

COVID-19 Behavioral Trends in Relation to a Transmission Rate Proxy

DSC 201 (001)

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Problem statement:

The COVID-19 pandemic has been one of the most transformative events of the last century, presenting our global civilization with an unparalleled stress test. While we have demonstrated resilience in some respects, there have been notable shortcomings in others. I aim to delve into the data, seeking evidence-based insights and rigorously testing my preconceived notions against the reality revealed through data-driven analysis.

In this project, I will undertake an analysis of a comprehensive datasheet detailing global COVID-19-related behaviors and attitudes, broken down by country over approximately two years. This data sheet was selected due to the undeniable presence of conflicting perspectives regarding public policy in managing this crisis. My analysis will focus on exploring societal and cultural questions, aiming to generate insights into behavioral patterns and social trends. To this end, I will investigate the following five key questions:

1. How did the willingness to self-isolate change throughout the pandemic in different countries?
2. Which countries reported the highest levels of compliance with mask-wearing guidelines?
3. Did countries with higher scores in avoiding crowded areas experience lower rates of COVID-19 transmission?
4. What common behaviors are observed in countries with high levels of perceived danger from COVID-19?
5. How effective were stay-at-home orders in changing the number of times individuals left their homes?

I recognize that this investigation is limited because of my third-hand relationship to the data (no access to participant numbers or collection methods) and because I am biased in my opinion that our policymakers performed poorly in many ways. However, I hope to answer some meta-questions, pointing out areas of future interest.

Initial Analysis proposal:

Prior to examining the data, I have formulated an initial analysis proposal. This serves as a proactive framework to guide the exploration and ensure that the investigation is systematic and unbiased. The analytical steps were outlined in part-2 of this assignment and were designed to address specific research questions without being influenced by the data itself. This preemptive strategy is crucial for maintaining objectivity and allowing for the data, rather than preconceived notions, to drive the findings.

Performed analysis:

Willingness to Self-Isolate

Data Preparation: The analysis began with renaming columns for clarity and selecting relevant data. A critical step involved converting 'Days since outbreak' into actual dates based on each cluster's start date, aligning the behavioral data with the timeline of the pandemic.

Visual Analysis: For each cluster, time series plots illustrated the average willingness to self-isolate over time. The analysis distinguished between willingness if symptoms were present and if advised. These plots were juxtaposed with a global transmission rate proxy, providing contextual understanding of public sentiment in relation to the pandemic's progression.

Mask-Wearing Compliance

Data Transformation: Scores for mask-wearing compliance were converted into a Likert scale to standardize the responses across various contexts (outside home, grocery store, etc.).

Comparative Visualization: Bar charts were created for each mask-wearing context, displaying the average Likert scale scores across ten selected countries. These visualizations allowed for a direct comparison of compliance levels, revealing variances in public adherence to mask-wearing guidelines among the countries.

Conclusion:

In conclusion, I learned much more about the challenges of rigorous data analysis than I did about COVID-19 behaviors in relation to transmission rates. The tasks of combining datasets, aligning information, and converting metrics are more difficult and time consuming than I had anticipated.

While the proxy used for transmission rates provided some insights, I recognized during analysis how limited my investigation was considering the depth of the problem. Future research endeavors should aim to incorporate a broader range of metrics and apply a more nuanced, country-specific filter to these metrics before juxtaposing them against behavioral data. Moreover, transmission rates alone might not fully explain the varied national responses to the pandemic. A more comprehensive approach, incorporating multiple influencing factors, would be essential to gain a thorough understanding of the determinants of national behaviors during the pandemic.

However, there are some noteworthy findings to report from the data analysis, which may point to areas of future interest.

1. There was a large disparity seen uniformly in all countries between how people behavior when ordered to isolate (consistently low) versus when they were symptomatic (consistently high). Understandably, transmission rates seemed to slightly influence the symptomatic isolations.
2. Mask-wearing compliance varied significantly between countries, with Denmark showing lower levels of adherence and Singapore demonstrating higher compliance. This contrast presents a compelling case for a focused comparative study to assess the efficacy of mask-wearing in these countries.

A complete analysis of pandemic behaviors in conjunction with external factors is outside the scope of this project, but this assignment served as an insightful personal project, and it points to possible fruitful methodological frameworks and areas of interest.