

Effects of public health measures on the spread of COVID-19

Sohail Sethi DO^{'26}¹, Simon Geletta PhD¹

¹Department of Public Health, Des Moines University, West Des Moines, IA

Before the discovery and widespread availability of the coronavirus vaccine, local, state, and federal agencies relied on various nonpharmaceutical interventions to decrease the pandemic's spread and mortality. Initially, these interventions were implemented with great variability and vigorousness until the Centers for Disease Control began to coordinate preventative efforts. Consequently, various actions drew criticism and raised questions about the efficacy of these procedures. With minimal research focused on the impact of different states' policies on COVID-19 infection rates, this research aims to determine the relative success of the different nonclinical interventions in lowering incidence rates.

To achieve our objective, we utilized the raw data archived at the repository for the 2019 Novel Coronavirus Visual Dashboard operated by the Johns Hopkins University Center for Systems Science and Engineering. Relevant data were extracted and inputted into R studio in order to convert data into graphical models. Trend lines were then superimposed to visualize how a measure affected the total number of cases on a weekly basis.

We found that, across all states, cases first peaked in April 2020 despite variations. Furthermore, cases stabilized during July 2020 across all states. Therefore, we believe that seasonal variations contributed the greatest impact to the spread of COVID-19 prior to the vaccine rollout.

The project's analysis demonstrates that while states varied in their policy measures and implementation, the trend of COVID-19 spread remained similar. These trends are likely due to weather patterns. We hope that the analysis performed will be helpful in future public health decisions.