ORIGINAL ARTICLE

The impact of the COVID-19 pandemic on burnout and resilience amongst healthcare personnel in rural Northern Ontario: A cross-sectional study

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Abstract

Introduction: The COVID-19 pandemic imposed an unprecedented strain on the healthcare system, resulting in rising burnout levels among healthcare personnel. The pandemic's effect on the mental well-being of those working within resource-limited healthcare settings remains unexplored. We assessed the impact of the pandemic on burnout and resilience in healthcare personnel working in rural Northern Ontario.

Methods: We surveyed healthcare personnel across 15 rural communities in Northern Ontario, gathering demographic, occupational, burnout and resilience data. Chi-square tests (χ^2) determined response variations by demographic and occupational factors, whereas ANOVAs assessed mean differences. Pearson correlation coefficient measured the relationship between burnout and resilience, and linear associations were identified using the Mantel–Haenszel test.

Results: Ninety-nine healthcare workers from 15 rural communities were sent the survey. Seventy-six (77%) responded. Fifty-five per cent of respondents experienced burnout, with 81% rating it as moderately severe or worse. Those who grew up in their current community reported higher burnout rates, and 73% of participants reported strong resilience. Childhood community ties correlated with lower resilience, whereas higher resilience was linked to lower burnout severity. Physicians had lower Connor–Davidson-Resilience Scale© (CD-RISC 2) scores compared to hospital CEOs.

Conclusion: Despite high burnout, respondents had strong resilience. A correlation between burnout severity and resilience suggests that higher resilience is linked to less severe burnout which suggests that resilience can buffer the impact of burnout. Enhancing resilience could improve the ability to cope with stress and adversity. The data emphasises the need to consider factors, such as occupation and community history, when assessing burnout risk and designing well-being interventions.

Keywords: COVID-19, healthcare workers, mental health, occupational health, rural health

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2-25 L'impact de la pandémie de COVID-19 sur l'épuisement professionnel et la résilience du personnel de la santé dans le Nord rural de l'Ontario: Une étude transversale

Résumé

Introduction: La pandémie de COVID-19 a exercé une pression sans précédent sur le système de santé, entraînant une hausse marquée de l'épuisement professionnel chez le personnel soignant. Les répercussions de cette crise sur la santé mentale des professionnels œuvrant dans des milieux où les ressources sont limitées demeurent peu documentées. Cette étude évalue l'impact de la pandémie sur l'épuisement professionnel et la résilience du personnel de la santé travaillant dans des communautés rurales du Nord de l'Ontario.

Méthodes: Une enquête a été menée auprès de membres du personnel de la santé provenant de 15 communautés rurales du Nord ontarien. Nous avons recueilli des données démographiques, professionnelles, ainsi que des mesures d'épuisement professionnel et de résilience. Des tests du khi carré (χ^2) ont permis d'examiner les variations selon les caractéristiques sociodémographiques et professionnelles. Des ANOVA ont été utilisées pour comparer les moyennes. Le coefficient de corrélation de Pearson a évalué la relation entre l'épuisement professionnel et la résilience, et des associations linéaires ont été analysées à l'aide du test de Mantel-Haenszel.

Résultats: Parmi les 99 membres du personnel de la santé provenant de 15 communautés rurales à qui l'enquête a été envoyée, 76 ont répondu (77%). Cinquante-cinq pour cent des répondants ont indiqué vivre de l'épuisement professionnel, et 81% l'ont qualifié de modérément sévère ou pire. Les personnes ayant grandi dans la communauté où elles travaillent rapportaient des taux d'épuisement plus élevés, tandis que 73% des participants présentaient une forte résilience. Les liens communautaires établis durant l'enfance étaient associés à une résilience plus faible, alors qu'une résilience élevée était liée à une sévérité moindre de l'épuisement professionnel. Les médecins affichaient également des scores inférieurs au Conor-Davidson Resilience Scale© (CD-RISC 2) comparativement aux PDG d'hôpitaux.

Conclusion: Malgré des niveaux élevés d'épuisement professionnel, les participants présentaient une résilience notable. La corrélation entre résilience et sévérité de l'épuisement suggère qu'une meilleure résilience atténue l'impact de l'épuisement, renforçant la capacité à faire face au stress et à l'adversité. Les résultats soulignent l'importance de considérer des facteurs tels que l'occupation et l'ancrage communautaire dans l'évaluation du risque d'épuisement et dans la conception d'interventions pour soutenir le bien-être.

