

Concentrated Disadvantage: Violent Deaths of Transgender People

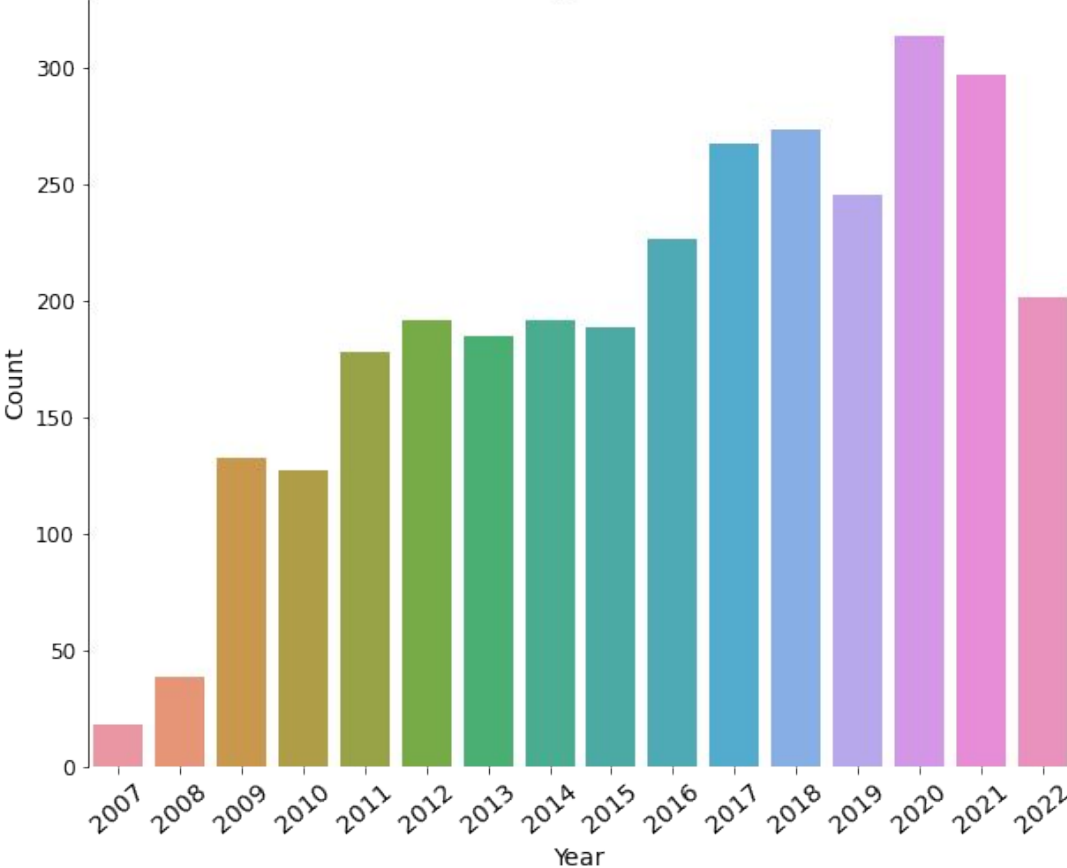
Revathi Satkuna

Problem Statement:

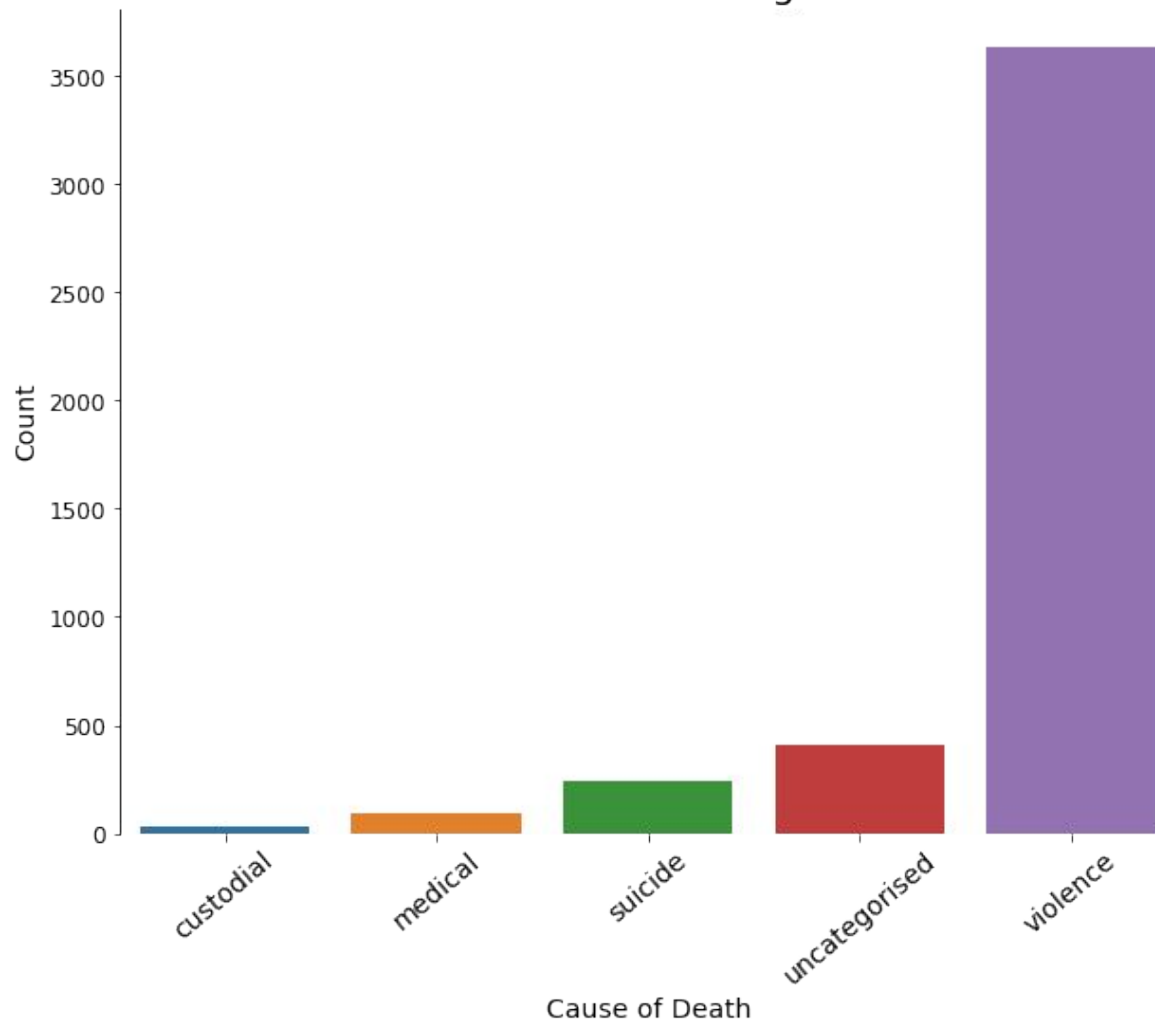
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The Office of Refugee Resettlement has selected you, through the nonprofit organization you work at, as the management consultant to advise them on part of process of allocating resources to transgender asylum seekers. As a transgender individual, this is an issue you deeply care about and one you deal with personally. Your role is to perform a global analysis of safety, understand what parameters can predict influxes in the levels of violence towards transgender people globally so that resources and services can be allocated to those who need it the most. Moreover, your company has given you the additional task of understanding how the global scope of the issue can influence implementing policy changes to improve the overall quality of life of transgender persons domestically.

