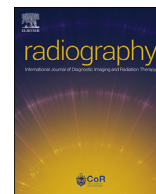




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## The impact of COVID-19 on the mental health of radiography staff and managers in Northern Ireland, UK: The radiography managers' perspective

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## ABSTRACT

**Introduction:** Increasing evidence suggests that the COVID-19 pandemic has influenced the mental health of health professionals, including radiographers. Less is known about the effect of the pandemic on the mental health of radiography managers. Radiography managers have led their teams through the pandemic, making unpopular decisions to safeguard staff and patients. This study explores radiography managers' perceptions regarding the impact of the COVID-19 pandemic on the mental health of themselves and their staff.

**Methods:** Ethical approval was obtained from the NHS Research Ethics Committee (ID 287032). Eleven interviews were conducted with therapeutic and diagnostic radiography managers between March–April 2021. Written information was also included from a paediatric diagnostic radiography manager. Data was analysed independently by 2 researchers using thematic analysis.

**Results:** Three central themes emerged:

- 1) Factors perceived to have negatively influenced mental health, which included changing PPE guidance, restructuring of work conditions, social isolation, challenges to patient care and lack of quality vacation leave.
- 2) Factors perceived to have positively influenced mental health, which included witnessing staff resilience and team camaraderie.
- 3) Support provided for mental health.

**Conclusion:** Managers felt that they had implemented appropriate strategies to support their staff throughout the first year of the pandemic and expressed feeling responsible for the wellbeing of their staff. Strong empathy was evident towards staff and their experiences. Despite the availability of mental health support services, managers felt that resources were underutilised by radiography teams.

**Implications for practice:** Managers should be proactive in communicating their appreciation for their staff in an era where remote working can add to disconnect between staff and management. Mental health support services should be promoted and continually reviewed, to ensure that appropriate support services are maintained.

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On the 11th March 2020, COVID-19 was officially declared a pandemic by the World Health Organisation (WHO),<sup>1</sup> posing unique challenges for radiographers and radiography managers.

Diagnostic radiography was quickly recognised as being central to the investigation and diagnosis of COVID-19 infection.<sup>2</sup> As a result, diagnostic radiology departments were forced to restructure and reprioritise patients in alignment with changing NHS

guidelines. Screening programmes were suspended and radiography staff were redeployed to high priority areas including general imaging, to maximise capacity for chest x-rays and CT scans.<sup>2,3</sup> Aerosol generating procedures (AGP) were temporarily suspended<sup>4</sup> resulting in a shift from surgery to interventional radiology.<sup>5</sup> As a direct consequence of these changes, many diagnostic radiographers were redeployed and required to perform unfamiliar tasks in new settings at short notice, performing skills that often required intensive training to acquire the level of competence required.

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In response to the pandemic, radiotherapy departments were also forced to restructure based on guidance released from commissioners and professional bodies within the UK.<sup>6</sup> To protect cancer patients, who were expected to have a higher risk of more severe COVID-19 illness,<sup>7</sup> departments were advised to delay or omit treatment where possible.<sup>6</sup> However, a reduction in surgical capacity inevitably increased department workloads where radiotherapy was reassigned as the primary definitive treatment for a variety of cancers.<sup>3</sup>

The World Health Organisation (WHO) defines positive mental health as 'a state of well-being in which an individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and is able to make a contribution to his or her community'.<sup>8</sup> The most commonly cited mental health issues in everyday life include stress, depression and anxiety.<sup>9</sup> Studies exploring the experience of radiographers since the start of the COVID-19 pandemic, have reported a decline in mental health as a result of increased occupational stress directly as a result of changes introduced during the pandemic.<sup>3,10,11</sup> Furthermore, there is growing evidence to suggest that radiographers experienced a high level of risk, particularly to their families, while working during the first wave of the pandemic.<sup>11–13</sup> Consequently, it is possible that radiographers and other health care professionals (HCPs) working on the "front-line" during the pandemic may be vulnerable to acute and chronic mental health problems in the future.<sup>14</sup> It is imperative that this risk is addressed as it may potentially impact on retention and recruitment of staff within the profession in the longer term. These findings are consistent with the experience of healthcare professionals globally, who have reported significant levels of anxiety, depression, insomnia and distress as a direct result of the pandemic with some of the strongest risk factors being inadequate PPE, fear of infection and heavy workload.<sup>3,15–17</sup>

