The impacts of COVID-19 on Yukon's frontline healthcare workers

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Across Canada, and the world, frontline health care (HC) workers have faced adversity and challenges in delivering quality services during the COVID-19 pandemic. In northern, rural, and remote areas of Canada, these challenges have been amplified due to limited financial and human resources. The demand for services with an increase in cases/waves of COVID-19 has pushed a struggling system to the brink. The purpose of this study was to determine how COVID-19 has contributed to frontline HC worker burnout in the Yukon. A total of 141 regulated HC workers (physicians and nurses) completed the Copenhagen Burnout Inventory, formatted as an online survey, to measure workplace exhaustion across three categories: personal, work- and client-related. Data was analysed by gender, work location and profession. In relation to personal burnout, over half of the respondents in this study reported feeling tired, worn out, physically and emotionally exhausted. Approximately two-thirds of respondents experienced work-related burnout of emotional exhaustion and feeling worn-out at the end of the workday. In contrast, when surveyed about client-related burnout, respondents were less likely to report being tired of working with clients or finding it hard or frustrating to work with clients. The HC workforce is the foundation of a safe and effective HC system. These findings can inform decision-makers and employers on the need to mitigate workplace stress. Supporting HC workers is necessary for maintaining the quality of current and future health service delivery in the Yukon. Without them there is no system to deliver care.

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Background/Literature review

The COVID-19 pandemic has placed a significant burden on the global health care system and the health care (HC) workers within this system. Several studies across the globe have looked at the impacts of the pandemic, but there is a dearth of literature on the specific impacts in northern, remote, and rural settings. The Yukon sits in the northwest of Canada, above the 60th parallel, with a geographic expanse approximately the size of Spain and a population of only 44, 535, of which approximately 25% are Indigenous (Yukon Bureau of Statistics, 2022; Yukon Government, 2023). Much of the population lives in Whitehorse, the capital city (35,196) (Yukon Bureau of Statistics, 2022). The three largest communities outside Whitehorse include Dawson City (2363), Watson Lake (1496), and Haines Junction (1035) (Yukon Bureau of Statistics, 2022). There is one hospital in Whitehorse with 55 beds, and two rural hospitals located in Dawson City and Watson Lake with six beds each. A small intensive care unit with four beds is located in Whitehorse General Hospital; however, patients requiring more advanced intensive care or specialized treatment are transferred to Vancouver. The Yukon has four long-term care (LTC) homes; three in Whitehorse and one in Dawson city. Lastly there are nine community health centers that are often staffed with 1-2 nurses at a time, servicing fewer than 1000 clients.

Impact of COVID-19 on health care workers

COVID-19 has impacted the mental health of HC workers worldwide, with reports from around the globe highlighting high levels of anxiety, depression, post-traumatic stress disorder (PTSD), burnout, stress, moral distress, and sleep disturbances/insomnia. Some studies have reported more than 50% of HC workers experiencing burnout during the pandemic (Khasne et al., 2020; Roslan et al., 2021). The World Health Organization (WHO) defines burnout as a syndrome resulting from "chronic workplace stress that has not been successfully managed" (WHO, 2019, para. 4). WHO characterizes burnout as having three components: 1) feelings of energy depletion or complete exhaustion, 2) increased mental distance from one's job, or feelings of negativism or cynicism related to one's job, and 3) reduced professional efficacy (WHO, 2019).

A study of physicians, nurses, and technicians in Vietnam found the levels of anxiety to be 26.84%, depression to be 34.7%, insomnia to be 43.53%, and overall psychological problems at 46.48% (Tuan et al., 2021). Another study found high levels of depression (69%), anxiety (58.9%), stress (55.9%), and inadequate sleep (37.3%) in frontline HC workers (Arafa et al., 2021). Perceived stress (79.3% of HC workers) and insomnia related to COVID-19 was found among HC workers in India (Chatterjee et al., 2021). A study of 189 primary HC providers (physicians and nurses) working in COVID-19 medical wards in Israel reported higher prevalence of sleep issues compared to non-COVID-19 HC workers. Witnessing negative patient experiences such as patient suffering and death partially explained these findings (Cleper et al., 2022).

A cross-sectional study in Columbia during the second wave of COVID-19 revealed the prevalence of mental health symptoms in a sample of 257 HC workers (44.36% nurses, 36.58% physicians, and 19.07% other health care providers (OHP))(Guillen-Burgos et al., 2022). PTSD was reported in 16.67% of nurses, 21.28% of physicians, and 18.37% for OHPs. Prevalence of anxiety symptoms in nurses, physicians, and OHPs ranged from 40.35% to 48.98%; and levels of reported depressive symptoms in nurses, physicians, and other HC providers ranged from 22.45% to 31.91% (Guillen-Burgos et al., 2022). Another study analyzed the prevalence of anxiety, depression, burnout, and

post-traumatic symptoms in four groups of COVID-19 emergency unit HC workers in Italy (Gorini et al., 2022). Physicians showed post-traumatic symptoms which were significantly higher than nurses, other HC workers and administrative employees. The primary determinant of psychological distress was perceived stress, followed by job satisfaction, impact of COVID on work-life and a lack of recreational activities (Gorini et al., 2022).

In Canada, COVID-19-related mental health challenges are also prevalent in HC workers. A survey of critical care nurses in British Columbia found that symptoms of PTSD, as well as mild to severe depression, anxiety, and stress were highly prevalent (Crowe et al., 2021). Interviews of nurses highlighted psychological distress as anxiety, worry, distress, and fear related to 1) meeting patients' needs while working to protect themselves and others, 2) keeping up with an overwhelming volume of unclear communication, 3) rapidly changing policies and information regarding COVID-19 knowledge, and 4) balancing aspects of their personal lives (Crowe et al., 2021). A large study in Ontario highlighted high levels of burnout amongst physicians, residents, and medical students (Gajjar et al., 2022). In March 2020, they surveyed 1400 physicians, medical residents, and students, with 28% reporting high burnout levels. The survey was repeated one year later, with 2368 respondents. Gajjar at el. (2022) found that 34.7% reported high levels of burnout, an increase of more than 6%. The main contributors to burnout included 'patient expectations/patient accountability', 'reporting and administrative obligations', and 'practice environment.' (Gajjar et al., 2022).

Another study investigating the impact of morally distressing experiences on HC workers across Canada (792 HC workers, 42.8% nurses) found that moral distress positively predicted symptoms of burnout, anxiety, depression, and PTSD in healthcare workers (Plouffe et al., 2021). Watching patients suffer due to a lack of provider continuity was in the top three most frequently experienced morally distressing events. Nearly 50% of HC workers who experienced a morally distressing event ranked the requirement to care for more patients than they could safely care for as being the highest source of distress (Plouffe et al., 2021).

Health care challenges in northern, rural, and remote areas

Meeting the health care needs of patients in rural, remote, and northern communities is further challenged by a health care crisis, such as COVID-19. Although there is limited research regarding the impacts of COVID-19 on northern, rural HC workers, it is reasonable to suggest that mental and physical health impacts reported across the world also exist for northern HC workers.

For many people living in remote northern communities, healthcare can be inaccessible, unavailable, and unaffordable, (Fuchsia Howard et al., 2014; Kue Young et al., 2018; Michiel Oosterveer & Kue Young, 2015; Nair et al., 2016). The challenges of delivering accessible health services include geography, human resources, as well as systemic factors, such as delivery of services that respect culture and language (Huot et al., 2019).

Lack of proper medical equipment and/or sufficiently trained community HC professionals often means individuals living in rural and northern communities cannot access appropriate care (Fuchsia Howard et al., 2014; Michiel Oosterveer & Kue Young, 2015). From the providers perspective this typically means broadening their scope of practice or being assigned tasks beyond their scope which can be challenging (Hansen et al., 2021; Kue Young et al., 2019). In places like northern Canada,

Finland, Norway, and Sweden, geographical distance is an additional barrier to accessing care including emergency services and specialized treatments (Kue Young et al., 2019; Michiel Oosterveer & Kue Young, 2015; Vuori et al., 2010). Communities situated far from urban health centers rely on medevac transport to access advanced care (Gunnarsson et al., 2015; Kue Young et al., 2019; Michiel Oosterveer & Kue Young, 2015). Weather conditions in remote communities in the Northwest Territories (NWT) present unique barriers to accessing care, which may cause significant delays for emergency medical air services (Michiel Oosterveer & Kue Young, 2015). Traveling long distances to access appropriate health services can take multiple days, incurring a financial and/or psychosocial burden for patients and families. One study investigating the barriers to accessing medical and supportive services for cancer survivors in rural British Columbia, found that transportation fees, taking time off work and the impact of traveling with family, specifically young children, contributed to "cost" of travel as described by patients (Fuchsia Howard et al., 2014). Transportation costs also place a significant financial burden on northern health systems. For example, medical travel data from 2011-2016 demonstrated that NWT and Nunavut, spent an annual average of $9.5 and $24.8 million dollars, on medivacs, respectively (Kue Young et al., 2019). In the Yukon, during the fiscal year of 2022-2023, 2900 people travelled outside the territory for medical reasons, 300 of which were medevac air transports (Prokop, 2023).

