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Workplace violence in the COVID-19 era: a qualitative analysis of harassment and threats against public health professionals in Canada

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ABSTRACT

Objectives This study reports the results of a qualitative study involving public health professionals and documents their experiences with cyberviolence, harassment and threats during the COVID-19 pandemic.

Method and analysis The research adopted a discovery-oriented qualitative design, using constructivist grounded theory method and long interview style data collection. Twelve public health professionals from across Canada who held responsibility for COVID-19 response and public health measures in their respective jurisdictions participated. Constant comparative analysis was used to generate concepts through inductive processes.

Results Data revealed a pattern that began with mainstream media engagement, moved to indirect cyberviolence on social media that fuelled outrage and polarisation of members of the public, followed by direct cyberviolence in the form of email abuse and threats, and finally resulted in physical threats and confrontation—which were then glorified and amplified on social media. The prolonged nature and intensity of harassment and threats led to negative somatic, emotional, professional and social outcomes. Concerns were raised that misinformation and comments undermining the credibility of public health professionals weakened public trust and ultimately the health of the population. Participants provided recommendations for preventing and mitigating the effects of cyber-instigated violence against public health professionals that clustered in three areas: better supports for public health personnel; improved systems for managing communications; and legislative controls on social media including reducing the anonymity of contributors.

Conclusion The prolonged and intense harassment, abuse and threats against public health professionals during COVID-19 had significant effects on these professionals, their families, staff and ultimately the safety and health of the public. Addressing this issue is a significant concern that requires the attention of organisations responsible for public health and policy makers.

WHAT IS ALREADY KNOWN ON THIS TOPIC

⇒ Healthcare professionals experience workplace violence at a rate higher than that of other professions.
⇒ Harassment against healthcare professionals was amplified during the COVID-19 pandemic when public sentiment became highly polarised, and anger and frustration were misdirected towards healthcare professionals.
⇒ To date, research that specifically addresses cyberviolence against public health professionals is sparse.

WHAT THIS STUDY ADDS

⇒ This qualitative study provides an in-depth and nuanced analysis of the nature and impact of violence against public health professionals during the COVID-19 pandemic.

HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

⇒ There is a critical need for legislation to address the unfettered use of social media to harass and intimidate professionals who serve the public.
⇒ Public health organisations need to develop policies and processes for managing cybercommunication from the public.
⇒ Further quantitative research can better determine the scope of harassment and abuse against public health professionals.

INTRODUCTION

Researchers have identified a range of violence perpetrated against healthcare professionals including verbal aggression, intimidation, threats of violence, sexual and racial harassment, destruction of personal property, stalking and physical assaults,[1] at rates ranging from 75.8% in Bulgaria to 46.7% in Brazil.[2] Workplace violence against healthcare professionals has been associated with psychological distress (such as post-traumatic stress disorder (PTSD) and depression); emotional responses (anger and fear); work functioning (sick leave, job satisfaction and burnout); and ultimately decisions to leave jobs or the profession.[3–5] Concerningly, it has been suggested that threats of violence and

intimidation can interfere with the ability to provide safe and effective patient care.[5] Indeed, research with other professional groups has revealed that reactions to workplace stress and violence affect professional decision-making in significant ways, specifically, that avoidance of political and other risks can override clinical judgement.[6 7]

During the COVID-19 pandemic, reports emerged in the popular press about significant increases of threats and violence towards healthcare workers. Consequently, police and healthcare facilities responded by warning workers to take precautions including staying indoors and 'wearing street clothes when coming to hospital—not clothing that identifies them as a hospital worker',[8] in essence, individualising responsibility for safety.[9] An online survey of physicians and biomedical scientists in the US regarding abuse on social media during COVID-19 revealed that 66% of 359 respondents experienced harassment.[10]