Most published work focuses on the difficulties experienced by clinical staff, however it is important to note that managers of healthcare teams have also been exposed to particularly high levels of occupational stress. Whilst dealing with the initial difficulties presented by the COVID-19 pandemic, they also had to manage rapidly changing guidelines, redeployment of staff, resource allocation and constant duties related to the safeguarding of their staff and patients.<sup>18</sup> Despite these internal stresses, managers are expected to recognise and support staff psychologically but also discreetly regulate their own emotions.<sup>19</sup>

The mental health of managers has been studied notably less than that of their staff.<sup>20,21</sup> However, the demanding nature of managers' work means that achieving work-life balance can be challenging<sup>22</sup> and the COVID-19 pandemic may have impacted this further.<sup>21</sup> A questionnaire by Allah<sup>21</sup> distributed to nurse managers in 2021, reported that the main challenges to managers were prevention of staff infection, staff anxiety and work-overload. Herttuala et al.'s analysis of interviews with social and healthcare managers suggests that managers' mental health is linked to multiple factors including personal factors, social factors, professional support from higher management, organisational factors and work-related factors.<sup>20</sup> To date, no studies have presented diagnostic or therapeutic radiography managers' perspectives of the impact of COVID-19 to their own mental health as well as that of their staff. Given that mental health and wellbeing of staff and managers are central to any organisation's performance and success,<sup>23</sup> it is important to explore perspectives of mental health from not only a staff perspective but also those of middle management. This study aims to capture perceptions of diagnostic and therapeutic radiography managers' in Northern Ireland, regarding the impact of COVID-19 on their mental health and that of their staff, one year after the start of the pandemic.

## Methodology

### Ethics

Ethical approval for this study was obtained from the Nursing and Health Research Ethics Filter Committee in Ulster University and subsequently through the NHS Research Ethics Committee (NHS REC) in December 2020 (IRAS project ID 287032)

### Design and participants

A mixed methods study was performed with radiographers in Northern Ireland (NI) using an electronic survey of radiographers in phase 1 and qualitative interviews in phase 2. This paper discusses results from phase 2 of the study only as additional findings have been presented in a previous publication.<sup>24</sup> Qualitative data was collected through semi-structured, online interviews using Microsoft Teams with radiography service managers across the five Health and Social Care (HSC) trusts and private sector in Northern Ireland. Ten radiography service managers were invited to participate in an interview with one of the researchers who is trained in conducting qualitative research.

The interview guide (see [Appendix 1](#)) was developed by the research team which includes diagnostic and therapeutic academic radiographers. The questions in the interview guide were informed by a review of the current literature related to this topic plus preliminary data from Phase 1 of the mixed methods study. Managers were e-mailed the interview guide in advance of the interview and encouraged to discuss it with their modality leads to capture views of management teams. All interview dates and times were agreed via email. The same interview guide was used for all interviews and all questions were asked in a consistent order. Interviews were performed from March 2021 to April 2021 until it was agreed that data saturation was reached i.e. no new information was being introduced. Confidentiality was guaranteed at the outset. Participants were provided with the participant information sheet at the time of invitation, and consent was obtained prior to the interview (both written and audio-recorded). Interview data was digitally recorded, transcribed and added to NVivo to assist with data analysis. Data was independently coded by 2 researchers, as recommended by Cutcliffe & McKenna,<sup>25</sup> using an iterative approach following Braun & Clarke's<sup>26</sup> six stage framework for thematic analysis.

## Results

Eight Diagnostic radiography (DR) service managers from across the five Trusts and private sector, participated in interviews. Some of the 8 managers also managed other services alongside diagnostic radiography. Through discussion between managers and their team leads, written information was also provided by a paediatric superintendent diagnostic radiographer who managed a paediatric radiography team.

