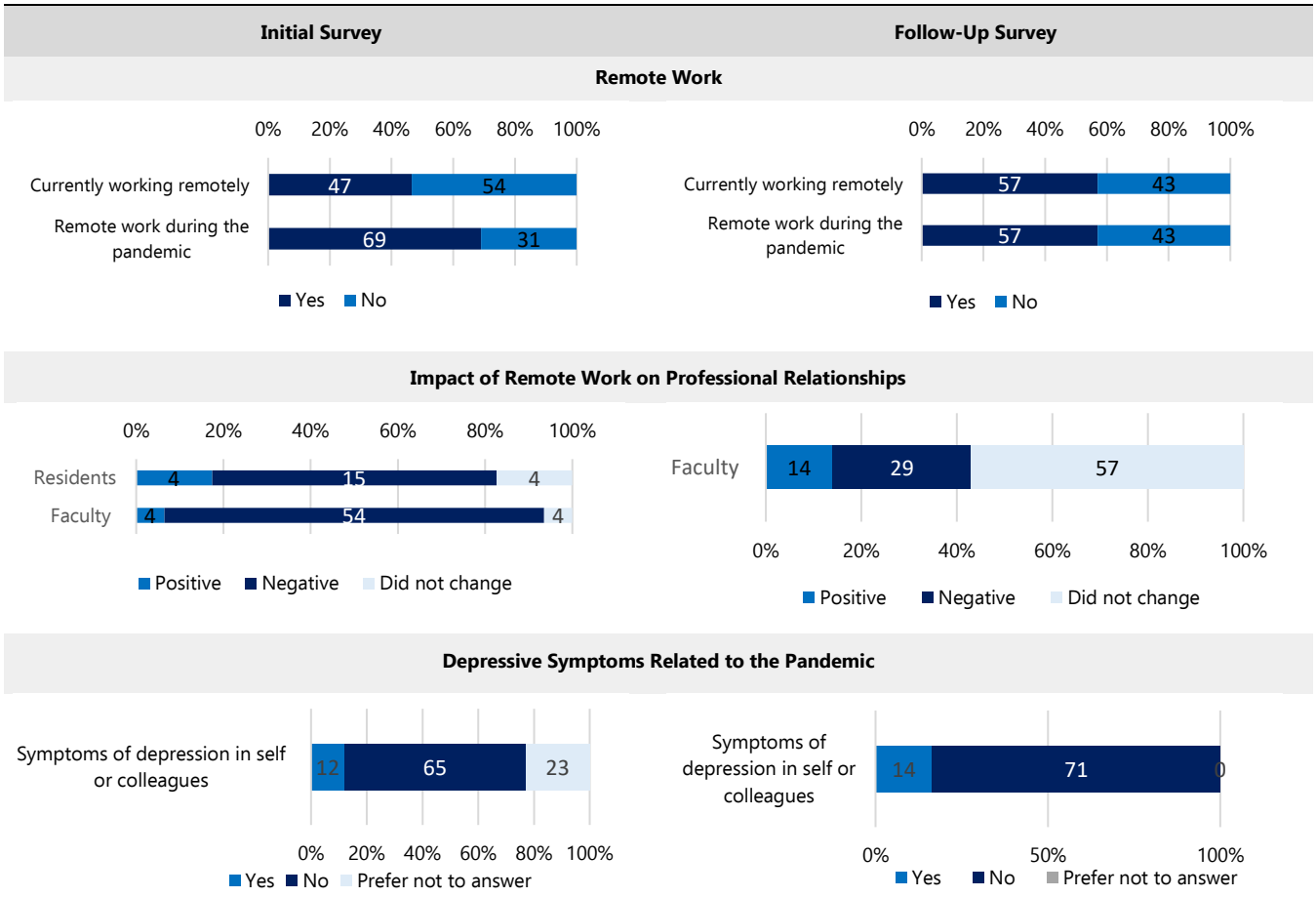


Figure 3. Comparison of Responses Between the Initial Survey and Follow-Up Survey Regarding Remote Work, Professional Relationships, and Depressive Symptoms.



