Public Health Communication: Consistency, Accuracy, and Community Engagement during the COVID-19 Pandemic

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Abstract

Objectives

Communication is central to the implementation and efficacy of public health measures. This paper explores public health messaging in Canada during the COVID-19 pandemic, assessing its potential to encourage or undermine public trust and adherence.

Methods

This study analyzed data from two primary sources. The first is government press briefings, associated press releases, and public health directives from January 2020 to October 2021 in Nova Scotia, Ontario, and Alberta. The second data source is 34 semi-structured key-informant interviews with public health actors across Canada. A directed qualitative content analysis approach was employed to analyze press briefing transcripts. Team-based coding and thematic analysis were conducted to analyze interview transcripts.

Results

Three main themes emerged from the data: inconsistency, lack of clarity, and need for engaged communication practice. Ambiguous and inconsistent language practices across and within jurisdictions were common. Clear language that combines scientific evidence with an appeal to social and emotional factors was lacking, specifically in relation to nuanced matters. Communication practices revealed a disconnect between local communities and jurisdictional communicators who often lacked sensitivity and understanding of local concerns and values.

Conclusion

Effective communication must be consistent, clear, and community-driven. Increased federal leadership surrounding public health communication, further jurisdictional collaboration, improved communication training, established engagement infrastructure, and increased diversity of decision-makers and communicators are suggested to improve the effectiveness of communication practices by instilling public trust and thus adherence with public health measures.

I. Introduction

On 25 January 2020, the first Canadian case of COVID-19 was announced in Toronto (Government of Canada, 2022). With little information available about the new virus, public health officials took centre stage in Canadian public life. Public health recommendations aimed at reducing transmission focused on non-medical measures undertaken by private individuals. Once vaccines became available in December 2020, messaging focused more on encouraging vaccine acceptance and overcoming vaccine hesitancy. Regardless of focus, the uptake of recommendations relies on leadership, collaboration, and communication (MacDonald et al., 2021; Adjani et al., 2022).

Communication must be prompt, consistent, accurate, transparently sourced, justified, and disseminated in such a way as to build relationships across affected communities (Hyland-Wood, 2021). Without these qualities, communication will fail to instil the public trust that is necessary for successful crisis management (Adjani et al., 2022; Khosravi, 2020; Lee & Li, 2021). In the absence of trust, individuals may be unwilling to hear the message and align their behaviour to the measures communicated (Hyland-Wood, 2021; Khosravi, 2020; Ryan et al, 2019). Trust, therefore, has profound implications for health outcomes (Lee & Li, 2021), and trust is heavily predicated on identity, itself shaped by ethnicity, community history, socio-economic status, and demographics (Hyland-Wood, 2021; Khosravi, 2020).

Communication that is untimely, inconsistent, inaccurate, non-transparent, and fails to genuinely engage with public concerns and values will not only fail to instil trust but will also diminish existing relationships (Hyland-Wood, 2021; Khosravi, 2020). This paper explores public health messaging in Canada during the COVID-19 pandemic. More specifically, it examines select government communications relating to COVID-19 measures from Nova Scotia, Ontario, and Alberta, assessing their potential to encourage or undermine trust. These communications are supplemented by qualitative data from semi-structured interviews with public health actors. It concludes with recommendations for improved public health communication moving forward.

Ii. Methods

Two primary sources of data were analyzed. One was government press briefings from January 2020 to October 2021, as well as associated press releases, and public health directives announced at these briefings, where official versions were published. Nova Scotia, Ontario, and Alberta were selected because these jurisdictions vary in geography, population density, socio-cultural demographics, economic conditions (and budgetary capacities), political climate, and pandemic experiences, but have a common constitutional position. The date range for press briefings sampled was determined by epidemiological trends and key policy changes within each province.

In Nova Scotia, 166 press briefing excerpts published in provincial news releases were analyzed. Primary communicators included Acting Premier McNeil, then Premier Rankin, followed by Premier Houston, as well as Chief Medical Officer of Health (CMOH) Dr. Strang. In Ontario, 32 press briefings were analyzed. Primary communicators were Premier Ford, Health Minister Elliot, Solicitor General Jones, CMOH Dr. Williams, CMOH Dr. Moore, and General Hillier, Head of the Vaccine Task Force. In Alberta, 47 press briefings were analyzed. Primary communicators were Premier Kenney, Health Minister Shandro, and CMOH Dr. Hinshaw. A directed qualitative content analysis approach was employed (Hsieh & Shannon, 2005). Thus, the analysis was guided by the elements of effective communication outlined above.