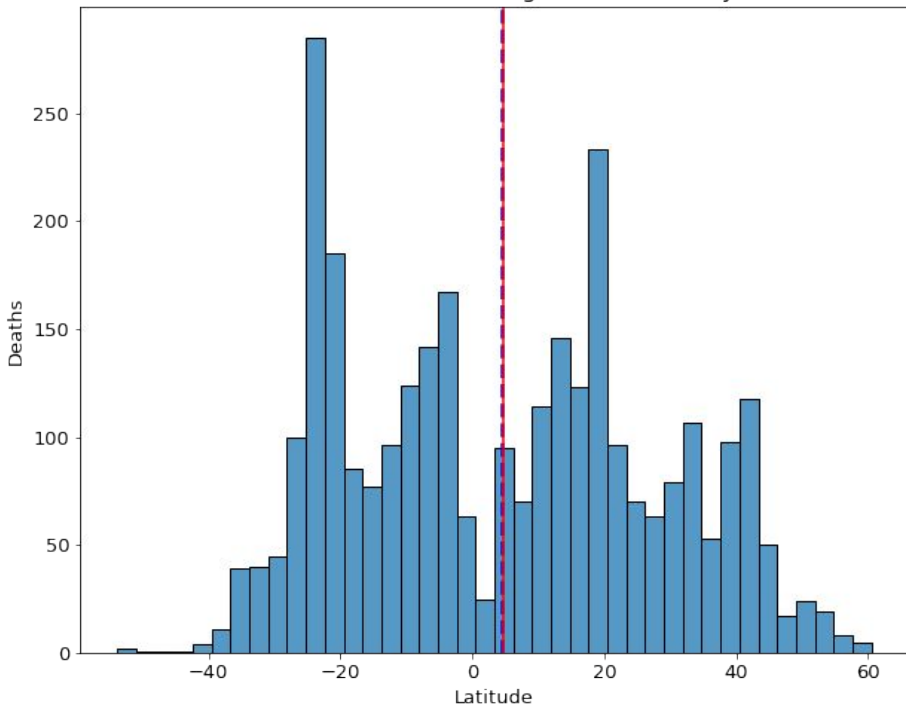
Distribution of Worldwide Transgender Deaths from 2007 to 2022