In addition to challenges related to geography and capacity, worker specific challenges exist in the north. Understaffing, difficulty recruiting HC professionals, low retention, and a high turnover/lack of continuity with health staff are persistent challenges (Kue Young et al., 2018; Michiel Oosterveer & Kue Young, 2015; Nair et al., 2016; Niclasen & Mulvad, 2010). A comparison of the density of HC professionals in circumpolar regions found that northern Canada (Nunavut, NWT and Yukon) have a lower density of physicians than the rest of the country, speaking to the staffing challenges faced in the north (Kue Young et al., 2018). Although the Canadian north was found to have a higher density of nurses than the rest of the country, this was explained by a health system that relies heavily on nurses working with an expanded scope of practice. (Kue Young et al., 2018).

Communication barriers can also present challenges in northern health care contexts. For example, linguistic and cultural differences between non-Indigenous health service providers and Indigenous service users were recognized as barriers to service delivery in NWT (Michiel Oosterveer & Kue Young, 2015). Similarly, in Norway communication barriers between Sami speaking patients and English-speaking care providers have led to patients' dissatisfaction with care (Nystad et al., 2008). In the Yukon, individuals who speak English as a second language experience difficulty receiving health and social services provided in English, leading to misunderstandings and suboptimal care (Department of Health and Social Services, [HSS], 2019). People in the territory also reported that rural primary care providers are not always prepared to live in a remote community or trained to provide trauma informed care for First Nations patients (Department of HSS, 2019).

One study found that the lack of culturally safe care for Indigenous patients was one of several factors that contributed to burnout in physicians practicing in the three Canadian territories (Hansen et al., 2021). The study surveyed 57 physicians in the territories, prior to COVID-19, with 39% reporting signs of burnout (Hansen et al., 2021). Other contributing factors included discontinuity of care (due to understaffing, high turnover and reliance on locum providers),

physicians' perceived lack of influence on health policies, lack of support programs and being assigned administrative tasks outside their scope (Hansen et al., 2021).

Recent reports show that 35% of nurses feel the pandemic has made them more likely to leave the profession within the next two years (British Columbia Nurse's Union [BCNU], 2021). Additionally, 51% of ICU and emergency nurses reported that they wanted to leave the profession within the same time frame (BCNU, 2021). Similar reports in Ontario found that 32% of nurses, plan to either retire from nursing within the next two years or leave nursing for a different profession (Registered Nurses Association of Ontario [RNAO], 2021). In light of these findings, there is cause for concern that frontline HC workers in the Yukon, specifically nurses, may follow a similar trend. Seeing as the Yukon's healthcare system is reliant on nurses, especially in those who work in rural communities, this is problematic as it could exacerbate a pre-existing staffing crisis, compromise patient care, and increase the workload for remaining staff.

The concern of further losses in the healthcare workforce is one that will have immediate and long-lasting effects in northern and rural regions. As there is a scarcity of knowledge regarding the impacts of COVID-19 on healthcare workers in circumpolar regions, there is an urgent need for research within this demographic context. The purpose of this study was to assess COVID-19-related burnout among Yukon's frontline HC workers.

Methods

Setting/population

This study took place in the Yukon, Canada, utilizing the Copenhagen Burnout Inventory (CBI) to assess the current state of burnout in physicians, physician specialists or surgeons; and nurses (registered nurses (RNs), nurse practitioners (NPs), licensed practical nurses (LPNs)). The selection criteria included any staff in the above categories that practiced during the COVID-19 pandemic (January 2020-December 2022). As reported by the Yukon Government's Department of Community Services, there are a total of 226 LPNs, 697 RN/NPs, 215 family physicians, and 131 specialists licensed in the territory as of 2022-2023. Care aides and other allied health professionals were excluded from this study. We recognize and value the perspectives of these individuals as they played a vital role in the territory's pandemic response. However, time constraints and the recruitment plan limited the study's scope to nurses and physicians – many of whom are members of professional organizations allowing for ease of recruitment. Notably, nurses and physicians work across a wide spectrum of care settings, ensuring that the study encapsulates the state of burnout among frontline HC workers

An advisory committee comprised of two People with Lived Experience (PWLE) and one representative from each of the following professional organizations—the Yukon Medical Association (YMA), Yukon Registered Nurses Association (YRNA), and the Yukon Licensed Practical Nurses Association (YLPNA)—was formed to support the research. The term PWLE is commonly used by the Canadian Institute of Health Research (CIHR) to describe individuals with personal knowledge gained through direct first-hand experience (Strategy for Patient-Oriented Research, n.d.). In the present study, our two PWLE have firsthand knowledge of the territory's health system from the perspective of someone who has experienced significant health care services.

Recruitment and data collection

This study received ethics approval from the Yukon University Research Ethics Board in August 2022. Consent was implied through completion of the survey. The anonymity of participants was assured as no identifying data was collected. The study comprises two phases: completion of the CBI via Survey Monkey, and an in-depth oral interview. This paper will discuss the results of the CBI only.

Recruitment occurred primarily in October and November 2022 and was facilitated through partnerships with the YMA, YRNA, YLPNA, and through the two primary employers: Yukon Government's Health and Social Service Department, and the Yukon Hospital Corporation (YHC). Organizations recruited via email to their membership, posting recruitment information on their social media platforms, and via announcements at membership meetings. The email included an invitation outlining the study aims, researcher contacts, and a live link to the CBI survey.

The CBI was developed as an alternative to the Maslach Burnout Inventory (MBI), a so-called gold standard of burnout measures, that defines burnout as a syndrome of emotional exhaustion, depersonalization, and reduced personal accomplishment that can occur among those who do 'people work'(Maslach & Jackson, 1981). While the fatigue or exhaustion component is retained, the CBI has three subscales; personal, work-related, and client-related burnout (Kristensen et al., 2005). Unlike the MBI, the conceptualization of burnout using these subscales reinforces the idea that working with clients may not be the only source of burnout.

This study utilized the CBI survey, a standardized, validated questionnaire that has been used to measure burnout in HC workers across the world, in part due to its reliability as an assessment tool (Chor et al., 2021; Ferry et al., 2021; Khasne et al., 2020; Kristensen et al., 2005; Roslan et al., 2021; Ogunsuji et al., 2022). The CBI has 19 questions, formatted as a Likert-type scale to measure workplace exhaustion across three categories: personal, work-related, and client-related. The full survey included demographic questions relating to gender, location of work, profession, and years worked. Communities outside Whitehorse were combined due to the small population and likelihood of identifying individuals within communities. The CBI comprises three subscales: personal (six items), work burnout (seven items), and client burnout (six items), which align with the key themes described in the follow up interview study. Twelve items have responses of frequency along a five-point Likert scale ranging from *always*, to *never/almost never*. Seven items use response categories according to intensity ranging from *a very low degree* to *a very high degree* (Kristensen et al., 2005). Typical questions are: "how often do you feel tired", "does your work frustrate you", "do you feel burnt out because of your work" and "do you find it frustrating to work with clients" (Kristensen et al., 2005, p. 200). Selecting *somewhat* is considered moderate, *often* is considered high, and selecting *always* is considered severe burnout.

The standardized tool was imported into Survey Monkey and was estimated to take approximately five minutes for participants to complete. At the end of the survey, participants had the option to submit contact information to arrange an individual interview. The CBI data was not linked to the contact information and was therefore completely anonymous.

Data analysis

Developed in 1932 by Rensis Likert, the typical Likert scale is a 5- or 7-point ordinal scale used to rate the degree a respondent agrees or disagrees with a statement (Likert, 1932). Responses can be ranked, but the distance between responses is not measurable. Thus, the differences between "always," "often," and "sometimes" for example, on a frequency response Likert scale are not necessarily equal. Consequently, our analysis determined the frequencies by calculating the percentage of responses in each category. The data was sorted and collated using both the tools within Survey Monkey and Microsoft Excel. As selecting the first two categories ("always" or "often" and "very high degree" or "high degree") relate to high and severe burnout, these categories were combined for ease. Similarly, the last two categories on the scale ("seldom" or "never" and "low degree" or "very low degree") were combined. The percentage of respondents answering in each of the categories was then calculated to enable comparison across the questions and across demographics. Percentages were calculated for each response with respect to the overall CBI responses. Further analysis was conducted to determine differences between professional categories, location of work (Whitehorse or communities) and gender.

Results

Demographics

For the purposes of this study, HC workers included physicians, nurse practitioners (NPs), registered nurses (RNs), licensed practical nurses (LPNs), and surgeons/specialists. A total of 141 HC workers responded to the survey (22 LPNs, 53 RNs/NPs, 56 physicians, and 7 surgeons/specialists). Physicians were the largest proportion of respondents (40.58%) (Figure 1).