In Canada, public health officers normally have legislated responsibility to serve a defined regional, provincial or federal jurisdiction. They have responsibility for advising elected officials, reporting to the public and determining public health measures required to ease the spread of illness. Across the globe, public health officers and professionals trained in public health working in settings such academia served as primary communicators of information to the general population, placing them in the public eye to an unprecedented extent.[11–14] While research specifically addressing experiences of public health professionals is sparse, anecdotal reports during COVID-19 reported unprecedented levels of public hostility,[15] and harassment and threats.[16] In a study of 222 American public health professionals who left their jobs during the COVID-19 pandemic, 36% cited harassment as a primary cause.[14] Combined with a survey of 583 public health professionals, researchers determined that public health professionals reported political pressure, harassment and threats to individual and family safety.[14] A survey of over 26 000 public health workers working directly with the public during COVID-19 in a variety of roles revealed that 26% reported stigma as a result of their role, 12% received job-related threats and 24% were bullied or harassed. Workplace violence against public health workers was associated with depression, PTSD and suicidal ideation.[17]

Factors affecting response to workplace violence

Among factors affecting an individual's susceptibility or resilience to distress when exposed to traumatic stressors in the workplace,[18–21] media and public outrage following a tragic event[22–24] have been associated with a sense of isolation and increased levels of traumatic stress among professionals, lower overall public confidence in the system, increased hostility to those working in public services and low morale throughout organisations.[23 25 26] The nature of the organisational environment has also been found to mitigate emotional response to workplace trauma exposure, including factors such as workload, organisational climate, social support, supervision[24 27–30] and perceptions of workplace discrimination and harassment.[31 32] When an organisation is perceived to value contributions of workers and support their well-being, workers are better able to cope with emotional demands of the job.[33–35] In addition, if workers do not believe that reporting violence and threats of violence will be dealt with satisfactorily by their organisation, they may avoid reporting, leaving themselves and their service users at greater risk.[36]

Cyberviolence in the workplace

Recognised as an increasing public health problem, cyberviolence in the workplace has been identified in a variety of populations including trainee doctors,[37] nurses[38–40] and manufacturing workers.[41] In each of these cases, perpetrators were largely colleagues engaging in what might be best understood to be cyber incivility[42 43] or workplace cyberbullying.[42] Other research has focused on cyberviolence perpetrated by members of the public served by professionals including: against teachers by students[30 44 45] and parents[46]; social workers responsible for welfare of children[47 48]; healthcare professionals[49]; and more recently public health professionals[14] during the COVID-19 pandemic. Professionals subjected to cyberviolence report feelings of isolation, lack of organisational support and depression,[39 45 46] as well as increased workplace stress, diminished job satisfaction and performance[50] and intent to leave.[14]

The current study

With advances in artificial intelligence, machine learning (ML) and the ubiquity of social media, cyberviolence has arisen as a new medium for harassment and violence against professionals, including public health professionals. Through technological affordances, those imposing violence can remain anonymous, can transcend time and space, blurring work/home boundaries, can reach a wide audience and are almost impossible to control.[39 48 51] To date, research has not determined the extent of harm arising from cyberviolence against public-serving professionals, factors that increase vulnerability, or factors that mitigate or exacerbate harm. This qualitative study involving public health professionals in Canada sought to determine: (1) the nature of cyberviolence against public health professionals during the COVID-19 pandemic; (2) the impact of cyberviolence on professionals, others in their lives, and their organisations and (3) the success of individual and organisational attempts to mitigate harm.

