Unraveling the impacts of the Covid-19 pandemic on mental health among nurses and physicians in Canada

by

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We acknowledge and respect the Lək^{w}əŋən (Songhees and X^{w}sepsəm/ Esquimalt) Peoples on whose territory the university stands, and the Lək^{w}əŋən and W̱SÁNEĆ Peoples whose historical relationships with the land continue to this day.

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Executive Summary

Objectives

On March 11, 2020, the World Health Organization declared Covid-19 a Public Health Emergency of International Concern. The pandemic profoundly affected the global population, disrupted society, and had long-lasting effects on Canada's healthcare system and providers.

Following the official end of the Covid-19 pandemic on May 5, 2023, healthcare organizations, health authorities, governments, researchers, and healthcare providers have been working towards strengthening and improving how healthcare is staffed and delivered in a system that remains under constant strain. This project aims to explore and analyze potential factors that impacted the mental health of Canadian nurses and physicians during the Covid-19 pandemic.

Methodology and Methods

Methodology

This project used a sequential mixed-methods design that relied on two different and complementary data collection strategies, including a rapid review and semi-structured interviews. Both the rapid review and interview findings were integrated and analyzed to provide an understanding of the impacts of the Covid-19 pandemic on the mental health of nurses and physicians.

Methods

Rapid Review

The rapid review was conducted on April 5, 2022, and searched Academic Search Complete, APA PsychInfo, CINAHL Complete and MEDLINE. Inclusion criteria included peer-reviewed articles between March 2020 and March 2022 on mental health of Canadian nurses or physicians during the Covid-19 pandemic. The search yielded 403 articles with 9 meeting the above criteria. The analysis of the literature included two rounds of thematic coding, which were then depicted in a fishbone diagram.

Interviews

Ethics approval was obtained on June 3, 2022 (protocol number 22-0092) from the University of Victoria's Human Research Ethics Board.

The fishbone diagram was used to guide the semi-structured interviews with nurses and physicians to discuss the factors that resonated with them the most, external or protective factors, and suggested changes to the diagram. A total of eight interviews were conducted (four nurses and four physicians) between November 2022 to May 2023. Interviews occurred primarily over Zoom with one over the phone. Then the fishbone diagram was revisited to reflect participant experiences.

Key Findings

Factors that impacted the mental health of the nursing and physician groups was a lack of social and administrative support, staffing shortages, and increased and intensified workload. A nursing-specific factor was insufficient personal protective equipment supply and access.

Lack of Social and Administrative Support

Nurses reported feeling abandoned by management, received conflicting information regularly, received little recognition for their efforts, and had to make decisions for management. Physicians expressed frustration with the broader culture of medicine, especially during residency. They described the culture of constant work and burden, with little emphasis on mental health and rest. Both groups discussed how difficult it was for them to access mental health supports and physical health supports during the pandemic.

Staffing Shortages

Both participant groups reported difficulties providing patient care with limited staff, and some identified this as further burdening and increasing their workload. Staffing shortages were noted as a persistent challenge before and became exacerbated during the pandemic. The situation became acute during a sudden surge of patient volumes when staffing levels were already very low.

Increased and Intensified Workload

Physician participants discussed greater burden of responsibility for patient care compared to nurses. The theme of guilt was common, particularly in situations where physicians were sick and were still responsible for following up and rescheduling patients. Both nursing and physician participants identified that workload intensity increased as patients challenged their clinical knowledge, often influenced by misinformation about the Covid-19 virus. Nursing participants largely focused on increased workloads as being closely connected to staffing shortages.

Insufficient Personal Protective Equipment (PPE) Supply and Access

All four nursing participants identified insufficient PPE supply and access, while no physician participants provided consensus on this sub-theme, suggesting a greater impact on nurses. Nursing participants discussed how the lack of insufficient PPE and access to equipment negatively impacted their work and highlighted an inherent hierarchy that prioritized physician access over nursing access. In some cases, nurses asked physicians to secure their area with PPE as they did not have access themselves.

Next Steps

The following next steps are suggested to health organizations and governments who engage nurses and physicians to provide healthcare services in Canada:

1. Evaluate existing internal and external support systems in place and explore new ones to implement based on the evaluation;

2. Establish a funding program to develop research projects and programs that address the most effective supports for nurses and physicians;

3. Research how to transform the culture of healthcare organizations for nurses, physicians, and resident physicians; and

4. Review pandemic plans and incorporate key learnings and insights from the perspective of nurses and physicians.

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Chapter 1: Introduction

The World Health Organization declared Covid-19 a Public Health Emergency of International Concern on March 11, 2020, and continued with that status until May 5, 2023, signaling the end to the organization's highest alert level (World Health Organization, n.d.). The Covid-19 pandemic had devastating impacts to population health, our society, and catastrophically challenged Canada's health care system. Now, as organizations, governments, and society move forward in 2025, one way to support improvements to the health care system is to capture what happened and identify key learnings.

1.1 Problem Identification

Prior to the pandemic, there were already signs that Canada's health care system needed to be reformed and modernized to reflect the aging population, the growing demands on the health care system, and address recruitment and retention of health care workers.

Although the global pandemic officially ended in May 2023, the health care system in Canada is still under extraordinary pressure. There continues to be staffing shortages, long wait lists, growing emergency department waiting times, difficulty accessing a family doctor, high patient loads, and other lasting impacts.

There are many complex issues within healthcare at the individual, organizational, and government levels. One specific issue is how to reduce negative mental health outcomes in Canadian nurses and physicians to ensure longevity and sustainability within their respective fields.

1.2 Research Question and Project Objectives

Research Question

What factors influenced the impact of mental health outcomes of Canadian nurses and physicians during the Covid-19 pandemic?

Research Objectives

The purpose of this project is to explore and analyze potential factors that impacted the mental health of Canadian nurses and physicians during the Covid-19 pandemic.

The rapid review and consensus interviews aim to provide an exploratory overview of the mental health impacts of Canadian nurses and physicians during the Covid-19 pandemic, and provide suggested next steps for healthcare organizations, governments, and academic institutions.

1.3 Organization of Report

This project report is organized into six chapters. Chapter 2 will outline the methodology and methods used for the project. Chapter 3 will review the results of the rapid review and present

the fishbone diagram. Chapter 4 discusses the interview portion of the project, interview findings, and analysis of findings. Chapter 5 will provide a discussion on the interview findings, reflect on the current context, evaluate the fishbone diagram, present a new conceptual model, and discuss limitations of the study. Finally, Chapter 6 identifies suggested next steps, future research, reflection, and the conclusion.

1.4 Research Ethics

Ethics approval was obtained on June 3, 2022 (protocol number 22-0092) from the University of Victoria's Human Research Ethics Board.

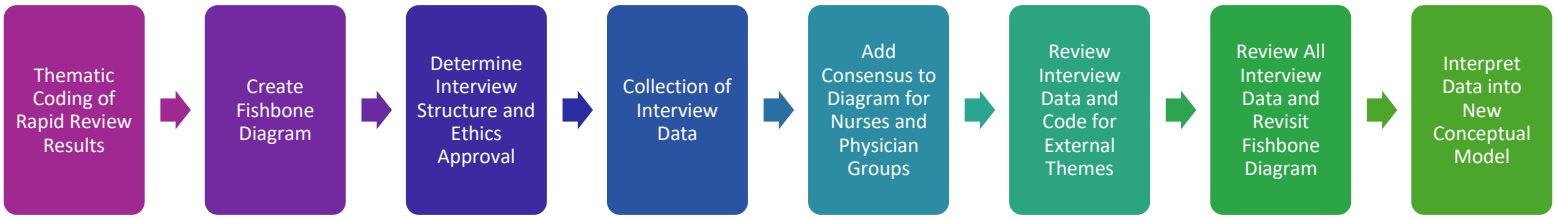
Chapter 2: Methodology and Methods

2.1 Methodology

This project uses a sequential mixed-methods design that relies on two different and complementary data collection strategies that involves a rapid review and semi-structured qualitative interviews with nurses and physicians (Creswell, 2003). Creswell (2003) identified that "sequential procedures, in which the researcher seeks to elaborate on or expand the findings of one method with another method" (p. 16). In this case, the findings from the rapid review were conducted first, and then those findings were integrated into the qualitative interviews.

The findings of the rapid review were compiled into a fishbone diagram that supported the qualitative interviews that followed. Both the rapid review and interview findings were integrated and analyzed to provide a comprehensive understanding of the impacts of the Covid-19 pandemic on physicians and nurses' mental health. A visual figure is presented to display this process.

Figure 1 – Project Steps



2.2 Rapid Review Methods

Scope

A rapid review provides an assessment of everything that is already known about a specific issue, including existing research (Grant & Booth, 2009). An advantage of using a rapid review is that it reduces the timeframe to conduct analysis, which supports informed and timely policy decision-making (Grant & Booth, 2009; Dobbins, 2017).

For this project, a rapid review was selected to appraise everything that was known about mental health impacts on Canadian nurses and physicians during the Covid-19 pandemic. The rapid review was conducted on April 5, 2022, and focused on peer-reviewed scholarly sources published between March 2020 and March 2022. Articles were within the project scope if they pertained to mental health impacts on healthcare providers and were conducted in Canada. Focusing on Canadian published articles was important because the healthcare system in other countries is not comparable to Canada's healthcare system.

Data collection

For the rapid review, the articles were found using EBSCO*host* to search the following academic databases: Academic Search Complete, APA PsychInfo, CINAHL Complete and MEDLINE. This strategy was used to streamline results and access them in the same place. EBSCO*host* allows a user to save search results and the parameters used, which helps ensure accuracy and the ability to reproduce the search for future studies.

Table 1 – Identification of Key Search Terms

(nurs* or physician* or doctor* or clinician)	SU Subject terms	AND
(Covid-19 or coronavirus or 2019-ncov or sars-cov-2 or cov-19)	SU Subject terms	AND
(mental health or mental illness or mental disorder or psychiatric illness)	SU Subject terms	OR
(burnout or anxiety or depression)	SU Subject terms	AND
Canad*	SU Subject terms	

The data on which this rapid review is based was pulled on April 5, 2022, with a total of 403 articles. The results were pulled into a data extraction table and reviewed for inclusion or exclusion according to the criteria described above. Out of these results, nine articles met all the inclusion criteria. As it takes time to have an article published, most of the included articles focused on the first wave of the pandemic.

Data analysis

The nine articles that met the inclusion criteria were printed and analyzed using thematic analysis conducted by hand. Initial codes were created by highlighting the data and the next round of coding narrowed down the specific patterns in the data set, which finalized the major and minor themes found. The results were then compiled into a fishbone diagram.

2.3 Interview Methods

For the interview portion of the project, participant selection was focused on English-speaking Canadian nurses or physicians who actively worked in a clinical setting and provided direct patient care during the Covid-19 pandemic.

Recruitment

The main method of recruitment for the study was through personal contacts between the principal researcher, principal supervisor, and second reader. In some cases, these personal contacts were not nurses or physicians, but these contacts had connections to these groups. All eight participants in this study were recruited using personal contacts. Personal contacts were selected as the first method of recruitment because the target participant groups can be difficult to access or locate. This project did not use deception, incentives, reimbursement, or

compensation for participants.

Potential interested participants in our networks were sent a private message on social media or introduced through email. The private message on social media to potential participants used the language on the recruitment poster (Appendix B). The poster was originally intended to be utilized in a broader social media campaign if the personal contacts did not yield enough participants for the study. As this was not the case for this project, only the language found in the poster was sent in a private social media message to build greater rapport with potential participants, instead of sending the poster without any context. Participants who tentatively agreed to be in the project provided their email address to the researcher and the researcher followed up with the recruitment email/letter template (Appendix A).

Timeframe and Criteria

Recruitment occurred from November 2022 to the end of May 2023. The recruitment of participant groups included the following inclusion criteria:

- nurses and physicians;
- actively works in a clinical setting;
- delivered direct patient care during the Covid-19 pandemic;
- all genders; and
- English-speaking.

The following exclusion criteria was applied to the participant groups:

- healthcare workers and allied health partners who are not nurses or physicians;
- all other countries except Canada; and
- non-English speakers.

The number of participants to be recruited was a minimum of four from each participant group of nurses and physicians.

Informed Consent

All participants received the Participant Consent Form (Appendix C) which was reviewed and signed by all participants. At the start of the interview, key parts of the consent form were reviewed verbally with participants, including voluntary participation, withdrawing from the study at any time, anonymity, confidentiality, how the information will be used, communicating results, and that the interviews will be recorded and transcribed.

How Interviews were Conducted

Seven out of eight interviews occurred over Zoom. Due to technical difficulties, one interview occurred over the phone with Zoom recording the interview in the background. Participation did not occur during participants' work hours or instructional time.

Description of the Interview

For each interview, participants were presented the fishbone diagram for the first time with a brief description of which parts of the major themes and the sub-themes found in the rapid review.

After participants reviewed the diagram, the researcher asked what their profession was from March 2020 to March 2022, the province or territory they worked in, and what their context was. Context is referred to their specific area they worked in (e.g. Emergency Department).