The second source of data was 34 semi-structured key-informant interviews with public health actors across Canada. These were conducted via Zoom from September to December 2021. Participants were recruited using purposive and then snowball sampling, and they represent four key cohorts: public health officials (PH; n = 18); frontline healthcare workers (FL; n = 8); healthcare union leaders (U; n = 3); and health scholars (S; n = 5). Transcripts were produced and edited through Otter, then uploaded to NVivo. Coding was structured by three rounds and team-based (Giesen & Roeser, 2020): initial coding (usually by lead interviewer); joint coding (initial coder and reviewer); consistency coding (single reviewer ensuring consistency of codes and meanings across interviews). Coding and analysis were undertaken according to the six phases of thematic analysis approach articulated by Braun & Clarke (2006), with codes organized under emerging themes, and themes finalized by consensus within the project team having regard to relevant literature.

Iii. Findings

The current analysis is informed by the literature on effective communication, summarized above and corroborated by interview participants. Having regard to the qualities of effective communication, we identified three characteristics in the communications examined: (1) inconsistency across jurisdictions; (2) insufficient clarity, particularly in relation to nuanced matters; and (3) insufficient community engagement to inform communication.

1. **Inconsistency**

If people are to have confidence in the information they are receiving, it needs to be consistent across common conditions. Confronted with inconsistencies, people are likely to question the message. Participants from all four interview cohorts emphasized the importance of consistency in public health communication, and the need for commonality of core ideas. S4, a public policy scholar from Ontario, emphasized the critical relationship between consistent messaging, public confusion, and trust, highlighting the importance of justifications for interventions, particularly those that limit freedoms:

[I]f we're doing this again, we have to put way more responsibility on the politicians to articulate why they're allowing things to happen and how that thing contributes or doesn't contribute to the end goal. And they've got to define what that end goal is. It can't simply be […] to maintain or to control the virus. [T]hat's not the reason why a society exists, right? Or the reason why a government is there. The government is there to […] help produce other big goods that we can all benefit from.

The communications examined were strikingly inconsistent and incoherent. While many examples could be cited, an obvious—and surprising—example is the description of public health measures meant to interrupt virus transmission. The terms 'shutdown', 'lockdown', 'circuit-breaker', and 'stay-at-home order' were used inconsistently, resulting in ambiguity around meaning and significance. Bol et al. (2020) define a lockdown as a form of nationwide social confinement in which citizens are forced, rather than simply encouraged, to stay at home unless leaving for a 'valid' reason. A shutdown refers to a more drastic form of lockdown (Cuoto Zuber, 2021). A circuit breaker is a type of lockdown that has a set end-date rather than one determined by target case counts (Mohan, 2021). Inconsistency in Canadian public health communication—and absence of clarity around inconsistencies—generated feelings of frustration, defeat, and exhaustion, which undermined trust in officials and induced some to create their own rules (Cuoto Zuber, 2021).

Nova Scotia implemented two circuit-breakers and one shutdown in early 2021. On 23 February 2021, a one-month circuit-breaker was announced for Halifax. It was rescinded one week later, with CMOH Strang offering the justification that he would rather "under-promise and over-deliver". While Premier Rankin contended that safety is a priority, he acknowledged the negative impact of restrictions on businesses (Walton, 2021). After the circuit-breaker was rescinded, active cases spiked. Curiously, the next circuit-breaker was not

implemented until after cases declined. That circuit-breaker transitioned to a province-wide shutdown in April 2021. The delay—and discordance between case numbers and implementation of further restrictions—were likely not confidence-inducing for Nova Scotians.

Ontario enacted one province-wide shutdown and two stay-at-home orders from December 2020 to April 2021, without articulating their differences. Public confusion around behavioural guidelines was an ongoing issue, with uncertainty compounded by public officials failing to comply with their own guidelines (Brown, 2021). When informed about public confusion and frustration, Premier Ford insisted that the guidelines "could not be clearer". After the second stay-at-home order, Premier Ford's competence was questioned; at one press briefing, he was told he had "blood on his hands", and that there were "concerns for his moral authority to lead the province," (CPAC, 2021c) prompting his absence at subsequent COVID-19 briefings.

