Exploring Risk Communication Outrage Factors: An Analysis of COVID-19 Messaging by Ontario Public Health Officials

Sumayya Fatima, BSc, MSc Candidate
School of Occupational and Public Health
Supervisor - Dr. Eric Liberda

Introduction

Risk Communication

The timely sharing of information, perspectives, and recommendations by authorities and experts to individuals affected by a threat to their health, safety, and livelihood

(World Health Organization, 2023)

Risk Perception

Risk perception is an individual's assessment of what forms an acceptable risk, and this includes the nature of the hazard, and the degree of outrage associated with it

(Malecki et al., 2021)

Outrage Factors

Elicit emotional reactions in individuals and consequently influence their risk perception

(Ju et al., 2015)

Background

1. COVID-19 Pandemic
2. Risk Communication
3. Outrage Factors
4. Risk Perception
5. Public Health Officials in Canada

Background Themes

COVID-19 Pandemic

- Coronavirus disease is a respiratory and communicable disease that leads to symptoms such as fever, cough, headache, and a loss of smell or taste (World Health Organization, 2024).
- As of March 2025, over 777 million cases and 7 million deaths have been documented globally (World Health Organization, 2025).

COVID-19 interventions

- Physical distancing
- Contact tracing
- Masking
- Handwashing
- Self-isolation
- Testing
- Vaccination

(Khan et al., 2022; Public Health Agency of Canada, 2020)

Risk Communication

- Helps in the reduction and elimination of pandemics
- Decreases apprehension and uneasiness among the public
- Increases acceptability levels of policies and regulations (Malecki et al., 2021)
- Public health messages structure the attitudes and opinions of people
- Inconsistency can raise uncertainty and hesitancy among people (Santos et al., 2012)
- Multiple communication channels are beneficial; result in improved decision-making and decreased anxiety (Berg et al., 2021)

Figure 1. Guiding principles of risk communication (MacKay et al., 2021)

Outrage Factors

- Risk = Hazard + Outrage (Sandman, 1988)
- Hazard: Any factor that might cause injury or damage
- Outrage: Non-technical aspect of risk that provokes emotional reactions

Increasing Outrage "Risky"	Decreasing Outrage "Safe"
Uncontrollable	Controllable
Dreaded	Not dreaded
Uncertainty	Certainty
Mistrust	Trust
Exotic	Familiar
Involuntary	Voluntary

Figure 2. Examples of outrage factors

Risk Perception

- Traditional media streams, such as television, newspapers, and radio, as well as modern streams, such as social media, have a significant influence on an individual's risk perception
- These outlets can intentionally determine which risks to highlight and how to present them (First et al., 2021; Vanherle et al., 2023)
- Research shows positive correlation between risk perception and precautionary health measures such as masking, physical distancing, and handwashing (Dryhurst et al., 2020)

Public Health Officials in Canada

- Chief Medical Officers of Health (CMOHs) are the official lead physicians of a province for the Ministry of Health (Bielska et al., 2020)
- Medical Officers of Health (MOHs) are medical practitioners who lead local public health units (Bielska et al., 2020)
- Study considers the following public health officials:
  - Dr. Theresa Tam - Chief Public Health Officer (CPHO) of Canada (Public Health Agency of Canada, 2018)
  - Dr. David Williams and Dr. Kieran Moore - Ontario CMOHs (Government of Ontario, 2021)
  - Dr. Eileen de Villa (MOH Toronto) (City of Toronto, 2017)
  - Dr. Elizabeth Richardson (MOH Hamilton) (City of Hamilton, 2024)

Research Question

How did the frequency of identified outrage factors in public communications by Ontario health officials evolve across different phases of the COVID-19 pandemic?