Afterwards, the researcher began with asking the interview questions (Appendix D). Participants received these ahead of time. There were five main interview questions, and the interview was semi-structured format to allow flexibility for probing questions:

1. What contributing factor(s) explaining the impact of Covid-19 on professionals' mental health most resonates with you from this diagram and why?
2. Considering the impact of Covid-19 on professionals' mental health, what other contributing factors or information would you add to this diagram?
3. Are there factors external to Covid-19 that played a role on professionals' mental health during the covid crisis? Consider factors that might have worsen the impact of Covid-19 on mental health or, on the contrary, factors that were protective.
4. What would you like to change in this diagram to better represent your own experience or the experience of your co-workers regarding the impact of Covid-19 on their mental health? Can you give an example?
5. Is there anything else you would like to share on this topic?

Anonymity

For participant anonymity, participants were not anonymous in the recruitment effort due to the use of personal contacts. However, the participants are anonymous in the dissemination of the results. To protect confidentiality, participants' name and contact information are kept out of the study. Gender-identify and workplace name(s) was not collected for this study.

All participants were renamed in this project to reflect the province or territory they worked in, if they were a nurse or physician, and what area(s) they worked in. Their work area was only included if there were two participants with the same province and profession.

Mitigating Possible Risks of Harm

Measures were in place to reduce the potential risks of harm to participants, including stigmatization, loss of status, privacy, reputation, job security, or salary loss. The risks associated with this project were considered minimal. This is because the risks involved with a participant's' profession are likely higher than the risks of participating in this project.

To address possible emotional or psychological discomfort, fatigue or stress, the researcher shared the interview questions ahead of time and informed participants that they can skip questions, take a break, reschedule the interview, or stop the interview altogether. A list of

community mental health resources was compiled if emotional or psychological discomfort occurred during the interviews (Appendix E).

Participants' Data

The interview data is stored in a secure location on the researcher's computer at their private residence that requires multi-factor authentication to gain access. The data used will only be stored until the project is published on the University of Victoria's website (UVic Space). After publication, the participants will be provided with the link and final version of the project via email. Following this, all data collected from the interview portion will be destroyed, including email and social media communications in the sent, inbox, and deleted folders.

Interview analysis

All interviews were recorded in Zoom and transcribed. The transcriptions were printed manually and analyzed using thematic analysis. Prior to starting the thematic analysis, the themes were reviewed for consensus from each participant.

Two rounds of coding occurred for new themes that emerged. The first identified broad themes and the second round of coding identified specific themes and given interpretive codes. Key participant quotes were pulled for each theme.

Integration of results

Another level of analysis that occurred is the review of all the findings that participants identified and re-visiting the fishbone diagram to better reflect participant's experiences. This integration allowed the researcher to consider everything that had been discussed during the interviews and focus what factors impacted mental health outcomes.

Revising the fishbone diagram supports the interview findings (Chapter four) and discussion (Chapter five) on reviewing what worked well with this diagram and what did not work well. This analysis concludes that the fishbone diagram, while it worked well for interviews, was not the best diagram to reflect the research findings. A new tree diagram is presented in the discussion chapter that focuses on the main factors that were discussed in detail during the interview process.

2.4 Project Limitations

The rapid review is based on articles published from March 2020 to March 2022. The pandemic started in early 2020. The publication delay for scientific articles makes articles published early March an exception. Furthermore, as time passes, more knowledge exists on the pandemic, and more studies are being published which are not included in this study. The project design defines a small window of time for the study of such a topic and new knowledge may have been published.

This project has several limitations that are important to note. A significant limitation is the small number of Canadian nurses and physicians recruited in the interview portion. The sample size (n

= 8) is small, which makes it difficult to determine if a particular outcome is a finding that would be supported by the experience of a larger number of participants, or if it is specific to the respondents interviewed. In other words, the findings from the interview portion are not generalizable to the nursing or physician population groups in Canada.

The next largest limitation is that the project is limited to a point-in-time capture of a specific moment in time. As interviews were conducted between late November 2022 and late May 2023, the participants who interviewed at varying points in time may have had different perspectives when reflecting on the pandemic and how it went for them. In other words, the political and social context of what was occurring for a participant at that point in time could have influenced how they thought about the pandemic. It is not certain how the responses would have been if this study was conducted during the first wave of the pandemic, for example. Similarly, the results may have been different with each stage of the pandemic and the participants role during each phase.

For the rapid review specifically, the inclusion criteria were limited to studies done in Canada and/or focused on Canadian healthcare providers. This was a limiting factor in that it excluded similar studies done in different health care contexts that could have provided more information and data not published in Canada.

For the literature that met the inclusion criteria, a limiting factor is that each had their own definition of what healthcare provider meant. Although there were nurses and physicians in the articles, often this definition expanded to include other healthcare professionals such as allied health. As the research was not specifically conducted on just nurses and physicians specifically, the findings from the rapid review may not reflect these population groups.

Chapter 3: Rapid Review Results

A rapid review was conducted for this study to identify potential impacts of the Covid-19 pandemic on mental health among nurses and physicians in Canada. To help inform the development of a conceptual framework, major and minor these were identified that were then used to support the interview portion of the study.

The literature review articles were pulled in April 2022 and evaluated against criteria for inclusion, and for additional information please refer to the methods section. The rapid review was selected to obtain a point-in-time snapshot of appropriate research conducted in Canada. These represent a two-year timeframe of specific Canadian literature that existed, which only included nine articles. This signifies that there was not a lot of Canadian research in this field from 2020 to 2022.

Available literature at the time of this rapid review often did not differentiate between nurses, physicians, and other healthcare providers. The literature identified in the rapid review frequently used the umbrella term of healthcare provider or healthcare worker. These terms include nurses and physicians, amongst other allied health professionals. For the purposes of this rapid review, the term healthcare provider will be used that includes nurses and physicians, unless otherwise specified.

Five major themes found in the rapid review pertained to:

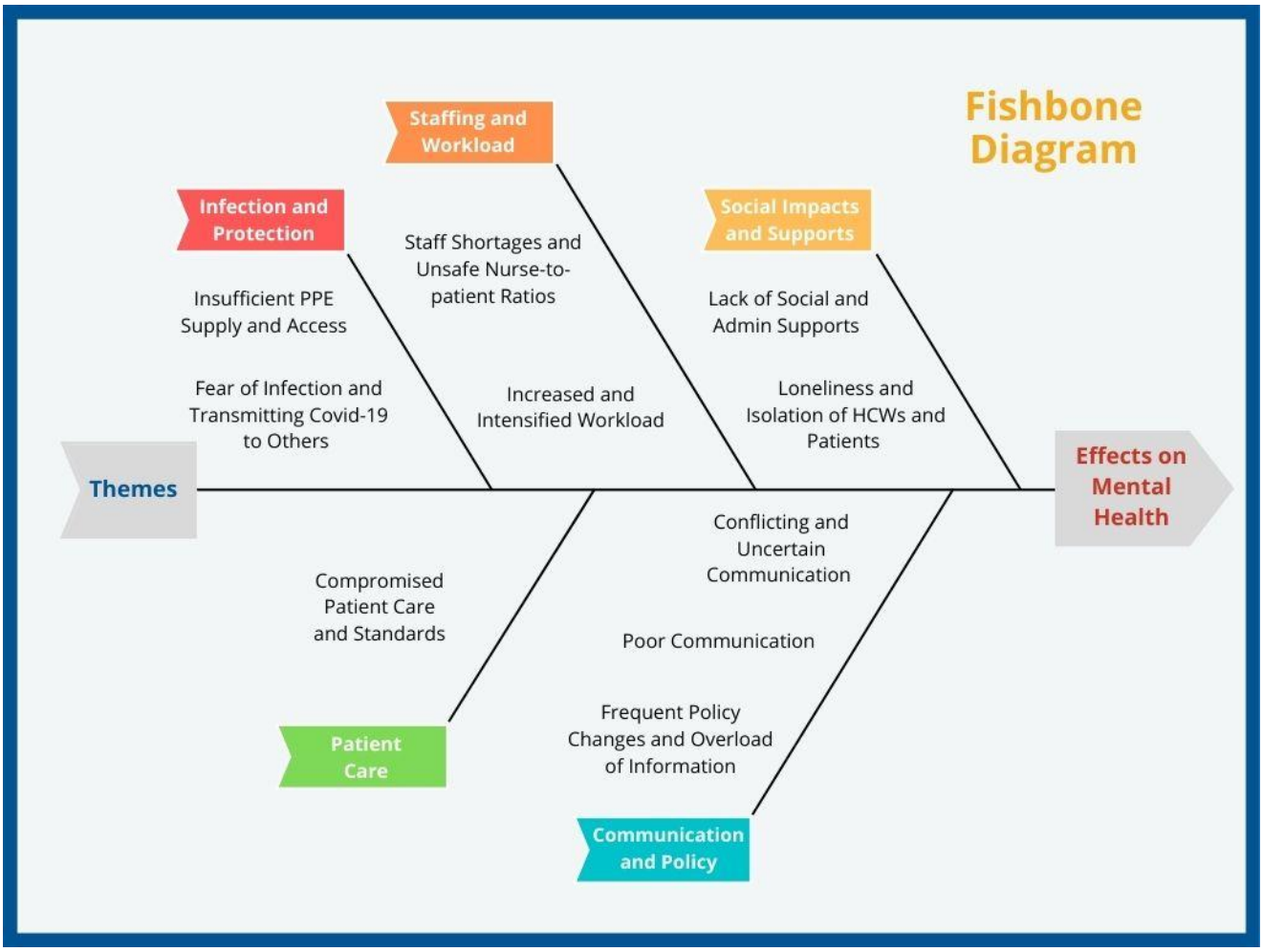
1. Infection and protection;
2. Staffing and workload;
3. Social impacts and supports;
4. Patient care; and
5. Communication and policy.

3.1 Fishbone Diagram

Varpio et al. (2020) articulates that subjectivist inductive researchers create an initial conceptual framework at the beginning of a study that is expected to be modified later according to new information and insights that are gathered throughout the study (p. 993).

This fishbone diagram represents the themes and sub-themes found from the rapid review. The coloured boxes on the body of the fish represent the overarching themes, and the black text underneath represents the sub-themes. The head of the fish represents that these factors may have influenced mental health.

Figure 2 – Fishbone Diagram



3.2 Infection and Protection

This theme refers to infection, spread of Covid-19, and the use and access of personal protective equipment. The two sub-themes that were found within this main theme was the fear of infection and transmitting Covid-19 to others, and insufficient supply and access to personal protective equipment.

Fear of Infection and Transmitting Covid-19 to Others

Binnie et al. (2021) studied psychological distress amongst intensive care unit healthcare workers in Canada during the first phase of the pandemic. They found that physicians reported less anxiety in the areas of personal protective equipment availability and being infected with Covid-19 (Binnie et al., 2021). In this study, it is also reported that knowledge with respect to protecting oneself varied by profession, with physicians reporting higher knowledge scores than allied health did (Binnie et al., 2021). The study was not specific in addressing why physicians would report less anxiety, although it is possible that physicians reporting higher knowledge of

protecting themselves may help explain why they had less anxiety with being infected with covid. In contrast, registered nurses reported the highest anxiety around transmitting Covid-19 to others (Binnie et al., 2021).

Gill et al. (2020) studied oncologists and the impact of the Covid-19 pandemic. They found that oncologists were moderately to extremely concerned about contracting Covid-19 or that a family member or a patient would get Covid-19 from them (Gill et al., 2020).

Similarly, participants in the research conducted by Limoges et al. (2022) reported an ongoing fear of the spread of Covid-19, particularly during the beginning of the pandemic and during periods of high transmission. Plouffe et al. (2021) also found that higher perception of Covid-19 transmission risks predicted greater severity of moral distress. These findings support the notion that the fear of infection and spreading Covid-19 to others impacted healthcare provider's mental health. It is uncertain if working on more Covid patients also impacted mental health because of what Binnie et al. (2021) found.

Gagnon and Perron (2020) analyzed Canadian nurses' use of the media to share their stories and found that they compared the pandemic to being in war and how nurses were collateral damage in the fight against Covid-19. Many nurses were reflected the war-like narrative in the media by saying they did not sign up to die on the job (Gagnon and Perron, 2020).

Insufficient Access and Supply of Personal Protective Equipment

Many studies referenced the shortages of personal protective equipment in some aspect, but only a few studied the impacts. During the first wave of the pandemic, a survey of oncologists in Canada found that over 70 percent of them were concerned about personal protective equipment access (Gill et al., 2020).

Gagnon and Perron's (2020) study of nursing voices in the media during Covid-19 highlighted the war-like narrative of Covid-19, where nurses expressed that they were being sent to war without the appropriate equipment. Another study found that their nursing participants reported concerns during Covid-19 on reusing personal protective equipment, inequitable distribution of equipment, the quality of equipment received, and mixed messaging around the use of appropriate personal protective equipment (Ralph et al., 2022).

3.3 Staffing and Workload

The Covid-19 pandemic affected staffing and workload for healthcare providers generally. Two sub-themes were found in the literature included: staff shortages with associated unsafe nurse-to-patient ratios, and increased workloads.