Two Therapeutic radiography (TR) service managers participated in interviews, representing the two radiotherapy departments in Northern Ireland. Additionally, discussion between managers and their team leads resulted in a superintendent therapeutic radiographer being interviewed who was a treatment team manager. [Table 1](#) provides an overview of managers' demographics.

Interview duration ranged from 45 to 90 min. In total, 11 interviews with managers were analysed along with one written summary from the paediatric imaging team manager. Three central themes related to the impact of COVID-19 on staff and managers' mental health emerged;

**Table 1**  
Managers' demographics.

Gender	Band	Number of employees managed	Sectors Managed
Female	8a	27	Mammography
Female	8a	17	CT
Female	8b	243	DEXA, Plain film, CT, MRI, Nuc med, Cath lab, theatre radiography and others
Female	8a	90	Nuclear Medicine, CT, MRI, Cath lab
Female	8a	200	Plain film, Ultrasound, CT and MRI
Female	7b	25	Paediatric Imaging Team
Male	CEO -Private Sector	680	Hospital-wide including multi-modality diagnostic radiography
Male	8a	100	Imaging Service Improvement
Male	Private sector	151	MRI, Plain film, Ultrasound, theatres, wards and OPD - hospital wide management
Female	8a	25	Radiotherapy Treatment Team
Female	8b	113	Radiotherapy Service
Female	8b	40	Radiotherapy Service

To maintain confidentiality, the order of the managers in Table 1 are not consistent with the numerical value assigned to managers' quotes in the results section.

1. Factors perceived to have negatively influenced mental health
2. Factors perceived to have positively influenced mental health
3. Support provided for mental health

1. Factors perceived to have negatively influenced mental health

All managers indicated that changing PPE guidelines within the early period of the pandemic, significantly increased both staff and managers' anxiety and fear.

All managers felt that staff lost some confidence in them during this period as they would provide guidelines to staff one day and then have to change their message the next day as the guidelines kept changing (see Table 2).

Once the PPE situation stabilised, managers believed that staff felt safer, especially with the development of colour-coded zones providing clear guidelines of what PPE to use in each situation.

Seven out of the 12 managers (both therapeutic and diagnostic) commented on how difficult it was for staff to be separated at lunchtimes and to be told where to sit as they needed to introduce social distancing in tearooms and clinical areas. They noted some resistance from staff at the beginning of the pandemic and general unhappiness but felt that this was a legitimate response (see Table 3).

All managers acknowledged that the restructuring of radiography services, which often resulted in mandatory changes to staff work locations and/or shift patterns, added significant stress to their staff. They explained that the pace of change in departments in regard to learning of new competencies and protocols, was a challenge for their staff. All managers highlighted and commended how hard their staff had worked over the last year. With the initial period of adrenaline having passed, they noted higher incidences of fatigue within their teams one year later, where there was still no return to normality. They explained that staff were more willing to do overtime in the early part of the pandemic but as the pandemic progressed, they found that staff no longer valued the additional money from overtime and would rather have time with their families. 5 diagnostic radiography managers discussed how the restructuring of radiography services had resulted in them

receiving a lot of negative backlash from both their staff and the general public, causing them additional stress.

Managers spoke about how their own work patterns were also impacted by the pandemic with all managers indicating that they worked longer hours to ensure the safety of their staff and patients. 10 out of 12 managers (both therapeutic and diagnostic) indicated that they felt a responsibility to be on-site and accessible to staff at all times during the pandemic (see Table 4).

All managers indicated that in the early stages of the pandemic, staff had to cancel their leave to cover the service. They explained that staff then generally did not rebook their leave or cancelled their leave due to the lack of ability to travel during this period.

Most managers had only taken days off rather than blocks of weeks as aspects of working practice needed to be reviewed frequently resulting in longer breaks being challenging (see Table 5).

All managers recognised the impact of home life on morale and noted that outside of work, staff and managers did not have the usual activities and events to enjoy with their loved ones (see Table 6).

