



# Fear, health impacts, and life delays: residents' certification exam year experience

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## Abstract

**Background** Residency training is associated with risks of burnout and impaired well-being. This may be due to multiple factors, including navigating various transitions. Chief among these is the transition to independent practice which, in Canada, involves a certification exam administered by the Royal College of Physicians and Surgeons of Canada or the College of Family Physicians of Canada. This qualitative study explored the experience of residents in their examination year, including residents impacted by pandemic-related examination postponement, to understand how these experiences may impact residents' well-being.

**Methods** Qualitative description methodology was used for this study. Participants were residents and physicians in independent practice from McMaster University and the University of Toronto. In depth, semi-structured, one-on-one interviews were conducted by one of the investigators. Each was transcribed, reviewed, and coded by two members of the investigating team.

**Results** Five themes were identified. Examinations were perceived to be a significant stressor, and the extent of preparation involved was viewed as a threat to one's physical and mental well-being. Participants identified a culture of fear surrounding the exam, as well as a perception that exam preparation requires significant sacrifice which can exacerbate the impacts of the exam year. Personal and professional supports were identified as important protective factors.

**Conclusion** This study has identified unique challenges in the examination year, and its impact on the well-being of residents immediately before they enter independent practice. Residents also experienced significant learning and a sense of accomplishment through their preparation for the examination. The COVID-19 pandemic had a unique impact on one cohort of residents. This should prompt medical education institutions to examine the support provided to residents, the culture surrounding certification examinations, and mitigation strategies for future examination disruptions.

**Keywords** Medical education · Residency · Examinations · Assessment · Wellness · Burnout

## Résumé

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**Contexte** La formation en résidence est associée à des risques d'épuisement professionnel et de bien-être altéré. Cela peut être dû à plusieurs facteurs, y compris la navigation dans diverses transitions. La principale d'entre elles est la transition vers la pratique indépendante qui, au Canada, implique un examen de certification administré par le Collège royal des médecins et chirurgiens du Canada ou le Collège des médecins de famille du Canada. Cette étude qualitative a exploré l'expérience des résidents au cours de leur année d'examen, y compris les résidents touchés par le report d'examen lié à la pandémie, afin de comprendre comment ces expériences peuvent avoir un impact sur le bien-être des résidents.

**Méthodes** Une méthodologie de description qualitative a été utilisée pour cette étude. Les participants étaient des résidents et des médecins en pratique indépendante de l'Université McMaster et de l'Université de Toronto. Des entretiens individuels approfondis et semi-structurés ont été menés par l'un des enquêteurs. Chaque entretien a été transcrit, revu et codé par deux membres de l'équipe d'enquêteurs.

**Résultats** Cinq thèmes ont été identifiés. Les examens étaient perçus comme un facteur de stress important, et l'ampleur de la préparation était considérée comme une menace pour le bien-être physique et mental. Les participants ont identifié une culture de la peur autour de l'examen, ainsi que la perception que la préparation à l'examen exige des sacrifices importants, ce qui peut exacerber les impacts de l'année de l'examen. Les soutiens personnels et professionnels ont été identifiés comme d'importants facteurs de protection.

**Conclusion** Cette étude a permis d'identifier les défis uniques de l'année d'examen et son impact sur le bien-être des résidents juste avant qu'ils entrent en pratique indépendante. Les résidents ont également fait l'expérience d'un apprentissage important et d'un sentiment d'accomplissement tout au long de leur préparation à l'examen. La pandémie de COVID-19 a eu un impact unique sur une cohorte de résidents. Cela devrait inciter les établissements d'enseignement médical à examiner les soutiens apportés aux résidents, la culture entourant les examens de certification et les stratégies d'atténuation des perturbations futures des examens.

### Clinician's capsule

#### *What is known about the topic?*

Transitioning to independent practice in Canada requires completion of a high stakes certification examination.

#### *What did this study ask?*

What is the experience of residents in the year of their certification examination?

#### *What did this study find?*

Residents perceive deleterious physical and mental health impacts in their examination year, driven by stress and the culture surrounding the examination.

#### *Why does this study matter to clinicians?*

Impaired wellness may impact quality of care. Mitigating the wellness impacts of the examination year may ease residents' transition to practice.

residency training, is a time when physicians' well-being may be most negatively impacted. Multiple authors have identified lower quality of life, burnout, depression, and suicidal ideation, as being prevalent and rising amongst residents [4–7].