Staff Shortages and Patient Ratios

Gagnon and Perron (2020) identified in their analysis that nurses were required to work despite the health risks associated with contracting or transmitting Covid-19, combined with unsafe working conditions and unsafe nurse-client ratios. Short staffing and unsafe patient ratios were

identified as impacts to healthcare providers' mental health during the Covid-19 pandemic in several studies. (Gagnon & Perron., 2020; Limoges et al., 2022; Plouffe et al., 2021).

Plouffe et al. (2021) researched morally distressing experiences during Covid-19, finding that there was compromised quality of patient care, a lack of appropriate resources required to treat patients and a lack of provider continuity for patients. Another concern regarding staffing shortages was the lack of clarity around the use of sick time for nurses who got Covid-19 and the uncertainty around scheduling for nurses who were self-isolating (Ralph et al., 2022).

Increased and Intensified Workload

A sub-theme identified in the rapid literature review was that staff workload had varying effects on healthcare providers during Covid-19. Binnie et al. (2021) found that registered nurses rated work life significantly more stressful than physicians did. It is important to note that this study was completed on the first wave of the pandemic, and it is unclear if these findings are transferrable to the other waves of the pandemic.

Limoges et al. (2022) discussed intensified workloads of healthcare providers during the pandemic, where a combined 78 per cent of participants were nurses and physicians. The study found that health care providers work intensified because they were providing emotional support to patients that was typically provided by visitors or family members, in addition to their usual duties and the specific challenges of the pandemic (Limoges et al., 2022).

Visitor and family restrictions or prohibitions were common in healthcare facilities during the pandemic. Healthcare providers described having additional emotional strain due to seeing patients bored or suffering alone without visitors or family, compounding the intense workload during the Covid-19 pandemic (Limoges et al., 2022). Plouffe et al. (2021) found that one of the most distressing experiences on health care workers in their study was the significantly increased patient workload.

3.4 Social Impacts and Supports

This theme included the sub-themes about the lack of social and administrative supports and loneliness and isolation.

Lack of Social and Administrative Supports

There was a lot discussed in this sub-theme and the articles referenced this in various types of support, including, but not limited to:

- Training;
- Human resources;
- Physical resources;
- Organization;
- Patient supports;
- Visitor policy;
- Employee Assistance Program;

- Management; and
- Social patterns.

Chawla et al. (2020) discussed how the Covid-19 pandemic influenced the training experiences of resident physicians, particularly the limited learning opportunities and the "… atmosphere of survival." (p. 1).

Gagnon and Perron (2020) found that media coverage of nurses identified that there was insufficient human and physical resources and insufficient support and compensation. Gill et al. (2020) found that less than half of oncologist physicians reported moderate to high confidence in their organization's support of them through the pandemic.

Limoges et al. (2022) identified that healthcare providers, including nurses and physicians, experienced how restrictive visitor policies impacted patients by losing their social support systems that healthcare providers could not replace. Healthcare providers questioned the rationale behind the visitor policy given the negative effects on patients and increased workloads on healthcare providers (Limoges et al., 2022). For healthcare providers, they also found that social distancing requirements negatively impacted their social support systems with their colleagues (Limoges et al., 2022).

One study of health care providers, including nurses and physicians, found that one of the most morally distressing events that healthcare providers faced was a lack of action or support from healthcare administrators for issues that were compromising patient care (Plouffe et al., 2021).

Ralph et al. (2022) found that there was a lack of support for redeployed nurses who felt that they did not fit in or belong in their redeployed unit and that their original unit manager had abandoned them.

Additionally, they found that most of their nursing participants identified that simply providing contact information and referrals to the employee assistance programs was not sufficient support (Ralph et al., 2022). Nurses were looking for support from other people who knew what they were going through and how inflexible therapy and access to support were (Ralph et al., 2022).

Loneliness and Isolation

Many findings from the rapid review included how healthcare providers experienced negative mental health impacts due to patient loneliness and suffering from the lack of traditional family and visitor support systems that were restricted by social distancing policies.

Limoges et al. (2022) observed that that healthcare providers, including nurses, found it challenging to witness patient loneliness and them suffering alone without their support systems. This added strain on healthcare providers who felt a lack of contact and disruption in their social patterns, creating a situation of low control and disrupted social patterns (Limoges et al., 2022). Limoges et al. (2022) also found that workers lost their ability to de-stress with their coworkers during breaks because of physical distancing requirements.

Ralph et al. (2022) identified that there was an increased sense of isolation, fear, and abandonment when nurses' managers were physically offsite or perceived as unavailable.

Styra et al. (2021) focused on healthcare providers mental health outcomes during the Covid-19 pandemic and how previous experiences of these healthcare workers during the 2003 severe acute respiratory syndrome outbreak affected the psychological response of those workers. This study included various types of clinical and administrative positions within selected Toronto hospitals, which included nurses and physicians. The study found that staff working in these Toronto hospitals who were isolated or quarantined during the pandemic scored higher on all measures of PTSD, anxiety, and depression, than those who were not required to do isolation or quarantine (Styra et al., 2021). This suggests that the mental health impacts on healthcare workers during the pandemic was significant and requires attention.

3.5 Patient Care

Only one sub-theme was identified in patient care and that was compromised standards.

Compromised Patient Care and Standards

Gagnon and Perron (2020) observed that nurses could not adhere to best practices on preventing the spread of Covid-19. This meant that nurses lacked the ability to provide safe care up to quality standards and protect themselves from becoming infected. Plouffe et al. (2021) found a similar finding in that there was compromised quality of patient care where healthcare providers were forced to compromise their normal standard of care. In some cases, this was due to poor team communication or a lack of provider continuity (Plouffe et al., 2021).

Ralph et al. (2022) a found that nurses faced ethical implications in deciding which patients received lifesaving care during the pandemic, leading to a lower-quality standard of care.

Gill et al. (2020) found in their study of medical oncologists that they "expressed moderate-to-extreme concern that their patients would not receive adequate health care if they became seriously ill from a non-covid illness" (p. 73).

Styra et al. (2021) focused on mental health outcomes in healthcare providers, comparing those outcomes between groups of healthcare providers who had previous experience working during the 2003 severe acute respiratory syndrome outbreak, and those who did not. The study found that healthcare providers who had previous experience working in outbreak environments had lower negative mental health outcomes from the workplace during the Covid-19 pandemic (Styra et al., 2021). In contrast, Spilg et al. (2022) found that healthcare providers who were exposed to positive Covid-19 patients had higher severity of moral distress, anxiety, and depression. Styra et al. (2021) also found in their study that individuals caring for fewer patients had greater symptoms of post-traumatic stress (Styra et al., 2021). They stipulated that this may be related to having less confidence and experience with pandemic conditions. This suggests that greater experience with pandemics and outbreaks could potentially increase nurses' resilience.

3.6 Communication and Policy

This theme encompassed several sub-themes, including references to conflicting and uncertain communication, poor communication, frequent policy changes, and an overload of information.

Conflicting and Uncertain Communication

Plouffe et al. (2021) found that inconsistent and delayed pandemic guidance from government and workplace leaders decreased nurses' trust, calling into question the associated policies and job requirements they had to follow during the pandemic. Ralph et al. (2022) identified that there was a lot of uncertainty around which patients should be tested for Covid-19.

Ralph et al. (2022) found that there were uncertain guidelines for access and use of sick time for nurses who had Covid-19 and when they were required to self-isolate. Additionally, there was a lack of clarity around the roles of nurses, their expected workload, and the standards of practice they should follow (Ralph et al., 2022).

Ralph et al. (2022) also found that there was inconsistency in how organizations approached their visitor policy, either restrictive or unrestricted, and this was challenging for nurses to communicate to family members why the policy changed so frequently, and why they were inconsistent with other organizations.

Poor Communication

There were references to poor communication in several studies that were typically referred to elements of the other sub-categories, suggesting that there may be overlap.

Gagnon and Perron (2020) found that nurses observed that there was insufficient information and poor communication, and that the issues existed prior to the pandemic but were exacerbated because of it.

Ralph et al. (2022) discovered that there was a lack of transparency as well as dishonest and inaccurate communication to nurses.

Frequent Policy Changes and Overload of Information

Limoges et al. (2022) found that healthcare providers noted how there were a lot of policy changes and poor communication. Additionally, there was a lack of input from healthcare providers during policy development and that policy, policy implementation, and policy evaluation emerged as strong influences on healthcare providers' experiences (Limoges et al., 2022).

Ralph et al. (2022) found that there was an overload of communication that occurred during the pandemic that was detrimental to effective communication. This was likely due to the multiple daily emails sent with information, and that email was the sole mode of communication (Ralph et al., 2022). These factors ultimately led to nurses not receiving timely updates of important information, a lack of coherent messaging and receiving contradicting information around policies, procedures, and care practices (Ralph et al., 2022). All these factors contributed to uncertainty around what should be adhered to, contributing to the mental distress of healthcare providers during the Covid-19 pandemic.

Chapter 4: Interview Results and Analysis

This chapter will provide an overview of the interview participants and review and analyze the results found from the interview portion of the project.

4.1 Overview of Participants

Table 2 – Overview of Participants

	Role	Area(s)	Province	Interview Month/ Year	Provincial Pandemic Response Measures for Interview Month
Nurses	Registered Nurse	Long-term Care, Public Health, First Nation, and Testing Clinic	Quebec	November 2022	In September 2022, Quebec announced the end of the health emergency. In November 2022, the 5-day minimum isolation period was no longer automatically required for Covid-19 positive cases (Institut national de recherche scientifique, n.d.)
Nurses	Registered Nurse	Neonatal Intensive Care Unit	British Columbia	December 2022	In mid November 2022, B.C. removed self-isolation requirements for Covid-19, ending all formal Covid-19 restrictions for the public (Griffiths, 2022).
Nurses	Registered Nurse	Emergency Department	British Columbia	January 2023	In mid November 2022, B.C. removed self-isolation requirements for Covid-19, ending all formal Covid-19 restrictions for the public (Griffiths, 2022).
Nurses	Registered Nurse	First Nations Public Health, Home Care, and Community Care. Casual in Acute Care and Long-term Care	Alberta	April 2023	Mandatory Covid-19 public health restrictions were lifted on June 14, 2022 (Government of Alberta, n.d.).
Physicians	Oncologist	Hospital-based; Oncology Practice	British Columbia	December 2022	In mid November 2022, B.C. removed self-isolation requirements for Covid-19, ending all formal Covid-19 restrictions for the public (Griffiths, 2022).
Physicians	Resident (2020-22); Physician	Emergency Department; Family Doctor	Alberta	December 2022	Mandatory Covid-19 public health restrictions were lifted on June 14, 2022 (Government of Alberta, n.d.).
Physicians	Resident (2020-21); Attending Physician	Internal Medicine	Ontario	February 2023	Majority of public health measures lifted by April 27, 2022. Covid-19 testing was prioritized for those at highest risk and working in highest risk settings (Ministry of Health, 2022).
Physicians	Resident	Emergency Department	Alberta	May 2023	Mandatory Covid-19 public health restrictions were lifted on June 14, 2022 (Government of Alberta, n.d.).

4.2 Consensus on Themes

Participants were given the freedom to approach and discuss the fishbone diagram as they wished. When asked about their thoughts on the fishbone diagram, participants approached their review in one of two ways. The first is that participants would start at the upper left-hand corner where the infection and protection theme was and then they reviewed the sub-themes from left to right. The second approach to the diagram is that participants would scan the coloured headings and focus on the theme that they identified with the most.

The second approach was the most common amongst participants, with one exception. The BC Emergency Department nurse started their interview by describing a story about how the pandemic was similar to a children's book entitled "Swimmy" by Leo Lionni.

To demonstrate the key differences and similarities between the nursing and physician groups, the fishbone diagram is re-visited. Figure 3 displays the total number of responses that reached consensus on each sub-theme and the total percentage of consensus reached for each major theme. The Venn diagram in Figure 4 shows the fishbone diagram breaks these results down further into the consensus reached from participants and the similarities and differences between the two groups. Consensus required a minimum of three out of four participants in either the nursing group or the physician group.