METHOD

We adopted a discovery-oriented qualitative design using constructivist grounded theory (CGT) method. Grounded theory involves an iterative process of data collection and analysis allowing researchers to systematically interrogate data and generate new concepts that

foster the growth of theory in understudied areas.[52–55] Adapting earlier work, Charmaz[56 57] proposed CGT[54 58 59] in which data collection and analysis are treated as an iterative process: data collection sparks analysis; analysis focuses subsequent data collection; and continued data collection refines and provides an opportunity to check the developing analysis (known as constant comparative analysis).[58] CGT asserts that data and meaning, rather than emerging as an objective truth, are coconstructed through the relationship between the researchers and the participants, in this case, highly educated professionals in healthcare.[54 58 59] It is a particularly relevant approach to develop knowledge in a relatively uncharted area of inquiry[60] such as cyberviolence against professionals, and through the use of flexible data analysis procedures, it seeks to elucidate social processes.[61]

Using the long-interview method of data collection,[62] in 1-hour long interviews participants were asked to describe: their role as public health professionals; their engagement with mainstream media; the nature of social media referring to them, their organisation or their colleagues; the nature of any threats directed at them, their colleagues, or their families; whether online threats were accompanied by any direct contact (for instance arriving at professionals' homes); the impact of cyberviolence on their professional and personal lives; individual protective measures undertaken; and organisational responses to cyberviolence including measures to mitigate risk. The interview guide can be found in the online supplemental materials. Interviews were conducted by two female members of the research team, KR and CS, both of whom have extensive experience in qualitative interviews. Interviews were captured through voice recordings and transcribed for analysis.

Sample size in grounded theory qualitative research is generally determined when saturation has been reached,[55] that is, 'the point at which gathering more data about a theoretical construct reveals no new properties, nor yields any further theoretical insights'[63] (p 611). Identifying that guidance on how to determine saturation had been reached has been vague, Hennick and Kaiser conducted a systematic review and determined that saturation is generally reached in 9–17 interviews.[64] In addition to our sample size falling within this guideline, our iterative process of data collection and analysis confirmed that new themes were not emerging to shift our findings or theoretical model.

Participants

Participants were identified and invited to participate via email through existing professional contacts of the researchers. Each potential participant was sent the study information and consent form to aid in their consideration. Eleven individuals (out of 21 people invited) agreed to participate and 1 additional interviewee was recommended by a participant. A total of 12 individuals engaged in 11 interviews (1 interview involved 2 people) held via Zoom or Teams, that consisted of 7 women and 5 men. Two individuals elected to have a non-participant family member or staff member be present during the interviews. Given the high profile of participants and the public harassment and abuse they received due to the nature of their work, a description of participants is intentionally brief to protect anonymity.

Interviewees represented public health professionals from across Canada and most were public health officers who held responsibility for COVID-19 response and public health measures in their respective jurisdictions; all had over a decade of experience as public health practitioners and leaders. Subjects that were not employed as government public health officers were individuals that had significant roles in advising on response efforts and received frequent media attention. Their jobs involved monitoring population health, identifying threats to population health, summarising research evidence, ensuring programmes and measures were in place to protect the public, and communicating with the public through media and social media. They also served as expert advisors to government on health needs and strategies.

Data analysis

Constant comparative analysis was used to generate concepts through inductive processes[57 59] involving initial coding, focused coding and theoretical coding.[56] During initial coding, data are fractured to assess for beginning patterns, to assign meaning and to begin the processes of looking for comparisons, additional data are sought through further interviews. Focused coding begins the process of transforming data into more abstract theoretical concepts, allowing core categories to emerge. During theoretical coding, data and codes are integrated and synthesised, and the fractured story is woven together into an organised theory.[59]

Interviews were initially subjected to line-by-line microanalysis by CR. Other members of the research team then brought their various perspectives to bear on the evolving codes. The team interacted with the data and open codes, collaboratively developing a tentative set of themes that best explained the observed phenomena.[56] These discussions led to the development of more selective and focused codes[65] that generated an understanding of the connections between the codes and their meaning, resulting in a conceptual framework relevant to the study's aims.[54]

FINDINGS

In keeping with the original aims of this study and the nature of questions posed in long interviews, results are presented in six broad categories: engagement with mainstream media; cybercommunication and cyberviolence; from onscreen to in-person; the impact of COVID-19-related workplace violence on individuals, their families, their staff and on public health; strategies for mitigating the impact; recommendations for change.