There were no declared shutdowns or lockdowns in Alberta, although the province employed restrictions similar to those in other jurisdictions. In May 2021, Premier Kenney explained that Alberta "resisted pressure" to implement lockdowns, taking a "balanced approach, following the evidence" because "governments must not impair peoples' rights, or their livelihoods, unless it is absolutely necessary to save lives" (Government of Alberta, 2021). This reticence to name restrictions as lockdowns or shutdowns contributed to inconsistencies and ambiguity between provinces, and a sense that provinces were doing very different things.

2. Lack of Clarity

Complacency, convenience, and confidence influence vaccine acceptance (MacDonald et al., 2021). Confidence is influenced by information and communication. Though misinformation and disinformation are known to encourage vaccine hesitancy (MacDonald et al., 2021), it is generally accepted that communication is most persuasive when it is accurate, evidence-based, clear about risk, and avoids blame and stigma-generation (Bardosh et al., 2022). Unfortunately, it was not uncommon for official communicators across Canada to shame those who were not vaccinated, a common refrain being that "this is a pandemic of the unvaccinated." S4 identified the potential harm of such shaming:

We're really not giving people who have not been vaccinated a chance to feel good about getting vaccinated. We've already moved, like, fully into the shame mode, right? And that's going to be hard for some people to walk back if they've got any kind of pride, right? So, you can try to force them with vaccine passports. But you know, they're going to be resistant, right? So, we haven't gotten that piece right.

Shaming aside, accurate information must be conveyed clearly, and in ways that are understood. FL8, a healthcare worker in Alberta, warned that focusing on purely scientific data without considering factors such as health literacy can harm public understanding:

[D]octors and public health professionals are up here all the time, talking about efficacy. I had a client talk to me at one of the vaccine clinics, and she said, "I'm so glad to hear the vaccine has an 80% efficacy rate. It's just such a shame that 20% of the people will die." Like, that was the way that the information was being read and received […]. Efficacy [is] a tough mathematical idea to understand.

Clarity around what we expect from vaccines is also critical, and was not often achieved, a point made by FL3, a physician from Ontario, who noted the disconnect between common beliefs about what vaccines are meant to protect against, and what they actually can do. Neither flu nor COVID-19 vaccines, FL3 observed, are meant to protect one from getting infected, but rather from dying from the infection, and governments have long failed to convey this reality. A further example of unclear communication contributing to confusion and hesitancy is related to the viral vector vaccines. The government recommended different vaccines with different efficacy and safety profiles that were dependent on recipient health conditions, but government communicators spoke of vaccine adverse events without articulating this or identifying specific at-risk groups, which negatively influenced public perceptions. FL5, an infectious disease physician in Ontario, acknowledged the challenges posed by this situation, and the utility of federal guidance in conveying difficult messages:

You need to control the release of information. You need a structured pathway through which information flows. The provinces should buy into that. It avoids mixed messages [and] confusion when decisions are made. For example, I think the communication relating to the AstraZeneca vaccine and clots associated with that could have been handled differently. And that's one example of decisions that are made regarding communication at a federal level versus at provincial levels.

FL6, a primary care physician in Alberta, stated:

[T]hey were like, "You should take it!" And then they were like, "No, you shouldn't!" And they were like, "Well, if there's enough COVID in your area, you should. And if you're under this age, you should." […] They were saying, "Yeah, there's a risk of this happening with AstraZeneca. But for those of you—in Calgary at that point it was a total disaster—yeah, get AstraZeneca because your risks if you get COVID are far

higher." But that's a confusing concept, I think, for a lot of people. And it felt very tied to emotions and […] so maybe a little bit less flip-flopping would have been helpful.

Ultimately, the handling of specific vaccine-related concerns lacked accuracy and clarity, causing confusion. R4 suggested that a better approach would have been to underline the impact of vaccines on death rates, to be much clearer about the need for future boosters, and to emphasize that getting vaccinated is one step people can take for individual and collective protection.

CMOH Strang (NS) announced that the benefits of COVID-19 vaccines "far outweigh" the potential risk of myocarditis or pericarditis. He emphasized that Nova Scotians need to make informed decisions, although he did not identify where trustworthy information could be found. CMOH Williams (ON) urged those who were hesitant to speak to trusted healthcare providers, a point emphasized by S4:

[O]ur Chief Medical Officers of Health, God bless them, they've been doing a really hard job, [but] people would rather talk to their doctor. They'd rather talk to the pharmacist about a vaccine to understand it. So, it really doesn't help for someone on the TV to say, "AstraZeneca has side effects, but only for this narrow slice of the population." Right? It helps ... to say, "This is a very good vaccine. It might not be the best vaccine for you. But talk to your doctor, and they'll tell you which vaccine is the best one for you. One of the three or four—is going to be the best one for you." I think that's a much better way of communicating it. […] [L]eave the conversation on particulars of the particular vaccines […] to people who are trusted.