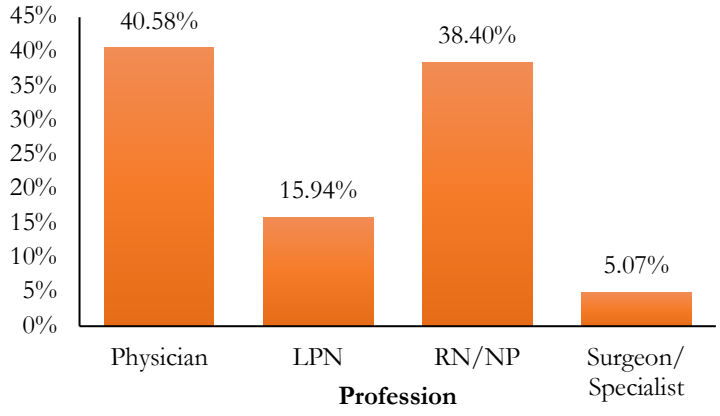

Figure 1: Percentage of total responses by professional category. ***LPN:** Licensed Practical Nurse ***RN:** Registered Nurse ***NP:** Nurse Practitioner.

Females comprised nearly three quarters of total responses (Figure 2). Of these responses, 78.72% of individuals work in Whitehorse (Figure 3). Although most of the responses came from individuals working in Whitehorse, the gender distribution within Whitehorse and the communities was approximately equal with a ratio of 80% female to 20% male respondents in both communities

and Whitehorse (Figure 3) The respondents' years of service in their respective profession ranged from 2 to 38 years, with a mean of 13.63 years.

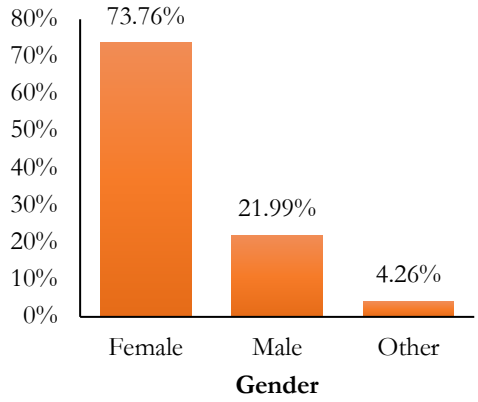

Figure 2: Percentage of total responses by gender ***Other**: non-binary and those who preferred not to answer.

Figure 3: Percentage of total survey responses analyzed by work location. ***Community:** respondents located outside of Whitehorse.

Personal burnout

The CBI comprises six questions related to personal burnout (Figure 4). When asked how often they feel tired, worn out, physically and emotionally exhausted, 50% or more of the respondents selected "Always or Often", indicating a high level of burnout. (Figure 4). More than a quarter of respondents indicated that they always or often think they "can't take it anymore". While we see a significant portion of respondents indicating a high level of exhaustion, most of the respondents do not feel weak or susceptible to illness (Figure 4).

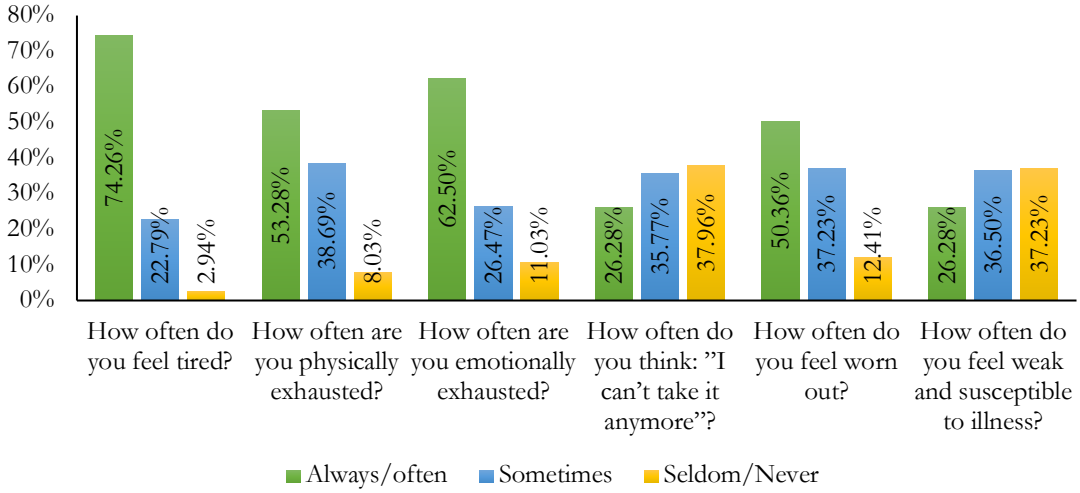

Figure 4: Percentage of the total responses to six questions related to personal burnout, organized by frequency of experience.

Analyzing the data by gender highlighted differences between genders in the personal burnout questions. Over 50% of females selected "Always or Often" in response to feeling tired, worn out, physically exhausted, and emotionally exhausted (Figure 5). Across all six questions, a greater

percentage of females and those identified as "other" (non-binary and those who preferred not to answer) selected "Always or Often", while a greater percentage of males selected "Seldom or Never" (Figure 5).

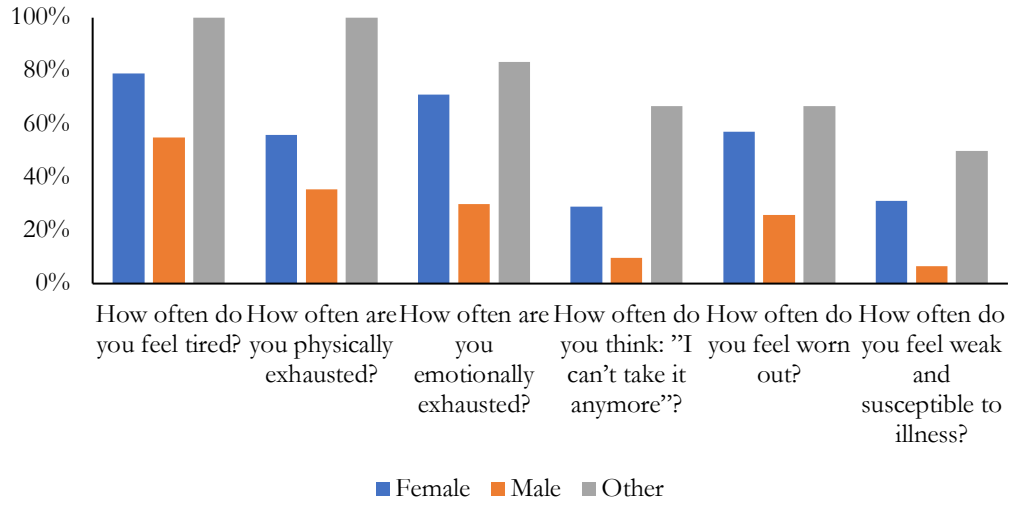

Figure 5: Percentage of respondents, by gender, who selected "Always" or "Often" when asked six questions related to personal burnout.

Analysis of data by community revealed that when asked about how often they feel tired, worn out, physically exhausted, and emotionally exhausted, approximately 50% or more of respondents selected "Always or Often" irrespective of work location (Table 1). Roughly three quarters of respondents in both locations reported feeling tired "Always or Often" (Table 1). Less than 1% of those working in Whitehorse selected "Seldom or Never" in response to this question, suggesting that almost all respondents located in Whitehorse have a moderate to severe degree of tiredness. In response to the same question, almost one third of community workers responded, "Seldom or Never" (Table 1). This suggests that community workers are experiencing less personal burnout compared to their Whitehorse counterparts. More respondents from both work locations selected "Sometimes" and "Seldom or Never" when asked how often they think "I can't take it anymore" and "do you feel weak and susceptible to illness?" (Table 1). For both questions a higher percentage of those working in the community responded, "Seldom or Never" (Table 1).

Table 1: Responses to six questions about personal burnout, scaled by frequency of experience ranging from never to always and organized by work location.

	Always/Often		**Sometimes**		**Seldom/Never**	
	Whitehorse (%)	Community (%)	Whitehorse (%)	Community (%)	Whitehorse (%)	Community (%)
Q1	73.83	75.86	25.23	13.79	0.93	10.34
Q2	53.70	51.72	37.96	41.38	8.33	6.90
Q3	64.49	55.17	29.91	13.79	5.61	31.03
Q4	25.00	31.03	37.96	27.59	37.04	41.38
Q5	48.15	58.62	41.67	20.69	10.19	20.69
Q6	28.70	17.24	36.11	37.93	35.19	44.83

***Q1:** How often do you feel tired ***Q2:** How often are you physically exhausted? ***Q3:** How often are you emotionally exhausted? ***Q4**: How often do you think "I can't take it anymore?" ***Q5:** How often do you feel worn out? ***Q6**: How often do you feel weak and susceptible to disease?

When data was analyzed by profession, nurses (LPNs and RNs/NPs) comprised the greatest percentage of respondents who selected "Always or Often" (Figure 6), indicating that nurses are experiencing more personal burnout compared to physicians. Further analysis by professional category revealed a greater percentage of LPNs who selected "Always or Often" for all questions except for feeling physically exhausted (Figure 6). Contrarily, a greater percentage of physicians and surgeons/specialists responded "Seldom or Never" to all questions, suggesting that nurses are experiencing more personal burnout.