We begin, however, by noting that despite their years of experience and previous work as public health practitioners and leaders, the duration and intensity of the COVID-19 pandemic, and particularly the nature of public engagement was unprecedented for participants in this study. It was described by participants as, 'a three year marathon with non-stop action', 'relentless', and 'exhausting'. Further, participants reported: "The duration, the intensity and the intense scrutiny on me as an individual was entirely unexpected."; "I was completely unprepared…I had no idea that this was going to come." The extended nature and ongoing intensity of the pandemic combined with the novelty of the challenge formed the basis on which threats and harassment were experienced by participants in the study.

Engagement with mainstream media

While some participants indicated that they had previous training in dealing with mainstream media, and others were engaged in media briefings before COVID-19 (eg, on topics such as sexually transmitted disease, disease transmitted by insects, or natural disasters), the intensity and volume of media engagement during the pandemic was unprecedented. One participant stated, "It was baptism by fire…the learning curve was pretty steep."

Participants served as the public face of COVID, as spokespersons 'for the public, for the government, for public health.' Out of a sense of commitment to share public health data, many appeared in the media daily 'to try and get the information out that people needed to do what we needed them to do, and media was one of the main ways of doing that.' They 'walk[ed] the line between the public service and the political space', and there were varying senses of support from political leaders when public ire was raised regarding recommendations and restrictions. In some cases, political leaders remained closely aligned with public health professionals. As stated by one participant, "I spoke to the public health aspects and technical pieces and why, the epidemiology…and the political decisions, that is what [political leader] delivered". In other cases, public health professionals were left with the perceived responsibility for unpopular measures, with political and other leaders essentially indicating: "We're just following public health advice, so don't blame us, blame public health if you don't like it."

Demand for media engagement was described as 'relentless' and the pace challenging: "We didn't have time to really work things through and confirm things in that same way we normally would because information was changing so much." One participant reported, "it was exhausting and it's stressful because you want to get the right tone to get the right message out there and everything was criticized." Another noted, "[media coverage] was a bit bimodal, a lot of the coverage was very positive and very factual…on the flipside, [other] media was very hostile." Given that mainstream media has increasingly moved online and engaged in social media, the 'bimodal' views quickly moved to the realm of cybercommunication.

Cybercommunication and cyberviolence

Overall, participants reported relatively little engagement with social media prior to the pandemic, either personally or professionally. Nevertheless, to disseminate information to the public during COVID-19, new social media accounts were activated either by the individuals or their communications departments, often spurred by sudden interest in accounts which had exponential increases in followers. One individual explained, "We realized that people were, in larger numbers than before, using social media as a way to get the latest and changing information, or try to evaluate on what's happening here." Another participant reflected that "this is the first pandemic in the social media age… So, if you're not there and create that credible, trusted voice on a sustained basis, then the whole of the social media will be drowned out by people who are not in the public health leadership space." In addition, it was noted that "by and large, I still believe to this day that the vast majority of the population believes in science, has trust and confidence in public health officials, and will actually take advice. The issue is how to best reach all of the various segments of the population." To this end, public health agencies reached out to 'influencers' including gamers, sports icons and religious leaders. In addition to common social media sites, they communicated through such means as YouTube videos and webinars.

Participants recounted a change in tone of social media as the pandemic continued unabated. One stated: "In the beginning, there was sort of this wave of hero worship that made me uncomfortable…I was definitely anxious about the inevitable backlash…any time people see you as some sort of superhuman hero, you're going to disappoint them." Content on social media became increasingly abusive and threatening. Comments included: "As time went on, the people who support you come off the comments, and what you're left with are the residual persistent negative comments that are, in some cases, propagating hate"; and " then that sort of just continued to escalate over the next number of years." Several participants were called Nazis or likened to war criminals who would "be going to the Hague, where [they] would be held accountable, or Nuremburg." One stated: "I was [accused of] killing kids, promoting vaccines as an instrument of control." This abuse came from both sides of a polarised population:

> "The physical harm and the nastiest stuff tends to come from those who believe nothing should ever have been done for COVID. The side that feels not enough was done to protect from COVID, that tends to be more like you should lose your license, you have blood on your hands, that kind of vitriol, but they don't usually advocate for my public execution or imprisonment."