Discussion

The purpose of this survey was to better understand how administrative and clinical changes secondary to the COVID-19 pandemic affected the lifestyle, education, careers, and mental well-being of resident and attending radiologists at an academic medical center on the east coast.

Data from the questionnaire suggest the COVID-19 pandemic had a negative impact on communication and educational relationships within the radiology department. Unlike other medical specialties, patient contact and a requirement for in-office work is minimal, especially if one has resources for home office space. The benefits to working remotely include decreased commuting time and increased schedule flexibility. Furthermore,

with the continuous proliferation and improvement of online learning tools, such as Radiopaedia.org, and telecommunication channels, the overall educational experience among trainees may not be compromised.[19] However, there may be significant disadvantages with respect to the professional environment of radiology programs. Comradery amongst trainees may be lost with limited in-person interactions and establishing personal relationships with fellow residents and faculty mentors may be more difficult.

Table 1. Number of Survey Responses by Professional Level.

Current Professional Level	Initial Survey	Follow-Up Survey
Intern	0	0
R1	3	0
R2	2	0
R3	1	0
R4	0	0
R5	0	0
Junior Faculty	3	1
Middle Career Faculty	12	4
Senior Faculty	5	2
Total	**26**	**7**

Moreover, while initial evidence for job dissatisfaction and depressive symptoms was unremarkable, the follow-up data highlights feelings of overworking and job dissatisfaction in the past year, likely due to the increased imaging volume and continued remote work and education ***(Figure 3).*** Factors such as isolation, poor teaching tools, and decreased efficiency during rounds or sign-out may contribute to the negative effects of such remote delivery. Nonetheless, radiologists working in-house may encounter less opportunity for safe lunches because of N95 requirements and limited social distancing opportunities, leading to dissatisfaction. Importantly, these sentiments were reported by attending radiologists and may not be reflective of the experience of residents over the course of the pandemic. It may be hypothesized that residents continued to have appropriate in-person training and education, both procedural and non-procedural, and limits on work volume in accordance with graduate medical education requirements. Accordingly, a risk-benefit analysis would be necessary to determine how best to structure radiology workflows such that precautions for health safety and personal comfort do not significantly limit professional and interpersonal development among resident and attending physicians. Notably, 23% of participants did not answer questions regarding depression in the first questionnaire. This may suggest there is a pervasive stigma or fear of retribution for experiencing mental health issues within the medical field. In addition to highlighting the effect of the COVID-19 pandemic on the mental health of radiologists, it is critical to recognize long-standing learning and working environments that provoke mental health issues and deter radiologists from seeking resources. As some pre-pandemic studies have demonstrated lower job dissatisfaction among radiology residents compared to attending radiologists, added negative experiences due to the COVID-19 pandemic warrant special consideration of the educational environment within radiology departments.[20,21]

As such, radiology residency programs may benefit from adopting a balanced hybrid model that combines the flexibility of remote work for non-procedural activities with in-person training for hands-on experiences and mentorship. Structured socialization opportunities, such as team-building and wellness retreats, alongside formalized mentorship programs, can help foster camaraderie and meaningful connections among residents and faculty. Moreover, investing in high-quality virtual learning platforms and collaboration tools will ensure remote education remains engaging and effective. Importantly, programs must prioritize mental health throughout these experiences by destigmatizing discussions around burnout and depression, along with offering anonymous feedback mechanisms