Mots-clés: Personnel de la santé, santé mentale, santé au travail, santé rurale, COVID-19

INTRODUCTION

The World Health Organization has recognised burnout as a workplace phenomenon in its most recent International Classification of Diseases.[1] Defined by prolonged and unaddressed occupational stress, burnout is characterised by three features: overwhelming exhaustion, cynicism, and a sense of reduced personal accomplishment.[2] Even prior to the COVID-19 pandemic, healthcare workers (HCWs) experienced high rates of burnout, driven by severe occupational demands, limited resources and a responsibility to prioritise others well-being over their own.[3,4] The pandemic exacerbated burnout with global demand for health resources that far outstripped supply, leaving already understaffed HCWs to manage heavier workloads in an overburdened system. As a result, burnout rates among HCWs increased to over 60% in 2021, representing a 1.5–3-fold increase from pre-pandemic rates.[3]

Healthcare administrators, particularly those in leadership roles, have also experienced an increase in burnout during the pandemic.[5] This may be attributable to the challenge of implementing measures to safeguard the health and safety of colleagues and patients amidst limited resources and constantly changing public health guidelines.[6] The rise in burnout across healthcare professions, both clinical and non-clinical, highlights the pandemic's significant impact on mental health. It underscores the need for strategies to address its consequences, including absenteeism, reduced patient care quality, decreased clinical engagement and a lack of organisational effectiveness.[2,7,8] Personal resilience has emerged as a promising approach for mitigating the deleterious effects of burnout.[9-11] Studies have consistently demonstrated that resilience exhibits an inverse association with emotional exhaustion and depersonalisation, while exhibiting a positive correlation with personal achievement.[12,13]

The onset of COVID-19 offered a unique opportunity to examine how burnout and resilience manifest amongst staff across different healthcare settings. However, most research focused on urban centres or large-scale cohorts and overlooked the distinct challenges of working in resource-limited environments. As a result, little attention has been paid to the distinct contextual factors faced by those working in low-resourced rural healthcare settings that may have amplified burnout rates in comparison to their urban counterparts.

Northern Ontario exemplifies a resource-limited and often unstable healthcare environment in Canada, with chronic staff shortages and inadequate funding.[14] The pandemic exacerbated these vulnerabilities, culminating in an unprecedented staffing crisis that has forced numerous emergency room closures across the region.[15-17] It is important to consider how managing the pandemic within this historically fragile healthcare system impacted those working in this environment. This is particularly relevant as the challenges posed by COVID-19 and its aftermath have driven staff to leave Canada's healthcare system at unprecedented rates, exacerbating existing disparities in care within this underserved region.[15,18,19] Given this context, understanding how resilience functions as a protective factor is important in order to support the well-being of healthcare personnel working in these demanding environments.

Our study sought to investigate burnout and resilience amongst healthcare personnel in rural Northern Ontario during the 1st year of the COVID-19 pandemic. It aimed to determine how the unique challenges of working in this resource-limited health environment influenced the manifestation of burnout and resilience. The results of our study provide valuable insights to guide the development of targeted strategies aimed at improving the well-being and quality of life for healthcare personnel working in Northern Ontario and similar underserved healthcare environments.

METHODS

Between June and July 2021, a standardised 89-item questionnaire was sent to 99 healthcare personnel working in frontline patient-facing roles (primary care physicians and paramedics) and senior administrative positions (executive directors of primary care clinics, hospital nurse managers and hospital chief executive officers) at hospitals, EMS and primary care clinics located in 15 rural communities in Northern Ontario, 7 in the Northwestern region and 8 in the Northeast [Figure 1]. Participants received a monetary stipend of $100CAD for completing the survey.

The questionnaire collected demographic information (age and gender), professional details (occupation, years of experience in current position and years worked in the community) and whether respondents had lived in the community prior to age 18 years. Participants were also asked to evaluate their levels of burnout and resilience during the 1st year of the COVID-19 pandemic. Personal resilience was measured using the 8-item Short Resilience Survey (SRS), a psychometrically validated measure of resilience that also identifies burnout risk.[20] The 2-item Connor–Davidson Resilience Scale© (CD-RISC 2), validated for assessing the ability to adapt to and recover from periods of adversity or crisis, was also used to measure resilience.[21] In addition, respondents rated their perceived resilience during COVID-19 on a five-point Likert-type scale.

