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Shared sources and mechanisms of healthcare worker distress in COVID-19: a comparative qualitative study in Canada and the UK

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ABSTRACT

Background: COVID-19 has had a significant impact on the wellbeing of healthcare workers, with quantitative studies identifying increased stress, anxiety, depression, insomnia, and PTSD in a wide range of settings. Limited qualitative data so far has offered in-depth details concerning what underlies these challenges, but none provide comprehensive comparison across different healthcare systems.

Objective: To explore qualitative findings relating to healthcare worker distress from two different countries to understand the nuanced similarities and differences with respect to the sources and impact of distress relating to COVID-19.

Method: A comparative interpretive thematic analysis was carried out between two qualitative data sets examining healthcare workers' experiences of distress during the COVID-19 pandemic. Data from Canada and the UK were collected in parallel and analyzed in an iterative, collaborative process.

Results: A number of sources of distress cut across both study settings including concerns about safety and patient care, challenges at home or in one's personal life, communication issues, work environment, media and public perception, and government responses to the pandemic. These sit on a spectrum from individual to institutional sources and were mutually reinforcing. Our analysis also suggested that common mechanisms such as exacerbations in uncertainty, hypervigilance, and moral injury underpinned these sources, which contributed to how they were experienced as distressing.

Conclusion: This is the first international collaboration utilising qualitative data to examine this pressing issue. Despite differences in the political, social, health service, and pandemic-related context, the sources and mechanisms of distress experienced by healthcare workers in Canada and the UK were remarkably similar.

Fuentes y mecanismos compartidos de la angustia de los trabajadores de la salud en COVID-19: Un estudio cualitativo comparativo de Canadá y el Reino Unido

Antecedentes: La COVID-19 ha tenido un impacto significativo en el bienestar de los trabajadores de la salud, con estudios cuantitativos que identifican un aumento del estrés, la ansiedad, la depresión, el insomnio, y el TEPT en una amplia variedad de entornos. Hasta ahora, los datos cualitativos son limitados y han ofrecido un profundo detalle sobre lo que subyace a estos desafíos, pero ninguno proporciona una comparación exhaustiva entre los diferentes sistemas de atención de salud.

Objetivo: Explorar los hallazgos cualitativos relacionados con la angustia de los trabajadores de la salud de dos países diferentes para comprender las sutiles similitudes y diferencias con respecto a las fuentes y el impacto de la angustia relacionada con la COVID-19.

Método: Se llevó a cabo un análisis temático interpretativo comparativo entre dos conjuntos de datos cualitativos que examinaron las experiencias de angustia de los trabajadores de la salud durante la pandemia de la COVID-19. Los datos de Canadá y el Reino Unido se recopilaron en paralelo y se analizaron en un proceso colaborativo iterativo.

Resultados: Una serie de fuentes de angustia atraviesan ambos entornos de estudio, incluidas las preocupaciones sobre la seguridad y el cuidado del paciente, los desafíos en el hogar o en la vida personal, los problemas de comunicación, el entorno laboral, la percepción pública y de los medios de comunicación, y las respuestas gubernamentales a la pandemia. Estos se ubican

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关键词

COVID-19; 医护人员; 痛苦; 创伤; 心理健康

HIGHLIGHTS

- This international comparative qualitative study explores how mechanisms that lead to distress are shared across different geographies and cultures, even as the local context shapes the sources of distress themselves.

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en un espectro desde fuentes individuales hasta institucionales y se reforzaron mutuamente. Nuestro análisis también sugirió que mecanismos comunes como las exacerbaciones de la incertidumbre, la hipervigilancia, y el daño moral sustentaban estas fuentes, lo que contribuyó a que se experimentaran como angustiosas.

Conclusión: Esta es la primera colaboración internacional que utiliza datos cualitativos para examinar este apremiante problema. A pesar de las diferencias en el contexto político, social, de servicios de salud y relacionado con la pandemia, las fuentes y los mecanismos de angustia experimentados por los trabajadores de la salud en Canadá y el Reino Unido fueron notablemente similares.

COVID-19 中医护人员痛苦的共享来源和机制：一项加拿大和英国的定性比较研究

背景: COVID-19 对医护人员的福祉产生了重大影响，定量研究发现在广泛的环境中应激、焦虑、抑郁、失眠和 PTSD 增加。迄今为止，有限的定性数据提供了有关这些挑战背后的详细信息，但没有提供跨不同医疗保健系统的综合比较。

目的: 探究来自两个不同国家的与医护人员痛苦相关的定性研究结果，以了解 COVID-19 相关痛苦的来源和影响方面的细微相似性和差异。

方法: 在两个考查 COVID-19 疫情期间医护人员痛苦经历的定性数据集之间进行了比较解释性主题分析。来自加拿大和英国的数据并行收集，并在一个迭代、协作的过程中进行分析。

结果: 两个研究环境中都有许多困扰的来源，包括对安全和患者护理的担忧、家庭或个人生活中的挑战、沟通问题、工作环境、媒体和公众认知，以及政府对疫情的反应。这些遍布从个人到机构的来源谱系，并且相互增强。我们的分析还表明，不确定性加剧、高警觉和道德伤害等导致人们感到痛苦的常见机制是这些来源的基础。

结论: 这是第一次利用定性数据来研究这一紧迫问题的国际合作。尽管在政治、社会、卫生服务和疫情相关的背景下存在差异，加拿大和英国的医护人员所经历痛苦来源和机制非常相似。

1. Introduction

The COVID-19 pandemic has impacted the mental well-being of healthcare workers (HCWs) globally (Olf et al., 2021). Numerous studies have used questionnaires and validated clinical scales to assess symptoms of depression, anxiety, insomnia, trauma and burnout (Binnie et al., 2021; Crowe et al., 2021; Greene et al., 2021; Maunder et al., 2021). While rates of psychological distress (PTSD especially) have varied depending on the setting and methods of investigation used, they are generally higher than those previously experienced by HCWs and by the general population (Koenen et al., 2017). These cross-sectional prevalence studies allow for comparison across different countries and have demonstrated that anxiety, depression, and post-traumatic stress disorder (PTSD) are the most prevailing COVID-19 pandemic-related mental health conditions affecting HCWs (Chutiyami et al., 2022). This is unsurprising, given similar studies following the 2003 SARS outbreak and the 2009 H1N1 pandemic which found substantial prolonged impact on the HCWs exposed to stressful occupational environments during those times (Preti et al., 2020). Of increasing concern is the impact of the COVID-19 pandemic given its global and prolonged nature.

Quantitative methods enable the enumeration of prevalence and incidence of these conditions across countries and how these may be affected by other measured factors such as gender, age, job, or work setting. In contrast, qualitative methods can provide a

more in-depth and nuanced understanding of experience (Billings, Abou Seif, et al., 2021). Qualitative research conducted during COVID-19 has indicated complexity in healthcare workers' experiences and coping. For example, peer support has been cited as a potentially protective factor against worker distress in several guidelines (Chirico et al., 2021; Tracy et al., 2020). However, Billings, Ching, et al. (2021) demonstrated that, while many workers rely on peers as a first line of support, they also worry about burdening, and being burdened by, their peers (Billings, Ching, et al., 2021). Similarly, whilst quantitative research has shown that increased workloads, colleagues in quarantine, and other sources of burden contribute to burnout and demoralisation, qualitative research has also revealed that these same challenges can contribute to professional confidence and increased meaning in one's work (Sun et al., 2020).