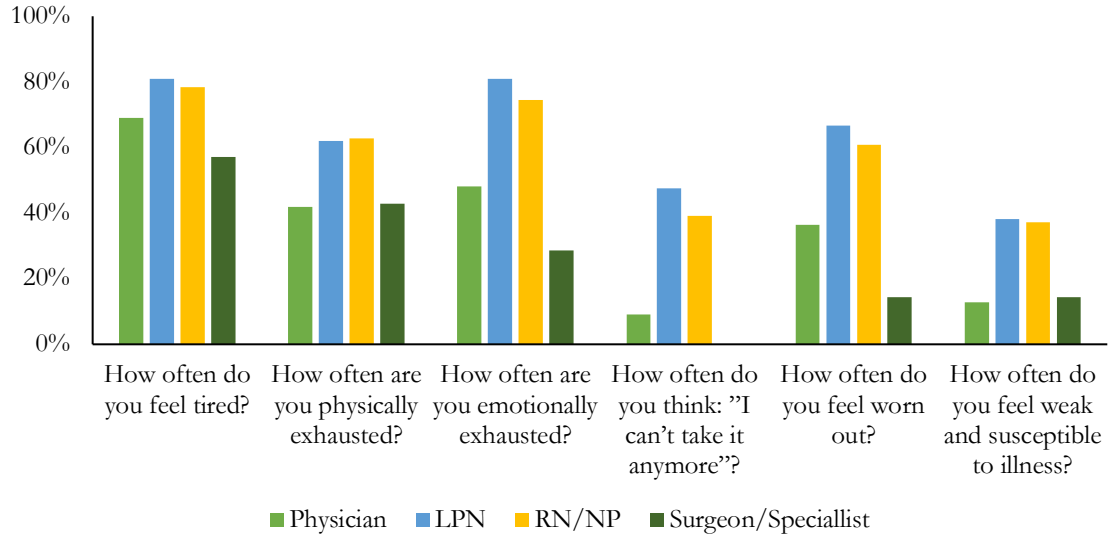

Figure 6: Percentage of respondents, by professional category, who selected "Always or Often" when asked six questions related to personal burnout. ***LPN**: Licensed Practical Nurse ***RN**: Registered Nurse ***NP**: Nurse Practitioner

Work-related burnout

The CBI has seven questions on work-related burnout. When asked if their work was emotionally exhausting, two thirds of respondents selected "to a very high or high degree" (Figure 7). In addition, 80% or more rated the questions "do you feel burnt out because of your work" or "does your work frustrate you" as "somewhat", to a "high degree" or "very high degree" (Figure 7).

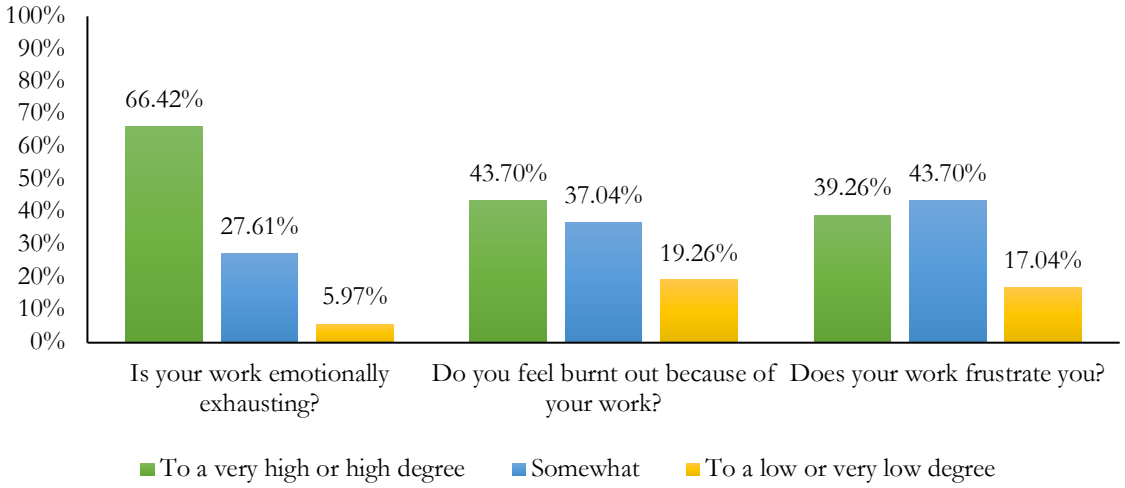

Figure 7: Percentage of total responses to three questions about work-related burnout organized by degree of intensity.

Over 70% of female healthcare workers find their work emotionally exhausting to a "high or very high degree". Contrarily, males and "other" accounted for about half (Figure 8). Nearly 50% of females selected "to a very high or high degree" when asked whether they felt burnt out because of their work and if their work frustrated them (Figure 8). Overall, females report more burnout.

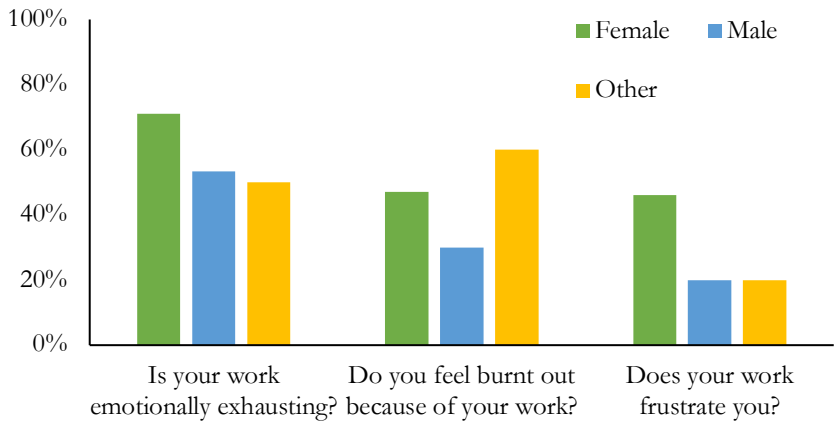

Figure 8: Percentage of respondents (by gender) that selected "to a very high or high degree" in response to three questions about work-related burnout.

Analyzing responses by work location showed approximately 48%-58% of community workers selected "to very high or high degree" when asked if their work was emotionally exhausting,

frustrating, or causing burnout (Figure 9). While a greater percentage of Whitehorse HC workers indicated emotional exhaustion compared to the community, fewer indicated a high or severe level of burn out or frustration due to their work compared to community workers (Figure 9). While we observed high levels of burn out in almost 50% of community HC workers, we note that almost one quarter of community workers responded "to a low or very low degree" when asked whether they feel burnt out because of work (Figure 9).

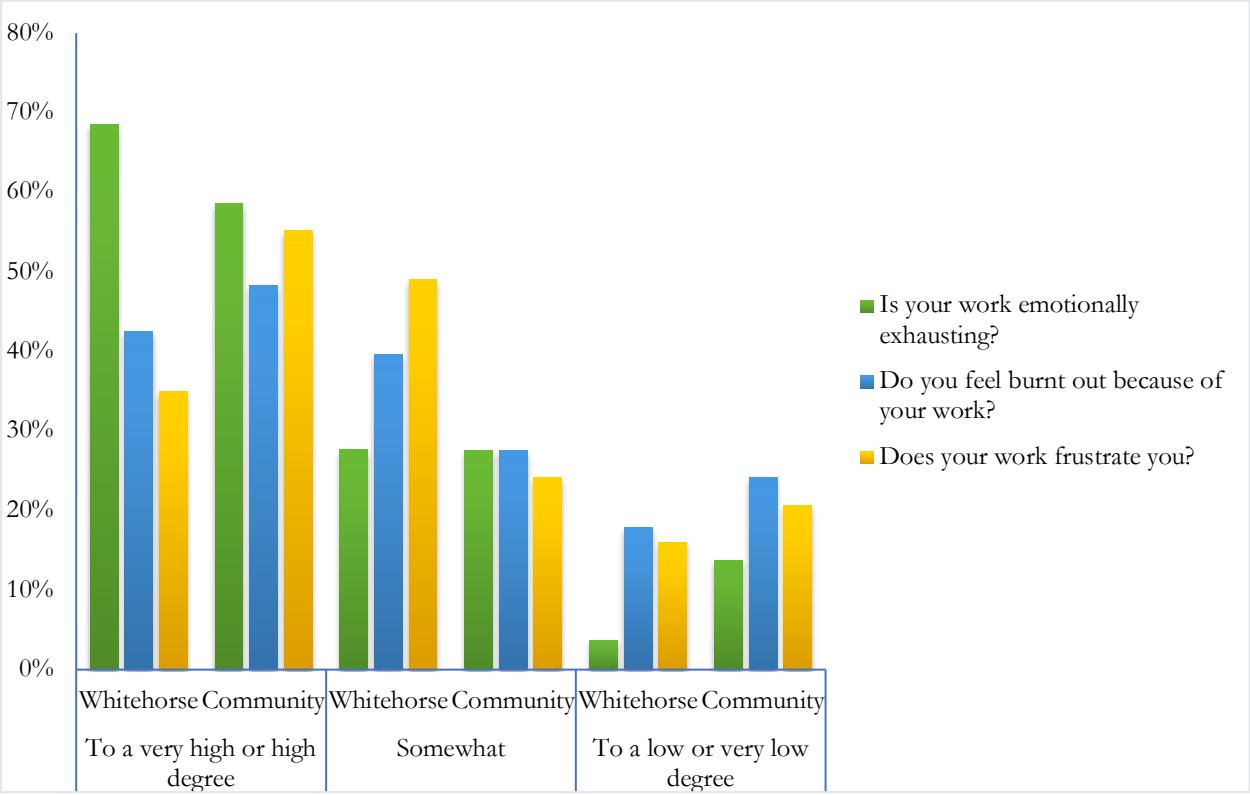

Figure 9: Percentage of responses to three questions about work-related burnout scaled by degree of intensity and analyzed by work location.