Figure 3 – Consensus Reached on Themes and Sub-themes

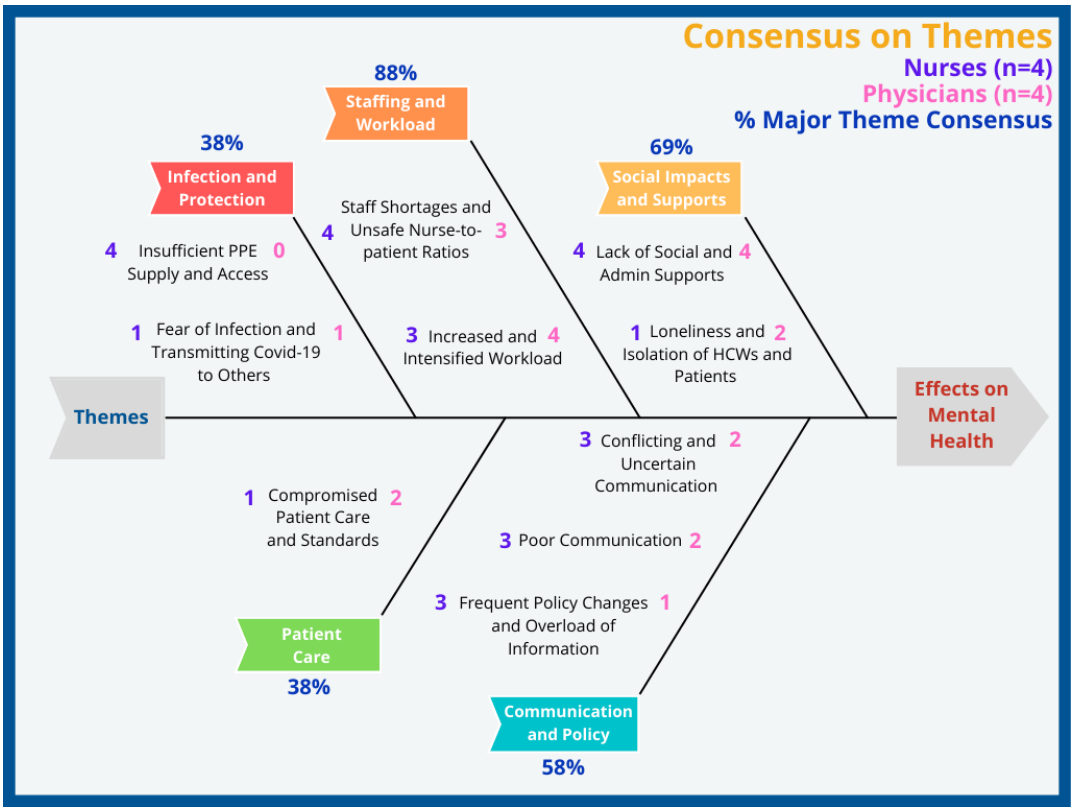
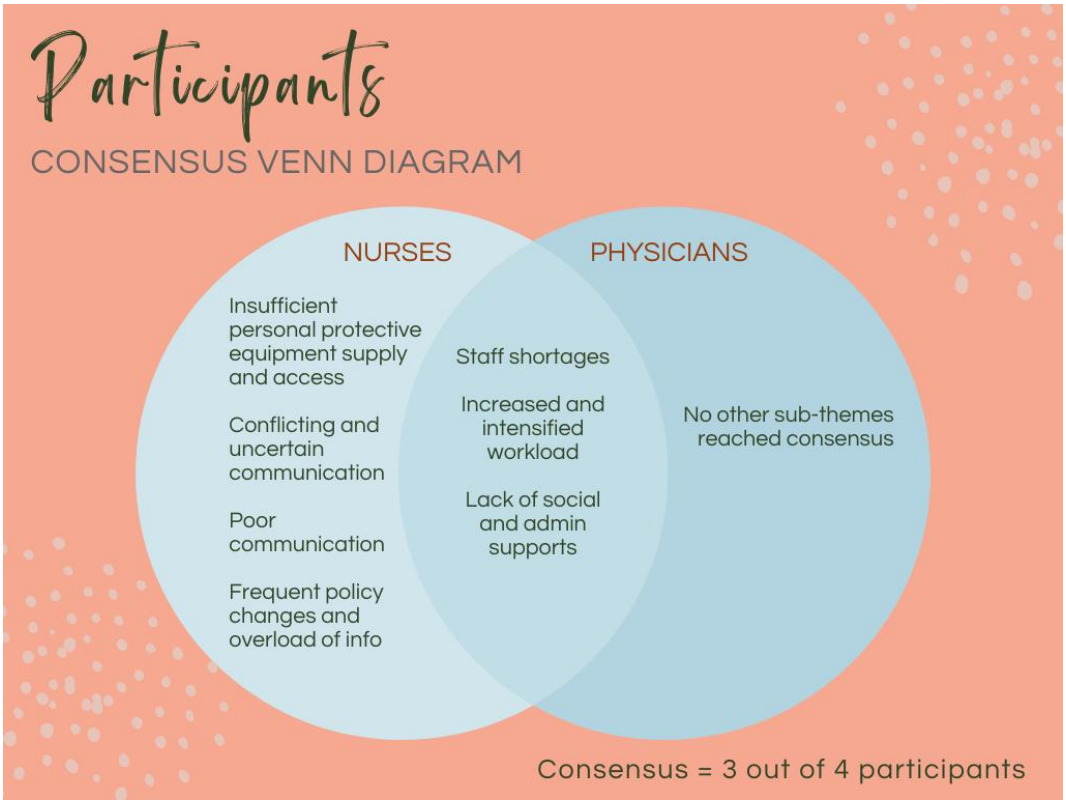


Figure 4 – Participant Consensus Venn Diagram



4.3 Summary of Consensus

It is important to note that the total number of participants in each group was only four each, so the results of the study are not generalizable to these populations on a larger scale.

The targeted analysis in this chapter will only focus on the sub-themes that received the most consensus, yielding at least seven out of eight participants, with one exception. While insufficient personal protective equipment supply and access did not reach consensus among both physician and nursing participants, it did reach consensus with all nursing participants. Alongside the summary of consensus, participants also provided the researcher with a list of external factors that impacted their mental health that was not captured by the fishbone diagram. These findings are important to provide deeper insight into participant experiences during the pandemic. A summary of results for targeted analysis is below:

1. Staff shortages and unsafe nurse-to-patient ratios;
2. Increased and intensified workload;
3. Lack of social and administrative supports;
4. External Factors; and
5. Exclusive Participant Group Consensus.

4.4 Staff Shortages and Unsafe Nurse to Patient Ratios

Seven out of eight participants positively provided consensus that staff shortages had an impact on their mental health. This included four nursing participants and three physician participants. It is important to note that the phrase "unsafe nurse to patient ratios" was removed from this sub-theme category as participants suggested that this was not a factor at all in influencing their mental health. Staff shortages more accurately reflected participants' perspectives.

The results for this category identified several issues pertaining to staff shortages. Some participants referred to staff shortages as being tied to a larger issue within the healthcare system, which is retention and having consistent staff.

> "*Over the past year and a bit, [AB area] has been going through a 'specialist purge' is what I call it. Every couple of months we get a notice that another specialist is leaving. We no longer have urology at all. We have them – them come in once a month for a week sort of thing, but we don't have consistent urology that we can refer to all the time. We lost half our anesthesia, and that's them moving to other places, so there's a shortage in Alberta. […] Rural physician retention has been a problem for decades and that's probably not going to change anytime soon, so that is a 100 per cent a problem." AB Physician.*

These quotes suggests that this sub-theme may require adjustment as some participants identified a larger issue of the healthcare system that impacts staff shortages overall.

Others identified that a lack of staff available had a more profound impact during different waves of the pandemic.

> *"Staffing and workloads, interestingly, were very different throughout the different waves. Early on in the pandemic, they had more staffing than what we needed because people stopped coming to the hospital. […] That period [Christmas 2021 to 2022] was extremely difficult because we just had a surge of patients and we had very few health care workers, so that dichotomy was really hard to deal with. That was probably one of the hardest times of the pandemic, rather than earlier on, and we were tired, I think." ON Physician.*

This finding suggests that staffing shortages were more profound in the later phases of the pandemic.

In contrast to the Ontario physician, two nurses discussed having staff shortages throughout the entire pandemic and how a lack of support for this area was difficult for them:

> *"There was only myself and a Licensed Practical Nurse taking care of a 1,500 population. […]. Staff shortages were crazy. Again, there was only two in full-time for the majority of the pandemic. And so, if one of us were to come down with a sniffle or*

> *something, then we would take one of us out and there was no support. There was no support ever." AB Nurse.*

> *"We've had so many people that quit since the pandemic – we have a bunch of nurses that don't want to work in the healthcare system. They talk about this as a shortage, but it's not shortages, it's a retention process. In terms of more profound changes, it's still hard to navigate the management structure – you still don't know." QC Nurse.*

The Quebec Nurse suggests that retention may be tied to how the management structure is set up and also how the internal approval or review processes work. The quote above suggests that there is a lack of visibility and understanding of how these processes work on the management side, leading to uncertainty for nursing staff in their field.

4.5 Increased and Intensified Workload

Seven out of eight participants positively provided consensus that increased and intensified workload was a factor contributing to their mental health. All the physician participants and three nursing participants provided consensus on this sub-theme.

There were some key differences in the responses between the nursing participants and the physician participants. One potential reason for this could be from the differences in their responsibilities within the healthcare system in Canada, as described below:

> *"It's a matter of responsibility, right? You legally can't quit your practice without having someone to take over your patients as a physician. If you're a nurse and you quit, there's another nurse. It's on the employer to find your time. Whereas, if you're a physician and you quit, […] the onus is on you to find care for every single one of your patients." BC Physician.*

Another physician echoed this finding and also identified how guilt within the industry has an impact.

> *"If you're on call, you're it. And so, if you call in sick, there's no one else to cover. You feel very, very, very guilty if you were to call in sick. You get guilted into this idea – without you, patients will die, they won't have the care." AB Resident Physician.*

The difference in responsibilities and the culture for physicians and nurses is notable in the physician quotes described. The burden of responsibility for patient care appears to be higher for physicians than for nurses. The theme of 'guilt' that was brought up is one that could allude to a broader concept of how physician culture in Canada does not alleviate their responsibilities for when they are sick, or they want to leave their practice. The Alberta Resident Physician elaborates on this further by identifying that another underlying issue is how the system is established and maintained:

> *"It feels very much like the healthcare system ends up falling on residents 'cause we cover the majority of call and overnight stuff in the hospital […] I don't think a lot of people realize that the majority of medicine is covered by residents and how poorly we're paid. So, we're salaried, of course, and we haven't received a raise in the last decade. [...] And that's really tough, especially when you're told to kind of volunteer for things or you're made to feel guilty. 'It's a public health emergency. If you were a really good doctor, if you were a good resident, you would do these things.' Well, no, I can be both. I am a good resident, I do want to help, but I also deserve to be paid for my labour and protected. AB Resident Physician.*

This excerpt suggests that the pandemic intensified existing problems within the healthcare system and highlighted longstanding issues. The unpaid labour and the responsibility and guilt that the physician group faced during the pandemic is also discussed by another Alberta Physician:

> *"So, I really like that the word intensified is there because I feel that's the part – yes, there's increased workload, but I mean, medicine is always busy. The intensified part makes sense because as soon as the pandemic hit, it felt like suddenly we were trying to convince patients to trust us, which added a whole another level to our jobs […]. Suddenly, I was defending my own legitimacy to give any sort of recommendations, which I feel intensified the workload because then it adds an emotional component too because you're frustrated by patient interactions, on top of being tired, on top of being burnt out […]. Medicine isn't exactly an occupation that prides itself on rest and mental health. So, I think in a way, the pandemic was the straw that broke the camel's back, even though it wasn't a straw, it was like the anvil that broke the camel's back, because everyone was just balancing precariously in the first place." AB Physician.*

The intensity is an area in particular that could be studied further to really understand the other factors that contributed to the intensity in their workload that the physicians described above. For this study, the Alberta Physician identified that adding the lack of public support and the additional emotional component to the fishbone diagram would more accurately reflect their experience.

While the physician group was more focused on the intensity aspect of their job during the pandemic, the nursing group discussed both an increase and an intensity in their workloads. Their answers suggest that this category is closely related to staff shortages as this is one factor that had an influence on other nurse's workloads. For example:

> *"The increased and intensified workload was insane. My normal hours would be 8:30am to 4:30pm. We would be there 'till midnight, 2 o'clock in the morning, and then have to be at work the next day, because we're the only two nurses, and then do that over and over and over again for months and months. And it was weekends. It was everything. It was just all the time." AB Nurse.*

This category generated a lot of discussion within both participant groups. The physician group's responses identified a recurring theme about intensity having the most impact, whereas nurses' responses discussed both.

4.6 Lack of Social and Administrative Support

Consensus was reached by all eight participants for this sub-theme as a factor that impacted their mental health during the Covid-19 pandemic. While this finding may not be surprising, the breadth of responses provided additional insights into what types of social and administrative supports was lacking for nursing and physician participants.

The nursing participant group discussed how indifferent management was towards them. Examples included receiving radio silence, no emotional support from colleagues, a lack of psychological support available, and being overworked and underpaid. One nursing participant described a situation that illustrates their challenges.

> "*There was such an indifference and kind of hostility from managers when we asked for just really basic stuff. It made everything worse on my mental health. At that point I had like twelve patients that needed oxygen that I didn't have. I was supposed to make those choices and, you know, people died. It took me a long time to sort of get over it and I blamed myself. I know I can rationalize it and say it's not my fault, but I'm very angry, still, at management for putting that on us." QC Nurse.*

This quote suggests that there may be a correlation between insufficient support from management and mental health. Another element that is missing from the fishbone diagram that is captured in that quote is limited supply of oxygen and also allocation of this resource. It would be interesting to study this further and identify if there are other elements missing here that relates to this. All of these suggested correlations indicate that separating each category out individually may not effectively represent how different sub-themes intersect with one another, nor does it capture areas missed.