Complexity in relation to the issues generating HCWs concerns is also significant. A Canadian study employing a critical discourse analysis of questions posed from HCWs to administrative leadership at their hospital demonstrated that HCW distress often sat at the intersections of institutional (e.g. having adequate supply of personal protective equipment or adequate communication of changing policies) and individual factors (e.g. feeling valued, impact of redeployment on HCW mental health), and that these were mutually impactful while also shaped by the surrounding social, cultural, and political environment (Berkhout et al., 2021). These examples demonstrate

that qualitative research can offer important detail and contextualisation that is not available within cross-sectional surveys focused on prevalence rates, linking thematic findings to the particulars of temporal, geographical and sociopolitical context. Moreover, qualitative analysis can facilitate a better understanding of the mechanisms by which working during the pandemic may impact HCWs and, importantly, what the mitigators of worker distress might be (Billings, Abou Seif, et al., 2021). However, a perceived challenge with qualitative research is generalizability, as studies tend to be limited to a single site or population.¹

In this study, we explored HCWs experiences across different healthcare systems in Canada and the United Kingdom, drawing on qualitative data which were collected simultaneously during the respective first waves of the COVID-19 pandemic. By pooling rich and in-depth qualitative data (albeit collected using similar approaches for different purposes), our analysis offers a unique opportunity to better understand the stressors experienced by HCWs, to identify which mechanisms led to workers experiencing distress, and to compare these experiences between HCWs across both countries. To our knowledge, this is the first study to use this approach to qualitative data analysis to enhance our collective understanding of the distress and trauma experienced by HCWs internationally during the COVID-19 pandemic.

2. Method

This research was conducted as part of the Global Collaboration on Traumatic Stress, an initiative supported by the ISTSS to enable researchers and clinicians from around the world to collaborate on topics of global importance (see <https://www.globalpsychotrauma.net/>). This study was conducted under the theme of Global COVID-19 Related Traumatic Stress Activities, and particularly the call for collaboration on research with High-Risk Occupational Groups Responding to the COVID-19 Pandemic. The intention of the collaboration is to collate and develop globally transferrable guidance for the psycho-social support of high-risk occupational groups working during, and beyond, the COVID-19 pandemic.

2.1. Study setting

2.1.1. Canadian healthcare context

In Canada, healthcare provision is organised through a publicly funded healthcare system, a shared responsibility between the provinces and the federal government. Funded through federal cash and tax transfers, care itself is administered through a provincially

based health insurance system (Government of Canada, 2019). In Ontario, medical services throughout the pandemic have been expanded to include uninsured individuals (e.g. individuals in the province without formal legal status).

The Canadian study is based out of a large health network in Toronto, Ontario, Canada's most populous city and capital of the province of Ontario. University Health Network (UHN), where the Canadian study took place, consists of five institutions totalling more than 20,000 employees: two general hospitals, a rehabilitation hospital (with numerous community satellite sites), a cancer hospital and research centre, and a health professions education institute. COVID-19 care at UHN occurred in intensive care and dedicated medical units. UHN is the provincial resource for extra-corporeal membrane oxygenation (ECMO), and as such, intensive care units at UHN have cared for the sickest COVID-19 patients in the province. The Greater Toronto Area (GTA) was also the Canadian epicentre of a previous coronavirus pandemic: SARS-CoV-1, or the 'SARS' pandemic of 2003. Similar to the current COVID-19 pandemic, UHN cared for the most acutely unwell SARS patients. The SARS pandemic was notable for the distress it generated amongst healthcare workers, with significant levels of depression, anxiety, insomnia and post-traumatic distress reported (R. Maunder, 2004; R. Maunder et al., 2006; Styra et al., 2021).

2.1.2. UK healthcare context

In the UK, most healthcare is provided by the public National Health Service (NHS) which is paid for by public tax revenue and is free to all recipients at the point of delivery. Private services co-exist, but the majority of emergency healthcare and nearly all COVID-19 treatment has been provided by the NHS. The NHS is the largest national employer in the UK, employing 1.7 million workers across England, Wales, Scotland and Northern Ireland, making it the fifth-largest workforce in the world. Data from the UK was gathered nationwide, with participants from a variety of healthcare settings including Intensive Care Units (ITU), acute wards and care homes.

The various waves of the COVID-19 pandemic have differentially impacted the UK and Canada, in terms of numbers of infections, deaths, and hospitalisations. There are notable differences between the two countries: the per million rate of hospitalisation was more substantive in the UK across first, second, and third waves; Canada's pandemic waves have been approximately two weeks behind the UK throughout the span of the pandemic. Both locations have had significant COVID-19-related deaths in long-term care (LTC) facilities (Bell et al., 2020; Fisman et al., 2020), and staff redeployment within the healthcare systems also took place during the timeframe of the study.

The Canadian and UK contexts both saw health-related cutback prior to the pandemic, though in Ontario some HCWs did receive what was termed ‘pandemic pay,’ a temporary wage enhancement akin to danger-pay (Government of Ontario, 2021). Such additional remuneration was not made available to HCWs in the UK.

2.2. Ethical approval

The Canadian study was approved by the UHN Quality Improvement Review Committee and received a formal waiver from research ethics board review as the study was undertaken for the purposes of program evaluation and quality improvement. The UK study was approved by the University College London Research Ethics Committee (Ref. 18341/001).

2.3. Participants and procedures

The interviews that make up the Canadian dataset were conducted as part of a qualitative needs assessment carried out in support of the development and evaluation of a modified stepped-care mental health support program for healthcare workers across the UHN, UHN COVID Coping and Resiliency Employee Support (UHN COVID CARES) Program. The larger needs assessment took place between April and December 2020. It consisted of qualitative interviews (described below), a critical discourse analysis of a public online open forum in which health network staff could voice questions and concerns relating to COVID-19 (Berkhout et al., 2021), and proactive outreach to highly affected clinical areas to document concerns and needs. In tandem to the qualitative needs assessment, a brief quantitative survey was carried out by UHN CARES psychologists. This study draws upon the qualitative interviews specifically.

The qualitative interviews were designed to understand the COVID-related challenges, and concerns facing HCWs as the stepped-care program was developed and rapidly rolled out. A purposive sample of individuals was constructed, with participants selected to reflect a range of roles (frontline clinical, frontline allied health, managerial, executive leadership) as well as clinical and non-clinical areas within the health network. Those who did not have immediate patient-facing duties were nonetheless involved in frontline healthcare activities. Individual interviews were carried out by SB and KS; on two occasions these took place in a small group format (2-3 participants). A semi-structured interview guide was developed by SB, KS, and SA, informed by current employee mental health and wellness issues raised to the attention of SA (psychiatrist-in-chief), the involvement of KS, SB, and SA in hospital-wide wellness program planning meetings, and SA’s prior experiences with SARS. SB and KS

then collaborated with JB and the UK team to align the Canadian interviews with the UK interview process. The guide was modified with additional questions and prompts in an iterative fashion following the first set of interviews. Interview data was triangulated with themes emerging from the discourse analysis and the clinical experience of SB, KS, and SA as the support program evolved. Please see the supplemental appendix for the respective interview guide questions.