To assess burnout, respondents were asked to self-report whether they experienced burnout during the COVID-19 pandemic. Those who indicated experiencing burnout were then asked to rate its severity on a five-point Likert-type scale.

Chi-square (χ^2) tests were used to determine whether the distribution of responses differed based on demographic variables, whereas *t*-tests were used to determine statistically significant differences in proportions ($P < 0.05$). ANOVAs with Bonferroni *post hoc* tests were used to test differences in means between groups. Linear trends between variables were identified using the Mantel–Haenszel test. The strength and direction of the relationship between burnout and resilience were measured using the Pearson correlation coefficient (r). All analyses were performed using IBM SPSS Statistics for Windows, Version 26 (IBM Corp., Armonk, N.Y., USA).

This study was approved by the Lakehead University (Thunder Bay, Ontario) Research Ethics Board (Research ID #1468565).

RESULTS

Of the 99 distributed questionnaires, 76 were returned for a total response rate of 77%. Table 1



Figure 1: Location of the 15 rural communities in Northern Ontario where healthcare personnel were surveyed about their level of burnout and resilience during the 1st year of the pandemic. ■ = Northern West Region ■ = Northern East Region

outlines the respondent demographics and occupational characteristics, distribution of age, gender, position, years in position, years worked in the community and whether they lived in the community before the age of 18 years.

Burnout

Just over half (55%) of respondents reported experiencing burnout related to the COVID-19 pandemic [Table 2]. Chi-square indicated that the incidence of burnout did not significantly differ by gender, position, years in current role or years working in the community. However, individuals who lived in their current community before the age of 18 years experienced significantly higher rates of burnout than expected. Furthermore, while the incidence of burnout among different age groups was not significantly different from expected values (under a null hypothesis), a significant negative linear correlation was identified between age and burnout rates as determined by the Mantel–Haenszel test of trends [Table 2].

Additional Chi-square analyses revealed no significant differences between the observed and expected degree of burnout across age, gender, position, years in community, years in position or living in the community prior to age 18.

Resilience

Respondents who completed the SRS scored an average of 29.3 ± 4.3 out of 40, indicating a relatively high level of resilience. Similarly, those who completed the CD-RISC 2 had an average score of 6.9 ± 1.2 out of 8, reflecting a high level of resilience and ability to adapt or bounce back from hardships. In addition, the average self-reported resilience score was 3.9 ± 0.8 of 5.

Amongst those who self-reported their resilience during COVID-19, 5% (n = 4) rated their resilience as weak, 21% (16) as moderate, 49% (37) as strong and 24% (18) as very strong.

Resilience levels, measured by the SRS, CD-RISC 2 and self-reports, did not significantly

Table 1: Respondent demographics and occupational characteristics

Variable	Group	Frequency, *n* (%)
Age (*n*=75)	21–29	1 (1.3)
	30–39	19 (25.3)
	40–49	13 (17.3)
	50–59	29 (38.7)
	60+	13 (17.3)
Gender (*n*=72)	Female	51 (70.8)
	Male	21 (29.2)
Position (*n*=76)	EMS	7 (9.3)
	Hospital CEO	13 (17.3)
	Hospital CNO	12 (16.0)
	Physician	30 (40.0)
	Primary care clinic executive director	14 (18.7)
Years in current position (*n*=76)	0–5	34 (44.7)
	6–10	17 (22.4)
	11–15	4 (5.3)
	16–20	4 (5.3)
	21+	17 (22.4)
Years worked in current community (*n*=76)	0–5	24 (31.6)
	6–10	12 (15.8)
	11–15	8 (10.5)
	16–20	7 (9.2)
	21+	25 (32.9)
Lived in current community before age 18 (*n*=76)	Yes	23 (30.3)
	No	53 (69.7)

EMS: Emergency medical services, CEO: Chief executive officer, CNO: Chief nursing officer

differ by age, gender and years of experience in the current position or years working in the community. However, an ANOVA revealed a significant difference between CD-RISC 2 scores and position with a Bonferroni *post hoc* test, indicating that physicians had a significantly lower CD-RISC 2 resilience score compared to hospital CEOs [Table 3]. Moreover, individuals who have lived in the community prior to age 18 years had significantly lower resilience across self-reported resilience scores, SRS scores and CD-RISC 2 scores, which trended towards statistical significance.