In comparison, the physician group discussed several challenges, including a lack of administrative support, rebooking patients when the physician had covid, lack of access to psychological support, the culture of medicine, and the lack of public sympathy, support, and respect. For example:

> *"The pandemic meant that I couldn't go to my therapist. I couldn't get in to see my family doctor very easily to fill my prescription. So, not even for physical health. Then, taking a toll on mental health because I couldn't easily get in to get refills of my inhalers. So, that's frustrating and stressful. […]. So, now, just like people outside of medicine, [we] needed therapy and support. We all need therapy. People in medicine absolutely did. And yeah, couldn't access it." AB Resident Physician.*

This quote suggests a connection to the increased and intensified workload sub-theme as well. To recap, the Alberta Physician described the culture as, "medicine isn't exactly an occupation that prides itself on rest and mental health." This sentiment is echoed by the Ontario Physician, who described this culture as, "you can't be a good physician if you're not healthy and you're burnt out. But there is, unfortunately, a strong culture in medicine where you just work to the detriment of mental health." Alongside the intensified workload, for this sub-theme, the lack of social support that some physicians discussed pertained to a lack of support from the public. For example:

> *"I always felt this sense of obligation to somehow fix things. I don't know, because in medicine, you're supposed to help people, right? So, you feel like you need to educate the public, you need to advocate for different things. But then you get a lot of push back. So, even if you share things on social media in terms of isolation, guidelines, or a new paper on a process or whatever, there were definitely a few instances where people would reply and say, "really"? I guess important things were just frustrating in general. Or then people would just be like 'Oh yeah, doctors don't know what they're talking about.' One person who didn't know who I was said something like, 'Maybe you should go to school and get a degree, so you know what you're talking about.' So anyway, just stuff like that, lots of online slander." AB Physician.*

This quote suggests that there's an additional mental burden that physicians took on, specifically with educating the public about Covid-19 and the lack of support and trust from the public.

4.7 External Factors

Healthcare Hero

An interesting finding discovered when participants were discussing the 'lack of social and administrative supports 'sub-theme was a theme referred to as a "healthcare hero." This was an unexpected finding and participants suggested that they would include this, public apathy, and a lack of support from the public in the fishbone diagram as it would describe another factor that influenced their mental health.

"Healthcare hero" can be described as the label used by the public during the Covid-19 pandemic to commend all types of healthcare workers for their hard work, sacrifices and service to the public. Across Canada, in the early phase of the pandemic, every night at 7pm the public held a cheer for all healthcare workers.

Six participants in this study (four nurses and two physicians) described this label in different ways, with five giving mixed responses. Contrary to the mixed responses, one nursing participant only expressed appreciation toward the public's effort to recognize them and helped them to keep going during the pandemic.

> *"I personally never had an issue with that, I thought it was nice. I didn't want to overthink it. The pots and pans, the neighbourhood cheering, honestly it just – bravo. As well as pride – for me it did help. I found it a very great honor and it helped me want to keep going." BC Emergency Department Nurse.*

In contrast, the BC Neonatal Intensive Care Unit nurse described that the healthcare hero label being used by the public and then their corresponding actions did not match and sometimes made their jobs more difficult.

> *"Everyone who is out their risking their lives and sometimes it felt very hollow […] Look at our wonderful health care heroes – then they turn around and go to a gathering, and more people would end up in our care." BC Neonatal Intensive Care Unit Nurse.*

The other participants discussed the healthcare hero label often by starting out with a positive thought that it is good to receive recognition for their work, but that it took attention away from the issues that they were facing.

> *"At first, it gave me and my co-worker at the time, who I worked full-time with, a good boost in terms of feeling good about being recognized for all the hard work that we're doing, but at the same time, I don't think that lasted very long at all because we always felt like we were failing, you know?" AB Nurse.*

The concept of always feeling like they were failing could be an indication here that the culture within nursing is similar to that of physicians in the sense of feeling like they are failing or that physicians are led to feel guilty. Referring to the healthcare system broadly, one participant suggested that the system as a whole misused the healthcare hero label during the pandemic.

> *"As much as I appreciated what was being said, I also think it was a means to exploit and placate people in the health care industry. Oh, we don't have to pay you hazard pay. Look at this – love! […] Which is all very lovely, but I think that's a very easy way for an institution to hide behind that instead of taking some real ownership and tangible steps to protect their workers, support their workers, pay them appropriately, protect them from covid." AB Resident Physician.*

<u>Other Factors that Impacted Mental Health</u>

Part of the interviews asked participants what was missing from the fishbone diagram and what they would add to better reflect their own experiences. These are individual responses that were not part of the consensus exercise, and the intent was to capture other factors that played a role on their mental health.

Nursing participants identified the following additional factors that they wanted to be included in the fishbone diagram:

- No acknowledgment from administration;
- Vaccines;
- Fear of the unknown;
- Being a learner;
- News and media coverage;
- Hierarchy of access for PPE and Physicians prioritized;
- Lack of a plan in place;
- Mistrust in nurses;
- Rotating managers;
- Racism allegations; and
- Advocating for supplies.

The physician group identified the following additions to be included in the fishbone diagram:

- Pressure to deliver care;
- Emotional component with dealing with patients;
- Guilt to be a good doctor;
- Culture of medicine;
- Being a learner;
- The Alberta Medical Association Agreement was re-negotiated with the United Conservative Party;
- Vaccines;
- News and media coverage;
- Overworked and underpaid;
- Children;
- Personal protective equipment monitoring;
- Long time to adapt a masking policy in BC; and
- Resident physicians pay and hours.

Protective Factors

The results include protective factors that participants identified that positively supported their mental wellbeing. Responses ranged between the two groups. Two similar findings amongst both groups included the importance of their support network, job security, and financial security. For this set of results, it is important to note that these responses are representative of their individual experiences.

The nursing group identified the following protective factors:

- Financial security;
- Build their own network of supports;
- More availability and transparency of what supports are available;

- The Neonatal Intensive Care Unit was not as bad as other units, especially those designated for Covid-19; and
- The lack of visitors made their job easier.

One nursing participant who identified financial security as a protective factor also discussed how their financial situation was also not a protective factor. This was because while their job was guaranteed and stable, this was not the case for their household and added additional stress and had a negative impact on mental health. This result is important to highlight as it shows there are two different perspectives on financial security and the impacts felt from this factor were dependent on each individual situation.

The other similarity between the participant groups is how their support system was a great protective factor and helped mitigate against the other factors that impacted their mental health. Here's an example from the nursing group:

> *"One thing that was soul saving for me was we built a network of supports. So, you know, I made a lot of new Facebook friends and people that you could call up and you know, talk to. […] I think we understood what we need and that gave us hope and we felt supported by each other, and that really made a difference. There was a lot of solidarity between us." QC Nurse.*

The physician group identified the following protective factors:

- Quick adaptation of technology to facilitate virtual care;
- Lots of planning that occurred at the beginning of the pandemic;
- Received training on how to adapt to constant change and conflicting information;
- Job stability;
- Good relationships with friends in the same field;
- Physically seeing colleagues at work; and
- Having a dedicated wellness Vice-President who organized retreats and discussed issues.

For job stability, while one nursing participant described two different aspects of how this was both a protective factor and had a negative impact on their mental health, the physicians who discussed this identified it as a beneficial thing.

> *"I was very fortunate and didn't have to worry about additional financial stressors, because clearly my job was stable, [and] the pandemic did not put my job into question. If anything, it made it even more stable, so I was lucky that way." AB Physician.*

The other similar result for protective factors is the importance of good relationships with their support system. One participant described how having regular Zoom meetings with their friends from medical school helped alleviate the stress because they understood how the system worked and they did not have to explain anything to them, which was difficult when trying to discuss their job with their family members.

> *"Every couple of weeks we would face time or Zoom together and we would each order in our own meals. […] It was a regular thing we did where we just set up a time, and no matter what was going on, you sat down and you were like, 'All right. Let me tell you about the bulls*** that happened today. It's very validating to have someone else be like, 'What the h***, that's some cr**, don't put up with that! Or you know, to laugh about either something funny that happened, or something morbid that you just have to laugh. I think that helped alleviate the stress." AB Resident Physician.*

This quote suggests that receiving validation from other people going through similar situations or circumstances is beneficial for coping with challenging situations.

4.8 Exclusive Nursing Participant Group Consensus

These results only include sub-themes that reached consensus with three out of four nursing participants. The physician group did not reach consensus exclusively on any sub-themes.

Nursing Participants

A. Infection and Protection
    - Insufficient personal protective equipment supply and access (n = 4).
B. Communication and Policy
    - Conflicting and uncertain communication (n = 3);
    - Poor communication (n = 3); and
    - Frequent policy changes and overload of information (n = 3).

A. Insufficient personal protective equipment (PPE) supply and access

All nursing participants and none of the physician participants provided consensus on this sub-theme, suggesting that nurses were more impacted by this factor than physicians. Nursing participants discussed the relationship between insufficient PPE and how their lack of support at work made their jobs more difficult. For example:

> *"I was in long-term care for the first wave, and we felt like an island in the midst. We couldn't see anyone and they couldn't see us. We had no managers, no clinical nurse to call, nothing. We ended up just calling friends to ask for help, if they had masks or anything. It wasn't so much the PPE itself, but the lack of support that compounded and then seeing people die. It was lonely." QC Nurse.*

This finding in particular highlights how several factors on the fishbone diagram may be interconnected to one another. Another finding that was interesting is when two nursing participants discussed how accessing PPE became hierarchical between nurses and physicians. This finding might provide a possible explanation as to why there were no physician participants

who identified this as a factor impacting their mental health. In one case, the Quebec nurse discussed how it was working with two specialty physicians in a long-term care facility:

> *"The only thing they were useful for was getting PPE, because they can get PPE, but not the nurses. So, for them, it was very eye opening for them in their positions as physicians. The most useful thing they did was to see whoever was in charge of PPE to get some for us…very clear hierarchical position between physicians and nurses." QC Nurse.*

Other nurses discussed that there was a hierarchical system for accessing PPE and spoke more generally about how this negatively impacted their work.

> *"We ended up just feeling like we didn't matter and that was exacerbated as well by the insufficient PPE, because it became hierarchical who got the PPE and who did not. And that was not good at all – that turned it into a really poor work environment, where people who weren't given access to be felt like they were. It was awful just to see those people feel like they were undervalued, and it was okay if you die. That's really how the message came across." BC Emergency Department Nurse.*

> *"Insufficient PPE, that was huge. That was definitely really, really huge. In the beginning, everybody was supposed to be wearing N-95 masks. It was stressed how important [it was] and then they ran out. Then they're like, 'Oh, then you can use the surgical face mask.' Then we ran out of those [and] our gloves, our gowns, shields, and hand sanitizer. I remember rushing to Edmonton to one of our medical suppliers and we literally were like, 'Can we come into your warehouse and see what you have?' They actually sent us with a sizeable amount of money to gather and get whatever we could, and it was so stressful, extremely stressful." AB Nurse*

These findings for nurses are consistent with the literature review findings for nurses, but not for physicians. Gill et al. (2020)'s study identified that 70 per cent of oncologists in Canada were concerned about PPE access (p. 73). In contrast to the interview findings, the four physicians interviewed did not identify any concerns with accessing PPE.

The recurring theme about there being a hierarchical system in place appeared to cause distress to the nursing participants and that they were not viewed as important by those who were in charge of distributing supply and managing access. In the context of the pandemic, supply access and management were contributing factors to nurses' mental health being impacted.

B. Communication and Policy (Major theme)

While three out of four nursing participants reached consensus on each of the three sub-themes within the major theme category of "Communication and Policy," how participants described their experiences diverged from their approach to the other major themes and sub-themes in the fishbone diagram. Participants grouped the sub-themes of "conflicting and uncertain information,

poor communication, and frequent policy changes and overload of information" together rather than distinguishing between them. As a result, their responses varied widely.

A similar response that the nursing participants provided is how the lack of information or policy, or too much information, created a lot of uncertainty for them and led to a lack of understanding about what they were supposed to be doing. The BC Emergency Department nurse, for example, noted this as "I don't think anyone had any policy, I think they were just making it up on the fly." The Alberta nurse echoed this sentiment:

> *"There were so many questions. There wasn't a lot of information. We didn't understand exactly what this was or how it was going to affect people, so there was a lot of fear and unfortunately, a lot of shame around getting sick or being sick." AB Nurse.*

The Alberta nurse provided additional information about how this impacted them and sheds light on what they experienced during the pandemic:

> *"So many things were changing more than daily and being able to keep up… different things, different forms, different ways to do things, different isolation requirements. It was so overwhelming that it felt that if we learn the one way to do it, literally you know the next day or that evening, things would have changed and then we'd have to relearn how to do something. I think it just kept everybody in a confused and overwhelming state, including clients and patients, because, you know, we were telling them to do it this way, and then we're telling them to do it that way." AB Nurse*

The BC Neonatal Intensive Care Unit nurse also discussed the constant change in policy that was occurring and how this created uncertainty.

