22581340_COVID

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Abstract

In this report I explore how and why different continents were affected differently, underlying habits and comorbifities that worsens its affects and how regions' institutions reacted to the pandemic through facsilities.

1. Introduction

The objective of this analysis is to explore the interplay between new COVID-19 cases, deaths, and the strictness of lockdown measures in diverse regions. Through a comprehensive examination of these variables, we seek to discern the efficacy of implemented measures and uncover the fundamental factors driving the observed patterns in case and mortality rates.

2. Part A

In the graph below, I analysed the relationship between new COVID-19 cases and subsequent deaths across different regions during the COVID-19 period. I also considered the strictness of lockdown measures, represented by a score ranging from 0 to 100. This graph prompted further investigation into the underlying reasons behind the high case and death rates.

The graph reveals noticeable patterns between new cases and the strictness of measures implemented. For instance, North America, which scored the highest on the "strictness" scale, exhibited the lowest number of new cases and subsequent deaths. In contrast, Europe, the continent with the least strict measures, had the highest number of COVID-19 cases and deaths. This observation may be attributed to Europe's high population density, leading to increased contact and transmission.

Interestingly, the African region demonstrated a relatively high strictness score but also reported a significant number of new cases and deaths. This raises questions about factors such as inadequate

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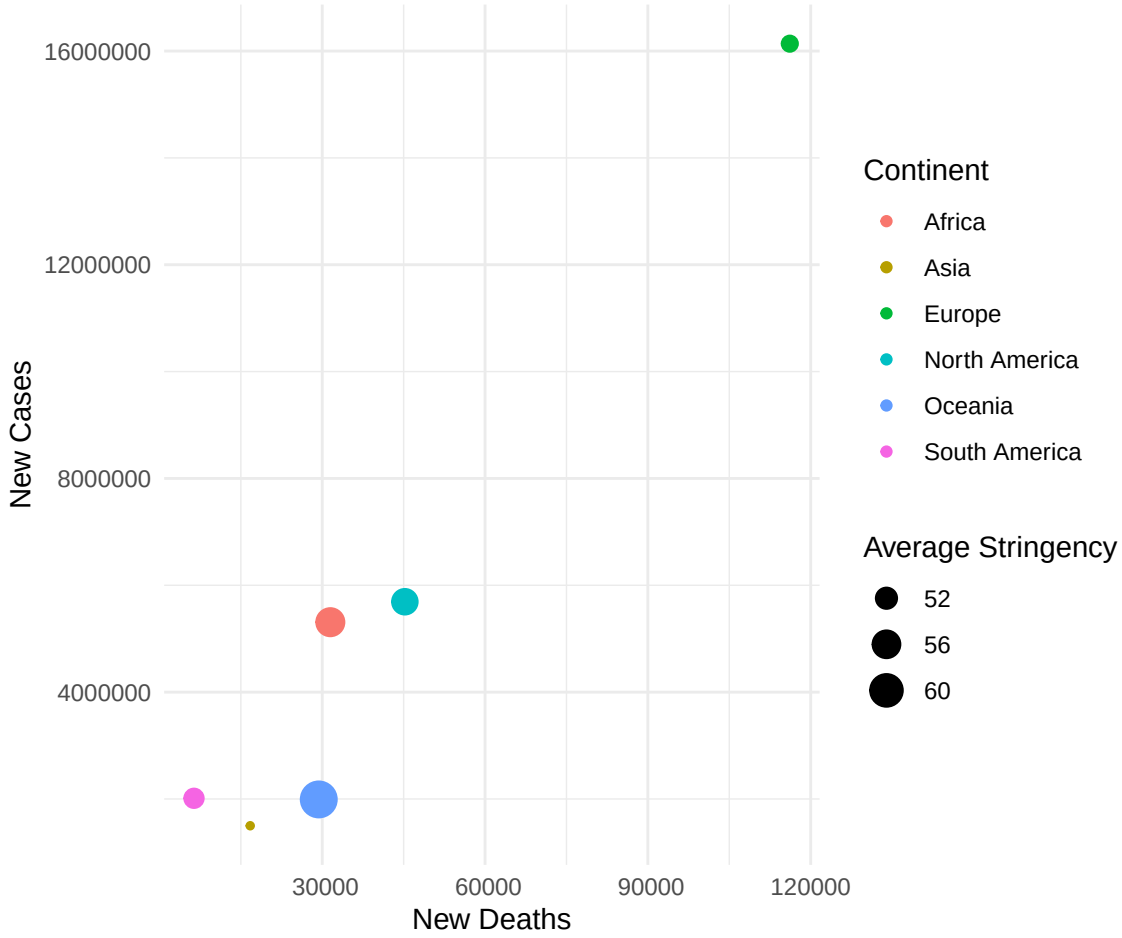
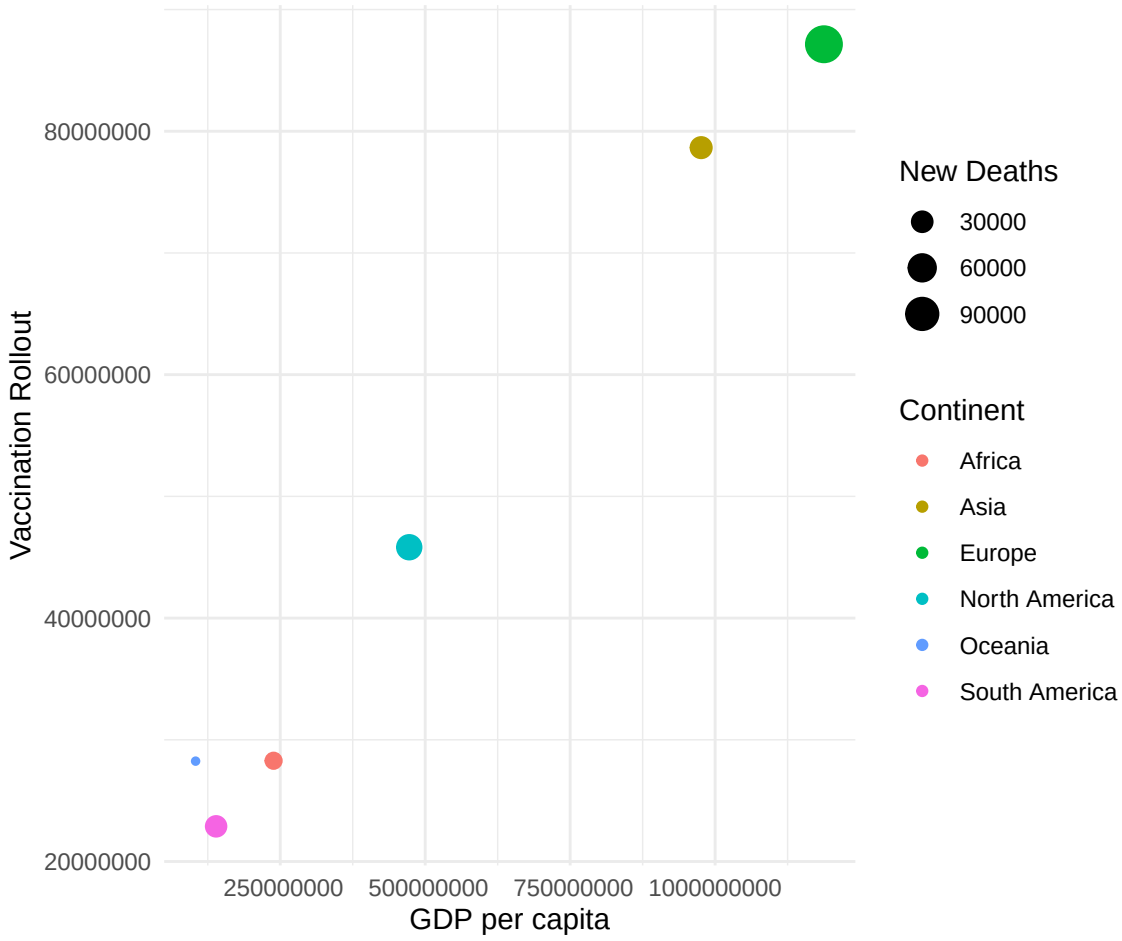
healthcare facilities or limited vaccination rollouts that might contribute to the situation in this region.