Some managers (4 out of 12) heard from their staff that the most difficult part of their job was telling a patient that they cannot take someone with them for their scan or treatment. Some managers (3 out of 12) were also concerned that staff felt worried about changes in protocols in the early stages of the pandemic and the impact that these changes would have on the care that they were providing to their patients. They felt that radiographers may be affected by the higher number of advanced stages of disease that they are likely to see in the future (due to delayed and cancelled appointments). Two managers also talked about staff experiencing stress where patients would not comply with the infection control regulations in the department causing concerns for their personal safety. The paediatric imaging manager indicated that they needed to provide much more reassurance and time to children who are anxious about COVID-19. This manager explained that encounters with distressed or even angry parents have been more frequent due to the regulations regarding the number of parents who can attend a procedure (see Table 7).

**Table 2**  
Managers discuss their anxiety and their perceptions of staff anxiety.

*'Very early on I actually had a heated conversation...well it wasn't heated, but the radiographer in question got very heated at a staff meeting prior to the guidance and prior to the PPE being sorted...she didn't scream across the room at me, but she was like, you're sending us out like lambs to the slaughter, was how she put it. Emotions were running very, very high, and rightly so.'* (Manager 1 – DR manager)

*'PPE ... I always come back to the PPE. The PPE was so incredibly messy. And because it was incredibly messy, I think the staff sometimes felt we didn't ... the management team didn't know what they were doing. And we didn't know what we were doing, because we were getting conflicting messages ... it was awful ... just not conducive to good team working ...'* (Manager 2 – DR manager)

*'... in many ways, it made us look like we were nearly telling them the wrong thing because the next day it changed again. It was just horrendous.'* (Manager 3 – TR manager)

**Table 3**

Managers discuss social isolation in the workplace.

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*'whenever we introduced the lunch bubbles, morale took a bit of a dip again, because you are telling people who to go with on lunch, same time every day. It was just so restrictive.'* (Manager 3 – TR Manager)

*'Having to be told where to sit during lunchtime and the social distancing element put strain on the staff.'* (Manager 4 – TR Manager)

*'All that moaning and groaning among yourselves and sitting down and having a cup of tea together in the staff room has gone completely. It is easily seen that they miss that connection with each other.'* (Manager 5 – DR manager)

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**Table 4**

Managers discuss the contribution of changing work patterns and work rate to staff and manager mental health.

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*'I walk up and down the corridor and see them, and whatever. But I think it's for them to know...they are working hard and I actually am here working hard as well. Whereas if I'm at home, I think they'll believe I'm doing nothing! And at least I'm there for them to moan and groan to.'* (Manager 5 – DR manager)

*'Everything was having to be fast tracked so much ... they had to do things so much quicker and pick things up so much quicker that I think there was so much more pressure on them.'* (Manager 1 – DR manager)

*'there is also that part where ... whenever this all kicked off at the start, I was quite tearful and thought, oh, my poor team's going off ... it's like sending your troops off to war.'* (Manager 6 – DR manager)

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**Table 5**

Managers discuss the impact of a lack of annual leave.

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*'I would say, no one is going on holidays, there's no feel-good factor for people at the minute. You take a day off and it's just groundhog day because you are sitting at home, doing your hoovering and whatever else. And it's that trying to keep a positive momentum of, you know, things are going to get better.'* (Manager 6 – DR manager)

*'then you find as well that you are never really on leave because there's always a phone call or an email query. The other 8As, here, we would be sitting messaging each other if we knew there was going to be sickness coming up or we were phoning. So, we were never really off duty.'* (Manager 7 – DR manager)

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**Table 6**

Managers discuss how a lack of quality time outside of work has contributed to fatigue.

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*'the continual lockdowns and you can't see family and you can't see friends. That grates on you outside of work. And if you are in here 40, 50 hours a week and you come home and you get something to eat, watch 5 min of TV and go to bed, and you're back in here again.'* (Manager 8 – DR manager)

*'I suppose a feeling of just being fed up with it all ... I think a lot of that has to do with they have no opportunities to anything joyful outside of work either. A lot of my staff would be very young. A lot of them are very sporty. So they haven't been able to do their team games, meet their friends, go for nights out, go for weddings. There have been three of them I think that have postponed their weddings.'* (Manager 2 – DR manager)

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All managers demonstrated a strong awareness that the pandemic may leave long lasting effects on their staff and reported they did not know what the impact would be to staff and service provision in the future. Most managers (both therapeutic and diagnostic) displayed signs of exhaustion and burnout during their interview (Table 8).

