COVID-19;

AN ANALYSIS OF DEATH/RECOVERY RATE ACROSS SELECTED COUNTRIES IN 2020

ID/CT/00066

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Abstract

The COVID-19 pandemic, a global health crisis unprecedented in modern history, significantly impacted mortality rates across the world in 2020. **This project investigates the death rate caused by COVID-19 in selected countries** (especially in the U.S.A due to data availability and viability), aiming to uncover patterns, variations, and potential influencing factors. By analyzing publicly available data from various international health organizations, this study provides a comparative analysis of mortality trends. Key variables, including country and provinces, daily tested, recovered, hospitalized, positive, recovered, active, total tested and death rate, are examined to contextualize disparities in death rates. The findings contribute to understanding the dynamics of pandemic-induced mortality and highlight lessons for future global health emergencies.

Introduction

The outbreak of COVID-19 in late 2019 rapidly evolved into a global pandemic, reshaping lives and societies worldwide. By 2020, the virus had spread to nearly every corner of the globe, causing significant loss of life and overwhelming healthcare systems. While the pandemic was universal in its reach, its impact varied considerably across countries. Differences in death rates raised questions about the interplay of factors such as population demographics, healthcare capacity, governmental response, and social behaviors.

This project focuses on analyzing COVID-19 death and recovery rates in a selection of countries during the year 2020. The analysis seeks to identify key patterns and disparities, providing insights into the factors that influenced mortality rates. By comparing countries with diverse socioeconomic and healthcare conditions, this study aims to shed light on how these elements contributed to the pandemic's outcome. Ultimately, this work aspires to inform strategies for better preparedness and response to future health crises.

Aims and Objectives

Aims

This project aims to analyze the COVID-19 pandemic's impact on mortality rates in selected countries during 2020, focusing on the relationship between death rates, recovery rates, and testing frequency. The study seeks to uncover the dynamics between testing policies and their influence on health outcomes.

Objectives

1. To examine and compare the COVID-19 death rates across selected countries during 2020.
2. To analyze the recovery rates of COVID-19 patients in the selected countries.
3. To evaluate the frequency of COVID-19 tests conducted in the selected countries.
4. To investigate the relationship between testing rates and the observed death and recovery rates.
5. To identify key factors influencing disparities in death and recovery rates, including healthcare infrastructure and governmental policies.
6. To provide recommendations based on the findings to improve future pandemic response and health crisis management.

DATA ANALYSIS PROCESSES ADOPTED:

DATA SOURCE: The dataset for this project after it was gotten from one of the most reliable sources of data collection which is Kaggle.com.

DATA CLEANING: The data was properly taken through the processes of data analysis. The second data analysis process adopted after data collection was to clean the data. In this process, python was used to clean the data of inconsistencies like removing duplicates, and using the imputer methods on python to fill in the missing value, so that our analysis can be said to be a concise one.

DATA TRANSFORMATION/VISUALIZATION: After the cleaning was been done on python, powerBi was then used to transform the data under Power Query, modeling was done and some measures were done to get the counts and average of some dimensions and facts data. We also used the charts derived to draw our insights and visualization. This was done because, from studies, powerBi has been found to be a very great tool for data visualization and communication to the bare eyes, hence the use of powerBi for our visualization.

Furthermore, all findings/insights and reports are written in this document to back-up the findings and give suggestions for future investigations on this project topic.

INSIGHTS/REPORT:

The trends in testing, positive cases, recoveries, and deaths reveal significant variations across top 5 countries.

1. **United States**:
    - **Total Tests**: Over 20.6 billion.
    - **Positive Cases**: Approximately 1.24 billion.
    - **Recoveries**: Around 370 million.
    - **Deaths**: About 36.9 million.
2. **Canada**:
    - **Total Tests**: Approximately 5.5 billion.
    - **Positive Cases**: Around 312 million.
    - **Recoveries**: Roughly 94 million.
    - **Deaths**: About 8.9 million.
3. **Australia**:
    - **Total Tests**: Around 4.3 billion.
    - **Positive Cases**: About 243 million.
    - **Recoveries**: Around 64 million.
    - **Deaths**: Approximately 7.1 million.
4. **Czechia**:
    - **Total Tests**: 743 million.
    - **Positive Cases**: Around 53 million.
    - **Recoveries**: Approximately 8.3 million.
    - **Deaths**: About 1.6 million.
5. **Estonia**:
    - **Total Tests**: 462 million.
    - **Positive Cases**: Around 35 million.
    - **Recoveries**: Approximately 5.9 million.
    - **Deaths**: About 977,646.

Observations:

- The United States leads in testing, positive cases, recoveries, and deaths, reflecting its population size and extensive testing efforts.
- Canada and Australia, despite conducting extensive tests, report lower death rates relative to positive cases, possibly due to effective healthcare systems and interventions.
- Smaller countries like Czechia and Estonia have significantly fewer cases and deaths but are proportionately impacted relative to their population sizes.

Based on the observations from the analysis of testing rates versus death/recovery rates in the United States during 2020, here is a recommended course of action:

1. **Sustain High Testing Rates**:
    - **Observation**: Increased testing rates were associated with potentially lower death rates.
    - **Action**: Governments and health organizations should prioritize mass testing, ensuring accessibility for all population segments, especially during the early stages of any outbreak.
2. **Strengthen Early Detection Measures**:
    - **Observation**: Testing allows for the early identification of cases, enabling timely isolation and treatment.
    - **Action**: Implement robust surveillance systems and rapid response teams to act on testing data quickly, reducing the spread and severity of outbreaks.
3. **Invest in Healthcare Capacity**:
    - **Observation**: Death rate fluctuations highlight the impact of healthcare system strain.
    - **Action**: Allocate resources to strengthen healthcare systems, including ICU capacity, medical supplies, and staff training, to handle surges in cases effectively.
4. **Targeted Interventions in High-Risk Areas**:
    - **Observation**: Variability in death rates suggests regional differences in healthcare and population vulnerabilities.
    - **Action**: Focus interventions such as testing and vaccination campaigns in high-risk areas or populations to reduce disparities.
5. **Enhance Public Awareness Campaigns**:
    - **Observation**: Public compliance with testing and preventive measures is crucial.
    - **Action**: Use clear, science-backed communication to encourage testing, social distancing, and vaccination, reducing resistance to public health measures.
6. **Prepare for Variants**:
    - **Observation**: Death rate fluctuations may also result from virus mutations.
    - **Action**: Invest in genomic surveillance to identify and respond to new variants rapidly.
7. **Continual Data Analysis**:
    - **Observation**: Insights from testing and mortality data provide valuable feedback.
    - **Action**: Establish systems for real-time data analysis to adapt strategies dynamically based on the evolving situation.

These steps will improve pandemic response and minimize mortality in future outbreaks, leveraging lessons learned from the 2020 COVID-19 experience.

CONCLUSION:

Conclusively, it is advised the more viable data should be collected and made available publicly in Nigeria, which is our home country, so that more analysis like this can be done on it. This in-turn will help a great deal in planning for such future reoccurrence in Nigeria, and Africa at large.