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COVID and Suicide

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MOTIVATION

For people of all ages, social connection is vital to survival. We're hardwired to depend on one another for support. When we don't get the connection we need, we're sadder, sicker, and more at risk of early death.

This lack of connection is more common than many people realize. According to a survey conducted in January 2020, more than three out of five Americans feel chronically lonely. It's normal for anyone who feels socially isolated to struggle with mental health, but there are steps you can take to cope with isolation and feel more connected.

Impact of Social Isolation on Your Mental Health

Social isolation can affect nearly every aspect of your mental health. Studies show that feelings of isolation can be linked to:

- Suicidal thoughts and suicide attempts
- Less restful sleep
- Decreased ability to regulate eating
- More stress, especially in the morning
- Greater difficulty paying attention and doing complex tasks

People of all ages are vulnerable to the effects of social isolation. If you experience loneliness as a pre-teen or teenager, for example, you're more likely to struggle with depression in adulthood.⁽¹⁾

OBJECTIVE

- Determine if the number of positive covid cases, which ultimately lead to the "quarantine" had any affect on suicide rates in the United States.

SCOPE

- Investigation should take place from 2020 (when Covid began) to present
 - COVID began in January 2020 and continues to be a matter of concern⁽²⁾
 - Quarantine began March 2020
 - Quarantine ended March 2021

ASSUMPTION

- Majority of the US population abided by quarantine mandate
- High number of COVID cases leads to quarantine(isolation)
- Isolation leads to increased strain on mental health
- Increased strain on mental health leads to increased suicide

CONSTRAINTS

- The data set(s) you choose must:
 - Be open-source.
 - Come from an authentic/authoritative source.
 - Include non-anonymized column names.
 - Be recent (ideally, no more than 3 years old. However, this factor is not essential
 - Contain at least 3 continuous variables (apart from index variables, ID variables, dates, etc).
 - Contain at least 3 categorical variables (apart from index variables, ID variables, dates, etc).
 - Contain at least 2,000 rows.
 - Include a geographical object of some kind: for instance, a column relating to a country, continent, or something similar.

REQUIREMENTS

- Identify trends in positive covid cases
- Identify trends in suicide

GLOSSARY OF TERMS

- Quarantine - stay-at-home order mandating all residents to stay at home except to go to an essential job or shop for essential needs.
- Coronavirus disease (COVID-19) - an infectious disease caused by the SARS-CoV-2 virus leading to respiratory illness.⁽²⁾
- Suicide - death caused by injuring oneself with the intent to die.⁽³⁾

QUESTIONS

Clarifying

- How prevalent is suicide in the US?
- Is suicide more common based on gender, race, age?
- What is prevalence of COVID-19
- Is COVID-19 more common based on gender, race, age?

Adjoining

- What percent of diagnosed mental health conditions lead to suicide?

Funneling

- Does the COVID virus directly affect mental health?

Elevating

- Does suicide put further strain on our medical systems?

HYPOTHESIS

- If COVID cases increase, then suicide rates will increase.

PROJECT DELIVERABLES

- Exploratory analysis through visualizations (scatterplots, correlation heatmaps, pair plots and categorical plots)
- Geospatial analysis using a shapefile
- Regression analysis
- Cluster analysis
- Time-series analysis
- Analysis narrative and final results (presented in a dashboard)
- Your final dashboard must:
 - Be designed with a use-case in mind (answering key guidance questions).
 - Be created in Tableau Public.
 - Be interactive.
 - Adhere to visual design best practices.
 - Include an introduction page that describes the project (data and purpose).
 - Include relevant result(s) of initial visual exploratory analysis.
 - Include an explanation for how the results of the exploratory analysis resulted in defining research questions and/or hypotheses.
 - Contain a geospatial component.
 - Address the defined questions/hypotheses using advanced analytical techniques.For example:
 - - Regression analysis
 - - Cluster analysis
 - - Time-series analysis
- Include a results summary page explaining how the results do or don't address the initial research questions/hypotheses.
- Include details on the limitations of the project.
- Include a proposal of next steps for further analysis.
- GitHub Repository Requirements
 - Your Python code.

- A logical folder structure.
- Folders and files that have been named following industry-standard conventions.
- Portfolio-ready Jupyter scripts for every task in the Achievement (complete with code comments, organized structure, and clean, functioning code).
- A README file that contains a description of the project, details of the data source(s), research questions, and cleaning procedures (from Exercise 6.1 task), as well as a link to the Tableau dashboard containing the analysis results and a short description of its contents.

References

- (1) <https://www.webmd.com/mental-health/social-isolation-mental-health>
- (2) <https://www.cdc.gov/coronavirus/2019-nCoV/index.html>
- (3) <https://www.cdc.gov/suicide/facts/index.html#:~:text=Suicide%20is%20death%20caused%20by,a%20result%20of%20their%20actions>.