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Introduction

The COVID-19 pandemic has necessitated unprecedented upheaval to medical, and specifically, cancer care. This includes a rapid reduction in in-person care with a switch to virtual clinics, as well as delays in cancer screening and cancer surgeries¹ with subsequent reductions in oncology patient volume. Faculty and learners are limited in their ability to meet in person necessitating a rapid shift to virtual education, or in some cases, suspension or delay of regularly scheduled educational activities.² Finally, faculty and trainees may have been redeployed from their planned oncology activities and trainees have had delays and disruptions in credentialing examinations.

These changes have potential implications for postgraduate training in oncology. During the SARS outbreak in 2003, the negative impact on undergraduate medical training was documented.³ In addition, surgical training programs in Italy during COVID-19 reported either a severe reduction (>40%) or complete suppression (>80%)

of training exposure during the pandemic.⁴ Neither the impact of COVID-19 or other pandemics on oncology training have been reported. In addition, the role of learner motivation, as determined by self-determination theory and resilience, on the perception of these educational impacts is not known. The current situation affords an opportunity to apply the conceptual framework of the role of learner motivation, as determined by self-determination theory and resilience, to interpret the impact of unexpected events on learners. The purpose of this study is to report the degree to which post-graduate trainees in radiation oncology perceive their education has been impacted by COVID-19 and to investigate the influence of motivation (as determined by self-determination theory [SDT]) and resilience on perceptions of educational impact.

Methods

This study will involve a cross-sectional online survey administered at two time points as informed by the Phases of Collective Trauma Response, which include 1) sudden

impact, 2) heroic, 3) disillusionment, 4) rebuilding & restoration and 5) wiser living.⁵ The first survey (aimed at the sudden impact phase) will be distributed in June 2020. The second survey (aimed at the rebuilding & restoration phase) will be distributed six months later in December 2020.

The study population will be residents and fellows who are members of Canadian Association of Radiation Oncology (CARO) or the Association of Residents in Radiation Oncology (ARRO). The anticipated response rate is 200 trainees based on previous similar studies of these groups.

The 82-item survey was created based on a survey study exploring educational impact of SARS in 2003 on undergraduate medical education.³ The questions were adapted from validated questionnaires, including the Stanford Acute Stress Reaction Questionnaire⁶ and the Ways of Coping Questionnaire.⁷ Ten items pertaining to the impact of COVID-19 on residents' ability to travel/network for the purpose of their career, the impact of virtual patient contact during the outbreak on their learning needs, the quality of information they received from social media channels, and the level of social support residents received from mentors and medical staff were added. Twenty-one items assess the impact of COVID-19 on planned oncology training activities, planned research and academic activities, and unplanned clinical and oncology activities. To evaluate whether residents' personal characteristics influence their perceived impact of COVID-19, the remainder of the survey includes validated measures of resilience and self-determination including the brief resilience scale (BRS),⁸ assessing participants' ability to bounce back in the face of adverse events, and the self-determination scale (SDS),⁹ assessing perceived self-awareness and choice in one's actions. The survey was developed using the best practices from the literature.^{10,11} The draft survey was circulated to experts in oncology education for peer review including resident physicians to ensure clarity and cognitive pre-testing was performed.

Summary

This study will provide a summary of the degree to which post-graduate trainees in radiation oncology in North America perceive their education has been impacted by COVID-19. It will also explore how motivation and resilience may impact these perceptions. These data may be used to assist in educational recovery planning and to inform strategies for future disruptions of the clinical training milieu.

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