> *"There could be a paper there and you look at it and you'd be like, well, what did they change now? What did they change again that we aren't already doing? It was exhausting, and I think we all just kind of [became] accustomed to things being like that, you know? You just go, well, I guess it's like that. Now you just kind of do the job in front of you." BC Neonatal Intensive Care Unit Nurse*

The varied responses from the participants on the topic of communication and policy led the researcher to consider whether amalgamating the three sub-themes together in the fishbone diagram may have helped refine the responses. The responses suggest that there is an overlap between communication and policy issues and having this grouped together blurred the subtle distinctions between the sub-themes. that as the responses suggests that there is overlap between communication.

4.9 Closing remarks

The interview results yielded interesting insights into what specific issues influenced the mental health of Canadian nurses and physicians. The insights also suggests that some of the sub-themes

are closely related to each other and could be portrayed in a different diagram to show that they are connected.

In summary, staff shortages, increased workload, and lack of social and administrative support reached consensus by both physicians and nurses. Additionally, four sub-themes reached consensus only by nursing participants. These findings highlight areas for researchers to explore to improve mental health outcomes and the wellbeing of healthcare providers in Canada. It is also important to examine factors that positively impact participants' mental health.

Chapter 5: Discussion

5.1 Summary of Findings

Both Nursing and Physician Groups (n=8)

Both the nursing and physician participant groups (seven or eight participants) provided consensus on the following sub-themes as having an impact on their mental health during the pandemic:

- Staffing shortages;
- Increased and intensified workload; and
- Lack of social and administrative supports.

These findings are consistent with the rapid literature review findings. It is important to note that all participants provided consensus on the lack of social and administrative supports.

Nursing Group (n=4)

Three or four nursing participants provided consensus on the following as having an impact on their mental health during the Covid-19 pandemic:

- Insufficient personal protective equipment supply and access;
- Conflicting and uncertain communication;
- Poor communication; and
- Frequent policy changes and overload of information.

Insufficient personal protective equipment supply and access achieved consensus from all nursing participants and no physician participants. This was a surprising finding as it is not aligned with one study reviewed in the rapid literature review, which suggested that approximately 70 per cent of oncologists were concerned about their access to personal protective equipment. One potential explanation for this finding is that the physicians interviewed for this project had priority access for personal protective equipment and did not come up as a factor that impacted their mental health. Whereas the nursing participants in this project discussed about how it was challenging for them to access personal protective equipment.

Physician Group (n=4)

The physician group did not provide consensus for any other sub-themes. This finding is surprising and may require additional examination.

One possible explanation for this is that some physician participants noted that the sub-themes located within the ‘Communication and Policy” major theme overlapped with each other, suggesting that the sub-themes of conflicting and uncertain communication, poor communication, and frequent policy changes and overload of information are not accurate and could be combined into a larger, more generic category.

Sub-themes that did not reach consensus

The sub-themes that did not reach consensus by both participant groups include:

- Fear of infection and transmitting Covid-19 to others;
- Loneliness and isolation of healthcare workers and patients; and
- Compromised patient care and standards.

5.2 Reflection on the Current Context

This research examined what factors had an impact on nurses and physician's mental health during the Covid-19 pandemic. The insights from this study can support healthcare organizations and governments in their efforts to strengthen the healthcare workforce in Canada.

Part of addressing the larger issues with the healthcare system starts with examining how organizations can best support building resilience and psychological well-being in nurses and physicians in Canada.

A brief overview of the current health landscape will be provided to illustrate that the findings in this project remain relevant in the current context.

In January 2025, the Government of Canada released an executive summary of their study entitled *Caring for Canadians: Canada's future health workforce – The Canadian health workforce education, training and distribution study*. The study collected data to support estimations of the current workforce and future modelling predictions for 2029 and 2034. The projections are alarming, with "nurse practitioners and physiotherapists are the only in-scope professions who are projected to have additional capacity by the end of the projection period" (Health Canada, 2025, p. 11).

In June 2025, Health Canada's 2025-26 Departmental Plan identifies key priorities for health and includes investments of close to $200 billion over 10 years, through the Working Together to Improve Health Care for Canadians Plan. Priorities under the departmental plan include retaining the healthcare workforce, reducing the amount of time it takes for internationally educated healthcare professionals to work in Canada, and addressing workforce planning initiatives (Health Canada, 2025).

Recently on August 1, 2025, the Canadian Federation of Nurses Unions called on the federal government to prioritize investments in the healthcare system in the upcoming 2025 fall budget. The Canadian Federation of Nurses Unions has submitted a pre-budget submission that identifies supports for nursing retention and recruitment, moving the Chief Nursing Officer to the Assistant Deputy Minister level, establishing a nurse-patient ratios national council, universal pharmacare, and enhancing the Canada Health Transfers federal funding (Canadian Federation of Nurses Unions, 2025).

As part of their recruitment recommendations, the Canadian Federation of Nurses Unions identified that investments should include the Nursing Retention Toolkit, released by Health Canada in March 2024. The purpose of the toolkit is to provide Canadian nurse-employers and health care organizations with practical strategies and tools to improve the retention of nurses. As a resource created by nurses, for nurses, it will draw on evidence-based practice, lived and living experiences of point-of-care-nurses, and insights from nursing professionals at all career stages" (Health Canada, 2024, p. 11).

These recent examples illustrate that healthcare and healthcare workers continue to be a priority in Canada.

5.3 Evaluation of Fishbone Diagram

The fishbone diagram supported the interview portion of the project. However, the findings from the nursing and physician participants suggests that the fishbone diagram may be too simple to capture all the different factors that had an impact on participants' mental health.

The interviews highlighted that participants' strongest factors that impacted their mental health was the lack of social and administrative supports available to them. This topic was discussed in great depth during the interviews, alongside staffing levels and increased and intensified workload.

Based on the responses from the interviews, there may be a connection between staffing levels, increased and intensified work, and the general lack of support participants discussed. This lack of support could mean being short staffed, not receiving support from their manager, not receiving administrative support for rescheduling patients, not receiving enough personal protective equipment, not receiving enough support, and understanding from the public, and many other types of support. The lack of support as a general concept is why the researcher has reimagined the interview insights into a new conceptual diagram.

As for the fishbone diagram, it led to an interesting observation from the BC Emergency Department nurse, who noted in their interview that the fishbone diagram reminded them of a children's book entitled "Swimmy" by Leo Lionni. This nurse described the premise of the book in the following way:

> *"There's this school of fish, and they all get eaten except for one little fish, and he's alone, he's scared, and he swims all over the ocean until he finds another school of fish that are just like him. He teaches them how to swim as one big fish and then they're able to scare away anything that tries to eat them. It fits well – first you're all swimming along, and then this big thing happens, and you all get eaten, and everyone gets scattered and turns against each other. They drop out and then the ones that remain learn to work together and overcome it. It totally reminds me of the whole thing." BC Emergency Department Nurse*

This is an interesting metaphor, and it is uncertain if this connection would have been made if the themes were presented in a different way, especially if there was no visual diagram to accompany the interview.

Extrapolating from this story as this participant did, this metaphor loosely resembles how the first two years of the Covid-19 pandemic went. Prior to the pandemic, healthcare providers were performing their work duties and responsibilities as normal. Then, something big comes along, the Covid-19 pandemic. Then, a lot of healthcare providers retire or leave their profession due to the pandemic, and everyone starts working in silos and against each other. After this, the healthcare providers who are left learn the importance of working together to get through the pandemic.

In this specific case, the fishbone diagram was a simple and a high-level representation of the different factors that they were being asked about. In addition, the semi-structured interviews provided more freedom to the participants to pick and choose what factors resonated with them the most and which ones they wanted to talk about first, second, and so on.

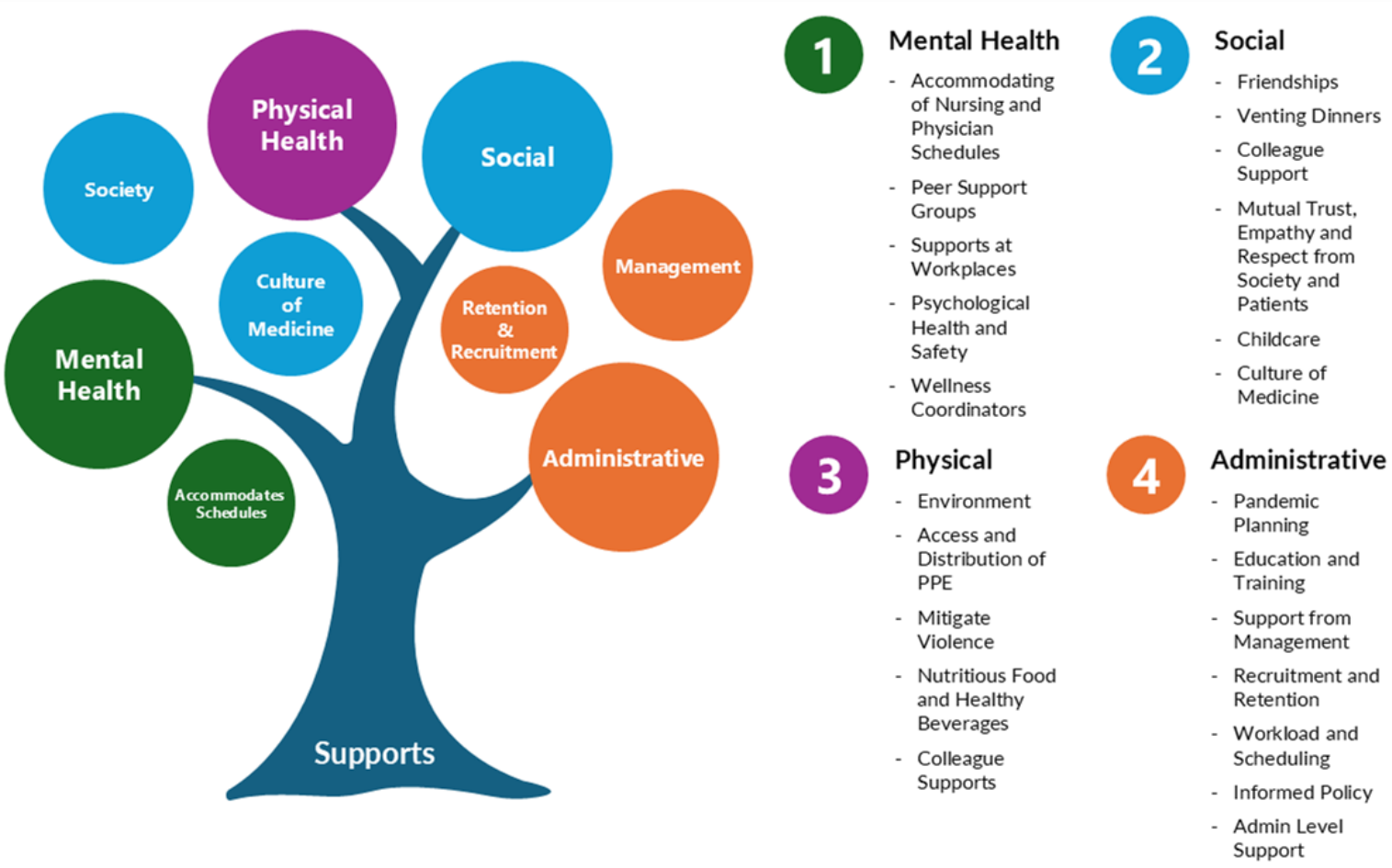
However, the simplicity of the fishbone diagram could have potentially limited the results in some areas. For example, the sub-themes within the major theme of communications and policy were often interpreted in an overlapping way by the participants, specifically with the concept of poor communication. Poor communication was interpreted in various ways by the participants and was often linked to the other sub-themes. For example, the conflicting and uncertain communication was considered to be an element of poor communication, as was frequent policy changes. This overlap of the sub-themes together suggests that the sub-themes could have been all combined into one category entitled *Poor Communication* instead of three.

Another limitation of the fishbone diagram was its inability to capture the full range of contributing factors. As identified in the interview findings, participants noted a substantial amount of new information that exceeded the fishbone diagram's original capacity.

5.4 New Conceptual Model

Based on the interview findings and analysis of the fishbone diagram, a new conceptual model was created on the next page to better reflect as much of the new information as possible and more accurately reflect the experiences of the interview participants. This new conceptual model shows supports being the base of a tree, with different branches of support for nurses and physicians.

Figure 5 – New Conceptual Tree Diagram



This conceptual model has four main branches of support identified for nurses and physicians:

1. Mental Health Supports (green)
2. Social Supports (blue)
3. Physical Supports (purple)
4. Administrative Supports (orange)

To illustrate different broader areas of support under the four branches, smaller circles are displayed that represent one item identified in the list on the right-hand side. The corresponding lists on the right-hand side of the diagram are examples of each branch of support (e.g. *workload and scheduling* under *administrative support)*. These examples were provided by the interview findings.

To summarize, the fishbone diagram was helpful in conducting interviews but was limiting in displaying a lot of information at once. This diagram also might have been limiting in its ability to support the suggested next steps and further research discussed in the following chapter,

particularly those related to researching and evaluating what supports are the most helpful in mitigating negative mental health outcomes. This new diagram and list of different categories of support is not an exhausting one, and can be used to support organizations and health authorities explore how to better support nurses and physicians.