There was consensus among participants that the level and nature of abuse were differential for women. As one male participant noted, "the physical threats themselves and the hatred, often took on threats of sexual violence

and a lot of derogatory, demeaning terms. And the actual type of harassment was entirely different for female health professionals versus male." Another participant added, "I think emergencies like this bring out certain elements in society who are there to target people in visible positions, and particularly women and visible minorities or racialized populations will be targeted." One participant concluded, "Twitter can just be a cesspool of such bad, bad, things. There are these people who are anonymous behind a keyboard who think they can just say anything and there are no repercussions."

While negative and abusive comments from the public were unsettling, several participants indicated that the negative engagement of medical colleagues on social media was most distressing. In describing the impact, a participant shared, "The thing that really bothered me, that actually gave me tachycardia, when I was reading some tweets from other physicians about me, my personal professional judgement, my advice, my assessment." This included ad hominem attacks by other physicians and assertions such as, "your restrictions are killing my patients, their mental health". These interventions by other physicians were viewed to 'undermine social cohesion and public trust.'

Participants managed social media abuse and threats by relying on administrative staff and communications teams to sift through and manage communications. However, the public nature of roles held by participants meant that they were also accessible through telephone and email. Most agreed that the highest level of threat and harassment occurred through direct email contact, reflected in the following participant quote: "I had one individual email 700 or 800 times…[their] emails became more and more disorganized, and more and more religious-based, apocalyptic religious-based…That same person threatened to come to my house."

From on screen to in-person threats and violence

Inevitably for participants, online anger, abuse and threats moved off screen and became in-person encounters. In addition to professional and personal email addresses, home addresses and home phone numbers began circulating online. Participants received phone calls at home saying such things as 'you're going to die, you're going to die.' Letters and packages were delivered to homes and offices of public health professionals containing threatening messages. Individuals and groups of protesters regularly showed up at the homes of participants as represented by this remark: "They were driving around my neighbourhood coming by my house yelling and screaming. People tried to break into my house. I was terrified." This activity was provoked and then glorified on social media, as such provoking future rounds of abusive and threatening behaviour.

Given that public health professionals had become highly visible through engagement with the mainstream media, they were easily recognised and accosted on the street and in grocery stores; people followed them and surrounded and banged on their cars. Children of participants were approached on the street or near their schools and children's social media was bombarded with hateful comments. Threats and harassment of public health professionals have not ended with COVID-19 with several participants reporting ongoing hate and threats, continuing to have security detail and significantly limiting their activities to avoid risk.

Impact of workplace violence against public health professionals

Not surprisingly, online vitriol, threats and harassment experienced by the public health professionals in this study had significant impacts on themselves, their family, their staff and ultimately the public health system. First, while participants were able to identify that threats and abuse arose from the nature of their work, prolonged and repeated exposure to negative messages in some cases undermined their sense of personal and professional self, particularly when comments came from other than what might be viewed as a fringe element. Prolonged stress and abuse also resulted in somatic symptoms including sleeplessness, and exhaustion. As one participant stated, "the scrutiny by everybody and obviously, journalists was unrelenting, and then it was just the length of it. You can do this kind of intense exposure for a short period of time, but when it's continued for that long, it's pretty exhausting." Several participants reported losing friends who 'get their news from social media and they were convinced that I was a bad person.' As a threat to their professional status, most participants faced or continue to face problems to professional licensing bodies.