Analysis, by profession, to work-related burnout questions indicates that a greater percentage of nurses (LPNs and RNs/NPs) selected "to a very high or high degree" in response to the three questions (Figure 10). In comparison to RN/NP, a higher percentage of LPNs selected this response when asked if their work was emotionally exhausting (Figure 10). Over 40% of surgeons/specialists compared to approximately 24% of physicians selected "to a very high or high degree" when asked if they felt burnt out because of work (Figure 10). None of the surgeons/specialists and none of the LPNs selected "seldom" or "never" when answering that question (data not shown). This suggests LPNs and surgeons/specialists have at least a moderate degree of work-related burnout.

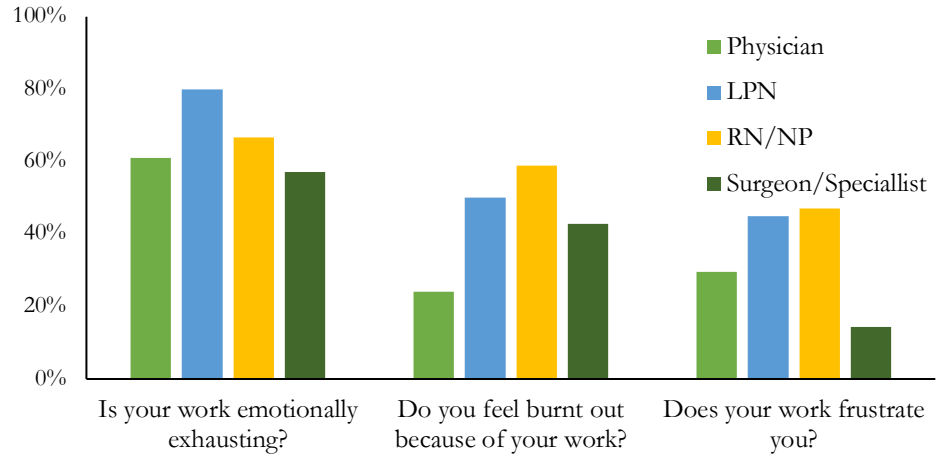

Figure 10: Percentage of respondents that selected "to a high or very high degree" when asked three questions about work-related burnout, analyzed by profession.

Additional work burnout questions show two thirds of respondents selected "Always or Often" while only 3.70% selected "Seldom or Never" when asked if they felt worn out at the end of a working day (Figure 11). However, when asked if they felt every working hour was tiring for them 40% of respondents selected "Seldom or Never", suggesting that while respondents are worn out by the end of the day, every working hour is not tiring for them (Figure 11). We do see most respondents are exhausted in the morning at the thought of another day at work, with over three quarters answering "sometimes", "often", or "always" (Figure 11). In addition to feeling worn out at the end, nearly a third of respondents reported that they "seldom or never" have enough energy for family and friends during leisure time, indicating how work may be affecting their personal life (Figure 11).

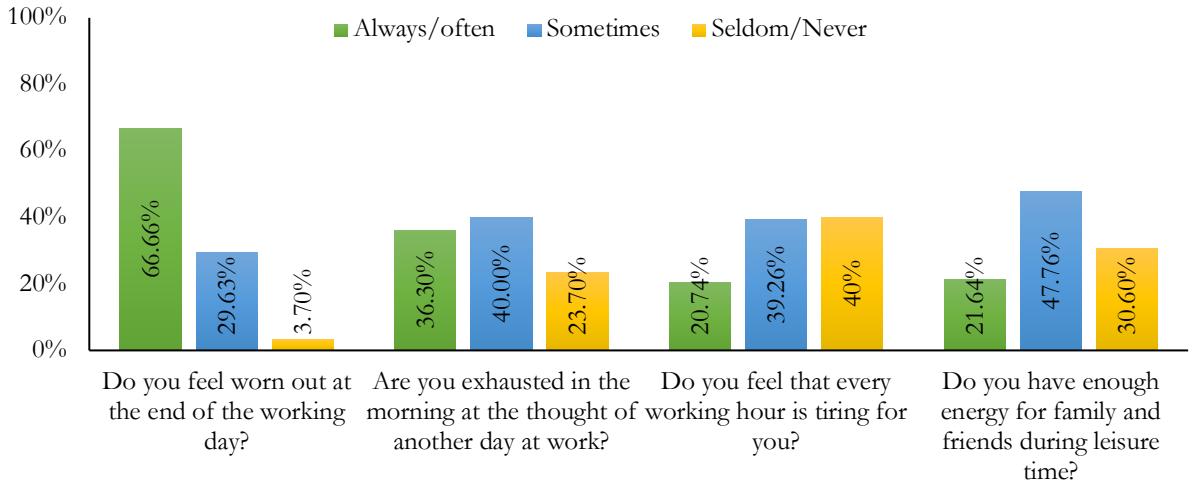

Figure 11: Percentage of total responses to four questions about work-related burnout, scaled by degree of intensity.

Gender analysis highlights that females show a higher degree of work-related burnout compared to males. Females were more worn out, more exhausted in the morning, and more likely to report that every working hour is tiring. In addition, they selected that they "Seldom or Never" have time for family and friends. A further breakdown of the data shows that females comprised nearly three quarters of those who selected "Always or Often" when asked if they felt worn out at the end of the working day while 0% of those categorized as "Other" selected "Seldom or Never" (Table 2). Less than one quarter of females selected "Always or Often" when asked if they have enough energy for family and friends during leisure times (Table 2). Over 50% of male respondents selected "Seldom or Never" when asked if they were exhausted in the morning at the thought of another day of work and if they felt that every working hour is tiring, which was higher than other genders (Table 2).

Table 2: Percentage of total responses to four questions about work-related burnout, scaled by degree of intensity and analyzed by gender

	Always/Often			**Sometimes**			**Seldom/Never**		
	Female (%)	Male (%)	Other (%)	Female (%)	Male (%)	Other (%)	Female (%)	Male (%)	Other (%)
Q4	72	50	60	26	40	40	2	10	0
Q5	41	20	40	45	23.33	40	14	56.67	20
Q6	22	10	60	42	36.67	0	36	53.33	40
Q7	19	30	25	49	47	25	32	23.33	50

***Q4:** Do you feel worn out at the end of the working day? ***Q5:** Are you exhausted in the morning at the thought of another day at work? ***Q6:** Do you feel that every working hour is tiring for you? ***Q7:** Do you have enough energy for family and friends during leisure time? ***Other:** non-binary or preferred not to answer.

An equal number of workers across Whitehorse and communities report "Always or Often" when asked if they feel worn out at the end of a working day or if every waking hour is tiring. However, we do see differences with respondents who answered, "Seldom or Never". For example, only 1.89% of HC workers in Whitehorse selected "Seldom or Never" when asked if they feel worn out at the end of the working day compared to 10.34% of community workers (Figure 12). When asked if they feel every working hour is tiring, a greater percentage of Whitehorse respondents selected "Seldom or Never". This data suggests that community HC workers are less likely to feel worn out at the end of a working day, but some feel that every working hour is tiring.