5.5 Limitations of the Project

The study has several limitations to discuss, including the rapid literature review, recruitment methods, and generalizability. Generally, there is also potential for researcher bias, limited interpretation of the results, and there may be challenges with replicating the study.

Rapid Review

The rapid review was conducted as a point-in-time compilation of mental health research that included nurses and physician groups and was also conducted in Canada. These represent a two-year timeframe of specific Canadian peer-reviewed academic literature that existed, which only included nine articles. This signifies that there was not a lot of Canadian research completed in this field from 2020 to 2022. The inclusion of only nine articles is a limitation as it was restricted to a specific point-in-time reference and does not represent the body of research in this field that exists today. This also may mean that the fishbone diagram that was derived from findings from the nine articles is also limited and is likely to have yielded different results if the same review was conducted more recently.

Recruitment Methods

For the interview portion of the study, participants were recruited primarily using personal contacts. This recruitment method has limitations as it may be susceptible to selection bias, which may impact the representativeness of the sample and the results.

The inclusion criteria for the participant groups of nurses and physicians were broad and was not specific to a particular area of practice, such as the Intensive Care Unit or the Emergency Department. While this was selected to reduce the challenges of finding research participants, it is unknown if the results from the study can be generalizable to the participant groups broadly, nor if it also applies to each area of practice.

Results may also vary between different areas, and the target participant groups did not include other healthcare providers, such as respiratory and occupational therapists, pharmacists, social workers, midwives, and various other healthcare providers. Finally, the study did not focus on private versus public settings where healthcare is being delivered. While healthcare in Canada is largely public, there are some privately funded and private settings that exist. These can include healthcare providers in areas such as dental care, physiotherapy, diagnostics, family medicine clinics, sexual health clinics, other private clinics, other allied health, among other examples.

Generalizability

The sample size for the interview portion of the study was eight participants, which limits the ability to obtain data saturation and requires duplication to determine if the results would be the same. It also means that the results form the interview portion cannot be generalizable to either the nursing or physician group populations.

Chapter 6: Next Steps and Reflection

This project sought to increase understanding of what factors influenced the mental health of Canadian nurses and physicians during the Covid-19 pandemic. The findings and analysis suggest that increased and intensified workload, staffing shortages, and a lack of social and administrative supports were the biggest factors in the mental health of the eight participants interviewed. This section will synthesize the study findings into suggested next steps for healthcare organizations and governments to consider in their efforts to improve the healthcare workforce.

Healthcare organizations and governments are selected as the target audience for the next steps as these organizations engage nurses and physicians to provide healthcare services.

6.1 Next Steps

The following next steps are suggested to health organizations and governments who engage nurses and physicians to provide healthcare services in Canada:

1. Evaluate existing internal and external support systems in place and explore new ones to implement based on the evaluation;
2. Establish a funding program to develop research projects and programs that address the most effective supports for nurses and physicians;
3. Critically examine the culture that exists within healthcare organizations for nurses, physicians, and resident physicians to raise awareness about potential risks and improvements to the system.
4. Review pandemic plans and incorporate key learnings and insights from the perspective of nurses and physicians.

1. Evaluate existing internal and external support systems in place and explore new ones to implement based on the evaluation.

All participants indicated that a lack of social and administrative supports had an influence on their mental health. Advantages to doing an evaluation include understanding current strengths of available resources, understanding the gaps that exist, evaluating the effectiveness of supports, and identifying opportunities for strategic investment in support systems.

2. Establish a funding program to develop research projects and programs that address the most effective supports for nurses and physicians.

Additional research in this field is required to better understand what supports are the most effective for mitigating negative mental health outcomes for nurses and physicians in Canada. Requirements to implement this include exploring partnerships with universities, the Canadian

Institute of Health Research, and the Strategy for Patient-Oriented Research to identify effective interventions and translate this research into practice.

3. Critically examine the culture that exists within healthcare organizations for nurses, physicians, and resident physicians to raise awareness about potential risks and improvements to the system.

Participants in this study identified that several challenges exist within the culture of:

- Physicians;
- Nurses;
- Resident Physicians;
- Nurses and Management;
- Nurses and Physicians; and
- Physicians, Nurses, and Administration;

This project suggests that the organizational culture that exists within healthcare requires additional research, awareness, and identifying mitigations to improve the culture overall. If this were to be implemented, it is important that nurses and physicians are immensely engaged in the process and that their recommendations are thoroughly understood, considered, and integrated.

Research of this kind has a variety of topics and ways it can be approached. For example, resident physicians in this study identified that their residency had long working hours, poor working conditions, low levels of compensation, and a culture of self-sacrifice/being a martyr. Nursing participants identified that the lack of support from management and the poor communication from management, healthcare administration, and government negatively impacted their mental health.

It is worthwhile to study healthcare organizational culture and strategically implement improvements with the goals of enhancing collaboration, staff satisfaction, and delivering excellent and safe patient care.

4. Review pandemic plans and incorporate key learnings and insights from the perspective of nurses and physicians.

Some participants in the project identified areas of improvement for the pandemic plans that were implemented throughout the Covid-19 pandemic. Participants referred to a lack of input from their perspective being incorporated, communication challenges around the constant changes about the plan or policies to follow, conflicting and uncertain communication, and that there was no coherent plan that was followed by everyone.

Advancing this would include the review and development of pandemic plans that incorporates input from nurses and physicians. It is recommended that organizations conduct these reviews with participation of nurses and physicians that meets or exceeds the equivalent to the ‘involve’ level in the IAP2 Public Participation Spectrum (International Association for Public

Participation, 2024). The ‘involve’ level includes working directly with nurses and physicians throughout the process to ensure that their concerns and aspirations are consistently understood and considered.

6.2 Future Research

The suggested next steps above were targeted towards healthcare organizations and governments. Academic health research also plays an essential role by studying the workforce culture for nurses and physicians.

Some examples where health research would be beneficial is studying the effectiveness of different staffing and funding models, how to improve collaboration and communication, addressing mental health outcomes for nurses and physicians, how to improve trust and empathy between patients and healthcare providers, and what recruitment and retention strategies are the most effective. Additional academic research conducted in these areas can provide valuable insights for consideration by healthcare organizations and governments.

6.3 Reflection

If I had the opportunity to do the project again, there are key learnings from this project that I would incorporate. Starting with the rapid review, I would investigate widening the scope of the inclusion criteria to include previous epidemics and pandemics in Canada to obtain a more holistic view of how previous epidemics and pandemics impacted the mental health of nurses and physicians. This approach would likely generate more articles for inclusion and increase the findings available to refine the fishbone diagram.

Next, I would explore using the fishbone diagram as a pilot-test phase with participants to first determine what factors were the most impactful on their mental health. After this information is collected, I would propose designing a survey based on this information that would be sent to a wide range of nurses and physicians in Canada. Adding the survey component would likely encourage more engagement from nurses and physicians, gather additional information about their demographics and areas of work, and allow for the inclusion of quantitative methods to analyze the survey data. I would propose having the last survey question as “Are you interested in participating in an interview?” and if yes was selected, participants would then provide their contact information.

Finally, for the interview portion, I would propose using a semi-structured interview style with prepared prompts, with approximately 10-12 open-ended questions. The interview portion would continue completing interviews until data saturation was reached.

While this project was narrower in scope and explored potential factors that impacted the mental health of Canadian nurses and physicians during the Covid-19 pandemic, the findings, although are not generalizable, provide rich context, valuable insights, and suggested next steps for future research and interventions.

6.4 Conclusion

The Covid-19 pandemic significantly impacted the healthcare workforce and placed additional strain on Canada's healthcare system. Even though the World Health Organization officially declared an end to the pandemic in May 2023, Canada continues to face challenges in 2025 and healthcare organizations, governments, and academic institutions across the country are looking to address critical healthcare issues such as workforce shortages.

This project explored and analyzed potential factors that impacted the mental health of Canadian nurses and physicians during the Covid-19 pandemic. To explore this topic, this project used a sequential mixed-methods design that relied on two different and complementary data collection strategies, including a rapid review and semi-structured interviews. Both the rapid review and interview findings were integrated and analyzed to provide an understanding of the impacts of the Covid-19 pandemic on physicians and nurses' mental health.

The interview portion of the study found consensus among participants that staffing shortages, increased and intensified workload, and the lack of social and administrative supports were factors that impacted their mental health during the Covid-19 pandemic. The nursing participants found consensus in the subthemes of insufficient personal protective equipment supply and access, conflicting and uncertain communication, poor communication, and frequent policy changes and overload of information.

The findings from the study and the new tree diagram provide guidance on suggested next steps for healthcare organizations, governments, and academic institutions to review and explore how to strengthen Canada's healthcare workforce.

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Appendices

Appendix A: Recruitment Email/Letter

University of Victoria

Recruitment Email/Letter

From: hope.mcdonald@ualberta.ca

To: [Target audience]

Subject: Invitation to participate in research studying the mental health impacts of COVID-19 on nurses and physicians in Canada.

Attachment: Consent Form.pdf

Dear invitee,

My name is Hope McDonald, and I am a master's student at the University of Victoria's Public Administration Program. I am kindly requesting your participation in a master's research study that I am conducting titled: Unravelling the impacts of the COVID-19 pandemic on mental health among nurses and physicians in Canada. My supervisor is Dr. Astrid Brousselle and can be reached at astrid@uvic.ca.

Research of this type is important because nurses and physicians are a critical workforce within the healthcare system in Canada. This research aims to provide recommendations to Canadian health organizations to mitigate the risks of short-term and long-term adverse mental health outcomes on nurses and physicians.

The study involves providing feedback on a fishbone analytical diagram through a short, 30-minute semi-structured interview with five questions.

Participation is completely voluntary, and you may withdraw from the study at any time. The study is completely anonymous, it does not require you to provide your name or any other identifying information. The only information that is required is your profession as a nurse or physician and the province or territory you actively work in.

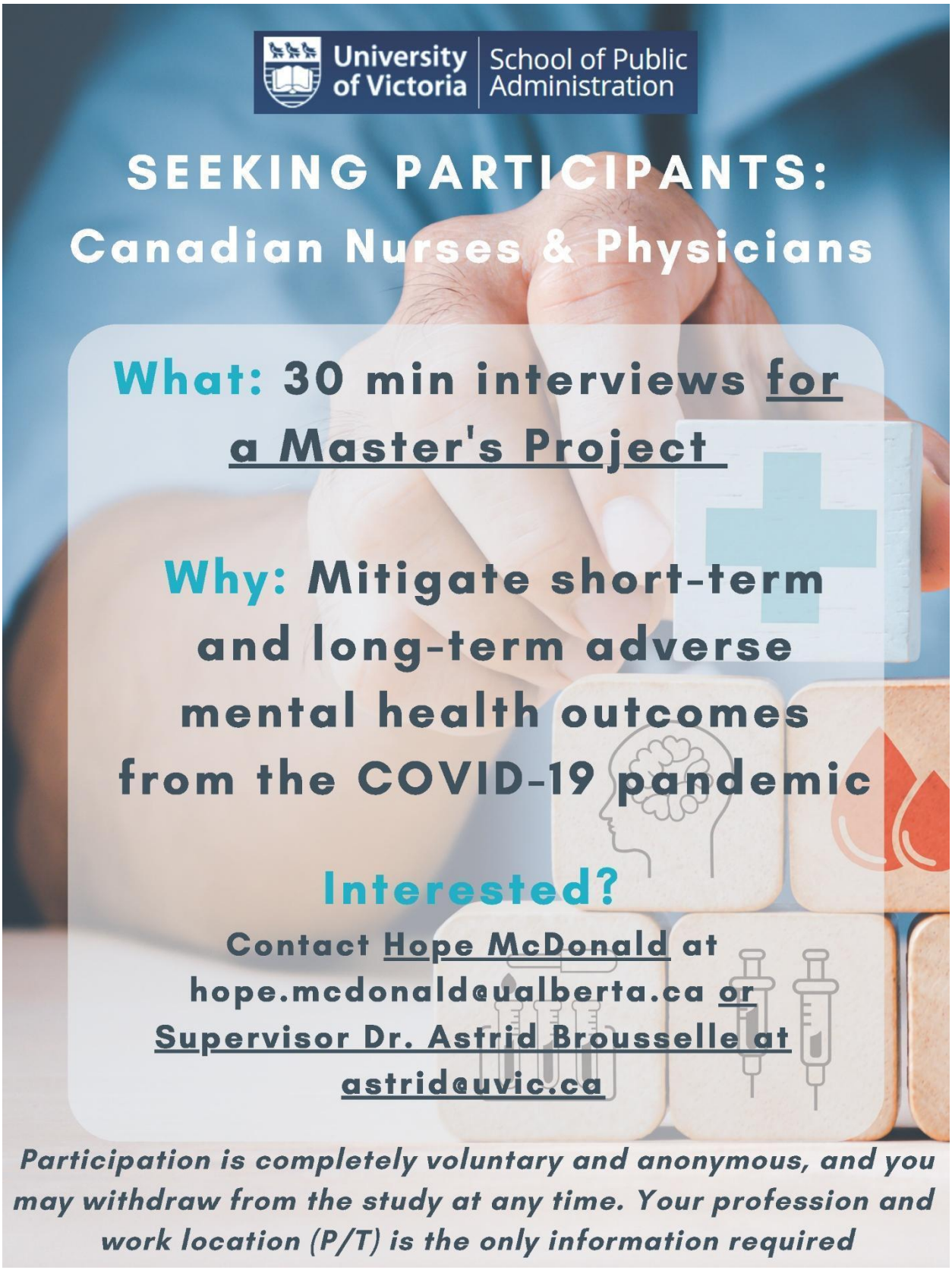
If you are interested in participating, please read the consent form and interview questions attached and reach out to me at hope.mcdonald@ualberta.ca to schedule an interview or ask questions.