Objective

- Change in outrage factors over time in Ontario health officials COVID-19 communication
- Most salient outrage factors and COVID-19 interventions

Significance

- First to assess prevalence of COVID-19 outrage factors in Ontario
- Addresses knowledge gap in literature
- Aid in policy & preparedness
- Response to future pandemics and epidemics

Study Design

Methods

Framework Analysis approach

Themes emerge from within the data
(Goldsmith, 2021)

1. Data familiarization
2. Thematic framework
3. Indexing
4. Charting
5. Mapping & interpretation

Data Collection

<u>Data familiarization & Thematic framework</u>

- 3 newspapers: The Globe and Mail, Toronto Star, Hamilton Spectator
- Study period: 2020-2022
- Inclusion: focused on public health messages from the Medical Officers of Health (MOHs) in Ontario
- Exclusion: Any articles with only descriptive information, any opinion pieces and editorials
- Final sample set = 618 articles

Methods

Coding strategy

Indexing

- Codebook
- Codes: increasing and decreasing outrage factors, interventions, health officials
- Date code
- NVivo software

Data Analysis

Charting

- extraction of information where the data was arranged in tables, and descriptive statistics were performed.

Mapping and interpretation

- creation of time series graphs, timelines, and a word cloud.

Results

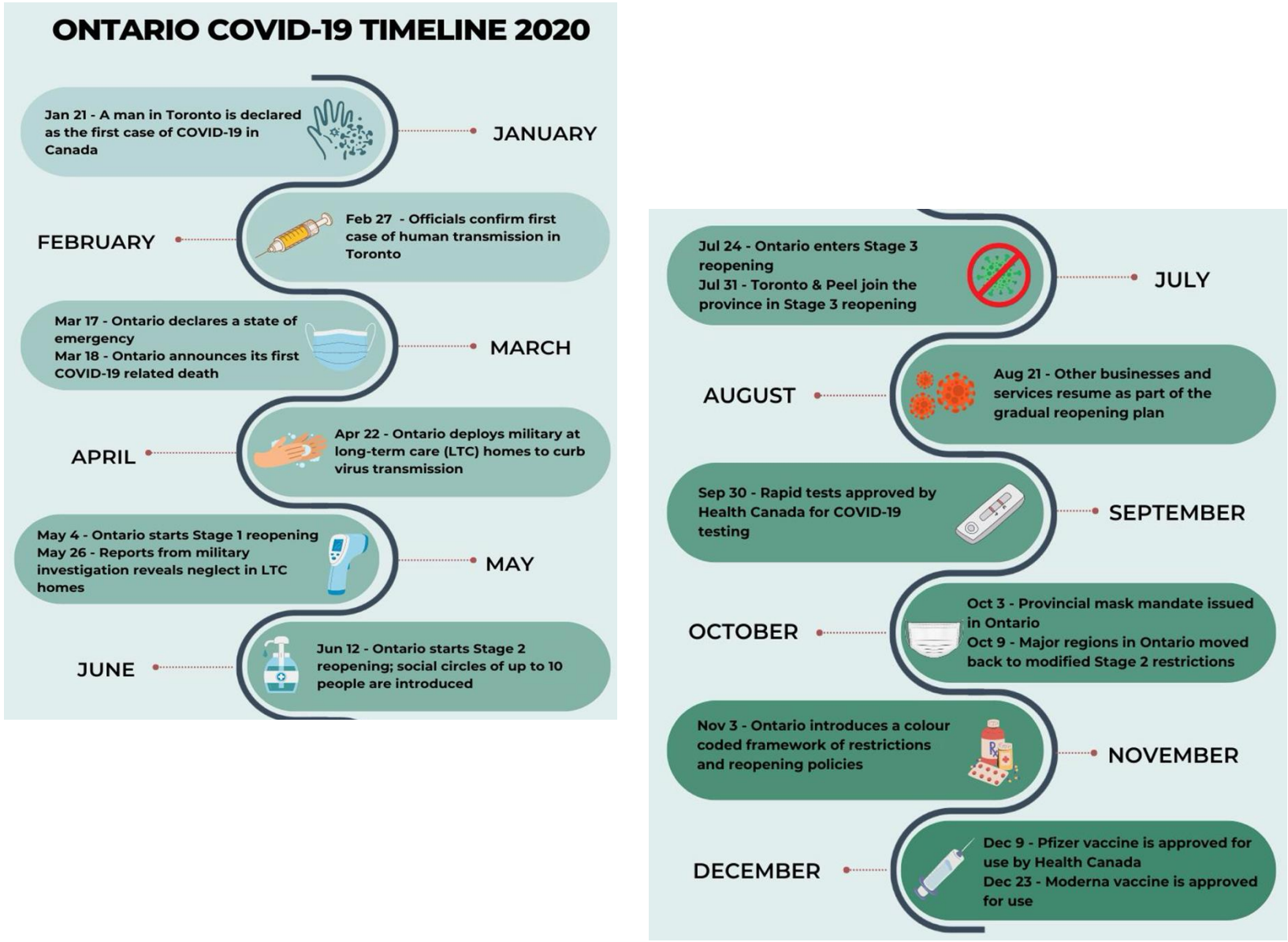


Figure 3. Timeline 2020

Results

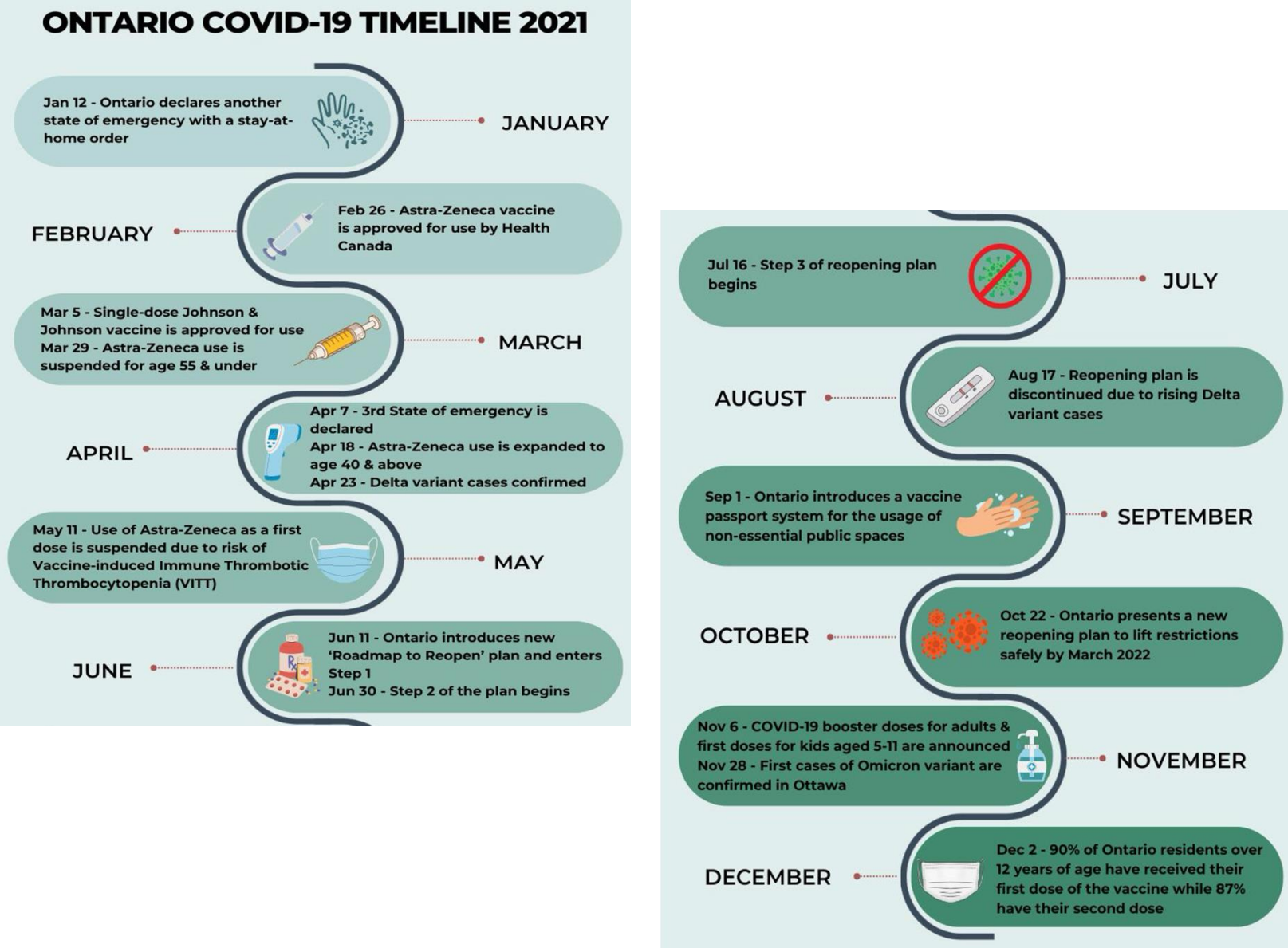
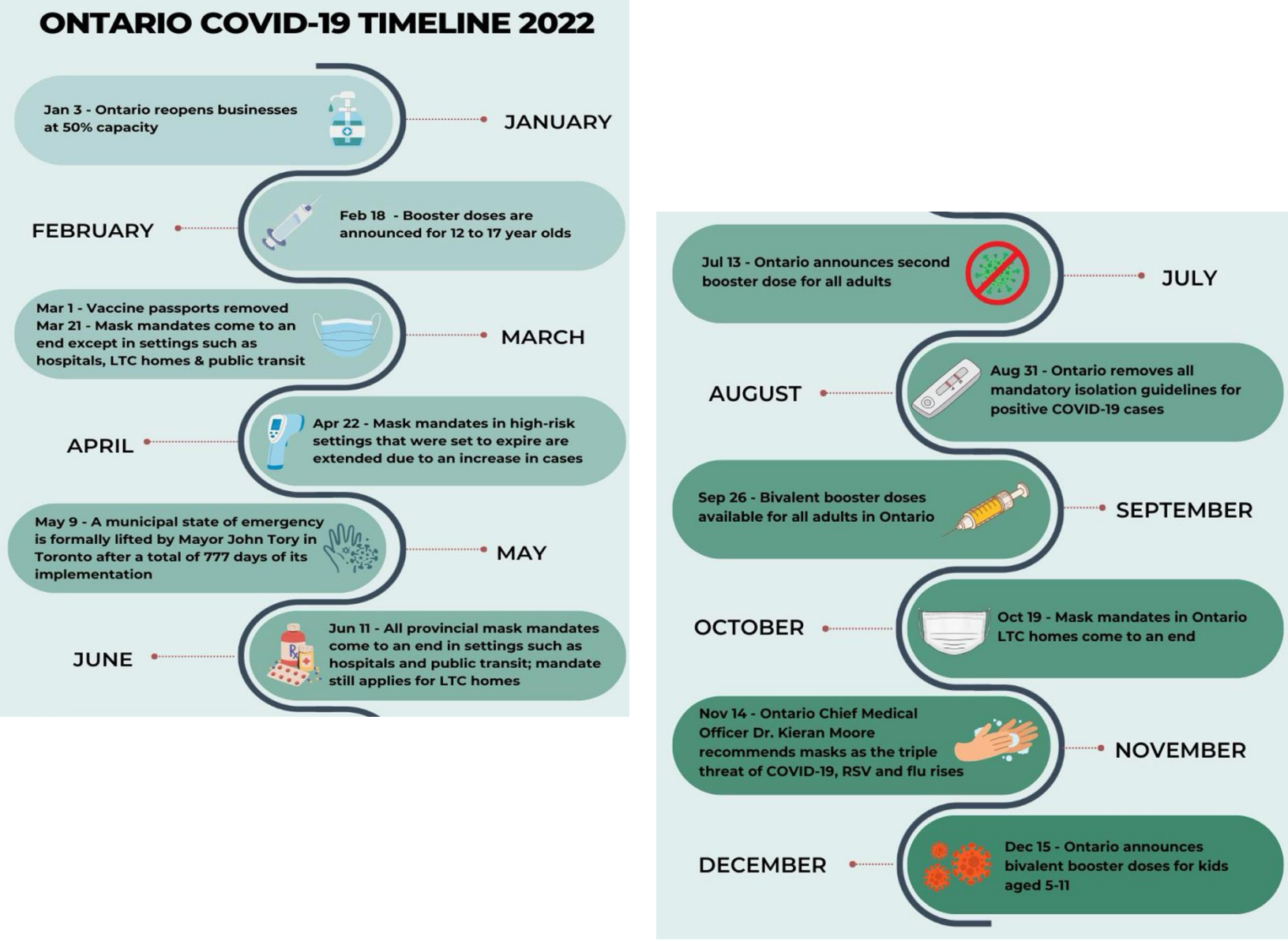