Because of security threats, participants reported restricting their activities, including not walking alone, going out to eat, or attending places where they may be accosted. All had police involvement in the threats; many with round-the-clock security presence at their homes for several months; some continue to have police details that accompany them. Police presented participants with photos of threatening individuals 'in case I ever saw them'. Participants reported adding security systems to their homes, having to leave home during intense periods, or moving. For instance, "The [police] came to our house and told us we shouldn't be home…you need to be gone."

Family members were also significantly affected by the threats and harassment. One participant noted, "[my children] are active on social media and they both struggled…it created a lot of stress and anxiety, to have their [parent] out there and some pretty personal things attributed to me through social media." Protests outside participants' homes created a sense of siege and children were schooled on safety measures: "My kids were afraid to go out, I had to sit down with my kids and say, if you are not expecting somebody, don't answer the door… I don't want you to be scared, but at the same time we have to be careful." Impact on family members went beyond nuclear families to include others outside the household,

as one participant noted, "I don't divulge anything about my family…the younger generation, they're told not to tell people that I am their family member."

Participants also expressed considerable concern about staff members who managed communications during COVID-19. One participant stated, "There was no down time for anybody, our team worked for two and a half years." Staff members dealt with abusive and threatening phone calls and email messages, resulting in removal of publicly available contact information for some administrative assistants. Other staff had to monitor social media "because you cannot look at strategies to deal with mis or disinformation on hate-related messaging unless you know what's in it." As one participant summarised, "people are dealing with the pandemic in their own lives and their families on top of working 24/7, and then on top of that having to deal with this kind of messaging, it's obvious that it's having an impact." Others indicated that staff have gone on "prolonged stress leave… [as a result of] having to deal with a lot of quite upset and angry individuals." In the end, "Seeing the impact it had on my staff, it was horrible, that part was horrible."

Finally, participants expressed deep concern about the impact of social media misinformation and vitriol on the public health of the population. One aspect is the undermining of public trust in public health advice and measures: "I think one of the biggest threats that we're facing right now is this confirmation bias. So, everyone picks the side of an issue they're on and then that's the only people they follow or hear messages from." When other health professionals engage in the social media storm, this concern is amplified, "If there's physicians saying Public Health is wrong, who's going to listen to Public Health? I think there are much better ways for people to message their discontent, that would serve the public better." Further, there was concern about the impact of the media and social media storm on political decision-making. Participants reflected, "Misinformation had a slowing or breaking effect on policy at times, and probably made government react a little more slowly"; and "[Twitter] impacted the efficiency for decision-making". Finally, there was concern that given the way public health leaders were treated during COVID-19, others would be dissuaded from serving.

Strategies for managing cyberviolence

Participants developed several strategies for dealing with harassment and abuse they received: setting personal boundaries; disconnecting from social media; not checking emails on weekends. Others described 'compartmentalizing' various aspects of life and work. One participant stated: "You necessarily need to separate yourself from the hate and craziness. It's today's world with social media. I think it is good for information, but it's not a space for any rational dialogue." Some spoke about focusing on the positive and literally or cognitively blocking negative content. For instance: "I try to always focus on the vast majority of people out there, they're very, very kind, very thankful, very positive. Just focus on that and try to push anything else away and not pay attention to it."

A second set of strategies involved managing communications. Initially, participants reported attempting to respond to email and social media, with the aim of correcting the record and sharing accurate information. However, as time continued, they sought other approaches, such as blocking individuals who frequently sent hateful messages, redirecting email to a specific mailbox, redirecting phones, and having messages from various sources monitored by communications teams. Nevertheless, for 'the day-to-day sort of general vitriol… we tried a few different things to try to manage it, but it just didn't work well.'

All respondents required intervention by police or security personnel at some points during the pandemic. Police conducted threat assessments, provided individual physical protection and around homes. New or enhanced security systems were installed in participant's homes. Further, as indicated earlier, individuals restricted their own activities and spoke to family members about safety measures.