## 2. Factors perceived to have positively influenced mental health

Managers' morale was positively influenced by the actions and resilience of their teams. Managers consistently and without exception, praised their staff for their unwavering resilience and strong work ethic over the first year of the pandemic (see Table 9).

All managers felt that the trust multidisciplinary teams really supported each other and they felt comforted by the idea that they were all having and managing shared experiences (see Table 10).

Most managers (9 out of 12), both therapeutic and diagnostic, expressed appreciation for their families and their lives throughout the interviews. The value of family appeared to have increased during the pandemic and they focused more on balancing their home and work life (see Table 11).

**Table 7**

Managers discuss patient-related issues faced by their radiographers.

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*'she said telling the patients they've to come into the room on their own has been the most difficult sentence she's had to say. And then whenever they don't say anything back to her, she just wants to tell them to bring somebody with them.'* (Manager 3 – TR Manager)

*'There's some of them and they are worried about waiting list contracts. Are we going to get stuff finished? Do we need to open clinics? And that's not their responsibility. That's my problem. If we don't finish contracts it's me ... I have to answer that question, not them.'* (Manager 8 – DR manager)

*'Once we did have the mandatory face coverings and all, it was patient compliance was a huge issue. And why should I be x-raying that patient when they won't wear a mask? They are putting me at risk. And all that sort of thing. So that was very much a big issue at the time as well.'* (Manager 1 – DR manager)

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## 3. Support provided for mental health

While longer hours were deemed inevitable by managers, all managers indicated that they tried to accommodate the needs of their staff when possible. They all stressed the importance of communication with their staff as being a priority in supporting them throughout the pandemic. Daily 'huddles' or similar were implemented to support staff on a regular basis and enable them the opportunity to ask questions or have their concerns addressed (see Table 12).

All managers expressed a genuine concern and personal responsibility for their staff wellbeing as they worked through the COVID-19 restrictions and encouraged their staff to speak to them using an open door policy (see Table 13).

Many managers (7 out of 12), both therapeutic and diagnostic, indicated that they organised team events regularly to boost morale or showed their appreciation through small gestures like buying coffee or giving out small gifts for special occasions (see Table 14).

Managers appeared to be very aware of the variety of trust support services available to staff with 10 out of 12 managers indicating that they encourage their staff to utilise these resources

**Table 8**

Managers discuss their concerns about current exhaustion levels and concerns regarding long-term exhaustion.

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*'And I would say for me, probably my home life has suffered more than my work life. I have tried to come in and tried to manage the service and do, do, do. Work long hours. Go home and then I'm exhausted.'* (Manager 2 – DR manager)

*'... psychologically there has been an impact. There's no doubt in my mind about it. People have felt like they have gone through something and that there's no real measure as to what it is.'* (Manager 6 – DR manager)

*'I suppose I am the type of person that just gets on with things. Even though I had all these other stresses, I just kept going and kept going. I suppose the concern is that at some stage I am not going to be able to do that.'* (Manager 7 – DR manager)

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**Table 9**

Managers praise their radiographers.

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*'We can cope through unprecedented times and have managed to deliver a service. And in my opinion have delivered a service safely. Staff have been exceptional.'* (Manager 2 – DR manager)

*'The radiographers have been amazing in how they've got through it. There's a big team. It would have been so easy for us to have had a lot of people off. And we all work so closely together in the treatment units. So I think certainly their behaviours and everything have meant that we've got through this really well. I know certainly our patient feedback on the whole has been excellent with regard to the radiographers.'* (Manager 3 – TR manager)

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**Table 10**

Managers talk of their feelings of team cohesion and support.