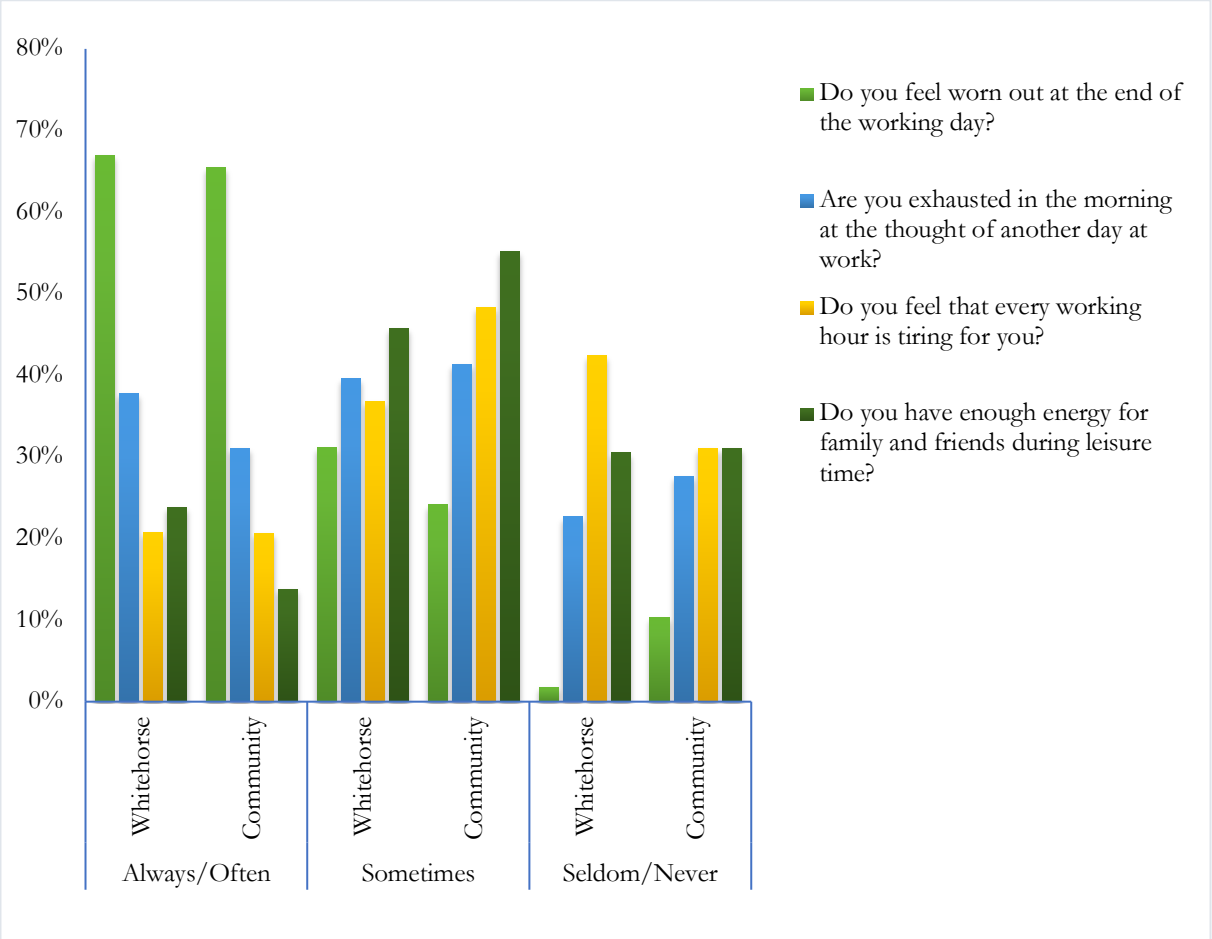

Figure 12: Percentage of total responses to four questions about work-related burnout scaled by frequency of experience and analyzed by work location.

When analyzing by profession, we observe more physicians and surgeon/specialists selected "Always or Often" when asked if they have enough energy for family and friends during leisure time compared to LPNs and RNs/NPs (Figure 13). Further analysis reveals that nearly three quarters of nurses (LPN and RN/NP) and surgeons/specialists reported that they are "Always or Often" worn out at the end of the day). None of the RN/NPs or surgeons/specialists selected "Seldom or Never" in response to this question, indicating that 100% of these respondents experience a moderate amount or more of being worn out at the end of the day (data not shown).

Client-related burnout

The CBI comprises six questions related to client burnout. For the purpose of the survey, the term *client* was used to describe people within a respondent's scope of practice i.e., clients, patients, social service recipients, elderly citizens, etc. This section indicates that Yukon HC workers are less burned out when it relates to clients. For example, we see that fewer than 10% of respondents selected "To a very high or high degree" when asked if they found it hard to work with clients and if they found working with clients frustrating (Figure 13). A higher percentage of respondents

selected "To a low or very low degree" than "to a very high or high degree" when asked if working with clients drained their energy (Figure 13).

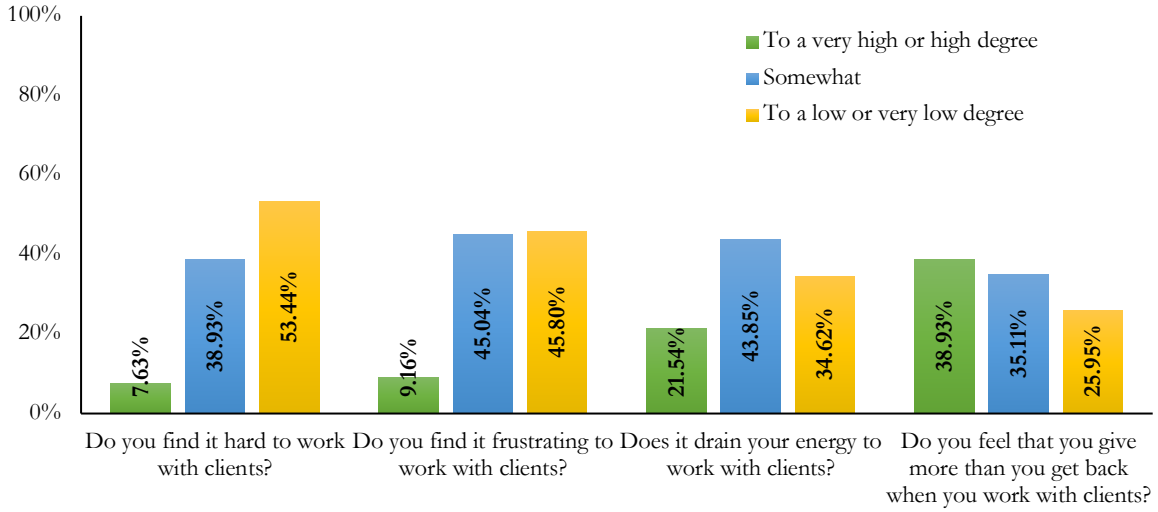

Figure 13: Percentage of total responses to four questions about client-related burnout, scaled by degree of intensity.

Gender analysis revealed that none of the respondents categorized as "Other" selected "to very high or high degree" when asked if they find work with clients hard, frustrating or if it drains their energy. Once again, a higher percentage of females selected "To a very high or high degree" across all 4 questions when compared to male respondents (data not shown).

Notably, we observed that HC workers in the community find it both harder and more frustrating to work with clients compared to Whitehorse HC workers, with approximately twice as many in the community selecting "to a very high or high degree" (Figure 14).

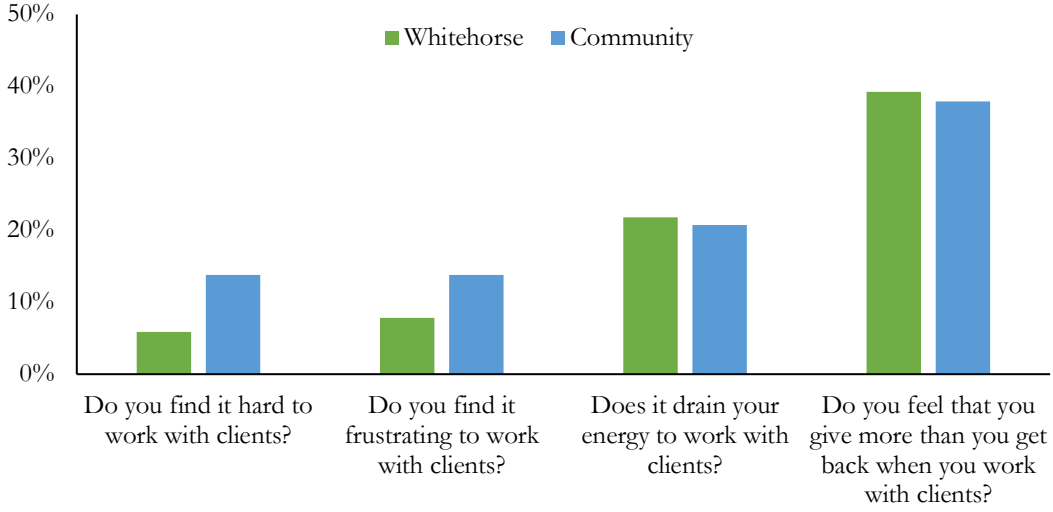

Figure 14: Percentage of respondents that selected "to a very high or high degree" when asked four questions about client-related burnout analyzed by work location.

Further analysis reveals that a greater percentage of RN/NPs selected "to a very high or high degree" for all four questions. In some cases, the percentage was more than three times the percentage of LPNs. For example, when asked if they found working with clients frustrating, the RN/NP group comprised 18.37% of those who selected "to a very high or high degree" while LPNs made up 5% (Table 5). In response to all four questions, none of the surgeons selected "to a very high or high degree" while 50% or more responded "to a low or very low degree" (Table 5). Consistent with this data, surgeons/specialists were the highest percentage of those who selected "to a low or very low degree" for all four questions (Table 5).