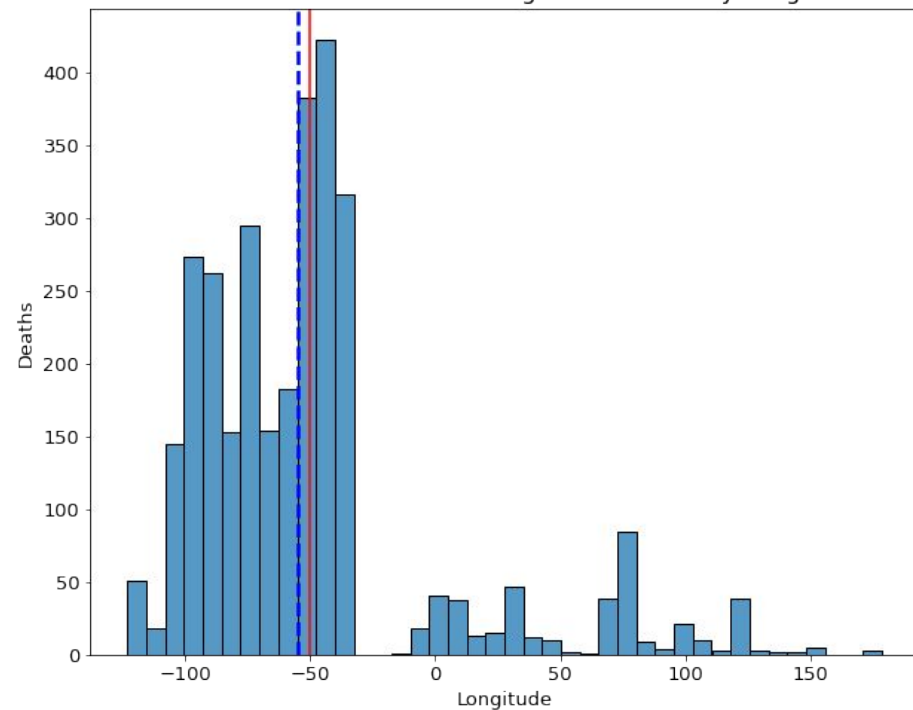
Causes of Premature Transgender Death

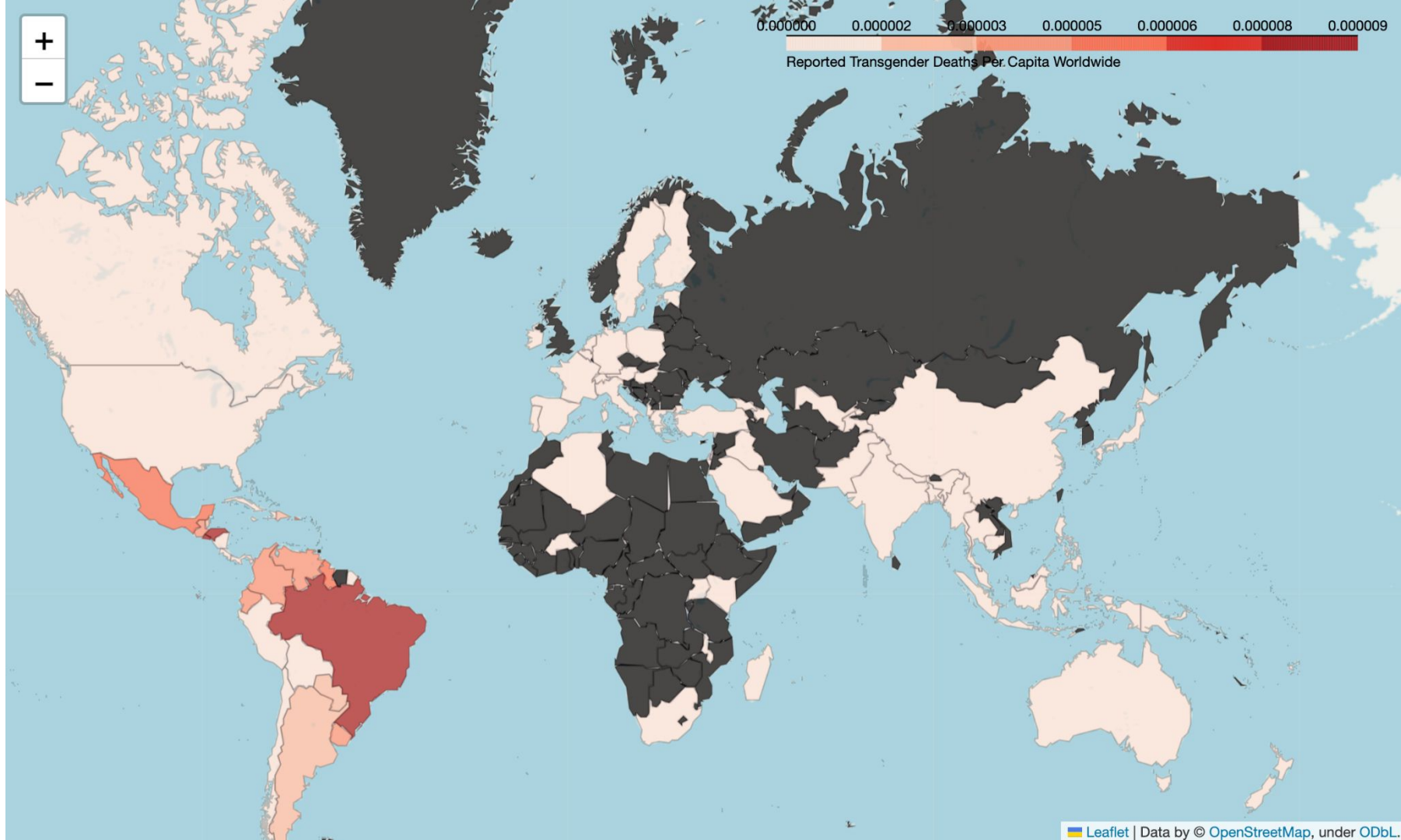


Distribution of Worldwide Transgender Deaths by Latitude

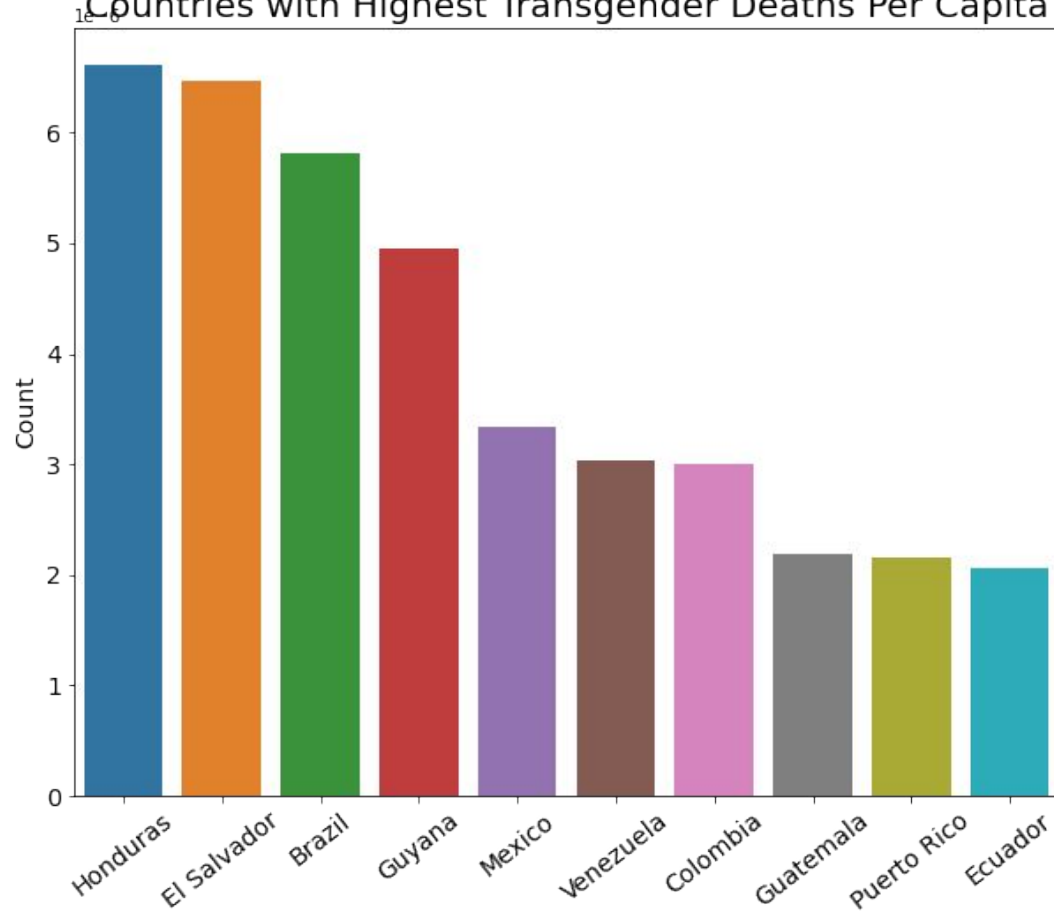