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*'there would have been people who you probably would never have worked with, you never would have seen. But they kind of cemented. We were all in this together, let's face it. So it did get a certain amount of camaraderie, to be honest.'* (Manager 7 – DR manager)

*'there's nothing for us as managers apart from peer support from each other. And that's something probably that the pandemic has helped with.'* (Manager 1 - DR)

*'I think that through Covid the five Trusts have worked more closely together than we ever have. So I think that I would know from the others, where I could go for help.'* (Manager 2 – DR manager)

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**Table 11**

Managers discuss the changing importance of family and home-life.

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*'My priorities have changed. And I have taken a step back and realised that, yeah, you've got your own life outside of work. There's only so much you can do. You do it inside core hours.'* (Manager 1 – DR manager)

*'I think it made us more aware of other people's difficulties through the Covid pandemic.'* (Manager 2 – DR manager)

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**Table 12**

Managers emphasise the importance of communication in aiding support.

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*'Some of our staff, through childcare reasons and different bits and pieces, it didn't actually suit them to work during the day, then. So we were able to accommodate them into doing some evening shifts ... they were happy to do that, which was good.'* (Manager 7 – DR manager)

*'I suppose the main thing for us was trying to communicate with everyone. Because to me that's ... if the radiographers don't know what's going on, then that increases anxiety.'* (Manager 4 – TR manager)

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**Table 13**

Managers explain how they tried to personally support their staff.

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*'And you just hope ... you really do hope that if somebody does need help, they will come to you. But you've no guarantee of that either.'* (Manager 5 – DR manager)

*'People were coming in, bursting into tears, and you were just like ... you just had to listen to what they had to say. Because for most of them it was just trying to find an outlet for their frustrations and their emotions and everything else. I mean that's your job as a manager, to listen to what they have to say, as hard as it can be at times, when you are trying to do everything else!'* (Manager 1 – DR manager)

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as needed. However, most managers (9 out of 12) felt that, as healthcare professionals, radiographers have a tendency to take care of others first and put their own wellbeing last, rarely utilising support offered. These managers indicated that they felt that radiographers tended to support each other, describing very close teams who had strong bonds within the team (see Table 15).

All managers relied heavily on peer support during the pandemic and the Society of Radiographers (SOR) was also commonly cited (5 managers) as a source of support. As with the radiographers, managers tended to not utilise the trust services

until they ran into mental health issues. 3 managers who did utilise the services expressed significant benefit and consequently promoted the service further to their staff (see Table 16).

## Discussion

During the COVID-19 pandemic, therapeutic and diagnostic radiography managers, experienced increased levels of stress and fatigue along with disruptions to their work-life balance; all factors which contribute negatively to wellbeing.<sup>27–29</sup> Despite their role

**Table 14**

Managers discuss the importance of small gestures to show appreciation.

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*'People want to feel that they have done something that's been worthwhile. They want to feel appreciated.'* (Manager 6 – DR manager)

*'... the odd time I would bring in wee packets of biscuits. And at Easter some of the leads and myself gave them all a crème egg and it was the happiest day ever ... I have to say, I saw so many people going, oh look! All it was, was a crème egg, you know!'* (Manager 5 – DR manager)

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**Table 15**

Managers discuss the trust support available to radiographers.

- 
- 'I was looking recently on the Trust hub, there's a lot of support for everyone on that. There's E-well site and they go into all different aspects of your life ... diet, financial, mental health, all of that. So it's all there if anyone wants to access it.'* (Manager 3 – TR Manager)
- 'We just keep going until actually, boom, you stop. I think a couple of the staff used the wellbeing service and stuff, and some of the bits and pieces that were posted online. I think a few of the staff did access into it. But generally it was, yeah, sort of heal yourself type.'* (Manager 7 – DR manager)
- 'We did have a psychologist who offered sessions. I have to say none of the staff took her up on it at all, they just thought, we are quite happy, we are OK.'* (Manager 5 – DR manager)
- 'I think that probably in Northern Ireland as a whole, we are not good at that kind of stuff. We are not good at having the chats and the conversation. I can take some level of counselling, but at the same time I am definitely not a counsellor, so I can only guide people to where they maybe might find help.'* (Manager 6 – DR manager)
- 

**Table 16**

Managers discuss their own sources of support.