Finally, most spoke about the benefits of mutual aid and support through meeting with others in similar positions; sharing experiences and realising that everyone was facing the same challenges. It was commonly stated: "We trusted each other, we were a safe space to laugh, cry, to vent to each other and support each other."

Recommendations for addressing cyber-instigated violence

Participants provided recommendations for preventing and mitigating effects of cyber-instigated violence against public health professionals that clustered in three areas. First, several participants identified the need for better mental health supports for public health workers and the obligation of employers for the safety of staff whose role and responsibilities place them at risk of threat.

Second, participants noted that public health organisations were unprepared for the nature of communications during the pandemic and the unprecedented role of social media. One noted, "We hadn't developed a correspondence team". A participant reflected, "We in government need to sit down and think about social media, how we use it, what our policies are going to be if we encounter any of the negativity that comes with it." Another added, "[we need to] look at our structures and how they can manage this new phenomenon we need to be prepared".

Finally, participants focused on the need to regulate social media, and reduce anonymity that is believed to protect those who harass, threaten and provoke violence. One participant noted "the other big risk is this anonymity. Like, some of the characters that sent me the most personal threats and threats against my safety. I doubt many of them would say something like that to somebody's face." Others stated:

"There needs to be systemic ways to address what's going on. Governments should be holding these companies to account for the level of vitriol that happens, for the algorithms that thrive on hate and the echo chambers they create where people believe that everybody thinks the way they do."

DISCUSSION

This study involving public health professionals in Canada sought to determine: (1) the nature of cyberviolence against public health professionals during the COVID-19 pandemic; (2) the impact of cyberviolence on professionals, others in their lives, and their organisations; and (3) the success of individual and organisational attempts to mitigate harm. We identified a pattern that began with mainstream media engagement, moved to indirect cyberviolence on social media that fuelled outrage and polarisation of members of the public, followed by direct cyberviolence in the form of email abuse and threats, and finally resulted in physical threats and confrontation—which were then glorified and amplified on social media. This pattern is reminiscent of the cycle of violence identified with respect to those who become radicalised into the Incel movement.[66]

Cyberviolence took the form of name calling, likening public health professionals to war criminals who had committed crimes against humanity. It also took the form of direct threats to professionals and their family members. As noted in other research on cyberviolence, abuse and threats were particularly virulent towards women.[67–70] In-person threats included confrontations on the street and other public places; approaches to family members; violence against property; and protests and encampments around homes. Public health professionals attempted to manage threats and abuse through limiting exposure to social media, redirecting or blocking abusive emails, restricting personal activities, safety training for children, and accepting protection from security and law enforcement personnel. Organisations attempted to respond with approaches to managing social media, and threats received through email. However, no measures appeared to reduce the amount of vitriol and abuse directed at professionals. In the end, the prolonged nature and intensity of harassment and abuse led to a number of negative somatic, emotional, professional and social outcomes consistent with other health professionals that experience workplace violence[1 3 14 17] and those exposed to online hate speech.[71 72] Concerns were also raised that misinformation and comments undermining the credibility of public health professionals, weakened public trust and ultimately the health of the population.

Nelson *et al*[5] note that despite the evolution of how workplace violence is understood, the definition under Canadian occupational health and safety legislation is limited to physical force and physical injury, provoking organisations representing nurses to argue for the inclusion of other forms of violence and injury. In 2021, the Criminal Code was amended making it an offence for a person to 'engage in any conduct with the intent to provoke a state of fear' in health professionals performing their duties. Yet to date, these amendments have not been widely enforced.[5 9] Attempts by high profile individuals to manage this on their own have been thwarted. For instance, a city mayor was sued in 2018 for blocking political activists from his personal Twitter account, on the alleged grounds that he was violating their rights under the Canadian Charter of Rights and Freedoms.[73 74] It was reported that "By blocking some residents, the lawsuit alleges, the mayor is denying them the "ability to engage in debate concerning municipal issues using Twitter," which the applicants argue is now a vital method of communication for public officials."[74] The mayor later conceded that the account was used to conduct day-to-day duties and unblocked the individuals[75]; thus, the case was not tested in court.