In the UK, participants were invited to take part in the research if they were healthcare staff who had been working directly to treat patients affected by COVID in any UK-based health or social care organisation. Healthcare workers not working in direct COVID-related roles were excluded. Participants were recruited purposively through social media (Twitter and Facebook) and by snowball sampling via healthcare colleagues. The UK research team deliberately sought a wide range of participants, including different professional groups, career stages and geographical locations, to access a diverse range of perspectives. Potential participants were invited to contact JB via email and then sent the study Participant Information Sheet and Consent Form by return. The UK interviews were guided by a semi-structured interview schedule which was drafted collaboratively by the UK research team, in consultation with an Expert Reference Group, comprising NHS service leads, Wellbeing officers, and clinicians with lived experience of mental health difficulties. All interviews took place remotely and were completed by one of four graduate students in Clinical Mental Health (NAS, SH, TO and ES) who received training and supervision from JB.

Interviews were conducted in Toronto between April 2020 and July 2020, corresponding with the first wave of the COVID-19 pandemic in Canada. The sample of participants included 21 healthcare workers, comprising frontline care providers, clinical and non-clinical managers, and senior leaders/executives within the hospital system. Interviews lasted between 30 and 90 min. In the UK, interviews were conducted in June and July 2020, which corresponded with the early recovery phase from the first peak of the pandemic in the UK. The UK sample comprised 25 frontline healthcare workers from a variety of professional groups, working in a range of settings across the UK. Interviews lasted between 30 and 77 min.

The Canadian sample includes individuals involved in the organization and administration of redeployment practices, but not redeployed individuals themselves. Aligned with the recruitment strategy, the Canadian sample also included individuals with managerial roles that did not include direct patient care. In the UK sample, several participants were redeployed into new roles at the peak of the first wave of the

Table 1. Participant characteristics.

Canadian sample		UK sample	
Gender	<i>N</i>		<i>N</i>
Female	16	Female	17
Male	5	Male	8
Role	<i>N</i>		<i>N</i>
Doctor	5	Doctor	7
Nurse	3	Nurse	9
Allied Health Clinician	2	Healthcare assistant	4
Clinical Manager/Administrator	5	Allied Health Clinician	1
		Paramedic	1
Other hospital service administrator	6	Care home worker	1
		Mental health care worker	21
Setting ^a	<i>N</i>		<i>N</i>
Intensive Care Unit (ICU)	3	Intensive Care Unit (ICU)	6
Emergency department	3	Emergency department	5
COVID ward	2	COVID ward	8
Outpatient medical service	1	Older adult wards	1
Inpatient rehabilitation	1	Nightingale Hospital ^b	1
Psychiatric service	4	Ambulance service	1
Other hospital service	5	Care home	4
		Psychiatric service	1
Location	<i>N</i>		<i>N</i>
Toronto	21	London	9
		South East England	3
		South Central England	2
		South West England	2
		Midlands/Central England	3
		North East England	5
		Scotland	1

^aSome participants worked across more than one clinical setting during the peak of the pandemic.

^bSpecialist field hospitals set up in the UK in anticipation of peak of pandemic.

Allied Health includes physiotherapist, occupational therapist, social worker, spiritual care worker.

Other Hospital Service roles includes infection prevention and control, occupational health, security, environmental services.

Health care assistants' roles include providing personal care to patients, patient transportation, equipment sterilisation and similar activities under the direction or supervision of a nurse or physician.

pandemic. The UK sample only included individuals with patient-facing roles. Participant information for both samples is shown in Table 1.

Written informed consent was obtained from all participants prior to taking part in the interviews. All the interviews were audio recorded and transcribed verbatim with the exception of two Canadian interviews that were documented as fieldnotes due to recording technical difficulties. All potentially identifying information about participants and their places of work was removed from the interview transcripts to protect participants' anonymity. Both the Canadian and UK teams completed member checking with interview participants as a validity check of our analyses. Both teams followed guidelines for Standards for Reporting Qualitative Research (SRQR) (O'Brien et al., 2014).

2.4. Analysis

A preliminary meeting was held between SB, KS, and JB to discuss the interview data from the respective research teams and begin to plan for a collaborative data analysis process. Individual teams conducted

the initial thematic coding of their own data sets. HS carried out this stage of coding for the Toronto data set using NVivo software. Coding meetings were held between HS, SB, and KS to review the initial themes that emerged. The initial UK data analysis was carried out by NAS and DS in discussion with JB, who oversaw the organisation of the developing themes. The data were iteratively re-coded in a collaborative fashion between the Canadian and UK research teams through a series of joint virtual meetings (four iterations of coding). Multiple meetings were held to compare the initial codes and refine these into overarching themes and sub-themes, where themes and excerpted quotes from each data set were compared against one another. Meeting memos were recorded and discussed in follow up meetings with both UK and Toronto teams present.

2.5. Reflexivity, transparency and trustworthiness

Because the researchers are themselves the instrument of analysis in qualitative studies and findings are the result of judgements relating to how codes, themes, and contextualisation of data will occur, details regarding the techniques of inductive reasoning and the researchers' own standpoints in relation to this reasoning are a crucial component of the methodology and central to the trustworthiness of the data analysis (Starks & Trinidad, 2007). In qualitative approaches this attention to researchers' own positionalities is termed reflexivity and it (rather than replicability or documentation of a priori categories of analysis) is a marker of quality (Tong et al., 2007). Multiple members of each study team were dually positioned in clinical and research roles, providing psychological and psychiatric care during the pandemic. The Toronto study leads (SB, KS, and SA) were the principal investigators and program developers of the UHN COVID CARES program. Amongst the UK research team, JB, DS, and MB are academics with trauma and mental health expertise. TG, along with JB and MB set up the COVID Trauma Response Working group, a consortium of leading UK trauma, mental health and wellbeing experts who provided evidence-based and trauma-informed guidance to frontline health and social care services throughout the pandemic.

The duality of many of our roles as researchers and clinicians providing support services to HCWs and guidance to policy makers has given us significant insight into the impact of the pandemic on frontline healthcare workers. Our positionalities informed the data analysis in two respects. First, our clinical experience has afforded insights into how concerns and issues have impacted individual HCWs while intersecting with institutional issues across various health

care organizations. Second, the dual roles position us to offer multiple layers of interpretation – specifically informing how we mutually conceptualised underlying mechanisms of distress from the analysis of interview data. We sought to redress the risk of oversight (bias) due to our familiarity with the context by considering our own and each other’s data sets through different explanatory models, using multiple iterations of interview transcript analysis, and purposefully looking for exceptions and alternatives to the concepts we noticed in our findings. We have endeavoured to provide transparency in relation to our analytic procedures and the theoretical lenses through which we viewed our data. We have also sought to ensure the trustworthiness of our research by providing a careful audit trail of our procedures, member-checking our analyses with research participants, and providing illustrative quotes to evidence our interpretations (Nowell et al., 2017).

3. Results

Our collaborative thematic analysis developed descriptive findings that detailed the sources of distress as well as a more interpretive analysis of the data that reflected how these sources also revealed underlying mechanisms that enhanced or mitigated the distress experienced. Our initial conceptualisation of sources of distress stemmed from descriptions of challenges that participants described as events, practices, and issues that directly led to emotional experiences of concern, worry, sadness, anger, and difficulty coping. These spanned a continuum from personal or individual-level concerns to structural or institutional-level challenges and issues (Table 2).

3.1. Sources of distress

Despite different social contexts leading into, and through, the first wave of the pandemic, our analysis revealed remarkably similar themes across the two study settings. We offer a description and examples of each subtheme from our respective datasets below.