2.1. Vaccination rollout and GDP per capita

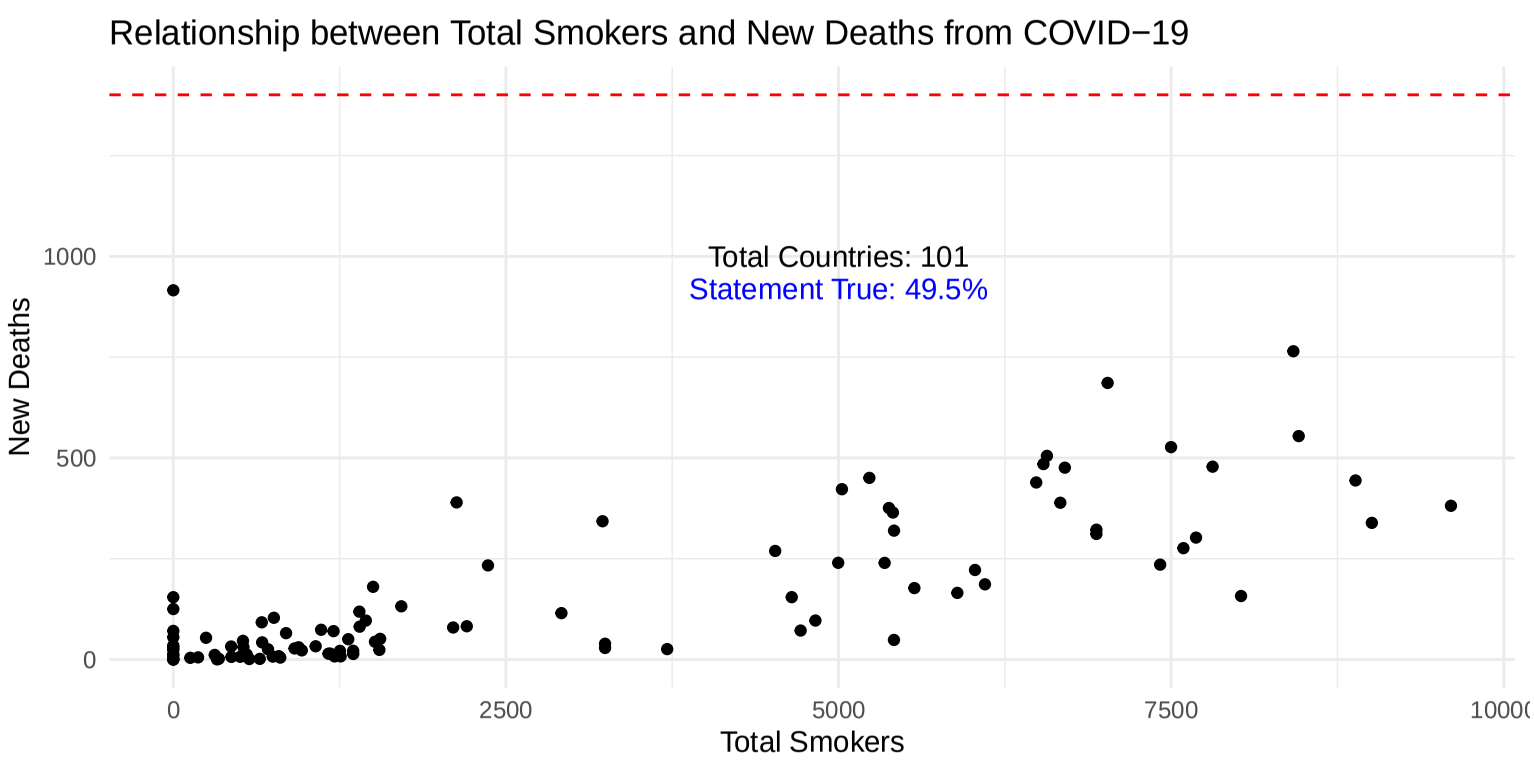
As expected, continents with a higher GDP per capita demonstrate a stronger vaccination rollout per million people. However, it is surprising to note that despite this higher vaccination rate, certain continents (particularly Europe) still experience the highest number of new deaths. This observation raises questions about the underlying factors contributing to the persistently high mortality rates in these regions, despite their comparatively stronger vaccination efforts.