Distribution of Worldwide Transgender Deaths by Longitude

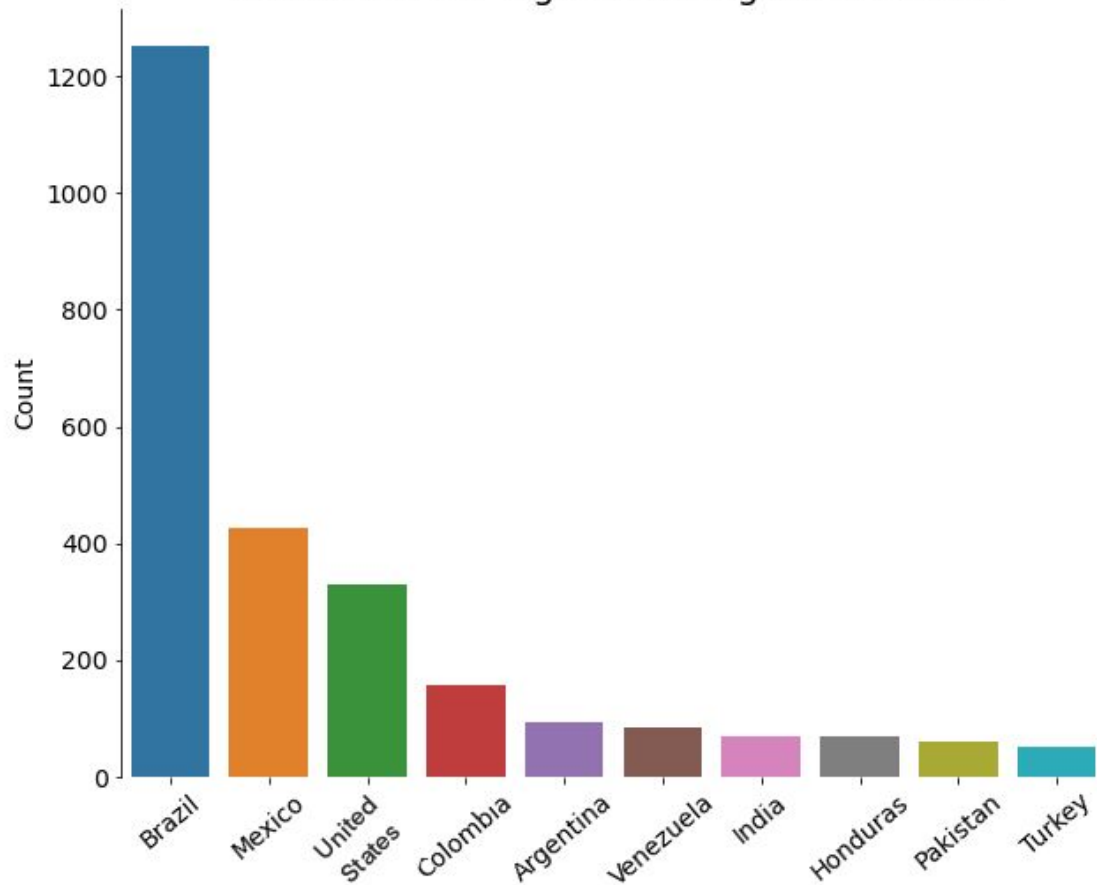


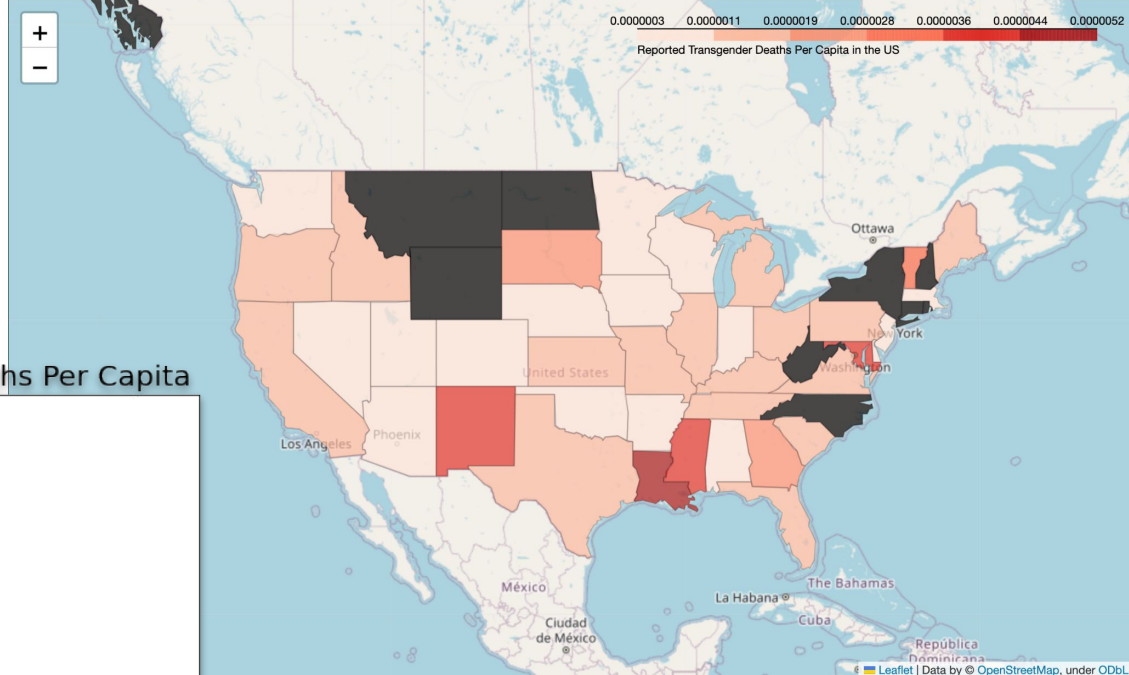


Countries with Highest Transgender Deaths Per Capita