3.1.1. Safety

HCWs concerns about their safety was prominent within the first wave of the pandemic, and as we discuss below, this concern frequently overlapped with other themes, particularly relating to communication challenges and widespread reporting on deaths and nosocomial (hospital-originating) infections within areas severely impacted by the first wave of the pandemic. As a UK-based physician described:

It’s just unprecedented, it was ungiven, and it was unprecedented. And we were at work and we could see what was happening in Italy and the guy who

used to run my hospitals intensive care now runs intensive care at the epicentre of the outbreak in Italy. And he was coming on the phone to us saying ‘Look, whatever prep you do, it won’t be enough, and you need to do this, this and this.’ I have never felt my health or my family’s health or my colleagues’ or my friends’ health as being threatened by an existential threat [before]. (UK Doctor (consultant))

As a broad category of concern, ‘safety’ was broken down into *fear about COVID infection*, and one’s personal vulnerabilities to COVID-19, *fears of infecting others* (patients as well as family members) and safety fears in relation to *PPE* (e.g. supply-chain challenges and whether the correct ‘level’ of PPE was being supplied). These fears were exacerbated when outbreaks occurred within the healthcare setting and as HCW became aware of co-workers’ illness or had to isolate themselves due to a high-risk exposure. In the Canadian context, safety fears were often related to previous experiences with the SARS pandemic of 2003, as one Canadian ICU staff member remarked,

It was the same in terms of SARS... Is the PPE inadequate and am I going to pass this on to my family. Those are the two biggest fears. And sometimes that could literally be as direct as, ‘Am I going to kill my mom, because she’s sick, or am I going to give it to my children or am I going to die?’. (Canadian ICU Staff)

In the Toronto SARS experience, a number of healthcare workers did die as a result of their SARS exposure and infection – this, along with the images of HCW with limited PPE becoming infected in New York and Italy, heightened the concerns about safety.

3.1.2. Patient care

We conceptualised distress relating to patient care as existing along three axes, demarcated by the subthemes we identified: the *extreme conditions* that the pandemic was generating, particularly within intensive care units; *care rationing and delays* in routine procedures and practices that were put on hold with significant consequences for patients; and the struggles that came with *caring for patients’ families*; particularly having to facilitate connection between very ill patients and their family members when lockdowns and visitor restrictions meant that loved ones could not be at the bedside. UK and Canadian staff in a range of roles described the challenges with extreme conditions relating to patient care, saying:

People were dying all over the place. I don’t think we have ever experienced anything like that number of people dying continuously, in strange circumstances before and I think that’s where it’s difficult to understand. Even now I look back and think ‘Was it all a dream?’ It’s like in the movies. It didn’t appear real... it’s traumatic. It’s very traumatic... It’s difficult for me to kind of verbalise because I don’t know if I

Table 2. Qualitative themes and sub-themes.

Sources of distress: themes and sub-themes							
	Safety	Patient care	Personal & home life	Communication challenges	Work environment	Media, public perception	Government response
Sub-themes	Fear of COVID-19 infection	Extreme conditions	'No escape'	Changing information	Workload	Constant coverage	Inconsistency & fractured response
	Fear of infecting others	Care rationing & delays	Disconnection from own family & community	Information overload	Role change	Comparisons with other locations	Undervalued or de-valued workforce
	PPE	Caring for patients' families	Home related stressors	Barriers to communication	Loss of autonomy & normalcy	Hero spotlight	
			Lack of usual coping	Lack of clarity & transparency	Resource challenges	Broader political issues	
			Prior mental health concerns		Team dynamics & cultures		
					Institutional context		
					Lack of recognition		
					Management		
	← Individual			→ Structural			

PPE: personal protective equipment.

took on board everything that was going on around me. It's just surreal. (UK ICU and Older Adult Nurse)

[The social worker] and I run around non-stop for hours with these [iPads] in our hands, and we Facetime our brains out. And what is so hard for me in leaving is that I am so fearful that if I don't get into that room, that was the last chance they had to say goodbye to their loved one ... I find it so hard to leave the [ICU], because I think 'Just one more, just one more,' and I brace myself. I can feel myself bracing in the morning for who's not going to be on the census and who I didn't get to. (Canadian ICU Staff)

Care rationing was also a source of distress in both settings:

So people who had been waiting two or three months for an appointment, and then we cancelled the clinic, they will have waited another four to five months probably by the time we get it up and running, they'll be back on a three-month waiting list, so you're looking at almost a year for all those patients to get an appointment ... I think this is going to be a big secondary backlash of all of this ... 'non-essential services' are going to become a lot more essential when people have waited a year for that service. (UK Physiotherapist)

How HCWs interfaced with family members, particularly in acute-care areas, was especially fraught. Participants described being unable to fulfil what they felt to be high quality end of life care without the support of families; they bore the weight of the grief of families who were disconnected from loved ones during major life events. Tasked with enacting policies to protect the hospital from outside infection while also trying to facilitate family contact through digital technologies, they also struggled with gatekeeping that dictated how they related to caregivers, loved ones and family members. As a nursing manager articulated,

We've always, you know, had the philosophy that nobody dies alone but I think, the fear is that especially nurses at the bedside who are there day in and day out, they somehow feel inadequate at the end of life because they're not that person's loved one. They're a surrogate. And I think that's what weighs on them. Is that they feel like we're letting patients down because they don't have that, the touch, the human touch of their loved one, holding their hand, as their life ends. They have the nurse's hand. It's a gloved hand. (Canadian Nurse Manager)

As we discuss below, these sources of distress were ones that could translate into experiences of moral injury due to unresolved grief, helplessness, and the limitations of their position as the surrogate for family contact, especially in a person's last moments. These challenges were exacerbated by HCWs' sense of injustice over who was more likely to die from COVID-19 (i.e. individuals racialized as minorities, elderly in congregate settings) and the sheer volume of deaths that were experienced.

3.1.3. Personal and home life

As essential workers, HCWs were one of the groups whose roles continued and intensified within the pandemic. In both Canada and the UK, this generated distress in relation to home and personal lives. Participants across roles and study contexts spoke about there being *no escape* from COVID-19. This quality of 'no escape' was something that Canadian participants noted was quite different from SARS:

There's no escape from it. You live and breathe it here, you care for the patients and then you go home, and you try to turn on your TV and your radio and it's, you're inundated with it, everybody's social media feed is talking about it. It becomes that much more difficult to create boundaries for yourself that put up a healthy divide between work and home

life ... it's really impossible to flick the switch and leave work at work, because it just follows you home. (Canadian ICU Staff)

Interestingly, even without SARS experience, the idea of 'no escape' was also something voiced by UK participants:

To begin with there was no getting away from it. I wasn't sleeping, I was waking up at four am most mornings. I've only just gotten back to sleeping to my alarm clock. There was constant—there was so much uncertainty at the beginning and a lot of information was being shared back and forward informally by WhatsApp and Facebook Messenger and groups of people sharing information on Twitter and that meant that there was no escape from COVID. (UK Doctor)

Disconnection from one's own family or community due to their not understanding the healthcare context was a stressor, limiting the social support that might otherwise mitigate distress. This disconnection also contributed to distress when it was layered with a larger sense that the general public did not understand how challenging the pandemic was for HCW. The disconnection was not *only* from the general public – in some instances it occurred even in one's home environment with friends and family. As a Canadian participant noted:

So, my husband has no idea about my work and is just so pumped for the city to open up again. And he's like, 'Oh, the curve is flattening!' And I'm just like, every day we talk about this going home, and I'm just like, mmm. But I'm terrified. And all my friends are, you know, and they're on the Zoom call every Friday night, having a glass of wine and just so excited for the city to open up. And I am terrified ... That support, it's not there, and not because they don't want to be supportive but just, like, they don't understand. (Canadian Social Worker)