Limitations of this study include a small sample size and limited participation. The initial survey had 26 respondents, with both attending and resident participation, and the follow-up survey had 7 respondents, with no resident participation. Moreover, such nonresponse bias limits the ability to assess sentiment changes between the initial and follow up survey among individual respondents. Furthermore, there is limited generalizability as the data was collected from a single tertiary care center; future studies in a multicenter cohort are needed to further expand upon the findings of this study. Similarly, the generalizability of the study may be impacted by self-selection bias whereby radiologists most impacted by COVID-19 are more represented in the data compared to radiologists who were less impacted. This impact may describe the relative lack of "No Change" responses in the follow up survey. Future studies should explore methods of improving response rate, such as disseminating surveys through multiple channels or offering incentives for study completion. A larger sample size would also allow for additional statistical analysis that may correlate between the initial and follow up surveys and account for identification of potential predictors, confounders, and effect modifiers among the primary outcomes. As described, the COVID-19 pandemic had variable effects on radiologist education, work, and well-being; thus, future projects should consider more focused surveys delineating the potential causal relationships between workload, professional environment, mental health, and career satisfaction. Special considerations may include highlighting methods for maintaining beneficial educational experiences and peer support through remote work, as well as promoting mental well-being.

Summary – Accelerating Translation

Title: Understanding the Impact of COVID-19 on Radiologists' Work and Education at a Tertiary Academic Center

Main Problem:
The COVID-19 pandemic forced the healthcare system to rapidly adapt to new safety protocols and changes in workflow, significantly impacting various medical specialties, including radiology. Radiologists, who play a crucial role in diagnosing and consulting on patient care, experienced

shifts in their work environment, communication with colleagues, and educational experiences. Despite being able to work remotely, the long-term implications of these changes on radiologists' mental well-being, career satisfaction, and training remain poorly understood.

Aim of the Study:
The purpose of this study was to explore how the COVID-19 pandemic affected the professional work, educational experiences, mental well-being, and career satisfaction of radiologists at a tertiary academic medical center in the United States. By examining changes in imaging volume, communication dynamics, and work modalities, the study aimed to highlight areas for improvement and adaptation in radiology practice during and beyond pandemic conditions.

Methodology:
This study used a cross-sectional survey design to gather information from radiologists, including both residents and attending physicians, at an academic medical center. Two surveys were distributed: the first in October 2020, and a follow-up survey in December 2021. Both surveys collected qualitative and quantitative data on imaging volume, remote work, educational relationships, job satisfaction, and mental health. The responses were anonymized to ensure confidentiality, and participation was voluntary.

Results:
The initial survey, completed by 26 radiologists, showed a significant decrease in imaging volume during the early stages of the pandemic, with 84.6% of participants reporting reductions. Many radiologists (69.2%) transitioned to remote work. Despite the flexibility of working from home, 70% of attending physicians and 66.7% of residents felt that educational relationships were negatively impacted. Communication with colleagues also declined for 50% of respondents. Notably, while many appreciated the benefits of remote work, concerns emerged regarding reduced hands-on training, isolation, and burnout.

In the follow-up survey, which included 7 respondents, all reported that imaging volume had not only recovered but increased compared to pre-pandemic levels. Over half (57%) continued to work remotely part-time. While some educational relationships stabilized, others deteriorated due to virtual limitations. A striking 86% of respondents expressed feeling overworked, and 43% reported decreased job satisfaction. Symptoms of depression were more commonly reported in the follow-up survey compared to the initial one, highlighting growing concerns about mental health among radiologists.

Conclusion:
The COVID-19 pandemic substantially altered the work environment for radiologists, with lasting effects on education, mental health, and career satisfaction. While remote work provided flexibility, it also introduced barriers to communication and mentorship. The increased imaging volume following the pandemic's peak further contributed to feelings of overwork and burnout. Moving forward, hybrid work models that combine in-person training with virtual flexibility, alongside enhanced mental health support, may help radiologists adapt to evolving demands while maintaining professional growth and well-being.