As noted, officials occupy a competitive informational space. This demands acknowledging and (carefully) countering the informational quagmire. On the misinformation/disinformation issue, CMOH Strang (NS) remarked, "No matter how many YouTube videos or conspiracy theories from so-called experts that you send to me, we will not agree ... Please, please, get vaccinated" (CPAC, 2021b). CMOH Williams (ON), responding to concerns about vaccines on fertility, drew on evidence from consultations with the Society of Obstetricians & Gynecologists of Canada. FL8 suggested that knowing the audience and tending to emotional aspects can be effective:

[…] [T]hey need to have a better understanding of where misinformation comes from and why people believe it. I think that's been a really specific and really unique challenge to this vaccination campaign […] To use a pre-COVID example, if you say to a family, "Vaccines don't cause autism. We have studies." That's true. But why do they think that? And what other beliefs have led them to this place? You can't just say, "That's not true." Because that's not emotionally compelling. It's not persuasive. […] [I]n terms of public health messaging, I think there have been some emotionally compelling things about "We're all going to get back to doing things we love." […] And I think in some cases, that's been effective. […]

Ultimately, to achieve clarity, communication should be accurate, evidence-based, but also tailored to the audience and sensitive to emotional drivers. Public health communicators, FL8 suggested, have operated too much from their own perspective, without meaningfully empathizing with communicatees.

3. Engaged Communication Practice

Complex, multicultural liberal democracies like Canada are shaped by many and often competing values, some of which may even be pitted against each other in specific contexts or discourses (Wu et al., 2021). For example, individualism—emphasizing autonomy, rights, and perceived risks/benefits to individuals—and communitarianism—emphasizing solidarity, responsibilities, and risks/benefits to the community—may both be important, but they are often unequally expressed. Though specific values were rarely identified in the communication examined, and almost never reconciled where values were in competition, value-preferencing and expression can be seen. CMOH Strang (NS) did this overtly throughout September 2021, calling upon individuals to be kind, and to think about the community:

Only you can prevent [spiking cases] from happening here. Please continue to be vigilant and follow public health measures to protect yourself, your loved ones, and your community (Government of Nova Scotia, 2021).

At another briefing, emphasizing individual *responsibility* instead of individual *entitlements*, he added:

Personal choice cannot be all you think about when it comes to COVID vaccines. I would ask you to focus on others and that you focus on the 'we' and not the 'me.' The choice to be vaccinated or not has implications for everyone around you (CPAC, 2021a).

In Ontario in April 2020, CMOH Williams highlighted the importance of wearing masks, not in fear of others but to protect them. CMOH Hinshaw took a slightly different angle in Alberta. In an effort to encourage Albertans to follow government recommendations, she emphasized *individual agency* and personal empowerment. In March 2020, she said, "We are all responsible for each other's health at this time," and "We all have a responsibility to prevent the spread of this virus" (Government of Alberta, 2020a). In April 2020, she reiterated, "I want to stress overall that the future of this pandemic is in all of our hands. We have a say in how COVID-19 will impact our province"

(Government of Alberta, 2020b). Premier Kenny further underlined this notion by stating that the course of the pandemic will be decided by the choices individuals make.

S2, an immunization expert from Quebec, highlighted the utility of emphasizing responsibility within the context of infectious disease, saying that the consequences to family and others of not being immunized needs to be explained, but that it wasn't explained consistently or well. If one is being offered a vaccine for which they don't have any medical contraindication, the right to refuse is properly circumscribed by the right of others not to be infected as a result of this.

In any event, these justificatory nuances speak to a value variance across different communities, and to the concomitant need for much more robust and refined ways to enhance communication through processes that involve and mobilize communities, and in the end speak more powerfully to communities. Ultimately, public health interventions must find support in communities with different experiences, practices, and aspirations, and so potentially different values and worldviews. If interventions are to be widely understood and taken up, communication must be informed by and reflect those communities. Indeed, communication must be approached as a *collaborative practice* that is grounded in communities, and that permits the local (i.e., community values, knowledge, experience, and needs) to inform not only the nature of messaging, but also the interventions expressed.