Burnout and resilience

Summarised in Table 4, a significant moderate correlation (r = –0.47) was observed between self-reported resilience and burnout, indicating that higher personal resilience is associated with lower severity of burnout. Similarly, a weaker but still significant negative correlation was observed between burnout and CD-RISC 2 score (r = –0.37), suggesting that greater resilience, as measured by the CD-RISC 2 scale, is linked to reduced burnout severity. Further, a significant negative correlation was also found between burnout and total SRS scores (r = –0.40), indicating that higher resilience measured by the SRS scale is associated with less severe burnout.

DISCUSSION

Our study examined resilience and burnout amongst healthcare personnel in rural Northern Ontario following the 1st year of the COVID-19 pandemic. Despite reporting high levels of resilience, respondents experienced substantial burnout.

Resilience

The high level of resilience amongst the respondents suggests that healthcare personnel working in Northern Ontario have the capability to adapt and manage job-related stressors even amidst crises like the COVID-19 pandemic. Factors unique to rural environments, such as a strong sense of community and close connections with patients, may contribute to this outcome by providing a greater sense of purpose and meaning in their work.[22-24] In addition, for providers, rural healthcare settings allow greater autonomy and control over their work, which provides flexibility to cope with the demands of their job.

Another explanation could be self-selection and experience. Those who choose to work in rural areas may possess or develop higher resilience due to their familiarity and experience with managing challenges in low-resource environments. Interestingly, the level of resilience was not associated with age, gender and years in position or years working in the community, suggesting those working in rural health care may possess a certain degree of 'innate' resilience, unrelated to personal background or work experience.

Occupation, for the most part, did not impact the level of resilience reported. One exception was that physicians demonstrated significantly lower resilience, as measured by CD-RISC 2, compared to hospital CEOs. The CD-RISC 2 assesses an individual's ability to overcome challenges, and this disparity

Table 2: Incidence and severity of burnout reported by respondents

A. Incidence of self-reported burnout, *"Did you experience burnout due to COVID-19?"*	
Response (*n*=76)	Frequency, *n* (%)
Yes	42 (55.3)
No	31 (40.8)
Prefer not to answer	3 (3.9)

B. Self-reported severity of burnout amongst respondents who indicated experiencing burnout	
Response (*n*=42)	Frequency, *n* (%)
Severe	4 (9.5)
Somewhat severe	8 (19.0)
Moderate	23 (54.8)
Mild	3 (7.1)
Very mild	4 (9.5)

C. Demographic characteristics of respondents who reported experiencing burnout		
Variable	Group	Frequency reporting burnout, *n* (%)
Age (*n*=41)*	21–39	13 (72.2)
	40–49	8 (66.7)
	50–59	15 (51.7)
	60+	5 (38.5)
Gender (*n*=40)	Female	26 (52.0)
	Male	14 (70.0)
Position (*n*=42)	EMS	2 (33.3)
	Hospital CEO	6 (60.0)
	Hospital CNO	9 (69.2)
	Physician	18 (60.0)
	Primary care clinic executive director	6 (46.2)
Years in current position (*n*=42)	0–5	17 (53.1)
	6–10	12 (75.0)
	11–15	3 (75.0)
	16–20	2 (50.0)
	21+	8 (47.1)
Years worked in current community (*n*=42)	0–5	13 (59.1)
	6–10	7 (63.6)
	11–15	5 (62.5)
	16–20	3 (42.9)
	21+	14 (56.0)
Lived in current community before age 18 (*n*=42)	Yes	17 (77.3)‡
	No	25 (49.0)

*A significant difference (P<0.05) in observed values as identified by a Chi-square test, ‡A significant (*P*<0.05) linear association with frequency of burnout as identified by Mantel–Haenszel test of trends. EMS: Emergency medical services, CEO: Chief executive officer, CNO: Chief nursing officer, COVID-19: Coronavirus disease 2019

suggests that certain occupations/occupational groups may experience greater difficulties in adapting to new situations and recovering from hardship. This may be due to the varying demands and distinct responsibilities specific to each role. Physicians are directly positioned at the forefront of patient care, often facing dynamic, high-stress situations. During the COVID-19 pandemic, these challenges may have been compounded by resource shortages, increased patient loads and rapidly changing healthcare policies, leaving physicians with limited control of their work environment, which may have further strained their ability to adapt. In contrast, while hospital CEOs were also under significant pressure, they operated at a systems level with responsibilities centred around organisational management rather than patient care. Therefore, their role may have provided a greater degree of control and decision-making autonomy to enhance or better support adaptability and resilience.