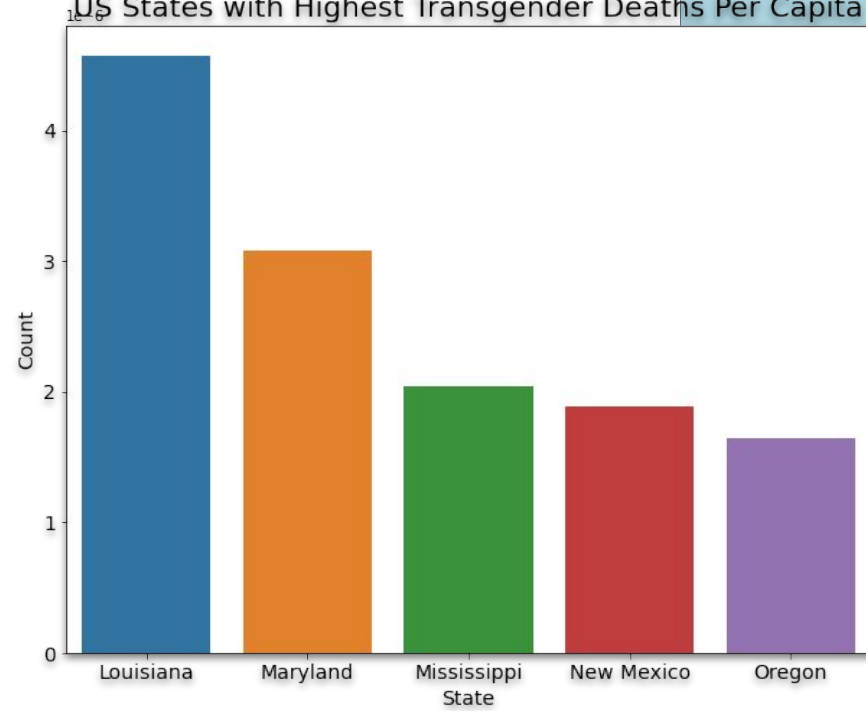


Countries with Highest Transgender Deaths

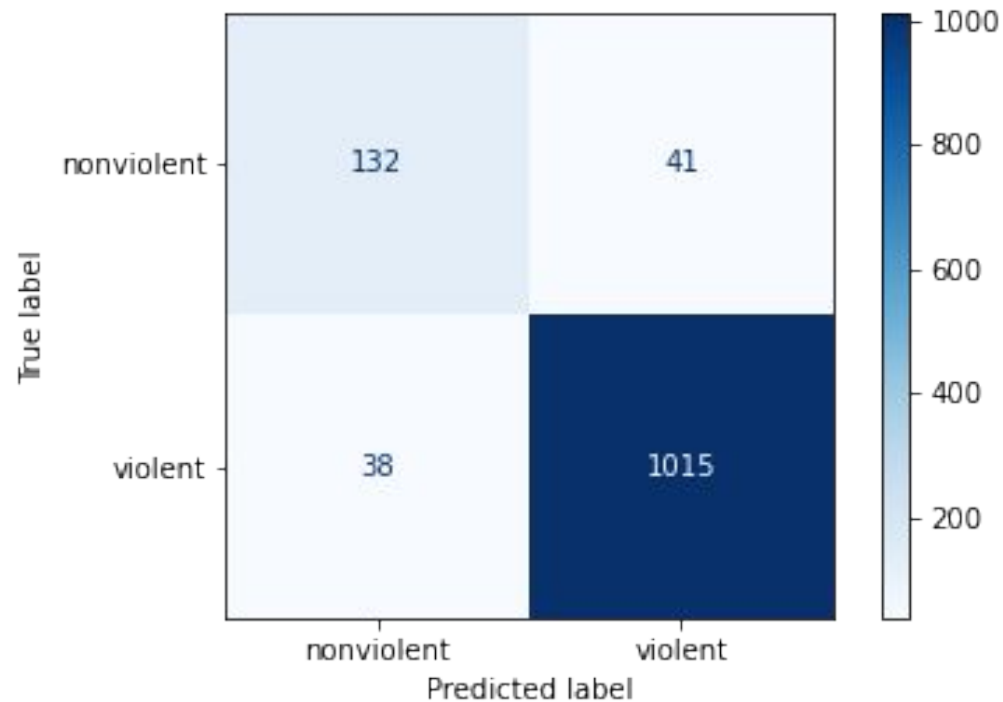




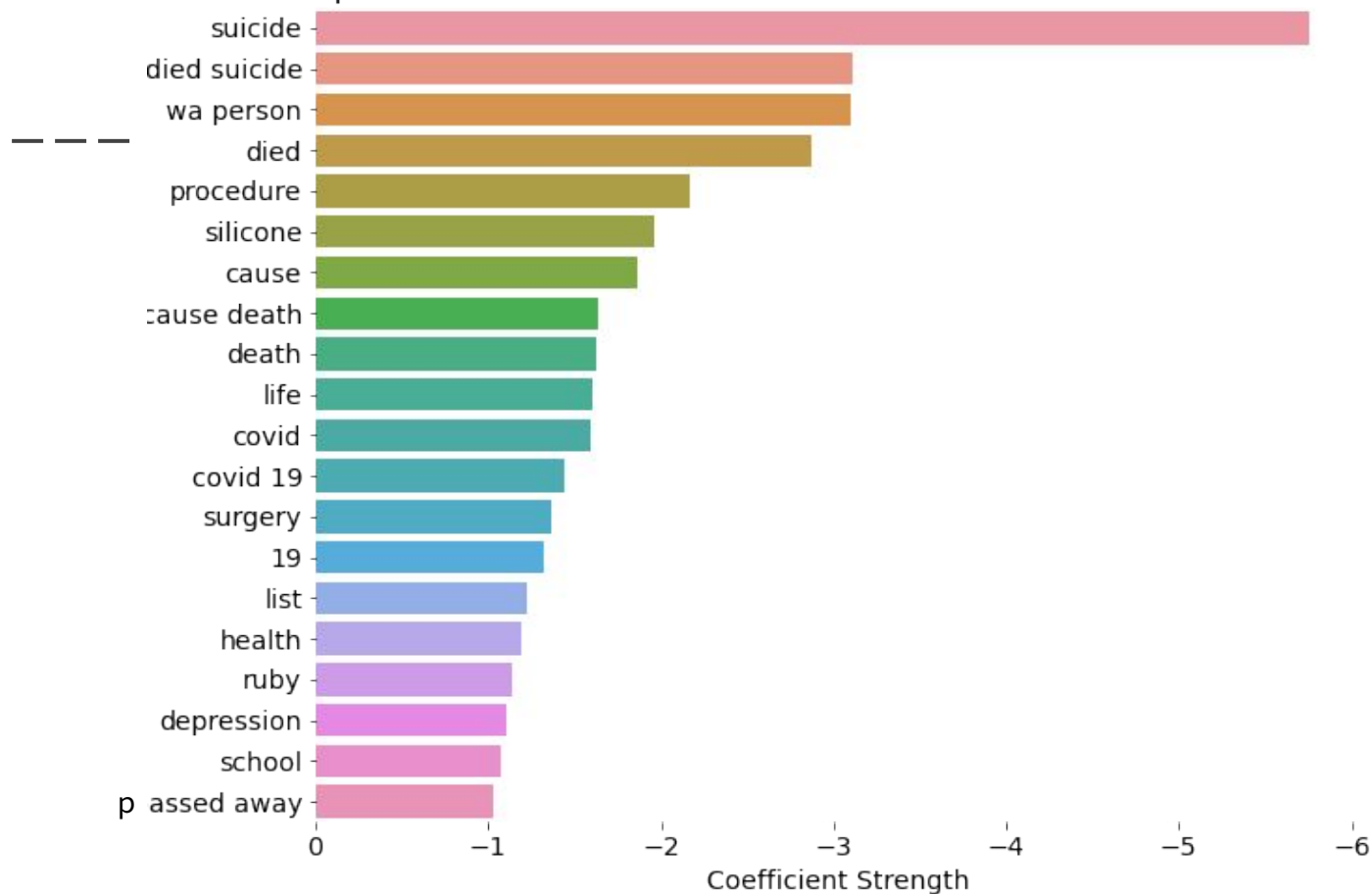
US States with Highest Transgender Deaths Per Capita



