NAVIGATING COVID-19 RESEARCH DATA: AN INTEGRATED ANALYSIS OF EPIDEMIOLOGY, GOVERNMENT POLICIES, AND PUBLIC SENTIMENT

INFOSCI 301 Final Project
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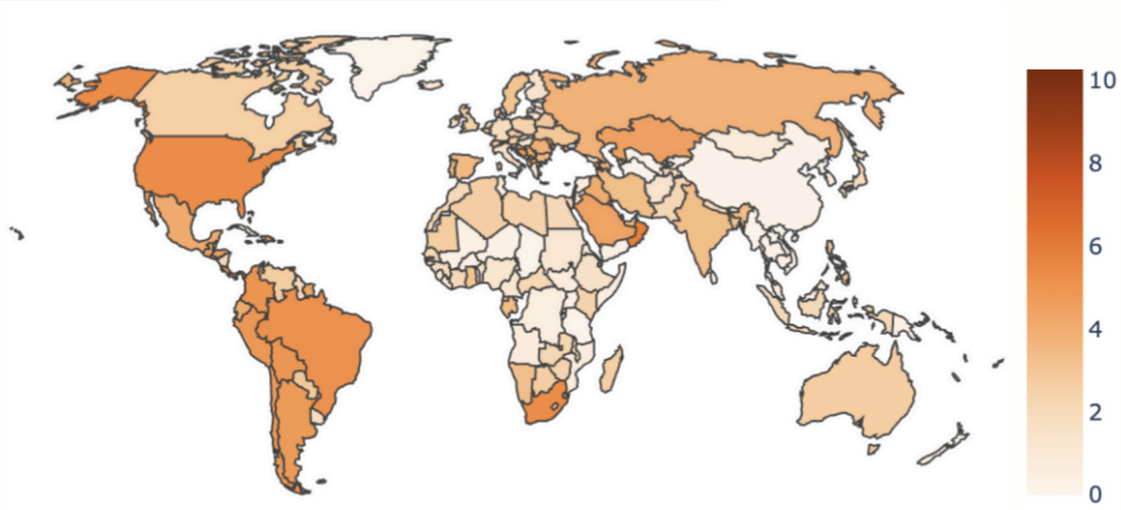
INTRODUCTION

This project examines the relationship between global COVID-19 infection trends, government policies, and public sentiment on social media. By integrating epidemiological data, policy measures, and large-scale Twitter analysis, we assess how public discourse and engagement evolved throughout different phases of the pandemic. Our study explores key factors influencing tweet volumes and sentiment, highlighting the complex interaction between policy responses, public reactions, and the shifting dynamics of pandemic progression across regions.

RESEARCH QUESTION

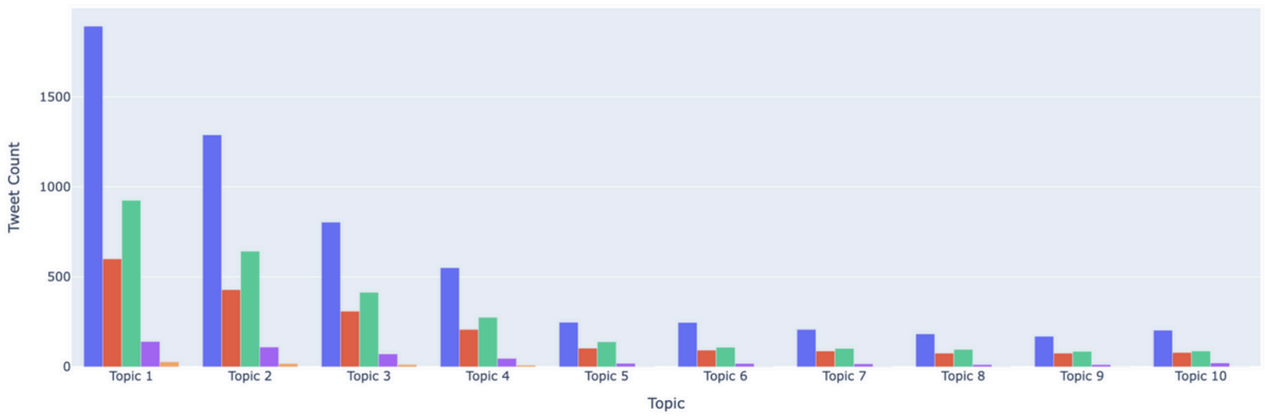
- **Pandemic Spread**: How did COVID-19 cases evolve across different regions over time? What trends emerged in confirmed cases, hospitalizations, and deaths?
- **Policy Influence**: How did various government interventions impact public sentiment and engagement? Did stricter measures lead to noticeable shifts in online discussions?
- **Social Media Trends**: How did COVID-19-related tweet activity fluctuate across time and geography? Were changes in volume and sentiment linked to key pandemic events or policy changes?