Again, such local-to-central communicative engagements must lead to practices and interventions that reflect, or do not profoundly undermine, values held within communities. This is a particularly pressing and demanding requirement in Canada, which is so diverse in populations and their experience of government. Note should be taken of the legacy of dispossession, marginalization, and genocide experienced by Indigenous Peoples in Canada, their troubled history with Canadian institutions, and the Indigenous-specific racism that persists in healthcare, all of which have left many Indigenous Canadians suspicious of healthcare workers and hesitant to accept vaccines (Mosby & Swidrovich, 2021). In addition to deliberative engagements to craft messages (and interventions) that resonate, attention must be paid to the messenger. PH11, a federal public health official, commented on the importance of the communicator and their ability to effectively speak to equity-seeking groups:

[T]here's been colonization for Indigenous people. And there's been experimentation […] without consent. So, there's a lot of skepticism and distrust. [They wonder], "Hmm, is this another experimentation?" Only, you know, when […] one involves the leaders of the community—the Elders in the Indigenous community context, or Indigenous doctors, nurses and other champions—they explain, "No, this is not that. COVID is a real danger. This is, you know, not—not someone trying to put microchips into our arms." […] But that […] message would be much better received, if it's coming [...] from the same community, leaders in the community. And that goes for other racialized marginalized groups as well.

FL5 confirmed the importance of the communicator:

I think it's important to have individual people who are making decisions with respect to the vaccine rolling out, and making decisions with respect to communication, really look like the Canadian population. It speaks to diversity. And that includes ensuring that there's adequate representation of certain groups like the Indigenous population, Black communities, other communities. It requires ensuring that there's diversity in the people making decisions and in people who are doing the communication.

These quotes highlight the importance of engagement and deliberation with people with diverse perspectives, and of facilitating solutions and communicators from those communities.

Government communicators during the pandemic were often less than exemplary at achieving compassionate communication that avoided stigma. For example, some communicators location-named the virus, which was both inaccurate and harmful, generating region- or culture-specific blame, which in turn encourages individual and community discrimination (Lou et al., 2022). In Ontario, Premier Ford referred to the "UK variant" of the virus (CPAC, 2021d), and when COVID-19 cases were rising in a predominantly racialized region of Ontario, he stated, "I understand that a lot of cultures have massive weddings, bringing people from all over the world. You just can't do it." In fact, many of these citizens were essential workers living in multigenerational homes, reliant on public transit, and without the luxury of working safely from home; indeed income, occupation, education, housing, and ethnicity contributed to higher infection rates in racialized or lower-income areas across Canada (Nasser, 2020). By contrast, in Alberta, CMOH Hinshaw stated that communities experiencing rising case numbers were not to blame, and that additional actions were warranted to control the spread of COVID in those areas. Such statements place responsibility on governing bodies to assist and increase resources and help dispel the notion that vulnerable communities are responsible for insecure conditions.

Ultimately, politicians and public health officials took insufficient notice of the diverse communities and lives that shaped experiences of (and risks from) the pandemic, and failed to appreciate that a one-size communication approach does a disservice to communities and the

interventions that are meant to protect them. Values, knowledge, perspectives, and experiences must inform solutions and communication strategies, or they risk being perceived as harsh, ill-conceived, and misunderstood. Of course, as noted above, that communication must still be informed by good science; communication needs to be science-driven, but messaging has to resonate with our communities. This is not an easy balance, and, as should be clear from the above, it demands ongoing, authentic community engagement and infrastructure.

Iv. Discussion

Based on our findings, there is much that could be done to improve the effectiveness of public health emergency (pandemic) communication in Canada.

Despite the known need for consistency (Hyland-Wood, 2021; MacDonald et al., 2021), official communications were often ambiguous and inconsistent. Inconsistent descriptions of public health measures and different and changing terms impeded comparison and best practices across provinces; changing guidelines without evidence-based justification contributed to diminished public trust, confidence and ultimately compliance with public health measures (Lee & Li, 2021). Inconsistencies in terminology and insufficient justifications for interventions can be understood as arising, at least in part, from an absence of clear and compelling federal guidance on best practices for pandemic response measures, and from a shortfall in collaboration between the provinces and territories. A unifying federal guidance on language and transparency might allay confusion, decrease hesitancy in following directives, and avoid or relieve social exhaustion. Our analysis suggests that an effective public health communication strategy requires strong guidance and systematic cross-jurisdictional collaboration to achieve a common lexicon, and a shared understanding of when certain measures should be triggered.