Despite reported high degrees of resilience, residents are negatively affected by their training experience [7]. Brazeau and colleagues identified that residents generally begin training with better well-being than the general population, suggesting changes in their well-being may be driven by their learning and work environment [8]. Contributing factors, identified by Dyrbye, include excessive workload and administrative tasks, work hours and call frequency, limited autonomy and lack of control, and juggling the dual roles of physician and learner [9].

Residency training is notable for the number and frequency of professional transitions. In Canada, transition to practice requires residents to complete a certification examination, offered once annually, administered by the Royal College of Physicians and Surgeons of Canada (RCPSC) or the College of Family Physicians of Canada (CFPC). These have been identified by both medical regulators and the public as important point-in-time measurements [10, 11] and there is some evidence, from the United States, that the public values board certification [12].

Residents prepare while continuing to work clinically and fulfilling academic responsibilities. Further, there is an absence of evidence showing that performance on the certification examination is associated with improved outcomes.

## Introduction

Physicians devote their careers to preventing harm, alleviating suffering, and promoting the well-being of others [1, 2]. Physicians' well-being may decline over the course of their training [3]. Medical training, and specifically postgraduate

These factors may provoke increased stress and be detrimental to residents' wellness.

High-stakes assessments in undergraduate medical education (UGME) provoke stress and anxiety, in part, due to the intensity of preparation and pressure to be successful [13–15]. There has been a paucity of literature exploring the impact of examinations in postgraduate medical education (PGME). Residency is distinct from UGME in that there is a single high-stakes examination at the conclusion of training [16] with a significant impact on independent licensure [17]. This study seeks to explore the experiences of residents in the certification exam year and its impact on their personal and professional lives. This study coincided with the emergence of the COVID-19 pandemic, which led to disruptions in training, examinations, and licensure [18–22], and this study also explores those experiences. The insights from this study may identify how impacts from the exam year in general, and future exam disruptions in particular, may be mitigated for residents.

## Methods

This study used qualitative description to explore our research questions. Qualitative description provides “a comprehensive summary of an event in the everyday terms of those events” [23]. No specific theoretical framework was applied to this research prior to data analysis, as is common in this methodology [24]. We deemed this approach the most appropriate as the goal of our research was not to create or build on theory but to stay close to the data, to deeply understand participants' experiences in their exam year [24].

The study team was composed of three resident physicians (LN, MO, and TR) and two physicians in independent practice (KP and NS). One author (MO) was a resident in the certification exam year during the study period and two authors (KP and NS) had both completed their certification exams within the previous 5 years. All authors remained reflexively aware of their status as insider researchers and its impact on their approach to the data and how it was processed [25–27].

This research was conducted at the University of Toronto and McMaster University, which are large- and medium-sized Canadian universities. The work was approved by the Sunnybrook Health Sciences Centre Research Ethics Board and the Hamilton Integrated Research Ethics Board.

Recruitment occurred via snowball sampling. Our intent was to recruit a wide variety of representative certification exam year residents and recent certificants across a wide number of specialties. The resident physicians on the research team reached out to potential resident participants, while the independently practicing physicians on the research team did so for the potential independently practicing participants. Participation was voluntary.

Due to potential variability in exam year experience based on specialty and exam structure, the goal of this study was to achieve a broad sampling to determine the generalities that would hold true across programs. Recruitment and data analysis occurred concurrently. Twenty-one physicians participated in this study: Fourteen residents in their certification exam year and seven recent certificants in independent practice were recruited from various medical and surgical specialties.

Data collection was done via individual, semi-structured interviews. Participants were asked about their examination year experience and its impact on their personal and professional lives. The interview guide was updated iteratively during data collection to reflect emerging themes. All interviews were recorded and transcribed verbatim.

Data were initially analysed by line-by-line coding. Similar initial codes were then combined, and the new code set was used to code future transcripts. All were coded by two members of the research team to improve analytic rigour [28]. The research team kept memos during the analysis process to record insights and reflections. Data gathering was continued until thematic sufficiency was achieved [29] and differences were resolved by consensus.