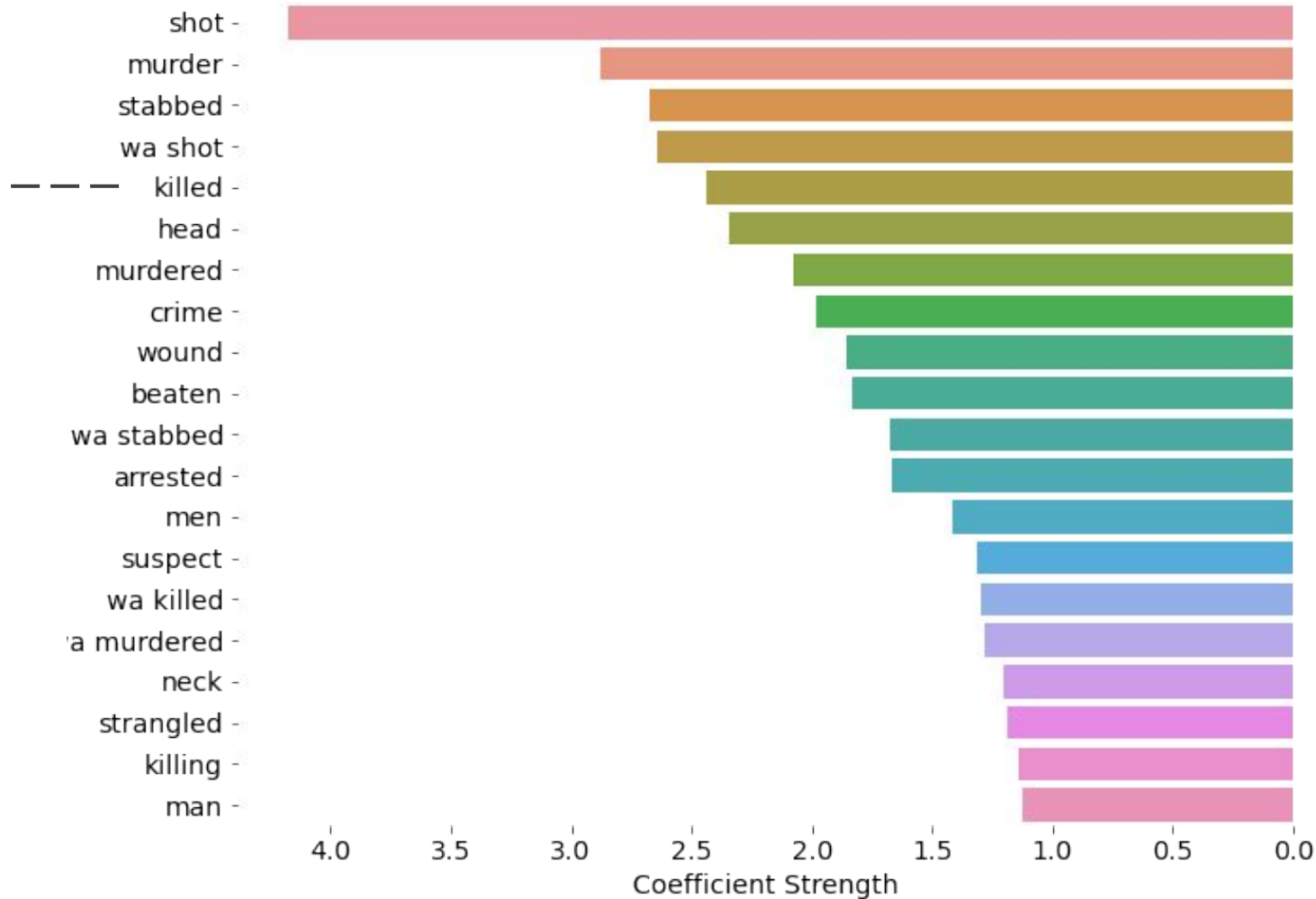
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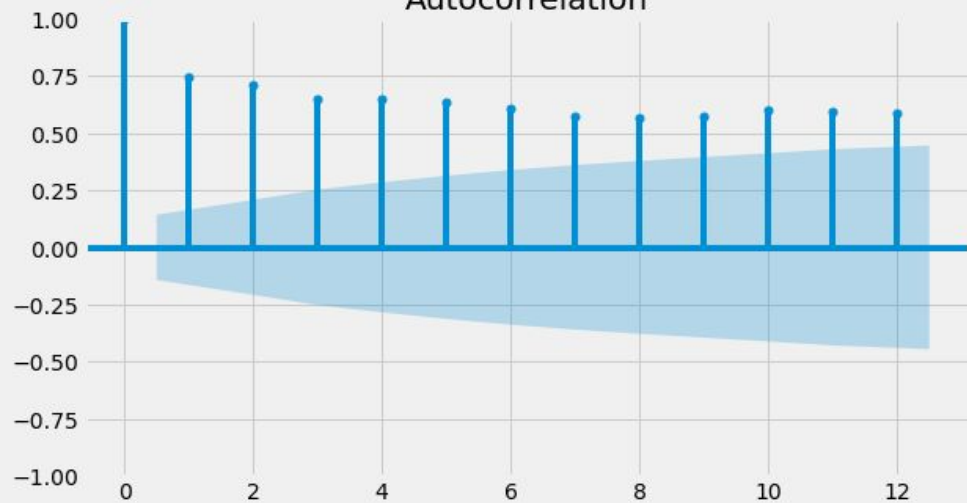
Top 20 Words Predictive Correlation for Nonviolent Deaths