With respect to clarity, participants emphasized that communication must be accurate, evidence-based, detailed, and clear, but not overly technical or ignorant of the important emotional context. Officials must be able to convey accurate expectations, vaccine profiles, etc., and must be careful when commenting on specific vaccines and adverse effects so as not to create undue concern; focusing on what the vaccine can do without over- or under-stating its importance is critical. Releasing contradictory information and downplaying uncertainties can validate suspicions held by vaccine-hesitant individuals (Bardosh et al., 2022). Further, official communicators must know when to encourage individuals to consult trusted healthcare providers for more detailed or nuanced information, or information that is pertinent to the individual's specific health and social circumstances. Again, while accurate evidence-based information is vital, so is attention to the social and emotional context within which communication is undertaken and information is received and interpreted. Empathy and compassion support effective communication, and forge connections that serve to build relationships and trust. This requires balancing the integral role of data with emotions in policy development and implementation (Weible et al., 2020). Communication that merges rational, emotional, and sensory elements in support of a consistent message can be very effective and trust-building (MacDonald et al., 2021; Hyland-Wood, 2021).

This ties into our third major finding, which is the critical importance of infrastructure to connect the local to the central, and to facilitate decision-maker/communicator/community engagement so that both interventions and the messaging are relevant to communities. In addition to being open, transparent, and honest about uncertainties (Hyland-Wood, 2021), communicators need to understand, engage with, and, to the extent possible, reflect community values, demonstrating why (and how) some values may need to be privileged over others in a given circumstance. Values can be understood differently, weighted differently, or result in different acceptable interventions depending on the community. As such, failure to connect with communities, and to explore with them what their values mean for intervention, threatens the intentional dialogical encounter of communication, and undermines efforts to come to shared courses of action. Multiple social factors influence disposition, choice, and practice; understanding context facilitates effectiveness. Targeted messaging that involves community partners in more than a one-size-fits-all approach (bearing in mind the need for a common lexicon in technical, regulatory and directive matters) is essential (Hyland-Wood, 2021). Moreover, ensuring that official communicators (and decision-makers) reflect Canada's diversity will facilitate two-way communication—dialogue—which is a long-term aim.

V. Conclusions And Recommendations

While there is a clear need for further research into how Canadian governments might better communicate with Canadians during a public health emergency, our research supports several recommendations that acknowledge the centrality of effective communication to the governance undertaking:

- **Federal Leadership**: The federal government needs to exercise much greater and more effective leadership when it comes to effective public health communication, particularly in times of emergency/pandemic. This should take several forms:

- Shared Terminology: A federally compiled common lexicon to guide reporting and discourse across the country would facilitate consistent and accurate communication and limit unjustified jurisdiction-specific differences.
- Timely Federal Communication: A more central role for more timely federal communications during issues of national importance would take pressure off provincial/territorial and local officials.

Both of these federal-fronting recommendations aim to improve consistency and clarity, and to help avoid or alleviate public confusion.

- **Communication Practice**: Given the critical importance of communication to good health outcomes during a public health emergency, it is essential to improve communication capacity. Again, several courses of action are recommended:
  - Cross-Jurisdictional Collaboration: Regular meetings between designated communicators at different levels of government would enhance consistency of messaging and facilitate the sharing of lessons learned.
  - Communicator Training: A program of communication training for public health officials delivered through the Public Health Agency of Canada would encourage officials to prioritize and better achieve accuracy, clarity, transparency, and compassion in their communication responsibilities, and would help establish national communication strategies and tactics.
  - Engagement Infrastructure: Both interventions and the communication of those interventions (and the evidence and other factors supporting them) will be most robust and acceptable when they come from or better reflect the community. Messaging must take into account community experience, and this is best achieved by direct involvement of community members in decision-making and information dissemination. When risk increases in a community/region, communication strategies should have a means to efficiently include local communicators sensitive to local needs and values.

These recommendations aim to improve consistency, transparency, and value engagement by creating a framework for collaboration, and to improve (justified) public trust.

- **Representation**: Canada is a diverse polity, which was generally not well reflected in the communicators taking centre stage during the pandemic. Steps need to be taken to increase the diversity and representativeness of public officials.

If the objective of the public health apparatus is to bring people into a common wealth and common health, and it must be, then an improved infrastructure is needed, including around communication, a fact that the pandemic has profoundly (and tragically) demonstrated. An effective and trustworthy public health system will convey unbiased, evidence-based truth as best as it can. The Canadian public health system is not delivering on this need. Consistency, accuracy, clarity, transparency, compassion, and targeted messaging are all important. Communication and the development of communication strategies are skills that need to be developed. Communicators need to be diversified and have greater and deeper links to the communities they serve. Let us make sure that the needs exposed by this pandemic are not ignored.