HCWs in both acute and long-term care settings in the UK likewise made this observation:

Yeah, I've seen—not necessarily my close friends—but people that I know of, I'd see things on their social media on being out with their friends or being round someone else's house. And I know everyone struggles with it but we're all in the same boat. And, personally, I feel like if they just give it two strict weeks of people not going out it would really just clear everything up. But I feel like we're in the day and age where we're like freedom of speech, freedom of whatever, equality. But it's not really, you know, people think they can just do what they want. (UK Carer in a Dementia Care Home)

The communication from the powers that be and NHS England now about infection control measures, it is not getting through ... I think we have to bring it back to basics and think about washing our hands properly and that way we will control this thing. We need to bring it back to basics because all these people

walking around in gloves and their masks down here [motions under chin] is just ridiculous and I don't know how ... (UK ICU and Older Adult Nurse)

Various social and economic restrictions also contributed to distress in different ways. We conceptualised *increased home-related stressors* as those that were described relating to school closures and increased care burdens for children, increased isolation for those who lived alone, as well as concerns amongst HCW for their elderly family members living in care facilities that had limited staff and restricted family access. In addition, many HCW relayed that they struggled with a *lack of access to usual ways of coping*. With respect to the latter issues, one UK doctor described,

It's been difficult because there is little that you can turn your hand to at the minute. I swim normally five or six times a week, so not being able to leave your house to do something like that. It's part of my routine normally that I would have a swim before work, it just meant that you couldn't have that. (UK Doctor)

Individuals with *prior mental health concerns* noted that the pandemic significantly exacerbated these, something that Canadian authors SB, KS, and SA also noticed as they implemented a mental health support program for HCWs in their institution. This was echoed by leaders in their hospital site, as one described:

Some of the [staff] have predisposed anxiety disorders. You know, one of them called me from the ward and said, 'I'm sorry I have to tell you this. I have panic disorder. I thought it was under control, it's not under control, I need help right now'. (Canadian Senior Physician Leader)

3.1.4. Communication challenges

In both the UK and Canada, HCWs noted the furious pace of communication about the pandemic, and the challenge of not only how much information was being transmitted, but also the extent to which it *information was (continually) changing*. Communication often heightened rather than quelled uncertainty, and lead to *information overload*. The pace of the changes in communication was also felt by HCWs to have a negative impact both on both staff morale and cohesion as well as on patient care. Staff in Canada described the challenges and *barriers to communication* saying:

I think collective feeling is that it was the initial outbreak was not optimally managed and there was a lot of distress surrounding the lack of communication or confusing communication, I think, and I certainly, as a supervisor felt distressed by that. (Canadian Nurse Manager)

In the UK, a similar sentiment was described:

I guess there were frustrations with [communications] but it is what it is. We had to try and adapt day to day to the new recommendations and I'm sure you are probably hearing this from other people as well: every couple of days the PPE guidance would change and the restricted zones and protocols with all of those would change so you kind of just had to take it on the chin and try and be as up to date with it as possible in order to get the best outcomes for the patient because specifically in those kind of settings, we just need to try and get them through and into the scanner as fast as possible. So I guess just trying to take a breath and get them through as quickly as possible. (UK Doctor)

Barriers to communication existed in both locations as well. In both study contexts certain HCWs did not have access to an institutional email address during the first year of the pandemic – the primary means of providing updates about institutional policy and practice changes that were being continually revised. Within the Canadian sample, this included custodial/environmental services and food services personnel, and in the UK sample, agency staff providing temporary services did not have access to an institutional email. Staff described their distress upon learning about new events such as institutional outbreaks or changes in policies through the news media rather than their institutional communication channels, fuelling a sense of a *lack of clarity and transparency* in communication.

3.1.5. Work environment

As a structural or institutional source of distress, the work environment factored heavily into how emotional challenges within the pandemic developed for HCWs in both locations. *Workloads* were increased and *roles changed*. Especially in relation to redeployment, HCWs faced a *loss of normalcy* in their workflows and their practices as well as a *loss of autonomy* as institutions shifted to 'command-and-control' style management structures to manage rapid changes due to the pandemic. These challenges frequently intersected with one another, especially in either high-acuity or hard-hit areas such as intensive care units and long-term care facilities. As two UK nurses explained:

So, you were expected to have one-to-two nursing ratio, and we had to receive the help from nurses from the ward, to support us. Now, the nurses on the ward were given a little bit of planning and preparation, to help them prepare for this transition from being a ward nurse to an intensive care nurse. Ehm, but that was really just a couple of hours. That was it. And, so the nurses who were coming to support us were very scared, and very frightened for not knowing the system, and how, obviously, to look after our patients. So, our nurses were having to manage their patients, and help teach and support the

nurses who have been deployed to support us. And we were then having to send our intensive care nurses to other hospitals, to support the other hospital. (UK ICU Nurse)

The ITU [Intensive care unit] experience, I can only describe as an emotionally bruising experience. I wasn't prepared for what was there and even though my friend had explained to me how things were, until you experience it- it was nothing like I had ever experienced in my whole life. They had gone from an eight bedded unit to thirty three ventilated patients. They had people all over the place and it was just survival of the fittest—patients and staff, I think. (UK Nurse)

Even in Toronto, where the peak of the first wave was much smaller than in the UK, dealing with work was a constant, particularly for managers. Some of this work was also unrecognised, which added to its burden:

When [information] was changing every day, that uncertainty was really wearing on the staff. Wearing on us as leaders because you're fielding all those questions. And you're fielding them not just during your regular ... like, none of us work regular hours. None of us work 7.5 h. On average, they are 12-hour days, Monday to Friday, and then you're answering your calls on the weekend because staff need you ... some of our work is very invisible, right? They don't know what we're doing. Like they think that you're an office person, but don't realize that you're trying to source out equipment, like extension tubing, to get those pumps out of the rooms so nurses don't have to go in as frequently. All of that work takes time. Like negotiating that with the vendors that we have, 'can you do this, can you manufacture this specifically for us? How quickly can you do it?' I'll drive there and I'll pick it up and I'll load my SUV with this stuff if you can deliver it to me, right? If you can manufacture it, you don't even have to deliver it. I'll come to you because that's how urgent the need is. So, I think how invisible sometimes our work is. [Canadian Nurse Manager]

As the above interview excerpt also suggests, *resource challenges* in the workplace arose frequently in the first wave as supply chains were disrupted. Not only did this theme intersect with workload issues for managers – it was very closely related to concerns about safety and PPE availability, as voiced by a Canadian physician:

So I think a lot of people experienced a lot of anxiety in the first days. The Emergency department went totally bonkers. I had a not a great interaction with them—they asked me to try to help with anxiety management ... it was just like, 'We're dying, nobody cares about us, we have nothing to cover our necks, we cover everything else but you know, we're gonna run out of face shields.' It was just like, 'wow'. (Canadian Physician)

The intersections and overlapping quality of the sources of distress enhanced how profound their

impact was. It was also through the intersecting of the themes that we ultimately conceptualised a formulation of mechanisms and mitigators of distress, which we discuss below.