Top 20 Words Predictive Correlation for Violent Deaths



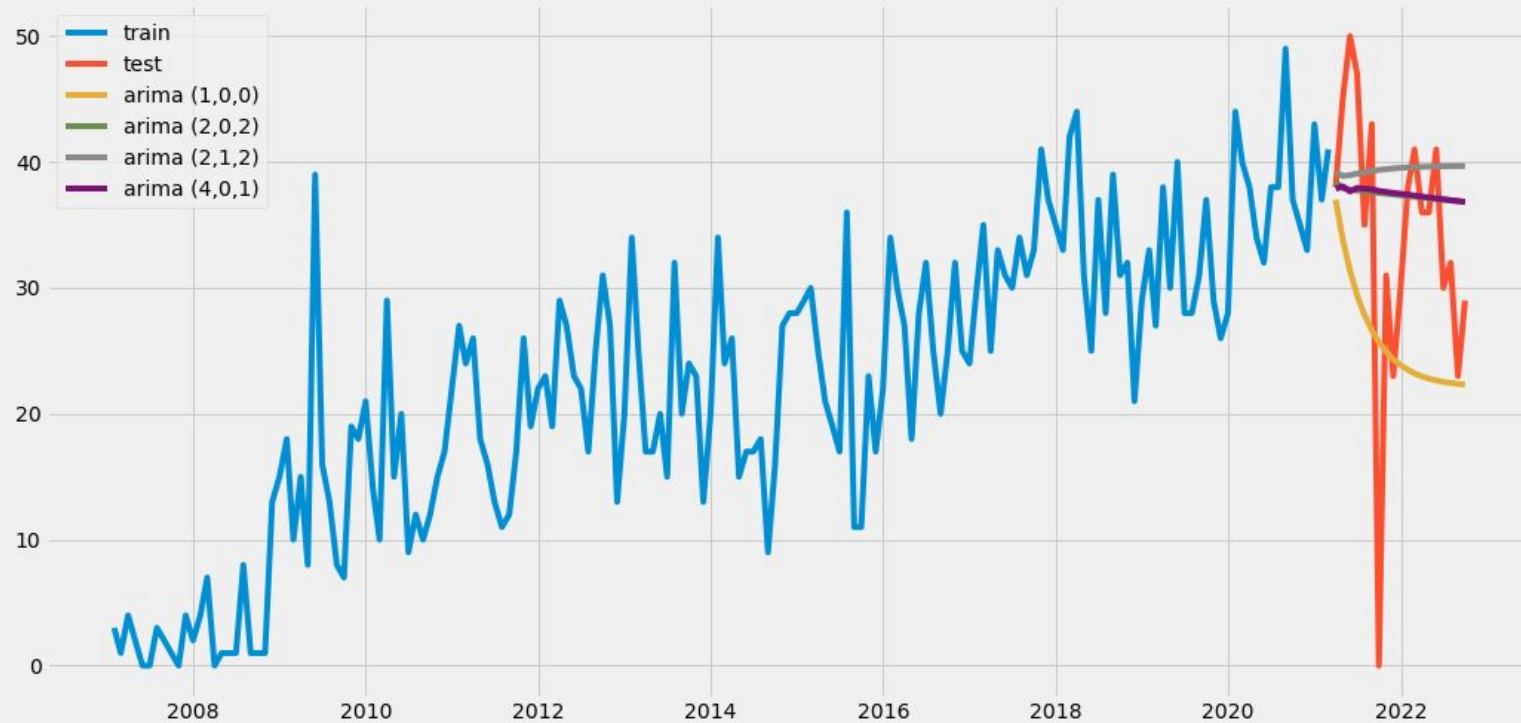
Autocorrelation



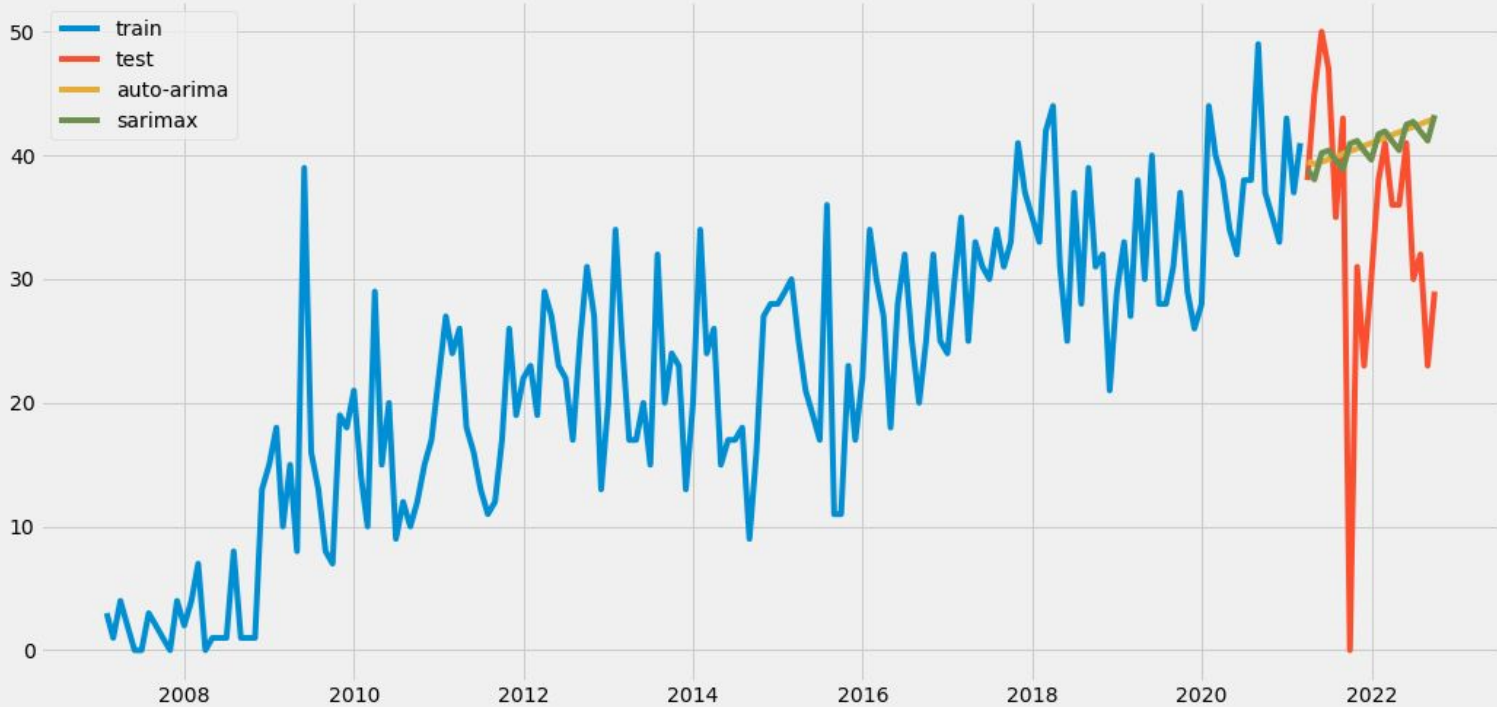
Partial Autocorrelation



Monthly Worldwide Transgender Deaths Forecasting



Monthly Worldwide Transgender Deaths Forecasting



Limitation

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- Missing data from many parts of the world (e.g. most of Africa, parts of Asia)
- Data could be underreported, misreported or missing.
- More information on education level, income, HIV status, whether or not they were a sex worker, medical issues, race/ethnicity would have been helpful

Conclusion

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- 4 month seasonality period, seeing pattern repeat every 4 months.
- A vast majority of these deaths occur in Central/South America
- Deaths are increasing every year (could be due to population of people identifying increasing, or increased reports)
- Disproportionate amount of gun violence.

Recommendations

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- Be aware that January and May are the time periods with the most deaths. This will require a 1-2 month lead time before to allocate more funding to these programs and prioritize applications by trans asylees from the countries in South/Central America that were highlighted earlier.
- Improving quality of life for these people once they have entered the US, that they will not have to resort to sex work, blackmarket hormones and illegal silicone injections.
- Mental health counseling and access to healthcare, following all WPATH guidelines.
- Stronger firearm regulations.

Data Sources

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- * [``2007-2022``](./Data/original_data): Data taken from tdor that detailed deaths recorded meticulously over the past several years
([source](https://github.com/annajayne/tdor-data))
- * [``tdor.csv``](./Data/processed_data/tdor.csv): Post-compiled raw data and pre-imputing for age
- * [``train.csv``](./Data/processed_data/train.csv): tdor.csv after split into training set and imputing based on training data