Table 5: Percentage of total responses to four questions about client-related burnout, scaled by degree of intensity and analyzed by profession.

	To a very high or high degree				**Somewhat**				**To a low or very low degree**			
	Physician (%)	LPN (%)	RN/ NP (%)	Surgeon/ Specialist (%)	Physician (%)	LPN (%)	RN/ NP (%)	Surgeon/ Specialist (%)	Physician (%)	LPN (%)	RN/ NP (%)	Surgeon/ Specialist (%)
Q1	1.89	10	14.29	0	37.74	40	38.78	16.67	60.38	50	46.94	83.33
Q2	3.77	5	18.37	0	47.17	45	44.90	16.67	49.06	50	36.73	83.33
Q3	18.87	20	28.57	0	47.17	40	40.82	50	33.96	40	30.61	50
Q4	35.85	40	46.94	0	39.62	30	32.65	33.33	24.53	30	20.41	66.67

***Q1**: Do you find it hard to work with clients? ***Q2:** do you find it frustrating to work with clients? ***Q3**: does it drain your energy to work with clients? ***Q4:** Do you feel you give more than you get back when your work with clients?

Approximately 80% of respondents selected "sometimes" and "seldom or never" when asked if they are tired of working with clients (Figure 15). Although nearly 30% of respondents selected "Always or Often," when asked if they sometimes wonder how long they will be able to continue working with clients the largest percentage of respondents selected "Seldom or never" (Figure 15).

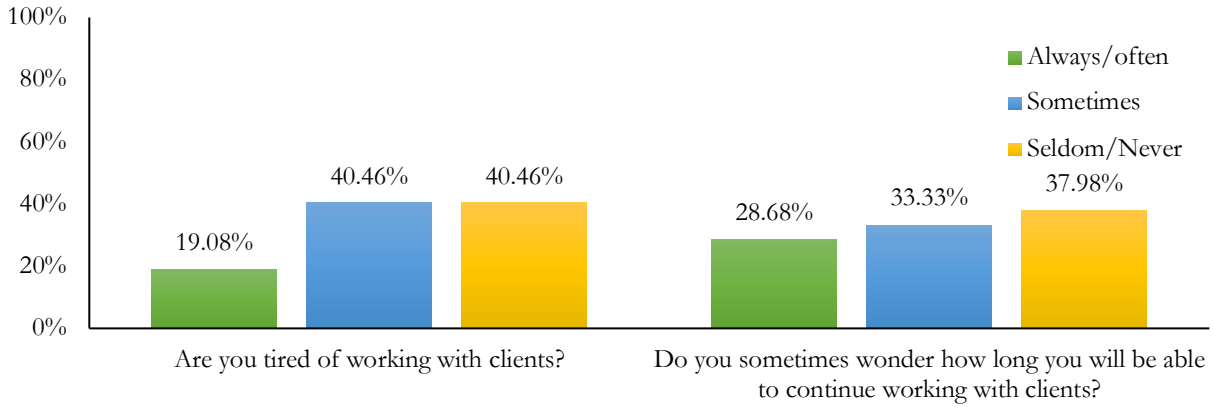

Figure 15: Percentage of total responses to two questions about client-related burnout scaled by frequency of experience.

Gender analysis revealed that females and "other" were twice as likely as males to select "Always or Often" when asked if they are tired of working with clients (data not shown). Community workers had a greater percentage of workers selecting "Always or Often" when asked if they are tired of working with clients. Of concern, 41% of respondents working in the community indicated 'Always or Often' when asked if they sometimes wonder how long this will be able to continue working with clients (Figure 16).

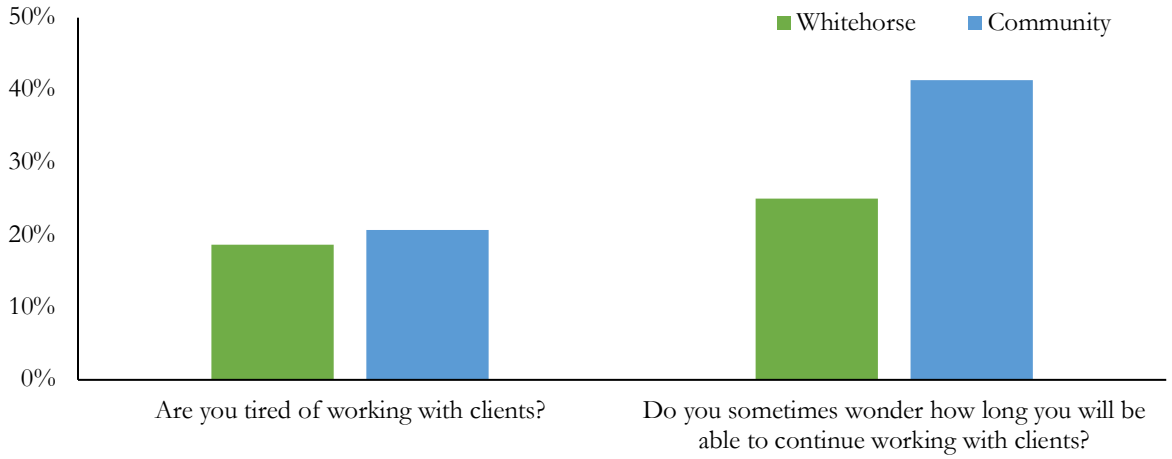

Figure 16: Percentage of respondents who selected "Always or Often" when asked two questions about client related burnout, analyzed by work location.

Nurses (LPN and RN/NP) comprised greater percentages of those who responded "Always or Often" to both questions with 37% and almost 44% of LPNs and RNs/NPs, respectively, responding "Always or Often" when asked if they sometimes wonder how long this will be able to continue working with clients (Figure 17). None of the surgeons and less than 10% of physicians selected "Always or Often" when asked if they are tired of working with clients (Figure 17).

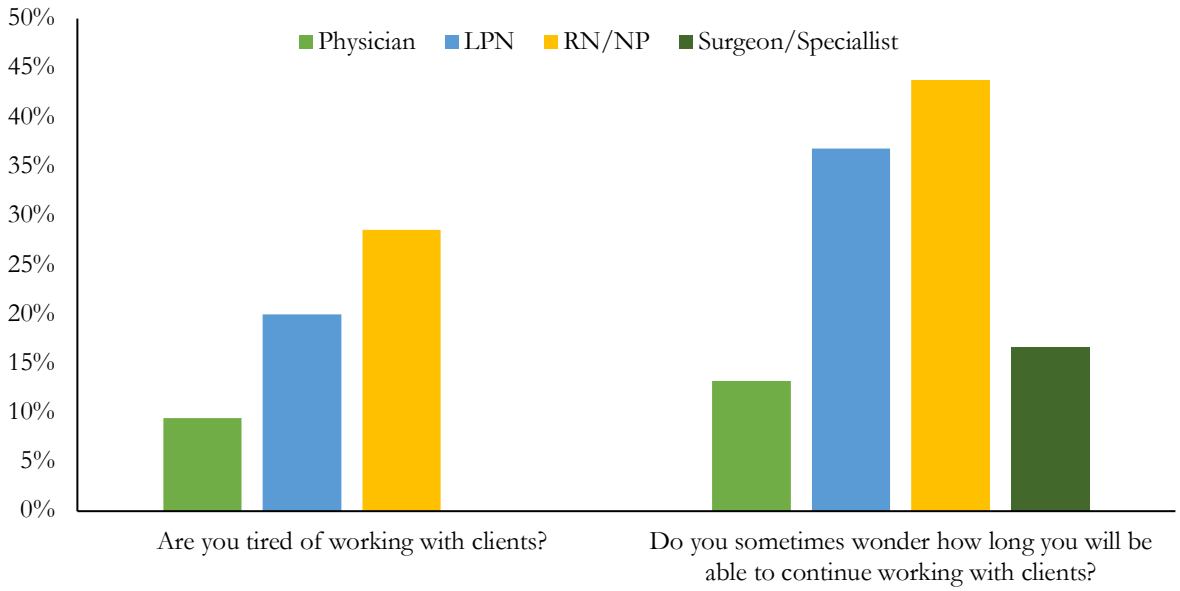

Figure 17: Percentage of respondents who selected "Always or often" when asked two questions about client-related burnout, analyzed by profession.

Discussion

Introduction/overall discussion of results

Across the globe there are reports of professionals leaving health care due to the stresses that occurred during COVID-19. Some studies suggest that even before the pandemic, particularly in

Canada, the health care system was at the brink of collapse and COVID-19 further compounded and highlighted existing problems within this system (Canadian Federation of Nurse Unions, 2020; Canadian Medical Association [CMA], 2017; Hansen et al., 2021). Workplace stress within a more complicated, constantly shifting health care system is pervasive in Canada, making jobs more demanding and complex (College of Licensed Practical Nurses of Alberta [CLPNA], 2019). The results of the CBI in the Yukon reflect high levels of personal and work-related burnout within the HC worker professions. This is supported by other studies performed around the world (Khasne et al., 2020; Roslan et al., 2021). Though there are multiple factors that impact HC worker burnout, the literature suggests that the COVID-19 pandemic has been a strong factor in increasing stressors (Chor et al., 2021; Gajjar et al., 2022; Khasne et al., 2020; Plouffe et al., 2021; Roslan et al., 2021).