## Results

Analysis of participant responses revealed five themes. The certification examination year as a source of stress. Exam preparation caused deleterious physical and mental health impacts. There was a culture of fear. There was a balance between investments versus loss. Personal and professional supports were identified as protective. These themes are further illuminated through quotes from study participants below.

### Examination as a significant source of stress

High degrees of stress were noted related to exam preparation, career and family planning, and uncertainty regarding future employment. The most significant source of stress was the fear of failure: “There was just constant fear, fear of failure” (Participant C) which was exacerbated if: “... people failed the exam with regularity”. (Participant G).

Career planning while studying added an additional layer of stress: “...there is a culture of... fear mongering... Your residency [and] future employment hinges on it” (Participant F). The impact of the multiple roles held by residents was also highlighted: “[they] have a role as a learner, ... [and] as a healthcare provider... Truly it's that last one that they're getting paid for...”. (Participant I). While these roles are generally complementary, the focus on exam success may lead to a perception of role conflict.

Many participants identified the fact that certification exams often coincided with major life milestones including starting, or caring for, a family “for me the most stressful part was explaining it to my wife ... this year and the bulk of [my daughter’s] infancy through studying ... and ... I’ve been fairly absent. [My wife]’s been picking up all the slack” (Participant K).

This stress was further exacerbated by COVID-19-related postponement and perceived poor communication about both the postponement and its consequences: “You spend so much of the year trying to manage studying...trying to...balance everything...And then you’re told that it’s postponed... and then you don’t have any kind of ideas as to what work is going to look like” (Participant P).

### Exam year risks deleterious physical and mental health impacts

Participants felt their physical health was impacted, including decreased exercise and diet changes “I no longer cook” (Participant C); “I felt like it was justified to go and get candy or chips” (Participant E). The cumulative effects of these habits contributed to weight gain: “Overeating, not exercising, constantly sitting and studying” (Participant A). Sleep was also impacted by the perceived lack of time “I was probably only sleeping three or four hours a day... [it was] my wrap-up strategy” (Participant L).

Participants also noted negative impacts on mental health: “I thought I started having signs of clinical depression ... [I] tried to augment it with Vitamin D...light ...[then] I started taking [antidepressants].” (Participant K).

### Culture of fear enshrouds the examination year

Participants noted a cultural norm where the exam will be all consuming: “...bracing yourself for a year that you have absolutely no life, ‘The worst year of your life...You’re going to be at your most miserable...let your friends and family know’” (Participant C). Some participants felt the expectation was that they should put their life “on pause”: “advice was, it’s a tough year...don’t do anything crazy... like get married or have a baby” (Participant F).

Many participants had advice for future exam candidates based on how they wished they had done things differently: “I wish I could go back ... [the] hours...that I committed to...Ranson’s criteria that I still don’t know now... [Keep] up with other things that are important to you” (Participant F).

Residents impacted by COVID-19 were also aware of the culture surrounding exam completion and beginning their careers: “I’m doing a fellowship...to fund my fellowship... I was planning on doing locum calls...the hospitals are not

interested in having me...until I’ve written my exam” (Participant U).

### Perception of examination as an investment versus loss

Participants noted that exam preparation is also a valuable investment: “I definitely felt that I was even more knowledgeable” (Participant A). It enhanced their sense of belonging and confidence that they were ready for practice: “you become a member of a club...Attendings are genuinely asking you for your opinions when they get into difficult situations” (Participant K).

There was an emphasis on the cost that the exam exacted, particularly as it related to time spent on other important portions of participants’ lives. Those who had already completed their exams relayed a sense of regret that they had allowed the exam to consume their life: “Everything you do has a cost... If you have small children make sure you spend the time with them ... you don’t get that back” (Participant G).

### Personal and professional supports are protective

Support from peers, program, and family was frequently described by participants as important. Shared experiences with their peers afforded participants opportunities to feel less alone, to debrief, and to encourage, motivate, and emotionally comfort one another: “it was motivating ...I’m not sure if I would have been able to get through it on my own” (Participant C).

Program-specific and system-level supports were also identified by participants as important “A supportive program that’s willing to listen... I think that can really impact how you do in the exam and your well-being” (Participant E). This was also particularly true during the COVID-19 pandemic “Medicine staff were staying in-house doing call overnight” (Participant O). Program directors, faculty, and mentors were all identified as sources of emotional support “[They] banded together to empathize with us” (Participant T). Validation of residents’ experiences, normalizing the difficulty, and establishing a compassionate cultural tone were all important. “[They] can give you like a realistic picture...I thought I was going to fail and I called my assistant program director and she just basically talked me off of a ledge” (Participant F).