In 2023, a provincial Commissioner of Human Rights published a report on hate in COVID-19 concluding that hate incidents, particularly on social media, increased significantly during the pandemic and that both legal responses and government responses have been largely ineffective in addressing the problem. While the Criminal Code of Canada makes it a criminal offence to publicly incite or promote hatred against an 'identifiable group',[76] the report recommended amending the legislation to include online as well as offline hate. It also called on social media platforms to ensure that they have service standards that address hateful content, reform algorithms to favour less divisive, discriminatory content, and commit to public reporting regarding hateful online content.[70] Earlier the Standing Committee on Access to Information, Privacy and Ethics similarly recommended that the Government of Canada enact legislation to regulate social media platforms. Public health organisations are also working on social-media policies—including warning people that they will face restricted access if they engage in threatening and abusive behaviour.[77] These changes have yet to be enacted.

Finally, it has been suggested that early detection of cyberbullying and cyberviolence on social media platforms can mitigate negative impacts, identify perpetrators and support victims.[78] However, machine learning (ML) which has been used to detect incidents of cyberbullying in social media[78 79] and to characterise different levels of severity of cyberbullying,[80] can learn biases inherent in data used to train them. This results in concerns that deploying these models in relation to healthcare may exacerbate racial, gender, socioeconomic and other inequities[81] or even be the source of misinformation through the use of chatbots.[82] Thus, not only are efforts underway to mitigate against or even eliminate these biases in the models themselves,[83] but it is also possible to train these models to explicitly identify instances of bias, misinformation, and hate—including in online platforms.[84 85] In part, this may be achieved through human-centred approaches to ML to ensure that algorithms for detecting cyberviolence are more inclusive and minimise

biases.[79] This provides a rich area for future research and intervention. As noted by Nguyen, who specifically explored the rise of hate speech online during the COVID-19 pandemic, there are many emerging opportunities to counter hate online, especially if researchers have increased access to relevant datasets.[86]

Limitations

Overall findings of this study bring new insights into the experiences of cyberviolence against professionals who serve the public, and in particular the experiences of public health professionals who found themselves at the forefront of a global pandemic—the first to occur in a world connected by media and social media. While participants represented senior public health professionals across Canada, we cannot assert that the Canadian experience represents the reality of professionals in other parts of the world. Thus, the generalisability of these findings to other regions of the world, and other professions that serve the public, is an area for future research.

CONCLUSIONS

Violence against healthcare professionals is a long-standing issue that has received scholarly attention in recent decades. The advent of social media and other forms of cyberviolence have escalated violence from one-on-one encounters to mob violence both online and in-person. One clear example of this were the harassment, threats and abuse perpetrated against public health professionals during the COVID-19 pandemic, a group that until very recently has led public health initiatives usually outside of the public eye. The sudden centrality of their role as public health scientists, decision-makers and as health communicators, resulted in them becoming the focus of anger for a polarised population whose lives had been disrupted by an unseen enemy. This anger was transformed into cyberviolence and direct physical threat. Such violence has predictable effects on those serving the public, as well as their families and staff. In the end, it is the public who suffers as misinformation, and comments undercutting the credibility of public health professionals undermine public trust with public health measures, and as those committed to working to protect public health are dissuaded from taking on leadership roles. Who will lead during the next public health crisis?

> ”We are all collectively best served by having the greatest diversity of professionals, people with experience who are willing to step into the arena. We are doing ourselves a tragic disservice by tearing apart the people who, agree or disagree with them, are putting their literal bodies on the line for the public good…No one deserves to be treated like [that].”

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