Team dynamics and workplace culture were also challenged. Teams that were cohesive and worked well together pre-pandemic tended to carry on supporting one another, though the larger practices, policies, and *institutional context* could also undermine this. In the Canadian context, these institutional-level issues included redeployment, decisions relating to which groups would receive additional ‘danger’ pay, and the continuation of health system restructuring that had been already underway pre-pandemic. The UK context was somewhat different in that no additional pay incentives were provided, but the broader workplace challenges of redeployment and pre-existing strains on health human resources within the NHS generated many of the same challenges, as the participants below both discuss. HCW felt undervalued by what was perceived as a *lack of recognition* of their efforts through these struggles and voiced especially that they were disappointed when their *management* did not seem to be keeping their best interests in mind.

I would say the team tries to keep the spirits lifted but the people are feeling demoralized for sure. When you’re not recognized for the work you do and you know, other people, maybe? It’s, it’s demoralizing. You feel undervalued. There’s definitely that sense of being undervalued. (Canadian Allied Health Manager)

So, what was a little bit frustrating is if they didn’t know what I was able to do and not do, and then I wasn’t being used effectively. That was quite frustrating. Or you know, they would change the times they’re having meetings and stuff and I wouldn’t really be updated. I would come in for a meeting and they would be like, ‘Oh we’ve done it already,’ kind of thing. That was very frustrating ... It sounds like such a small thing but when I was like I’m trying to help your team out and help just generally, and then I feel like I’m kind of an afterthought. That felt a bit demoralizing. I felt like I wasn’t being taken care of by their team. Particularly when like, I don’t normally do this, I’m already out of my comfort zone a bit here, it’s a bit like, help me out a tiny bit, you know? (UK Physiotherapist)

3.1.6. Media/Public perception

Numerous participants noted how the COVID-19 pandemic was different from other pandemics and other public health crises due to the extensive media coverage, including the popular press, scientific outlets, and especially social media. *Constant coverage* of the pandemic contributed to other themes, including the sense of there being ‘no escape’ from the pandemic. Related to the constant coverage were

comparisons of what was taking place in other locations, which was an added stressor and heightened anticipatory fears while contributing to a sense of hypervigilance. HCW were distressed wondering if their area was next. These concerns intersected with fears about safety, particularly around the use of PPE, as one Canadian physician describes below.

It’s the uncertainty and the mixed messaging. The media doesn’t help because you see what’s happening in Italy, you see what happened in New York, what happened in China, and they’re all wearing different PPE. Every country is like, some are in full, you know, Tyvek suits with PAPR hoods, and then others are wearing, like, not very much. And then we’re sort of middle of the road. (Canadian Physician)

HCWs also described the public’s perception of them and how it impacted their emotional state, particularly when being in the *spotlight as a ‘hero’* didn’t map on to how they felt they were tangibly valued in terms of pay and the historical challenges that HCWs have faced in both locations (the UK and Canada). HCW often described a sense of hypocrisy in how they were hailed as heroes whilst also being sent to work without adequate protection or reward, while also having to work within systems that had been strained by cutbacks and austerity measures preceding the pandemic. As one UK physician described it, the public perception was glorified, but in a way that was undermining rather than validating:

Yeah, it was quite glorified. I guess for me, even more than the doctors, the nurses were the ones who were really on the frontlines of everything and they were in there looking after the patients all day, every day. I felt like some of the stuff where there was an outcry saying, ‘hey, the nurses should have a pay raise, blah, blah, blah’ and then there was explicit media coverage of the government saying ‘now is not the time to talk about the nursing pay rise.’ I found all of that very condescending to be honest, like ‘if not now then when?’. (UK Doctor)

It was not only the case that the ‘hero’ narrative challenging for the juxtaposition it revealed, about how HCW were lauded but not necessarily valued in a remunerative sense. For participants in both Toronto and the UK, the ‘hero’ narrative was challenging for its contribution to a sense of guilt: those who felt they weren’t doing enough (e.g. had been exempt from redeployment due to age or underlying health issues), those who felt they were in relatively ‘safe’ positions while colleagues were more exposed to danger, or those who had seen their work less impacted overall.

Broader political issues that were being discussed in the media were also brought into the range of concerns and sources of distress for healthcare workers. Anti-Black racism, multinational corporations profiteering from the pandemic, public versus private

funding in healthcare settings, issues in relation to the trustworthiness of science and what counts as evidence (and who is an expert) – these larger political issues that were part of the social and cultural milieu within which the pandemic was evolving contributed to emotional challenges for HCWs.

SARS – nobody remembers how many SARS cases there were, they remember the anxiety. So that part's the same. I think the shift into the command and control and the grappling with that and dealing with professional behaviours and stresses and stuff –that's all very familiar too. The institutional responses are similar because in a way, they're, sort of, supposed to be ... Some things are different. This whole business with long-term care, and homeless population, congruous living settings. Nothing like that happened in MERS and SARS. And I don't remember, I could be wrong, I don't remember the *big*, like racist overtones that started, especially in the [sigh] ... In the early phase of this coming on, it was just *awful* for Asian people. [Now] the whole anti-Black racist thing has added another dimension to that. I don't remember *any* of this in the other pandemics. They were more, medical? I think? [Canadian Physician]

The understanding of the pandemic as being situated within larger political issues was likewise noted through additional data sources in the larger needs assessment study from which the Canadian interviews were taken (Berkhout et al., 2021).

3.1.7. Government response

Despite different geopolitical contexts and different actions on the part of government actors within the UK and Canada, healthcare workers in both studies identified that governmental responses and policies were a source of distress. *Internal inconsistencies* in policy and a *fractured or disjointed response* to the pandemic across different regions (whether nationally, as in the UK dataset or provincially as in the Canadian data) undermined HCWs' confidence in how the pandemic would be managed, raising concerns regarding the resulting impact on the healthcare system. As Canadian and UK participants explained:

I guess some of my concerns have been about integrity, and integrity of decision making, integrity of information that's been shared, and overplaying of a rationale based on evidence and science. I think that's been used as a sort of political tool, rather than really an honest reflection. I think we've played fast and loose with the evidence. (laughs). We've used it when we wanted and stepped away from it when it doesn't really suit an agenda. (UK Nurse)

Ontario is such a big place that there is an unevenness in terms of approach ... so the other thing that I would say is there's conflicting messages. We are either blessed or cursed with [laughs] a number of public health units across the province, and so there

wasn't consistency—and sometimes there wasn't consistency between the Chief Medical Officer of Health and some of the health units. (Canadian Physician)

In addition to concerns about inconsistent and fragmented response from government bodies and leaders, HCWs also expressed concern about the way in which government policy reflected a *devaluing* of HCWs – both financially as well as through a lack of work-related autonomy and control. Participants in both sites suggested that this led to a sense that they were being seen as expendable, despite being lauded as heroes.

Because again, I think sometimes being called a hero or an angel is deemed to be sufficient reward for managing down salaries [laughs]. Again, I don't want this to be too politicized, but I think it is very easy to say you're doing a fab job, you know, Boris Johnson going on the news and singing the praises of the nurses who had cared for him. So, how does that translate from political rhetoric to something more significant? (UK Nurse)

3.2. Mechanisms and mitigators of distress

In carrying out the thematic analysis, we also conceptualised how participants' accounts offered insights into the mechanisms of both distress and resiliency. Whereas our qualitative data described a range of issues, practices, and events that HCWs characterized as leading to emotional challenges in the pandemic, HCWs in both studies also described underlying aspects of their distress that spanned the breadth of sources we identified. These were processes that underpinned the sources themselves, and as such we refer to them as mechanisms and mitigators of distress (Table 3).