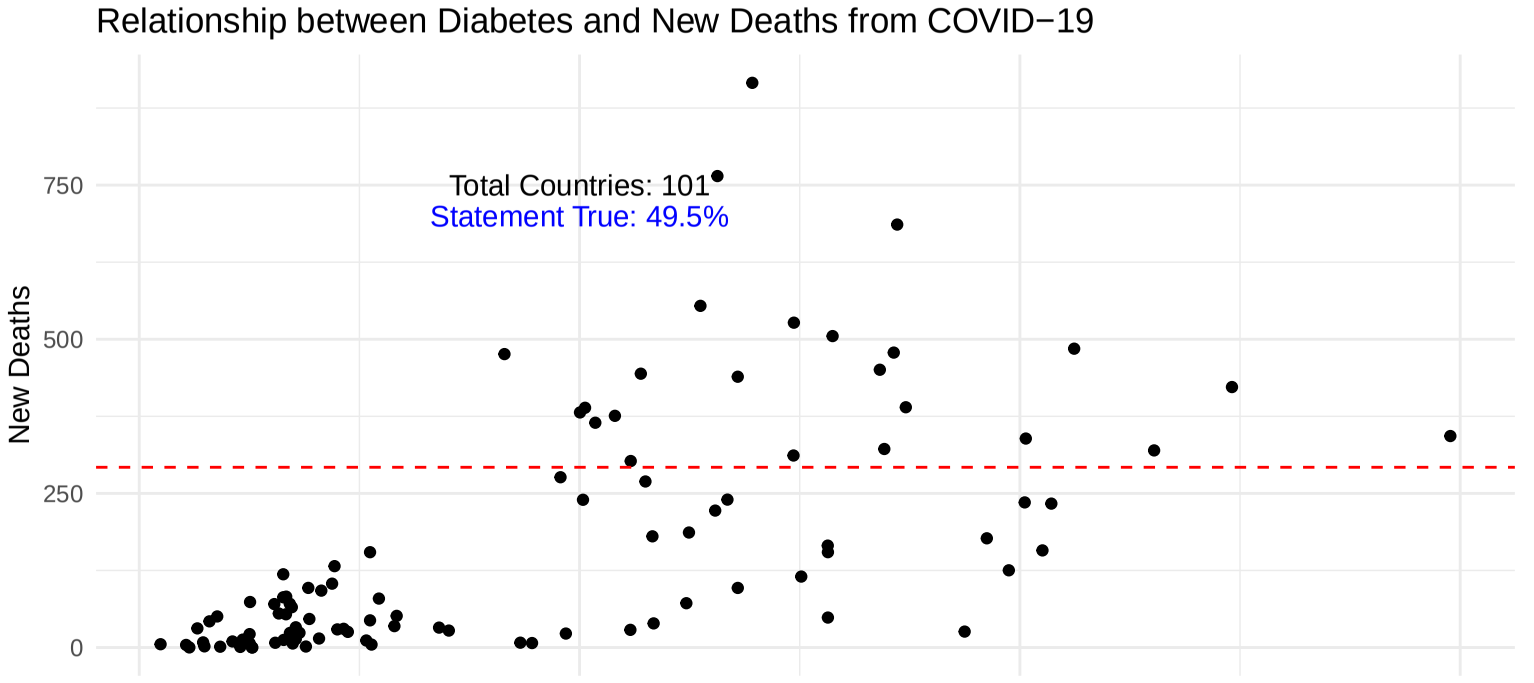


3. Part B

In this section, I will examine two specific groups: individuals with diabetes and smokers. Diabetes is considered a comorbidity for COVID-19 deaths, while smoking weakens lung function, which can be further compromised by COVID-19.