Figure 4. Timeline 2021

Results



Results

Figure 5. Timeline 2022

Increasing Outrage Factors

Outrage factor	Total percentage for study period
Uncertainty	30.4%
Dreaded	27.9%
Uncontrollable	12.4%
Affecting children	12.3%
Affecting elderly	7.5%
Exotic	6.4%
Involuntary	2.3%
Mistrust	0.8%

Figure 6. Percentage of increasing outrage factors

Decreasing Outrage Factors

Outrage factor	Total percentage for study period
Controllable	61.9%
Not dreaded	10.8%
Certainty	10.7%
Voluntary	7.1%
Trust	6.5%
Memorable	2.2%
Familiar	0.8%

Figure 7. Percentage of decreasing outrage factors

Results

COVID-19 interventions

- Vaccination (35.9%) most recommended by public health officials
- Followed by testing (18.4%) and masking (15.7%)

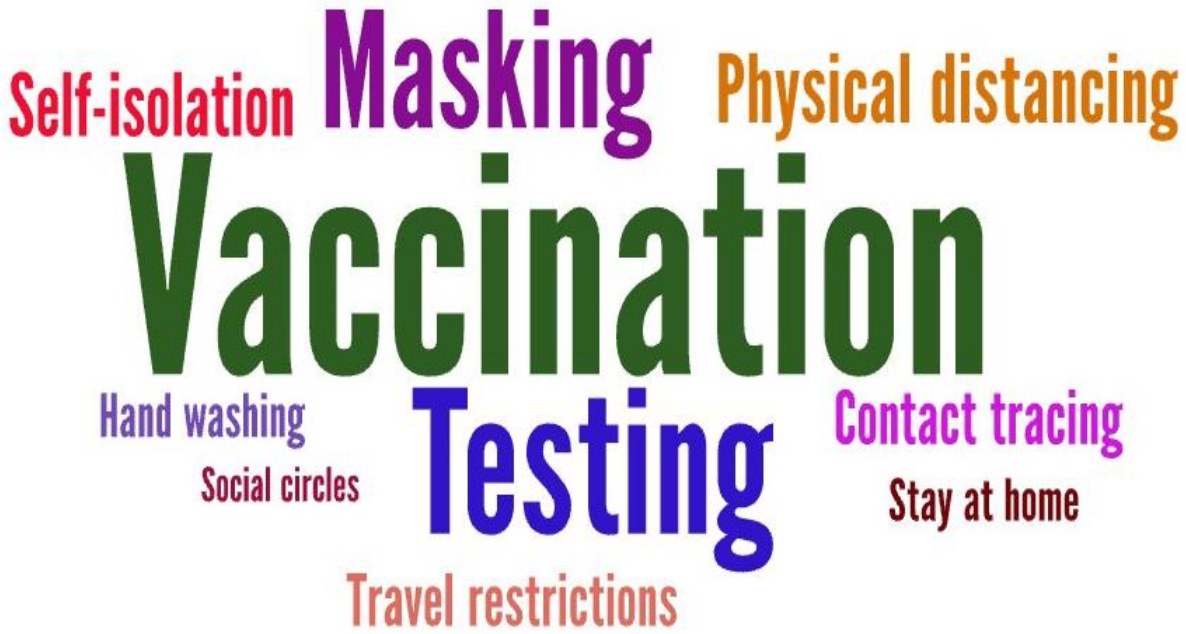


Figure 9. A word cloud of COVID-19 interventions

RESULTS

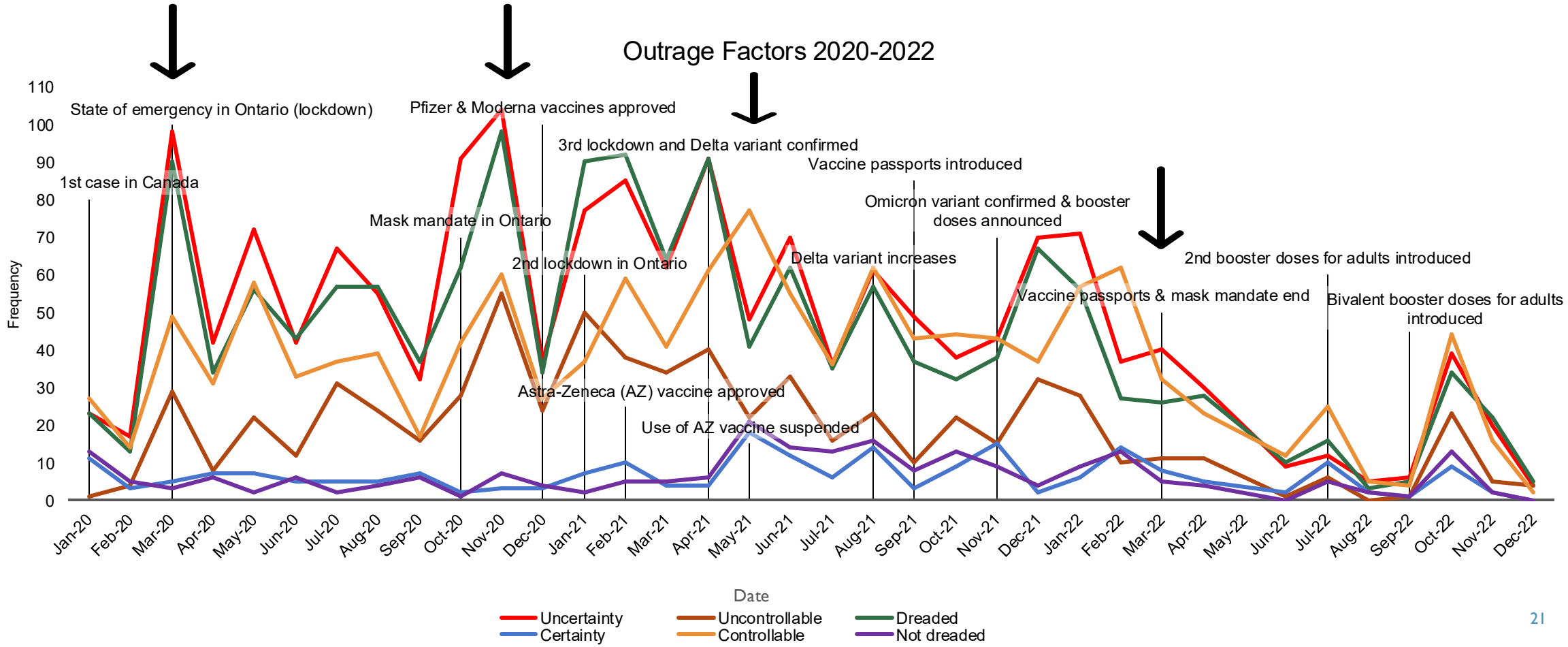


Figure 8. Top three increasing and decreasing outrage factors and timeline of major events for the study period

Discussion

Key Findings

Uncertainty, uncontrollable, and dreaded

- Spike – after the first lockdown, widespread transmission of a novel virus may have caused the public to be fearful, and overwhelmed with the consumption of new information
- Drop - after the rollout of new COVID-19 vaccines, implementation of control measures may have helped provide some relief to the public

Controllable

- Spike – after vaccine rollout, public likely placed their trust in the government and public health agencies to manage, limit, and prevent the community transmission of the coronavirus
- Drop – after elimination of the vaccine passports and mask mandates, this may have led to a sense of apprehension among the public as the use of major COVID-19 interventions were discarded

Limitations

- Focused on one group of public health officials
- Considered news articles only
- Limitations addressed through strong sample size and robust coding method

Future Directions

- Study different public health groups, compare provinces
- Examine different media types – TV and video conferences
- Analyze the psychological constructs that shape outrage factors

Conclusions

Research Conclusions

- Study highlights the importance of outrage factors in health risk communication and paves the way for additional research on messaging by public health officials in Ontario
- Integration of emotional responses with scientific facts leads to effective risk communication
- Examining outrage factors can help in the development of strong public health messages
- Support policymakers in tailoring communication to the specific needs of a community

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Questions?