

Social Determinants of Health and Covid-19 Comorbidities: A Retrospective Analysis

The purpose of this project is to retrospectively analyze certain Social Determinants of Health (SDOH) factors that likely contributed to the development of comorbidities within the urban population of New York City, NY that increased the risk of severe illness from COVID-19.

We limited the scope of this project to just SDOH data gathered during the 2 years (2016 - 2018) leading up to the outbreak of COVID-19 pandemic in late 2019 as these data are readily available, relevant, and current.

We utilized the [CDC's latest reporting](#) of underlying medical conditions that were shown to increase a person's risk of severe illness from COVID-19 (last updated Feb 2023)

These Comorbidities Include:

- Asthma
- Smoking
- Obesity
- Mental Health Conditions
- Physical Inactivity

We used the SDOH factors as surrogate/stand-in variables for likely contributing to the development of these comorbidities within the population:

- Asthma
 - Air Quality Index (AQI) - Air pollutants
(<https://www.epa.gov/outdoor-air-quality-data/download-daily-data>)
 - FACETS - "Respiratory Hazard Index"
- Smoking
 - FACETS - "Tobacco retailers/1000 population"
 - Actual Smoking Rates? - Jackson
- Obesity
 - FACETS - "Access to Healthy Foods"
- Mental Health Conditions
 - FACETS - "GINI Index"
 - FACETS - "# of 7 serious crimes /1000 population"
 - FACETS - "Housing violations per 1000 rental units"
 - FACETS - "% in poverty"
 - FACETS - "Median Household Income"
- Physical Inactivity
 - FACETS - "Neighborhood walkability scale"
 - FACETS - "Park distance"

Each CDC reported comorbidity along with its associated SDOH factor stand-in variable will be split up amongst the 5 group members. Each variable has its own dataset containing the correct county, SDOH variable and occurred within the appropriate time frame. Each group member will extract, clean, transform, and evaluate their respective datasets individually. These datasets along with their results will then be recombined into a comprehensive Jupyter Notebook for further analysis and final project submission. The group member assignments are as follows:

- Wayne: Asthma
- Jackson: Smoking
- Ayushi: Obesity
- Govinda: Physical Inactivity
- Tessa: Mental Health

To-Do:

- 1). Complete the Data Quality Assessment of the 2016-2018 FACETS SDOH data
- 2). Remove population = 0, and link zip code and/or counties to FACETS census tracts
- 3). Assess and clean up the assigned SDOH factor datasets that we evaluated individually.