Table 3: *Post hoc* tests for individual resilience scores

Variable	Group	RISC-2
Position (*n*=72)	EMS	6.33 (1.5)
	Hospital CEO	7.67 (0.65)*
	Hospital CNO	6.92 (1.5)
	Physician	6.43 (1.1)*
	Primary care clinic executive director	7.28 (0.91)
Variable	Group	Self-reported COVID resilience
Lived in current community before age 18 (*n*=73)	Yes	3.55 (0.8)
	No	4.08 (0.78)*

*A significant difference ($P<0.05$) as identified by a Bonferroni *post hoc* test. EMS: Emergency medical services, CEO: Chief executive officer, RISC-2: Resilience Scale©

Table 4: Correlation between burnout severity and personal resilience

Resilience measure	Burnout level	
	Pearson correlation	*P*
CD-RISC2	−0.367	<0.014
SRS	−0.403	<0.008
Self-reported resilience	−0.469	<0.002

CD-RISC2: Connor-Davidson Resilience Scale©, SRS: Short resilience survey

Individuals working in the community where they grew up reported significantly lower levels of resilience compared to those without such ties. This finding challenges the expectation that familiarity with one's community fosters resilience. It raises intriguing questions surrounding the relationship between community connection, rurality and resilience. One possibility is that individuals working in the community where they lived during childhood may possess greater social capital. While social capital often supports resilience, over-reliance on these networks could foster conformity, suppress individual strengths and problem-solving abilities and ultimately result in lower personal resilience. One's social capital may counterintuitively suffer during crises of decreased cohesion due to fear, differences in beliefs and other factors.

Burnout

The incidence and severity of burnout during the 1st year of the pandemic showed no significant association with age, gender, years living in a community, occupation or tenure in current position. This suggests burnout related to COVID-19 affected healthcare personnel broadly, with personal and occupational factors offering little protection against the risk and severity of burnout.

A notable exception was among those working in a community where they had lived during their childhood. While this factor did not influence burnout severity, it was linked to a higher prevalence of burnout compared to those without such ties. One potential explanation is a greater sense of responsibility and emotional attachment to the community's well-being, intensifying the stress and burnout experienced during the pandemic. The increased incidence of burnout in this cohort may be attributed to their significantly lower levels of resilience. As resilience serves as a protective factor against burnout, diminished resilience may have heightened their susceptibility to experiencing burnout. Notably, the number of years working in a community may not reflect the depth of personal and emotional connections that influence well-being, which could explain the lack of association between years of service and burnout incidence These results merit further investigation into how returning to or remaining in one's home community influences the mental health and occupational well-being of healthcare personnel. A more nuanced understanding of these dynamics could inform support mechanisms and retention strategies for rural healthcare personnel with strong local ties.

We were particularly interested in understanding how the stress of the pandemic affected the incidence and severity of burnout among healthcare personnel in rural Northern Ontario. Burnout rates reported by physician respondents were consistent with findings reported within/across Canada,[25,26] nationally[27] and internationally[28] during a similar timeframe as this study. This suggests that the pandemic's stressors, including increased patient volumes, resource limitations and heightened emotional demands, have affected healthcare personnel in rural Northern Ontario in similar ways to those in other regions, regardless of location or resource constraints.

For EMS workers, the impact of burnout was notably low compared to what has been reported in the literature.[29,30] This may be due to the low response rate from this group, which may not

accurately reflect the true incidence of burnout in this profession. Another possibility is that EMS workers in Northern Ontario experienced lower COVID-19-related call volumes compared to their counterparts in urban areas, leading to lower levels of burnout.[31]

Research on the impact of COVID-19 on healthcare administrators' well-being remains limited, with most studies focusing on the impact of the pandemic on frontline workers. As one of the first studies to assess burnout among healthcare leaders in rural Northern Ontario, our findings reveal that the prevalence of burnout among senior healthcare administrators was comparable to that of frontline HCWs. These findings show that leadership roles did not shield individuals from pandemic stressors, which affected them equally. This underscores the need for future studies on burnout to include those in leadership positions and broaden their focus. This will enable a more comprehensive understanding of burnout in these important roles and support the development of targeted strategies to support and safeguard the well-being of these workers.