Limitations

With respect to strengths and limitations, this study benefitted from multiple data sources—interviews, literature reviews, and press briefings—and the analysis employed a combination of established methods. With respect to the interviews, a limitation is that complete national coverage (multiple participants from every province and territory) was not achieved, in part due to the pressures that target participants were under. In addition, for practical reasons, we relied on press briefings and associated material, and acknowledge that a variety of public health messaging avenues exist. Further research is underway on how different populations received and interpreted information during the pandemic, and what they specifically found to be effective and ineffective.

Contributions to Knowledge

What does this study add to existing knowledge?

- Our study analyzes public health communication strategies in Canada throughout the COVID-19 pandemic.
- Our study identifies critical areas for improvement (consistency, clarity, and community engagement) for future health communication efforts to build public trust and adherence to public health measures.

What are the key implications for public health interventions, practice or policy?

- We conclude that communication efforts would benefit from increased federal leadership, jurisdictional collaboration, local community engagement, and diversity of decision-makers and communicators.

- We recommend a framework for collaboration that emphasizes clarity and consistency of communication while remaining attentive to diverse community values through direct engagement with local actors.

References

Adhani, A., Anshori, A., & Mahardika, A. (2022). Public Attitudes towards the Government's Policy Communication in Preventing COVID-19. *Journal ASPIKOM, 7*(1), 61-70.

Bardosh, K., de Figueiredo, A., Gur-Arie, R., Jamrozik, E., Doidge, J., Lemmens, T., Keshavjee, S., Graham, J., Baral, S. (2022). The Unintended Consequences of COVID-19 Vaccine Policy: Why mandates, passports, and restrictions may cause more harm than good. BMJ Global Health.

Bol, D., Giani, M., Blais, A., & Loewen, P. (2021). The effect of COVID-19 lockdowns on political support: Some good news for democracy? *European Journal of Political Research, 60*(2), 497-505.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77-101.

Brown, D. (2020). *Doug Ford acknowledges he knew finance minister was away before news broke of Caribbean vacation.* CBC News. https://www.cbc.ca/news/canada/toronto/ontario-rod-phillips-caribbean-vacation-1.5857535

Canadian Public Affairs Channel. (2021a, September 14). *Nova Scotia Delays Move to Final Reopening Phase*. https://www.cpac.ca/episode?id=2301aadb-f3fd-4f5c-9ee8-189db4ad0c4e

Canadian Public Affairs Channel. (2021b, September 29). *N.S. Update on Reopening Plan, New Vaccine Mandate.* https://www.cpac.ca/episode?id=f975fbfc-badc-413f-9844-6c9bc53355cb

Canadian Public Affairs Channel. (2021c, April 22). *Ontario Premier Doug Ford Apologizes for Controversial COVID-19 Measures*. https://www.cpac.ca/episode?id=ae8a87a2-e328-4605-84b8-eafc7803b5df

Canadian Public Affairs Channel. (2021d, January 25). *Ontario Premier Doug Ford on COVID-19 Vaccine Distribution.* (2021d, January 25). https://www.cpac.ca/episode?id=3c71626b-c2d7-4efa-97c8-3c3aca304e54

Cuoto Zuber, M. (2021, April 1st). *COVID-19 lockdown, shutdown, circuit breakers: How do these terms differ?* Global News. https://globalnews.ca/news/7735633/covid-lockdown-emergency-break-shutdown/

Giesen, L., & Roeser, A. (2020). Structuring a Team-Based Approach to Coding Qualitative Data. *International Journal of Qualitative Methods*. https://doi.org/10.1177/1609406920968700

Government of Alberta. (2020a, March 15). *Update 2: Covid-19 pandemic in Alberta.* https://www.alberta.ca/release.cfm?xID=69818C355F188-C2A3-F5C6-875A2A33929D5C05

Government of Alberta (2020b, March 27). *Update 14: Covid-19 pandemic in Alberta*. https://www.alberta.ca/release.cfm?xID=69941354D5ED5-0305-6492-CF5F6B8FD9BD41FB

Government of Alberta. (2021, May 5). *New COVID-19 restrictions to stop the spike.* https://www.alberta.ca/release.cfm?xID=780944289E67F-AB21-1393-1723D64CDEC6F61D