Thank you for your consideration to participate.

Sincerely,

Hope McDonald, BA, MPA Student, University of Victoria

Appendix B: Recruitment Poster



Appendix C: Participant Consent Form

University of Victoria

Participant Consent Form

Unravelling the impacts of the COVID-19 pandemic
on mental health among nurses and physicians in Canada

You are invited to participate in a study that is being conducted by Hope McDonald.

Hope McDonald is a graduate student in the department of Public Administration at the University of Victoria, and you may contact her if you have further questions by email at hope.mcdonald@ualberta.ca.

As a graduate student, I am required to conduct research as part of the requirements for a Master of Public Administration degree. It is being conducted under the supervision of Dr. Astrid Brousselle. You may contact my supervisor at 250-721-8084.

Purpose and Objectives
The purpose of this research project is to identify and analyze the specific mental health impacts of the COVID-19 pandemic on nurses and physicians in Canada. This research aims to inform the development of strategies, services, and programs to reduce adverse mental health outcomes in this critical population.

Importance of this Research
Research of this type is important because nurses and physicians are a critical workforce within the healthcare system in Canada. This research aims to provide recommendations to Canadian health organizations to mitigate the risks of short-term and long-term adverse mental health outcomes on nurses and physicians.

Participants Selection
You are being asked to participate in this study because you are a Canadian nurse or physician actively working in a clinical setting delivering direct patient care during the COVID-19 pandemic.

What is involved
If you consent to voluntarily participate in this research, your participation will include one short, 30-minute interview conducted through zoom, phone call, or in-person if applicable. During the interview, you will be reviewing a fishbone diagram that describes various factors that has contributed to poor mental health outcomes amongst nurses and physicians. Participants are asked to review this diagram and provide their input on it from their experience.

Audiotapes and written notes will be taken during the interview and a transcription will be made.

Inconvenience
Participation in this study may cause some inconvenience to you, including the total time devoted to this research.

Risks
There are some potential risks to you by participating in this research and they include psychological or emotional discomfort due to the topic of the study. To prevent or to deal with these risks, the researcher will inform participants that they can skip questions they are uncomfortable with or take a short break from the interview. The researcher will ask the participant how they can support them, including providing a list of community resources of support.

Benefits
The potential benefits of your participation in this research include providing insight into the specific mental health impacts faced during the COVID-19 pandemic to inform the development of strategies, services, and programs aiming to reduce adverse mental health outcomes in nurses and physicians. Finally, the benefits of this research is to provide recommendations to Canadian health organizations to mitigate these risks in the short and long term to protect this critical workforce.

Voluntary Participation
Your participation in this research must be completely voluntary. If you do decide to participate, you may withdraw at any time without any consequences or any explanation. If you do withdraw from the study your data will be deleted and not used in any way.

Anonymity
In terms of protecting your anonymity, your name, contact information, gender, and workplace name will be kept out of the study. Your position as a nurse or physician and the province or territory name of where you work will only be used in the study.

Confidentiality
Your confidentiality and the confidentiality of the data will be protected by a secure folder on the researcher's computer at their private residence and will have a secure, strong password to gain access to data. No names will be used in the transcription or project report and pronouns will be changed to they/their/them.

Dissemination of Results
It is anticipated that the results of this study will be shared with participants directly via email. These results will also be shared at the defense presentation at the University of Victoria and published on their graduate thesis/project website.

Disposal of Data
Data from this study will be destroyed after the study is published on the University of Victoria's website. All electronic data will be erased and all email communications will be deleted from the sent, inbox, and deleted folders of the researcher.

Contacts
Individuals that may be contacted regarding this study include Hope McDonald (hope.mcdonald@ualberta.ca) or Dr. Astrid Brousselle (250-721-8084).

In addition, you may verify the ethical approval of this study, or raise any concerns you might have, by contacting the Human Research Ethics Office at the University of Victoria (250-472-4545 or ethics@uvic.ca).

Your signature below indicates that you understand the above conditions of participation in this study, that you have had the opportunity to have your questions answered by the researchers, and that you consent to participate in this research project.

_____	_____	_____
Name of Participant	*Signature*	*Date*

A copy of this consent will be left with you, and a copy will be taken by the researcher.

Appendix D: Interview Questions

University of Victoria

Interview Questions

Unraveling the impacts of the COVID-19 pandemic
on mental health among nurses and physicians in Canada

Participants will be first introduced to the research, followed by a brief review of consent, confidentiality, and anonymity, and finally, shown a fishbone diagram that displays the top factors that contributed to poor mental health outcomes amongst nurses and physicians actively practicing in clinical areas in direct contact with patients. Participants will be asked no more than 5 main questions regarding their feedback on the diagram.

The interview is 30 minutes in duration and follows a semi-structured format.

Can you please briefly introduce yourself (Province/Territory, Nurse/MD) and describe in general terms what was your context of practice during the years 2020-2022.

1. **What contributing factor(s) explaining the impact of Covid-19 on professionals' mental health most resonates with you from this diagram and why?**

2. **Considering the impact of Covid-19 on professionals' mental health, what other contributing factors or information would you add to this diagram?**

3. **Are there factors external to covid-19 that played a role on professionals' mental health during the covid crisis? Consider factors that might have worsened the impact of covid on mental health or, on the contrary, factors that were protective.**

4. **What would you like to change in this diagram to better represent your own experience or the experience of your co-workers regarding the impact of COVID 19 on their mental health? Can you give an example?**

5. **Is there anything else you would like to share on this topic?**

Appendix E: Mental Health Community Resources

University of Victoria

Mental Health Community Resources

If you or someone you know is in immediate crisis or has suicide-related concerns, call or text the Canada Suicide Prevention Helpline.
1-833-456-4566 (24/7)
1-866-277-3553 in Quebec (24/7)
Text to 45645 (4 p.m. – Midnight ET). Text messaging rates apply. French text support is currently unavailable.

Kids Help Phone can also support you.
Call 1-800-668-6868 (24/7)
Text CONNECT to 686868.
Live Chat (7 p.m. to midnight ET)

Are you looking for mental health services?
Your healthcare professional is a good place to start.
CMHA in your own community may also be able to direct you to mental health services. Please **contact your local CMHA**.
CMHA offers BounceBack, free mental health coaching on the telephone for adults and youth 15+ who are experiencing low mood, mild-to-moderate depression and anxiety, stress or worry.
Visit **www.cmha.ca/bounceback**.
The Government of Canada offers free counselling, online courses, self-guided programs and peer support groups through the **Wellness Together** portal.

Canadian Mental Health Association Division Contacts:
Alberta Division

- 9707 110 Street Northwest Edmonton, T5K 2L9 Alberta, Canada
- **Phone**: 780-482-6576
- **Fax**: 780-482-6348
- **Url**: **https://alberta.cmha.ca/**
- **Email**: **alberta@cmha.ab.ca**

British Columbia Division

- 1130 West Pender Street - Suite 905 Vancouver, V6E 4A4 British Columbia, Canada
- **Phone:** 604-688-3234
- **Fax:** 604-688-3236
- **Url: https://cmha.bc.ca/**
- **Email: info@cmha.bc.ca**

BC Division, Victoria Office

- 612 View St #101 Victoria, V8W 1J5 British Columbia, Canada
- **Phone:** 250-216-4228
- **Url:** **https://cmha.bc.ca/**
- **Email:** **victoria.branch@cmha.bc.ca**

Division du Québec

- **55 Avenue du Mont-Royal Ouest, bureau 603 Montréal, H2T 2S6 Quebec, Canada**
- **Phone:** 514-521-4993
- **Fax:** 514-521-3270
- **Url:** **http://www.acsm.qc.ca**
- **Email:** **info@acsm.qc.ca**

Manitoba and Winnipeg

- 930 Portage Avenue Winnipeg, R3G 0P8 Manitoba, Canada
- **Phone**: 204-982-6100
- **Fax**: 204-982-6128
- **Url**: **http://mbwpg.cmha.ca**
- **Email**: office@cmhawpg.mb.ca

Newfoundland and Labrador Division

- 603 Topsail RoadSt. John's, A1E 2E1 Newfoundland and Labrador, Canada
- **Phone**: (709) 753-8550
- **Fax**: 709-753-8537
- **Url**: **https://cmhanl.ca/**
- **Email**: **office@cmhanl.ca**

Nova Scotia Division

- 3-644 Portland Street, Suite 201 Dartmouth, B2W 6C4 Nova Scotia, Canada
- **Phone:** 1-877-466-6606 ext.01
- **Fax:** 902.466.3300
- **Url:** **https://novascotia.cmha.ca/**
- **Email:** **interim-ed@novascotia.cmha.ca**

Ontario Division

- 180 Dundas Street West, Suite 2301 Toronto, M5G 1Z8 Ontario, Canada
- **Phone:** 416-977-5580
- **Fax:** 416-977-2813
- **Url:** **http://www.ontario.cmha.ca/**
- **Email:** **info@ontario.cmha.ca**

Prince Edward Island Division

- 178 Fitzroy Street, P.O. Box 785 Charlottetown, C1A 7L9 Prince Edward Island, Canada
- **Phone:** 902-566-3034
- **Fax:** 902-566-4643
- **Url:** **https://pei.cmha.ca/**
- **Email:** **division@cmha.pe.ca**

Saskatchewan Division

- 2702 12 Avenue Regina, S4T 1J2 Saskatchewan, Canada
- **Phone**: 306-525-5601
- **Fax**: 306-569-3788
- **Url**: **https://sk.cmha.ca/**
- **Email**: contactus@cmhask.com

Yukon Division

- 415 Baxter Street Whitehorse, Y1A 2T6 Yukon, Canada
- **Phone**: (867) 668-6429
- **Url**: **https://yukon.cmha.ca**
- **Email**: **admin@yukon.cmha.ca**

Appendix F: Certificate of Approval from the University of Victoria's Human Research Ethics Board

University of Victoria

Office of Research Services | Human Research Ethics Board
Michael Williams Building Rm B202 PO Box 1700 STN CSC Victoria BC V8W 2Y2 Canada
T 250-472-4545 | F 250-721-8960 | uvic.ca/research | ethics@uvic.ca

Certificate of Approval - Annual Renewal

PRINCIPAL INVESTIGATOR:	**Astrid Brousselle** (Supervisor)	**ETHICS PROTOCOL NUMBER:** Expedited review - delegated	**22-0092**
PRINCIPAL APPLICANT:	**Hope McDonald** **Master's student**	ORIGINAL APPROVAL DATE:	03-Jun-2022
UVIC DEPARTMENT:	**Public Administration PADM**	APPROVED ON:	28-Apr-2025
		APPROVAL EXPIRY DATE:	02-Jun-2026

PROJECT TITLE: **Unravelling the impacts of the COVID-19 pandemic on mental health among nurses and physicians in Canada**

RESEARCH TEAM MEMBERS:
Jae-Yung Kwon - Supervisory Committee Member, University of Victoria

DECLARED PROJECT FUNDING: **None**

DOCUMENTS INCLUDED IN THIS APPROVAL:
tcps2-eptc2-certificate.pdf - 07-Mar-2022
Consent Form.pdf - 29-Mar-2022
Interview Questions.pdf - 29-Mar-2022
Fishbone Diagram.pdf - 16-May-2022
Mental Health Community Resources.pdf - 16-May-2022
Recruitment Email and Letter.pdf - 02-Jun-2022
Recruitment Poster (Social Media, Email Attachment).pdf - 02-Jun-2022

Conditions of approval

This Certificate of Approval is valid for the above term provided there is no change in the protocol.

Amendments
To make changes to the approved research procedure in your study, please submit "Amendments" or "Annual renewal with amendments" form. You must receive research ethics approval before proceeding with your amended protocol.

Renewals
Your ethics approval must be current for the period during which you are recruiting participants or collecting data. To renew your protocol, please submit a "Request for Renewal" form before the expiry date on your certificate. You will be sent an emailed reminder prompting you to renew your protocol about six weeks before your expiry date.

Project Closures
When you have completed all data collection activities and will have no further contact with participants, please notify the Human Research Ethics Board by submitting a "Notice of Project Completion" form.

Certification

This certifies that the UVic Human Research Ethics Board has examined this research protocol and concluded that, in all respects, the proposed research meets the appropriate standards of ethics as outlined by the University of Victoria's policies for research involving human participants.

Dr. Sandra Gibbons
Chair, Human Research Ethics Board

Dr. Cindy Holder
Vice-chair, Human Research Ethics Board

Certificate Issued On: 28-Apr-2025