- * [``test.csv``](./Data/processed_data/test.csv): tdor.csv after split into testing set and imputing based on training data
- * [``nlp_train.csv``](./Data/processed_data/nlp_train.csv): training text data post lemmatizing and tokenizing for NLP analysis
- * [``nlp_test.csv``](./Data/processed_data/nlp_test.csv): testing text data post lemmatizing and tokenizing for NLP analysis

Data Sources

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- `[`brazil_population.csv`](./Data/population_data/brazil_population.csv)`: 2022 Population of States of Brazil
(`[source](https://www.ibge.gov.br/en/statistics/social/population/22836-2020-census-censo4.html?=&t=resultados)`)
- `[`mexico_population.csv`](./Data/population_data/mexico_population.csv)`: 2022 Population of States of Mexico
(`[source](https://catalog.data.gov/dataset/georeferenced-population-datasets-of-mexico-geo-mex-gis-of-mexican-states-municipalities-a)`)
- `[`usa_population.csv`](./Data/population_data/usa_population.csv)`: 2022 Population of States of USA
(`[source](https://www.census.gov/data/tables/time-series/demo/popest/2020s-state-total.html)`)
- `[`country_population.csv`](./Data/population_data/country_population.csv)`: 2022 Population of World by country (`[source](https://www.kaggle.com/datasets/whenamancodes/world-population-live-dataset)`)
- `[`brazil_geo.json`](./Data/geodata/brazil_geo.json)`: Brazil state geodata
(`[source](https://www.kaggle.com/datasets/thiagobodruk/brazil-geojson)`)
- `[`countries.geojson`](./Data/geodata/countries.geojson)`: country outlines
(`[source](https://datahub.io/core/geo-countries)`)
- `[`mexico.json`](./Data/geodata/mexico.json)`: Mexican states geodata
(`[source](https://github.com/PhantomInsights/mexico-geojson/blob/main/mexico.zip)`)

Sources

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- <https://www.hrc.org/resources/fatal-violence-against-the-transgender-and-gender-non-conforming-community-in-2022>
- <https://www.cbsnews.com/news/transgender-community-murder-rates-everytown-for-gun-safety-report/>
- <https://medium.com/analytics-vidhya/time-series-forecasting-sarima-vs-auto-arima-models-f95e76d71d8f>