- 
- 'Well I suppose my main support I think basically came from the other team leads in here, to be honest. Because I had quite a lot of stresses outside of work.'* (Manager 7 – DR manager)
- 'I find my team, the whole team really but mostly the managers, have supported me, and I've supported them throughout the whole thing. We really have leaned quite a bit on each other.'* (Manager 3 – DR manager)
- 'I have used the psychological support from the Trust, so I did have a moment where I was really struggling mentally with the whole lockdown thing. Not just work, work was really, really busy and there was lots going on, but I think ... I think it was probably a combination of winter and the really dark nights and just that feeling of ... like never coming out of it.'* (Manager 9 – TR manager)
- 

differences, therapeutic and diagnostic managers (both NHS and private), shared remarkably similar perspectives regarding the impact of the pandemic to their wellbeing as well as their staffs' wellbeing.

Both therapeutic and diagnostic radiography managers in NI felt that the factors which had most negatively impacted mental health within their teams included (i) changing PPE guidance, (ii) restructuring of work conditions, (iii) social isolation, (iv) challenges to patient care and (v) lack of quality vacation leave. However, they also highlighted that support from their peers and the resilience of their clinical team had eased their burden and helped them to cope through the dynamic stages of the pandemic.

Managers consistently described strategies they had implemented to support their staff including flexible working and leave options, access to psychological specialists, the introduction of 'hubs' and sign-posting to appropriate trust and self-care support. However, despite their desire to protect their staff, there were often challenges to the service which were beyond their control. One example of this was the continuously changing guidance regarding PPE in the initial stage of the pandemic, which increased fear and anxiety levels for radiographers.<sup>5,30</sup> At this time, managers often had to make unpopular decisions regarding restructuring of services which had a significant impact on staff morale.<sup>3,31</sup> Managers felt that staff trust in their ability to lead was deeply impacted by both of these phenomena. While managers did not overemphasise this issue, unclear guidance and information cascading down from a higher organisation level has also been found to negatively affect managers' wellbeing.<sup>20</sup> Additionally, this is a concerning finding as low levels of trust in management have been shown to lead to increased staff psychological stress, the creation of a less safe environment and a sense of uncertainty, suspicion, and apprehension.<sup>32</sup> In order to regain trust, managers stressed the importance of frequent, clear communication with their staff. Arguably, communication is even more key now in an era where remote working and virtual discussions are becoming commonplace<sup>33</sup> in the radiography environment.

In healthcare, social support from both managers and co-workers is strongly connected to reduced occupational stress, improved coping and reduced perceptions of depersonalisation.<sup>31</sup> Managers reported that employees value quality time with their colleagues even more highly since working remotely during the pandemic.<sup>33</sup> The importance of staff-patient interactions to maintain positive mental health was also highlighted. This is of

great importance and needs to be considered in the future as the use of PPE alongside an increased reliance on the virtual review of patients, has created barriers to effective communication in healthcare settings<sup>34,35</sup> and potentially impacts on radiographers' relationships with their patients.

The development of stress-related resources by the Society of Radiographers (SOR) was identified by managers as being an important source of support for radiography teams. These resources include stress-management training and education,<sup>36</sup> which alongside psychosocial intervention courses, has been shown to have a positive impact on mental wellbeing.<sup>28</sup> Despite promotion and easy access to internal and external support services, managers felt that they and their staff, were reluctant to utilise these services until they felt that they were really 'struggling' with their mental health. This is consistent with pre-COVID studies which found that despite awareness of support services, engagement with support services is often low in hospital staff.<sup>37</sup> However, since the pandemic, studies have indicated mixed findings with regard to healthcare professionals (including radiographers) accessing support services noting some reluctance still to utilise the more 'stigmatised' mental health services.<sup>30,38,39</sup> It is possible that managers are unaware of the extent to which their staff utilise these services and therefore underestimate their importance to their staff. Local audits of support services accessed by radiographers should be undertaken regularly to explore which support services are being accessed most frequently and considered most beneficial to radiographers to ensure optimal uptake of these services.