This study indicated that burnout was at its highest for respondents in the areas of personal and work-related stressors. The personal burnout questions with the highest number of responses of "Always or Often" were feeling tired (74.26%); and feeling emotionally exhausted (62.50%). The work-related burnout question with the greatest "Always or Often" response (66.42%) related to emotional exhaustion. Thus, emotional exhaustion was a factor that related to personal and work-related factors, or a combination of the two.

Across all HC worker categories, on the personal burnout scale, there are low levels of feeling weak or susceptible to illness, despite the high levels of tiredness, physical and emotional exhaustion reported. This may be due to the increased reporting of physical activity seen in people living in the Yukon (71.7%) compared to Canada (56%) (Department of HSS 2021). In a system that is already struggling with health human resources and funding issues, burnout that is further exacerbated by the COVID-19 pandemic is of great concern. The levels of burnout among HC workers can have a direct effect on critical incidents and mortality rates of clients, making it a priority for the health care system to address burnout (CLPNA, 2019).

Gender

In 2021, about 91% of regulated nurses in Canada were female, as nursing continues to be a female-dominated profession (Canadian Institute for Health Information [CIHI], 2021). National databases in Canada, including CIHI collect data on sex (not gender), so national statistics regarding nurses with various gender expressions is unavailable. Our data also reflects a high proportion of female nurses (89%).

Of the total respondents, in all professions, almost three quarters (73.76%) were female. Females and "other" genders reported more personal stress and burnout (Figure 5). Additionally, females reported higher levels of work-related burn-out, exhaustion and frustration, compared to males. In fact, almost three quarters (72%) of female respondents reported that they often or always felt worn out at the end of a workday (Table 4). In the third subscale of client-related burnout, though the results for all respondents indicated less burnout in this area, females continue to report higher levels of client-related burnout than their male counterparts.

These results may reflect the different roles that females take within and among professions, and the additional role they carry in managing domestic activities such as cooking, cleaning, and primary responsibility for childcare (CIW, 2021). During lockdown periods when people were working from home and children were not at school, females often had an additional burden in supporting

domestic tasks and roles (Kumar et al., 2021). Additionally, female nurses may be more fearful of the pandemic than males and tend to take extra precautions with infection control procedures to avoid infecting their families (De los Santos & Labrague, 2021), adding additional personal and work stress. Women also have less time available for leisure, even though they rank the importance of leisure in maintaining health higher than men (CIW, 2021).

If females are continuing to be the primary care provider for children, the increased levels of burnout seen in our study are supported in the Canadian Index of Well-being where 15.5% of Yukon respondents indicated they cannot stay home when sick or when their children are sick because benefits are not provided, or the work culture makes it untenable to do so (CIW, 2021). We are expanding this study to include in-depth interviews and personal reflections from participants. This will provide a more fulsome discussion of these gender differences, and how the stressors manifest themselves in the personal lives of HC workers.

Professional differences

The data from this study suggests RNs/NPs and LPNs suffer from burnout more than physicians, specialists, and surgeons. One study that focused on emergency department and critical care unit healthcare workers reported that 49% experienced moderate to severe personal burnout. Using the CBI, the levels of assessed personal burnout were 53% in nurses and 42% in doctors (Chor et al., 2021). Another study in the UK found that 79% of health care workers experienced moderate to severe burnout. In alignment with our results, the rate for nurses was 85%, which was significantly higher than doctors (59%) (Ferry et al., 2021).

While nurses are experiencing more burnout, we still see that a proportion of physicians experience burnout. This is consistent with the most recent CMA report showing that among 4000 respondents, 53% reported high level of burnout which is 23% higher than 2017 survey (Gajjar et al., 2022).

All nurses (RNs/NPs and LPNs) reported higher levels of personal stress, with LPNs scoring slightly higher scores in the areas of emotional stress and feeling tired (Figure 6). In more recent years, the role of LPNs has expanded in the Yukon and across Canada to include working in areas such as emergent and critical care, where they have not had a presence in the past. Within several settings in the Yukon, LPNs work alongside personal care workers and RNs. With staffing shortages, this may be the profession that has considerable expectations to shift work duties and priorities to support basic care needs in one setting and then shift to utilizing more advanced nursing skills in another.

For work-related stress, we see high levels of burnout in nurses, with LPNs showing the greatest frequency of emotional exhaustion, and RNs/NPs showing the highest levels of feeling burnt out due to work, compared to the other professions (Figure 10). Shifts within the health care system involve RNs taking on new roles such as leadership (Nowrouzi-Kia et al., 2022). The requirement to fulfill multiple, complex roles, leading to role conflict and ambiguity, may be a factor in higher levels of burnout in both LPNs and RNs; that we see more nurses identifying as female may also contribute to these results.

Client-related burnout was also the highest in nurses compared to physicians and surgeons, with higher levels of burnout among RNs. Over 40% of RNs reported that they "Always or Often"

wonder how long they can continue to work with clients. (Figure 17). This is of significant concern in rural Yukon, where human resources and adequate staffing are constant challenges.

Urban versus community differences

Our study highlighted similar patterns between HC workers in Whitehorse and those working in rural communities, with community staff reporting slightly lower on the scale for personal burnout. In relation to work related burnout, Whitehorse HC workers report more exhaustion, whereas the community staff report more frustration with work. The pressures of working within a large system with many staff may be a contributing factor to work-related exhaustion in the urban setting, as well as the demand to take on additional shifts and duties within this large system. In relation to client-related burnout, HC workers in the communities report higher levels of frustration with clients than those based in Whitehorse. These findings may be indicative of a rural HC workforce that was vulnerable to the impacts of COVID-19 prior to the onset of the pandemic. The small communities outside of Whitehorse have fewer health staff, many of which are agency or itinerant workers – a situation that pre-dates the pandemic. Factors such as insufficient staffing levels may increase workload, making it difficult to meet the needs of all clients. Additionally, the rural communities are staffed with primarily nurses who are experiencing higher levels of burnout, which may be related to their responsibility to provide care while working with an expanded scope of practice.

This survey revealed that physicians and nurses are feeling burnout, particularly in relation to personal and work-related stressors. Though we cannot postulate a direct casual effect, the impacts of COVID-19 are certainly a factor. The wellbeing of all Yukon citizens has been affected by the pandemic with self-rated physical and mental health dropping dramatically during the pandemic, matching a national pattern (CIW, 2021).

Hansen et al., 2021 found that physician reported factors that mitigate burnout included having relationships with colleagues and community members as well as spending time on the land and engaging in outdoor activities. A strong connection to community has been reported in more than one third of people living in the Yukon, stating they had a sense of belonging (CIW, 2021). This sense of belonging to community, and the personal connections that are established, may factor into the lower levels of client related burnout, compared to personal and work-related burnout.

Limitations

A potential limitation to this study is that care aides, allied health professionals and other health staff were excluded from the study. Care aides make up a considerable percentage of frontline HC workers in long-term care facilities and other non-acute care settings. Additionally, allied health professionals and custodial and housekeeping staff comprise a vital part of the staffing complement affected by the COVID-19 pandemic. However, given the limited timeline and the targeted recruitment through professional organizations, these professions were excluded from the study. Many of these health-related professions are often underpaid, undervalued, and belong to marginalized groups, making them especially vulnerable to the impacts of COVID-19 (Estabrooks et al., 2015). As such, it is important that future research that focuses on the impacts of COVID-19, other pandemics, and health emergencies, includes these essential workers.

The CBI also provides only a snapshot of burnout at one point of time and therefore offers no insight regarding the level of compassion fatigue, which is a highly relevant concept for healthcare workers who are exposed to stressful and traumatic work environments. Additionally, the CBI does not reveal the specific factors that contribute to burnout. Further research is required to address these limitations.

Conclusion

The challenges of providing care in the north are compounded by the COVID-19 pandemic, contributing to increased stress. This research shows that HC workers in the Yukon are expressing high levels of personal and work-related burnout while, to a lesser extent, they are reporting client-related burnout. Further analysis demonstrated that females and nurses experience higher levels of burnout across all three CBI subscales. Additionally, client-related burnout was slightly higher among community HC workers than their counterparts in Whitehorse. These findings stress that occupational status and gender are among the factors that can disproportionately affect HC workers amidst a health crisis.

Supporting the HC workers responsible for providing services is essential to an effective health care system, particularly in a northern context. This research will inform managers, employers, and policymakers of the need to mitigate stressors so that the risk of burnout among frontline HC workers is reduced, they can enjoy improved job satisfaction, and continue to meet the needs of their clients. The COVID-19 pandemic has illuminated how central the health of our society and health care system is to a well-functioning society. We must build a more resilient health care system that can sustain our aging society.

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