Uncertainty was the most prominent mechanism, underpinning each of the sources of distress developed from our thematic analysis. Especially prominent with respect to safety, communication challenges, and work environment themes, uncertainty related to the struggle of having to operate without full information about what to expect, how to respond, or what would come next. As two Canadian participants described:

I'll start by saying that I think a lot of what I've been addressing is just the anxiety and the unknown, the uncertainty. So, the change from moment to moment, hour to hour. You wear a mask, you don't wear a

Table 3. Mechanisms and mitigators of distress.

Mechanisms of distress	Mitigators of distress
Uncertainty	Supportive work environment & team cohesion
Hypervigilance	Social supports outside of work
Feeling undervalued & expendable	Meaningful work
Lack of trust & transparency	
Moral injury	

mask, you wear a shield, you don't wear a shield. We're doing disposable gowns, no we're not. (Canadian Nurse Manager)

I would say theme number one I felt was the anxiety about the uncertainty. And there was a lot of emphasis around people's personal risk and personal safety. So they, like, felt like they were at extremely high risk of passing away from this and there was this sort of, percolating anxiety that was, that was, I think, aggravated by the media, by the communication, by the uncertainty, by the news, almost like a contagion. (Canadian Physician)

Similarly, a UK participant articulated:

There were constant changes for the first months. Everyday something would just change a little bit and I think that was very stressful. So, we tried very hard to make sure that the changes were communicated. We tested out some new ways of communicating through Facebook group, because some nurses weren't on email and there was so much email traffic that people just weren't picking up messages. (UK A&E Consultant)

Hypervigilance was also described by HCWs in relation to numerous themes, especially that of safety. Notably, hypervigilance also arose as an issue within the clinical experience of the Canadian authors as a mechanism that contributed to a sense of overwhelming fatigue and exhaustion in the workplace. Frontline staff, for instance, reported exhaustion relating to their hypervigilance about correct donning and doffing procedures, exacerbating the challenges that already existed in relation to patient care and increased workloads. *Lack of trust or concerns about transparency* frequently arose in relation to more structural or institutional sources of distress, and intersected frequently with another mechanism of distress, *feeling undervalued or expendable*.

There was a lot of things that would be initiated and then removed, like, especially with PPE, so you know, one day it's wear your mask and change your mask after every patient. Then the next day it's wear a mask for, you know, four hours, then it's wear a mask for the entire day, and then it's wear a mask all the time. And so, that sort of reversal clearly—[laughs]. I think for myself, there was a clear erosion of trust—that these things were arbitrary and were changing not based off of evidence, but based off of availability and supply. (Canadian Physician)

I think for the NHS it's been quite great but I feel like for some of the other places, like us in care homes or even shop assistants where they're working in places where people aren't abiding by the rules, they haven't been given enough recognition as they should have. And especially for us as care workers, we're classified as unskilled. But if we were unskilled then I personally think 'then why aren't you looking after your own grandparents rather than put them in the home?' They're there because you don't have—you know it's too much for you to look out for them. And we

haven't been given as much PPE or resources or support as other organisations. (UK Dementia Care Home Carer)

As we employ it here, moral injury in health care refers to the moral distress experienced when one witnesses or perpetuates certain actions, or cannot act in ways, that are consistent with one's professional values and standards, or the experience of betrayal within the workplace. This can be either due to one's own actions or the shaping of one's actions by the institution in which they are embedded in (Shay, 2014). *Moral injury* was a theme that emerged most prominently in relation to patient care, but was also related to workplace environments, and often the disconnects between HCWs and family members or supporters, as well as between HCWs and how they were perceived in the media, which was an added stressor.

I think we're hearing the stories from the families and that really weighs on us and we take that home, you know, what families are telling us and how horrendous it is for them not to be able to be here. Like, I had a wife tell me that she went for a drive from Scarborough to just be, to just basically do laps of the hospital because she wanted just to be near him here. So, it's just, you know, that kind of thing, how can you go home? It's heartbreaking. (Canadian Social Worker)

HCWs experiences of moral injury were complex: layers of grief and sadness, as we hear above, but also anger and at times a sense of betrayal on the part of both health care institutions, government bodies, and the media in how the pandemic has been represented, handled, and the impact on HCWs.

There were also mechanisms of resiliency that HCWs discussed (often unprompted) in both the Canadian and UK interviews. Having *team cohesion* amongst HCWs and *perceiving one's work environment as supportive* mitigated many of the stressors and gave HCWs a sense that they would be able to 'make it through' or that they were being looked out for in their day-to-day roles. *Social supports outside of work* helped to buffer the challenges that were arising on a regular basis within the healthcare system, particularly as HCWs described that their usual ways of coping were often unavailable to them. Finally, *seeing their work within the pandemic as meaningful* and making a difference in others' lives was an important mechanism for mitigating the distressing context and events that were taking place, especially to counterbalance the experience of moral injury.

I think, again, you can almost just operate below the radar because the heroes are doing all these marvellous things in order the system going. And these are really important in terms of your personal valuing of yourself and what you're about and what you do, so psychologically, I know you're focused primarily on psychological care, they're really important in finding purpose in the work you're doing. (UK Nurse)



Figure 1. Formulation of the relationship between sources, mechanisms, and modifiers of HCW distress in COVID-19.

Bringing together these findings, we have conceptualised a formulation of HCW distress that demonstrates how the sources of challenge and concern interact with underlying mechanisms relating to fear and anxiety as well as resiliency (Figure 1).

Various (and often overlapping) sources of concern that exist on a spectrum from individual to institutional levels impact differently positioned HCWs, leading to increased sense of uncertainty and hypervigilance while also producing (in many instances) moral injury. In the resulting environment, HCWs described feeling expendable, under-valued, and having a sense that the larger environment of healthcare work in the pandemic lacked transparency and was not conducive to a sense of trust or security. The pathway for these underlying mechanisms to function might vary depending on the particular sources of concern and the contextual features that situated any given HCW, but the resulting distress saw these commonalities. As we described above, distress could also be mitigated in some way by the qualities of the healthcare environment, such as team cohesion, or by one's home life (strong supports), as well as by the sense that one's work was particularly meaningful at this challenging time.

4. Discussion

HCWs' mental well-being has been challenged by the COVID-19 pandemic. Multiple and ongoing waves of infection, pressures and capacity issues within health systems, and numerous social and economic restrictions have limited the ability to cope with the many sources of distress developed within our thematic analysis. There is some evidence to support the themes we have explored as being ones that resonate across a range of settings. Healthcare professionals across a range of roles have reported increased work-related stress as well as fears relating to falling ill or infecting others with COVID-19 (Sockalingam et al., 2020). The experience of seeing co-workers become ill or die from COVID-19 infection has also been noted as a source of distress (Rabow et al., 2021); in our study, safety concerns about oneself or one's colleagues becoming infected intersected with resource allocation concerns, government and hospital policy and communications

relating to PPE, and workload intensity. Distress relating to these intersecting concerns were exacerbated by issues of hypervigilance, uncertainty, and trust and transparency. Participants described distress that outbreaks were being blamed on HCW practices, such as whether they were donning and doffing PPE properly (rather than not being supplied adequate PPE or knowing which level of PPE to utilise). Case rates, PPE supply, workload, COVID-19 exposure at work, and feelings of being unsupported by health administration have been shown to contribute to the mental health burden of HCWs (Elkholy et al., 2021; Lai et al., 2020; Menon et al., 2022). That said, most studies of HCW distress relating to pandemics (whether in COVID-19, SARS, H1N1, or MERS) have focused on evaluating clinical symptoms such as anxiety, insomnia, depression, and PTSD (Shreffler et al., 2020) and predominantly amongst doctors and nurses with less frequent consideration of allied health professionals and almost no inclusion of support and administrative staff or managers (Cag et al., 2021; Ezzat et al., 2021; Orrù et al., 2021). These give us valuable information about the downstream outcomes of stressors, but limited knowledge of the sources of concern and very little understanding of the ways in which they function to generate distress, or the factors that might mitigate their impact. This paper is significant on two fronts: it provides rich qualitative data relating to the under-studied sources of distress or concern, and it does so from the standpoint of an international comparative dataset, which provides a unique opportunity to compare findings from settings that have important similarities and differences – contextualising the data in a way that enables broader patterns to emerge than would typically be found in a qualitative study.