Managers felt a great responsibility to support their staff and worried about the long-term implications to the health of their staff. They appeared to carry the burden of staff wellbeing, rarely accessing support themselves except when their ability to cope was impacted e.g. managers described comforting radiographers who were upset or angry and demonstrated strong empathy for and understanding of their staff. These findings are consistent with a recent study exploring perceptions of nurse managers<sup>21</sup> during COVID-19 in Egypt. In this study, managers expressed feelings and actions which closely aligned to the managers in this study and the need to be physically present for their staff at all times.

Great pride in their radiography teams and having a resilient and cohesive staff team made a huge difference to the managers' own mental health. Given that disconnect between managers and staff has been frequently reported in healthcare throughout the

pandemic,<sup>40,41</sup> managers need to be more proactive than ever to communicate their appreciation directly to their staff.<sup>33</sup> This open communication is very important given that studies have demonstrated that feeling appreciated at work has been shown to reduce stress, anxiety and fatigue in healthcare professionals.<sup>42</sup>

One year into the pandemic, managers expressed feeling “burnt out”. Persistent exposure to stress not only negatively affects the health of healthcare managers, but also their decision-making ability which could potentially affect staff, patients and organisational outcomes.<sup>43</sup> This state of burnout from prolonged endurance of heavy responsibility may ultimately lead to attrition within this group.<sup>44</sup> It is essential that managers are assessed and supported by higher management to provide them with effective tools to cope with the challenging post COVID-19 environment. Clearly articulated workplace policies related to mental health need to be prioritised to prevent attrition of exhausted managers who may be considering leaving their career.

### Limitations

Given that therapeutic and diagnostic radiography managers were geographically clustered in Northern Ireland, findings may not be generalizable to all UK radiography managers. There are only two radiotherapy centres in Northern Ireland so a wider exploration regarding perceptions of therapeutic radiography managers nationwide, would be beneficial. Additionally a limitation of the study is the lack of confirmation of the transcripts by the interviewees.

Radiography managers, like other HCPs, are at increased risk of chronic stress, depression, anxiety and burnout.<sup>13</sup> NHS psychological care plans are needed to ensure the longevity of the radiography workforce as they transition into the next challenging phase ahead. A healthy workforce is essential to provide the high-quality effective service that is required to address the backlog of patients that have built up over the last 24 months. All hospital Trusts must ensure they have evidence-based occupational health support available, which is actively promoted to staff, to help recover and build a resilient workforce for the future.

### Conflict of interest

The authors declare that they have no conflict of interest and received no financial support to write this article.

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### Appendix 1. Interview guide

***An investigation into the impact of the COVID-19 pandemic on the Diagnostic and Therapeutic Radiography workforce and service provision in Northern Ireland with a view to planning for future waves of the pandemic.***

Topic	Question	Prompt
Introduction	Brief introductions, assure anonymity, obtain verbal consent to record the interview, reminder of the aim of the study, check the interview/ audio-recording is working.	
COVID-19 impact	Reflecting on the past 4 months, can you summarise the impact that the COVID-19 pandemic has had on your Imaging/Radiotherapy department? What changes have been most prominent? Have your departmental working practices changed significantly? What has been the most difficult thing to manage? With the benefit of hindsight, what might have been done differently?	Do you think any changes will be permanent? What has and what has not worked well?
COVID-19 impact (Radiography workforce)	Can you tell me about your experiences managing the workforce during the pandemic? What support, if any, has been introduced to ensure staff well-being? Do you believe the department will be able to cope with the challenges that lie ahead? What refresher training, if any, should be provided in order to support the future workforce? Do you believe that morale in your department is different since COVID-19? (Radiotherapy ONLY) Are you aware of the scientific debate considering low-dose whole lung radiotherapy to manage critically ill COVID-19 patients?	Have radiographers proved resilient? On reflection, do you think there are other support services that might be offered? Can you explain why you think that? Has there been any discussion among the radiography workforce? Any contingency planning?

### Conclusion

Confirmation of support channels for all radiography departments nationwide would be welcome to ensure that all managers have the resources that they need to help their staff feel valued and cared for during and after the pandemic.

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