Government of Canada. (2022). *Public Health Infobase – Data on COVID-19 in Canada*. Public Health Agency of Canada. https://open.canada.ca/data/en/dataset/261c32ab-4cfd-4f81-9dea-7b64065690dc

Government of Nova Scotia. (2021, February 11). *Two New Cases of COVID-19*. https://novascotia.ca/news/release/?id=20210211001

Government of Ontario. (2021, April 16). *Ontario Strengthens Enforcement of Stay-at-Home Order.* https://news.ontario.ca/en/release/61192/ontario-strengthens-enforcement-of-stay-at-home-order

Hsieh, H.-F., & Shannon, S. E. (2005). Three Approaches to Qualitative Content Analysis. *Qualitative Health Research, 15*(9), 1277–1288. https://doi.org/10.1177/1049732305276687

Hyland-Wood, B., Gardner, J., Leask, J., & Ecker, U. (2021). Toward effective government communication strategies in the era of COVID-19. *Humanities & Social Sciences Communications, 8*(1), 1-11. http:/doi.org/10.1057/s41599-020-00701-w

Khosravi, M. (2020). Perceived risk of COVID-19 pandemic: The role of public worry and trust. *Journal of General Medicine, 17(*4).

Lee, Y., & Li, J. Y. Q. (2021). The role of communication transparency and organizational trust in publics' perceptions, attitudes and social distancing behaviour: A case study of the COVID-19 outbreak. *Journal of Contingencies and Crisis Management, 29*(4), 368-384.

Lou, N., Noels, K., Kurl, S., Zhang, Y., & Young-Leslie, H. (2022). COVID discrimination experience: Chinese Canadians' social identities moderate the effect of personal and group discrimination on well-being. *Cultural Diversity & Ethnic Minority Psychology,* Cultural diversity & ethnic minority psychology, 2022-01-13.

MacDonald, N., Comeau, J., Dubé, È., Graham, J., Greenwood, M., Harmon, S., McElhaney, J., McMurty, C. M., Middleton, A., Steenbeek, A., Taddio, A. (2021). *Enhancing COVID-19 Vaccine Acceptance in Canada*. Royal Society of Canada.

Mohan, N. (2020, November). Expert Explainer: Dr. Nitin Mohan on circuit breaker lockdowns. Schulich School of Medicine & Dentistry. https://www.schulich.uwo.ca/about/news/2020/november/expert_explainer_dr_nitin_mohan_on_circuit_breaker_lockdowns.html

Mosby, I., & Swidrovich, J. (2021). Medical experimentation and the roots of COVID-19 vaccine hesitancy among Indigenous Peoples in Canada. *Canadian Medical Association Journal (CMAJ), 193*(11), E381-E383.

Nasser, S. (2020, September 14th). *Brampton has emerged as one of Ontario's COVID-19 hotspots, but experts urge caution on where to lay blame.* CBC News. https://www.cbc.ca/news/canada/toronto/brampton-coronavirus-covid-19-south-asian-1.5723330

Ryan, M. J., Giles-Vernick, T., & Graham, J. E. (2019). Technologies of trust in epidemic response: Openness, reflexivity and accountability during the 2014-2016 Ebola outbreak in West Africa. *BMJ Global Health*, *4*(1), e001272. https://doi.org/10.1136/bmjgh-2018-001272

Walton, V. (2021, March 4th). *Strankin ends 1-month Halifax lockdown after a week*. The Coast. https://www.thecoast.ca/halifax/strankin-ends-1-month-halifax-lockdown-after-a-week/Content?oid=25957671

Weible, C., Nohrstedt, D., Cairney, P., Carter, D., Crow, D., Durnová, A., Heikkila, T., Ingold, K., McConnell, A. & Stone, D. (2020). COVID-19 and the policy sciences: Initial reactions and perspectives. *Policy Sciences, 53*(2), 225-241.

Wu, C., Qiao, T., Qiu, H., Shi, B., & Bao, Q. (2021). Individualism or Collectivism: A Reinforcement Learning Mechanism for Vaccination Decisions. *Information (Basel), 12*(2), 66.

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JEG obtained funding and supervised the study. JEG and SHH conceptualized the study and developed data collection tools. KK coordinated data collection and analysis. ML, RP, KK, SHH and JEG analyzed and interpreted the data. ML drafted the initial version of the manuscript. All authors contributed to the critical revision of the manuscript and approved the final version.