What stands out from this comparative work is the extent to which the findings are remarkably consistent across locations, despite some important contextual differences highlighted above, such as the higher infection rates in the UK during the first wave and differences in the HCW roles held by participants in each site. Also similar across the two sites was the way in which the various themes intersected with one another. Although we present the themes and sub-themes in an itemised fashion for the purposes of

clarity and readability, deep interrelations existed between sources of distress. In some instances, the sources we identified were linked through a common underlying mechanism, while in other cases sources of distress were related through a mutually reinforcing relationship. For instance, discomfort and concern relating to media coverage spotlighting pandemic ‘heroes’ overlapped with concerns about being devalued as workers through government policy as well as institutional practices, and these themes reinforced one another. As our participants articulated, what good was banging pots and clapping, when pay was frozen (or even scaled back) and health systems forced to run as lean as possible, overstretching staff while failing to recognise certain roles as ‘frontline.’ Similarly, concerns about communication translated frequently into a sense of a lack of transparency on the part of healthcare institutions which intersected with the stressor of feeling devalued and expendable, which exacerbated the distress relating to moral injury. The issues were interactive and mutually reinforcing of distress. Safety themes intersected with the theme of government response as well as communication, linked by way of a relationship to increased uncertainty underpinning each. Multiple sources of uncertainty likewise reinforced distress amongst participants.

Data from both study sites also revealed that the sources of distress sat on a continuum of individual level concerns to structural or institutional level of concern, and that sources of distress interacted across this continuum. The latter finding has likewise been discussed elsewhere (Berkhout et al., 2021) in relation to concerns voiced by HCWs. This is consistent with the emerging literature examining issues of increasing HCW burnout within the pandemic, which has emphasised how burnout is related both to individual demographics and characteristics (e.g. age, gender) as well as to institutional or structural-level issues such as workload, job stress, and organisational support (Jalili et al., 2021; Morgantini et al., 2020).

The numbers of female and male participants likely represent gender ratios in full-time healthcare (Cheeseman Day & Christnacht, 2019) rather than reflect a sampling limitation for the study. That said, we would be remiss in failing to highlight that many of the challenges experienced by HCWs during the pandemic may themselves reflect intersections of gender, racialized identity, (dis)ability, amongst other axes of social power (Berkhout & Richardson, 2020). Issues of safety in relation to PPE (limited smaller sizes; items often designed for ‘standard’ male bodies), challenges of managing work and home stressors during periods of lockdown and school closures, and moral injury and grief in relation to the racialized and socioeconomic demographics of who has been most likely to be seriously impacted or die from COVID-19 have

resonated strongly for women HCW – women who identify as Black, Indigenous and persons of colour (BIPOC) especially. Moreover, limitations in quantitative analyses have been identified in relation to how these issues have been studied amongst women HCW racialized as minorities, leaving much to be understood about intersectionality and the experience of distress in COVID-19 (Firew et al., 2020; Hennein et al., 2021). As Rabow et al. describe in their comprehensive discussion of grief and loss for HCW during the COVID-19 pandemic, the relentlessness of the pandemic has also meant there has been little opportunity to process or resolve grief (and anger) relating to the deaths of patients, colleagues, and loved ones (Rabow et al., 2021). These challenges cut across many of the themes we developed in this study, from safety to patient care to governmental response and media/public perception.

4.1. Limitations

As much as the opportunity for comparison affords novel insights, there are limitations in this approach that need to be acknowledged. Foremost, these studies were not designed as a comparative qualitative analysis. As such, the participant samples (e.g. the roles that participants hold in their respective healthcare system) are not matched, nor are the settings themselves. The intent behind each study was also different. The Toronto study was a qualitative needs assessment designed as part of a quality improvement initiative and the UK study designed as a research study exploring HCW distress in the pandemic. Likewise, the data sets were collected independently, then analysed together. The differences seen in the data sets may therefore reflect differences in what was asked and why it was asked, rather than differences in workers’ experiences or their work contexts, which would limit the validity of the comparative analysis. To mitigate this limitation, the research teams coordinated interview guides early in Canadian data collection process. We also spent a significant portion of time reviewing study protocols and procedures prior to the joint data analysis and used a reflexive method whereby the researchers’ experiences of carrying out the work and how that translated into study differences were tracked by the team during the analysis, as it was taking place.

As much as the combined dataset reflects two different contexts with differing experiences of the pandemic, there are significant congruencies between Canada and the UK that are worth noting, which may contribute to the similarities within the experiences expressed by participants. Canada and the UK are both Western, industrialised, high-income countries with some aspects of shared culture (Canada being part of the commonwealth). To this end, we have

not tried to make universalising claims or global assertions about the challenges that HCWs have faced – what we have offered is a rich exploration of experiences in these two contexts, with attention to the relevant details that might contribute to nuances in the data so that others may also determine whether some of these experiences are likewise relevant to their particular locations.

We also note that we did not explicitly collect certain participant details that might shape the responses that were given in the interviews. For instance, we inquired only about participants' current roles in the healthcare system and how those roles have changed over time due to the pandemic but did not inquire about their specific education or number of years of work. Some participants did offer these or related details in their narratives, in which case such participant characteristics were considered within the thematic analysis.

5. Conclusion

Global data sharing relating to COVID-19 has been identified as a critical tool for understanding the evolution of the pandemic and the development of evidence-supported pandemic responses (WHO, 2022). In addition to offering a deepened understanding of the sources and mechanisms of distress for HCWs related to COVID-19, this paper demonstrates how international data sharing and collaboration can apply equally to qualitative data as it does to clinical and laboratory-based quantitative data. By developing a collaborative analysis, we have offered a deeper understanding of how the challenges and issues leading to HCWs' experiences of distress in COVID-19 span different roles, institutional settings, and sociopolitical contexts. As healthcare systems and institutions worldwide develop programs and initiatives to help support HCWs, understanding the common contributors to these experiences can help determine which interventions may be more universally impactful and which need to be tailored to specific settings or environments. The shared nature of distress in the different study settings offers important insights for better supporting HCWs globally through this pandemic and similar future events.

Note

1. The aim of qualitative research is not to create generalizable findings, nor is a standard measure of quality related to replicability in the same fashion as quantitative research (Braun & Clarke, 2020; Smith, 2018). Qualitative research is judged, rather, on its consistency and transparency in relation to the process of data analysis (trustworthiness), careful attention to the viewpoints that contribute to the findings (including the researchers' own), and how the analysis offers

insights into the applicability of the findings to other settings or groups (Noble & Smith, 2015).

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Data availability statement

Data are available from JB and SB upon reasonable request. Data have not been made generally available due to the personal nature of participants' accounts.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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