The majority of respondents experiencing burnout reported at least moderate severity [Table 2], which is concerning given its association with poor mental health,[31] decreased job satisfaction[32] and diminished quality of life.[33] Furthermore, high levels of burnout among HCWs have been linked to poorer health outcomes for patients.[34,35] Therefore, high levels of burnout among healthcare personnel, combined with its potential impact on patient care, risk widening the gap in access to high-quality healthcare between rural and urban areas. Addressing burnout among those working in rural healthcare settings is essential not only to safeguard their well-being but also to improve patient care and health outcomes for residents of rural communities.

Burnout and resilience

An interesting relationship emerges when examining burnout and resilience together; respondents reported both high levels of burnout and relatively high levels of resilience. While this may appear contradictory, as resilience is typically regarded as a protective factor against burnout, analysis revealed that burnout severity was inversely correlated with resilience. This suggests that individuals with higher levels of resilience may still experience significant burnout, indicating that resilience does not fully shield individuals from burnout, instead mitigates its severity. This suggests that while resilience-building initiatives are important to help attenuate the severity of burnout, they should be part of a broader approach that includes promoting a healthy work–life balance,[36] developing strategies for managing stress[37] and creating a positive work environment,[38] all of which have demonstrated effectiveness in reducing burnout. Implementing multifaceted strategies can help address the root causes of burnout and its impact on the individual. These efforts are important in reducing the severity of burnout and improving the overall well-being of healthcare personnel.

Limitations

Our study has several limitations. While overall response was strong, lower participation among certain subgroups limits the generalisability of findings and may not accurately capture the true extent of burnout and resilience within these cohorts.

Another limitation of this study was that survey responses were not collected precisely at the 1-year mark after the onset of the COVID-19 pandemic. Consequently, results reflect the experiences from a period surrounding the 1st year of the pandemic. As such, results may not accurately represent levels of burnout or resilience in later stages of the pandemic, during which evolving public attitudes and subsequent waves of COVID-19 may have further influenced the experiences of healthcare personnel. Future research could build on these results by examining how burnout and resilience evolved over the course of the pandemic. In addition, the lack of pre-pandemic baseline data limits the ability to comprehensively assess the pandemic's impact on burnout and resilience amongst healthcare professionals in rural Northern Ontario.

Portions of the questionnaire required retrospective recall, which is susceptible to bias. Although recall at the individual level may be unreliable, evidence suggests consistency at the aggregate level.[39,40] Responses, particularly regarding pre-pandemic conditions, may also have been influenced by changes in current

work conditions.[39] Another limitation was that burnout was measured exclusively through self-reporting, which is inherently vulnerable to recall bias.[41] Consequently, these biases may have impacted the accuracy of responses, particularly in categories with lower sample sizes. However, by analysing the data at an aggregate level and using appropriate statistical methods, we aimed to minimise the potential impact of these factors on our conclusions.

The exclusion of frontline nursing staff limits the study's comprehensiveness and lessens the generalisability of study results. However, as nurses are a vital part of the healthcare workforce, a focused study into burnout and resilience within this profession is essential to better understand their unique challenges and needs.

CONCLUSION

Our study provides valuable insights into the experiences of healthcare personnel in rural Northern Ontario during the 1st year of the COVID-19 pandemic. The high levels of resilience observed suggest that respondents may have developed effective coping strategies during the pandemic or already possessed a high level of resilience at baseline.

The inverse relationship between resilience and burnout severity supports the notion that resilience is a key psychological asset that attenuates the degree of burnout experienced. Consequently, our results highlight the importance of initiatives aimed at bolstering resilience to reduce burnout severity and potentially translate into improved job satisfaction, well-being and the quality of patient care.

The influence of occupation and community history on resilience and burnout further emphasises the need to consider individual and contextual factors when identifying heightened risk of burnout. Tailored interventions that address these factors can better support, protect and enhance the well-being and resilience of healthcare personnel. Such an approach becomes particularly important in underserved and resource-limited areas like rural North Ontario, where staff retention is vital to maintaining access to quality healthcare services.

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