## Discussion

### Interpretation and alignment with previous work

Residency is an integral part of physicians’ growth and training. It is a transformative period marked by growth in

knowledge, professional identity formation, and enculturation [30]. However, their well-being may suffer [5] due to the rigor of training, health system challenges, and frequent transitions in training. Transitioning to residency is a source of stress with increased responsibilities, work demands, transfer of knowledge, and coping with adverse events [31–33]. Our study suggests that the experience of preparing for the certification examination, and its role in transitioning to independent practice, may also be a significant source of stress and have significant impacts on residents' personal and professional lives. This aligns with the findings of Lyndon and colleagues' systematic review of assessment and psychological distress in UGME [13] and with Jenkins and colleagues' findings regarding stress at the time of the USMLE Step 1 [14].

This study brings a new lens to the previously published work. Participants noted delaying milestones, including starting a family, which may already be fraught during training [34], as well as impacts on childrearing, previously explored by Spruce and colleagues [35]. While Lyndon, Jenkins and their colleagues noted the stress related to assessment [13, 14], our participants went further, delineating a relationship between their success, their career, and stigma associated with failure, which may all be perpetuated in the hidden curriculum. The findings of this study suggest that the certification exam year may be an important factor, in addition to many others [36], in our understanding of burnout in residents and new in practice physicians, which can have deleterious impacts on them, their patients, and the health system more broadly [37, 38].

The COVID-19 pandemic had an impact on our participants. Despite the impact on their clinical work, examinations, and licensure [18, 22, 39], they were clear eyed with respect to the local, national, and global disruption caused by the pandemic.

### Strengths and limitations

This study's strengths rested in staying close to the participants' experiences of the certification exam year, and its ability to respond to an emerging event that impacted its subjects directly. Its limitations included interviews being conducted at one medium and one large university, which may not reflect the culture and experiences and smaller institutions. We used snowball sampling and we stopped recruitment when sufficiency was met. It is possible that additional themes may have emerged with further recruitment. It may be beneficial in future research to look at the differences between specialties in more detail.

### Implications in medical education

Participants noted the significant learning and enculturation that occurred as a consequence of their studying, aligning with Norcini and colleagues' criteria for a good assessment, including educational and catalytic effects [40]. However, the hidden curriculum appeared to negatively influence our participants and how they studied, potentially pushing them to over-prepare and miss out on key life events. Programs and PGME offices are well positioned to provide credible guidance and mitigate the influence of well-intentioned peers and supervisors who may be exacerbating candidates' stress. Further, the reported health effects of preparing for the examination and the prevalence of burnout in early career physicians may help stimulate a conversation regarding the role of a single high-stakes examination as a requirement for entry into independent practice, particularly in a competency-based medical education environment.

This study also coincided with the global emergence of COVID-19. The pandemic significantly disrupted the provision of certification examinations in 2020 and delayed full licensure, leading to uncertainty for residents and in the Canadian health workforce. Multiple viruses have disrupted healthcare and education in the last two decades, with Severe Acute Respiratory Syndrome (SARS) having also affected medical education [41–43]. Climate change may continue to exacerbate certification examination disruption from both disease transmission as well as severe weather events [44–46]. In the face of COVID-19, stakeholders adapted the delivery of examinations and increased support to residents. This demonstrates that Canadian medical institutions are well positioned to engage in discussions about examinations and address the challenges identified in this study.

### Conclusion

Residents experience significant personal and professional stress and negative health outcomes during their examination year. This stress is exacerbated by the culture surrounding the certification examination and the personal sacrifices that are made to succeed. Preparation for the examination also prompted significant learning and a sense of accomplishment. COVID-19-related examination disruptions added a unique stressor for residents in 2020. The stress-related health impacts of the exam year are a factor that stakeholders should consider when supporting residents in their transition to practice.

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**Data availability** The data that support the findings of this study are not openly available to ensure participant anonymity. De-identified and anonymized transcripts are available from the corresponding author upon reasonable request.

## Declarations

**Conflict of interest** Dr. Pardhan is a member of the Royal College of Physicians and Surgeons of Canada Council.

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