RESULT & VISUALIZATION

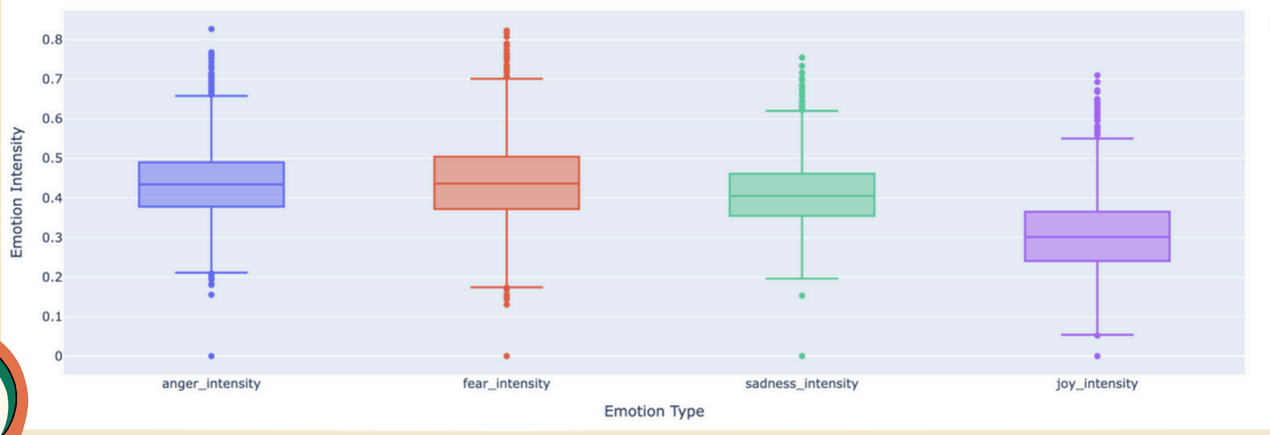


- A world map displaying the global distribution of daily new COVID-19 cases per million people over time.
- Darker shades indicate higher infection rates, while lighter shades represent lower case numbers.
- Shows regional variations in outbreak intensity, with notable hotspots in North America, Europe, and parts of Asia.
- The timeline slider reveals how the pandemic evolved, highlighting different waves and surges across countries.
- Reflects the impact of government interventions, healthcare capacity, and public health responses on infection trends.
- Serves as the foundation of the study, connecting other research aspects such as policy responses, public sentiment, and social media engagement.

RESULT & VISUALIZATION (CONTINUED)



- A bar chart displaying sentiment distribution across ten COVID-19-related topics.
- Negative sentiment is dominant in several topics, highlighting public frustration and concern.
- Some topics show a balanced mix of positive, negative, and neutral sentiment.
- Helps identify which discussions sparked the most concern or optimism during the pandemic.



- A box plot visualizing the intensity of anger, fear, sadness, and joy in COVID-19-related tweets.
- Anger and fear show a wider range, indicating strong emotional reactions to key events.
- Joy has a more compact spread, suggesting less extreme but still notable expressions of hope.
- Highlights the depth of public emotions beyond simple sentiment classification.

CONCLUSION

- Temporal Trends: COVID-19 cases surged in distinct waves, often aligning with major policy shifts and government interventions.
- Geographical Variations: High case counts and tweet activity were concentrated in densely populated, socially connected regions.
- Sentiment Distribution: Negative sentiment spiked during lockdowns and restrictions, while joy increased following vaccine rollouts and policy relaxations.
- Emotional Intensity: Anger and fear showed significant fluctuations, reflecting widespread public frustration and uncertainty over time.
- Public Health Insights: Findings emphasize the importance of real-time data analysis for crisis communication and adaptive policymaking.

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