References

1. Alshdaifat E; Sindiani A; Khasawneh W; Abu-Azzam O; Qarqash A; Abushukair O; et al. The impact of COVID-19 pandemic on training and mental health of residents: a cross-sectional study. BMC Med Educ. 2021;21(1):208
2. Abati E; Nelva Stellio L; Manini A; Moroni F; Azzalini L; Vilca LM. A cross-sectional survey study of the impact of COVID-19 pandemic on the training and quality of life of Italian medical residents in the Lombardy region. Ann Med. 2022;54(1):2326–2339
3. Rhodes JH; Santos T; Young GJ. Hospitals' uneven recovery from the COVID-19 pandemic. Health Aff Sch. 2023;1(3):qxad034
4. Font-Cabrera C; Juvé-Udina ME; Adamuz J; Diaz Membrives M; Fabrellas N; Guix-Comellas EM. Activity, triage levels and impact of the pandemic on hospital emergency departments: a multicentre cross-sectional study. J Adv Nurs. 2023;3003.R1:0309–2402
5. Vahidi A; Bahari Z; Behzadnia MJ. Correlation of the COVID-19 infection and outcomes with workload among emergency healthcare workers in an Iranian referral hospital. Arch Razi Inst. 2023;78(6):1804–1810
6. Rietdijk WJR; van der Kuy PHM; den Uil CA. Human resource management at the intensive care unit: a pragmatic review and future research agenda for building a learning health system. Learn Health Syst. 2023;8(2):e10395
7. Ling T; Basic D; Tcharkhedian E; Campisi J; Pringle B; Khoo A. Care in the community: a COVID-19 initiative to reduce hospital re-presentations among community-dwelling people. Australas J Ageing. 2024;43(3):474–481
8. Carlin L; Smith H; Henwood F; et al. Double vision: an exploration of radiologists' and general practitioners' views on using picture archiving and communication systems (PACS). Health Inform J. 2010;16(2):75–86
9. Filice R. Who you gonna call? Automatically connecting radiologists to the right clinician. J Digit Imaging. 2017;30(5):595–601
10. Bashshur RL; Krupinski EA; Thrall JH; Bashshur N. The empirical foundations of teleradiology and related applications: a review of the evidence. Telemed J E Health. 2016;22(11):868–898
11. Cho J; Lee S; Gu BS; Jung SH; Kim HY. The impact of COVID-19 on the use of radiology resources in a tertiary hospital. J Korean Med Sci. 2020;35(40):e368
12. Shi J; Giess CS; Martin T; Lemaire KA; Curley PJ; Bay C; et al. Radiology workload changes during the COVID-19 pandemic: implications for staff redeployment. Acad Radiol. 2021;28(1):1–7
13. Dodelzon K; Grimm LJ; Plimpton SR; Markovic D; Milch HS. Ongoing impact of COVID-19 on breast radiologists' wellness. J Breast Imaging. 2023;5(3):287–29
14. Zhang Z. Opinions on remote and in-person breast imaging work: survey results from the Society of Breast Imaging. J Breast Imaging. 2024;6(1):23–32
15. Chong A; Kagetsu NJ; Yen A; Cooke EA. Radiology residency preparedness and response to the COVID-19 pandemic. Acad Radiol. 2020;27(6):856–861
16. Robbins JB; England E; Patel MD; DeBenedectis CM; Sarkany DS; Heitkamp DE; et al. COVID-19 impact on well-being and education in radiology residencies: a survey of the Association of Program Directors in Radiology. Acad Radiol. 2020;27(8):1162–1172
17. Alhasan AS; Alahmadi SM; Altayeb YA; Daqqaq TS. Impact of COVID-19 pandemic on training and well-being in radiology residency: a national survey of diagnostic radiology trainees in Saudi Arabia. Acad Radiol. 2021;28(7):1002–1009
18. Matalon SA; Souza DAT; Gaviola GC; Silverman SG; Mayo-Smith WW; Lee LK. Trainee and attending perspectives on remote radiology readouts in the era of the COVID-19 pandemic. Acad Radiol. 2020;27(8):1147–1153
19. Taylor A; Williams C. COVID-19: impact on radiology departments and implications for future service design, service delivery, and radiology education. Br J Radiol. 2021;94(1127):20210632

20. Zha N; Patlas MN; Neuheimer N; Duszak R Jr. Prevalence of burnout among Canadian radiologists and radiology trainees. Can Assoc Radiol J. 2018;69(4):367–372

21. McNeeley MF; Perez FA; Chew FS. The emotional wellness of radiology trainees: prevalence and predictors of burnout. Acad Radiol. 2013;20(5):647–655

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