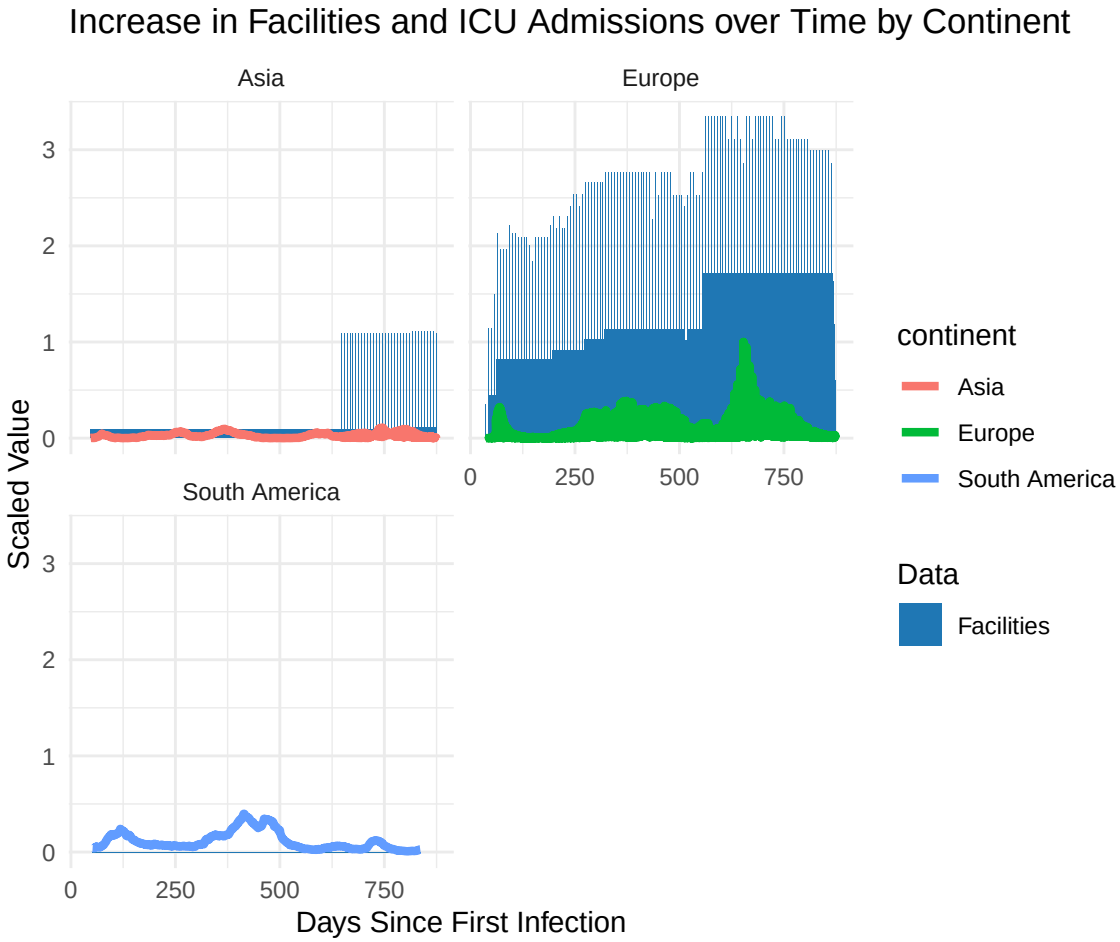
Based on the graphs for both smokers and individuals with diabetes, we observe that the statement regarding the likelihood of COVID-19-related deaths holds true in 49.5% of countries. This determination is made using the median of global smoker and diabetes rates as the threshold for the statement.


Relationship between Total Smokers and New Deaths from COVID−19
Total Countries: 101
Statement True: 49.5%
New Deaths
1000
500
0
0
2500
5000
7500
10000
Total Smokers


Relationship between Diabetes and New Deaths from COVID−19
Total Countries: 101
Statement True: 49.5%
New Deaths
750
500
250
0

4. Part C

To examine the relationship between the increase in ICU admissions and facilities across continents, hospital beds were used as a proxy for these facilities. The analysis focused on the number of days since the first COVID-19 infection, with some continents excluded due to data limitations. The graph below illustrates notable trends: Asia demonstrates a delayed increase in facilities, occurring after approximately 500 days since the first infection, while Europe shows an immediate increase. In contrast, South America exhibits no noticeable increase in facilities over time.



5. Discussion

The analysis of COVID-19 data across different regions highlights the importance of strict lockdown measures in controlling the spread of the virus. The observed patterns indicate that regions with higher strictness scores tend to have lower case and death rates, while regions with less strict measures

experience higher rates of infection and mortality. The relationship between strictness scores and outcomes can be influenced by various factors, including population density and healthcare system capacity.

The findings also shed light on the impact of comorbidities on COVID-19 mortality rates. Individuals with diabetes and smokers are identified as vulnerable groups, with a higher likelihood of experiencing severe outcomes. However, the analysis reveals that this statement holds true only in approximately 49.5% of countries, suggesting the presence of additional contributing factors.

Examining the relationship between ICU admissions and facilities across continents provides insights into the preparedness and response capacity of healthcare systems. The delayed increase in facilities observed in Asia and the absence of noticeable growth in South America raise questions about the specific challenges and limitations faced by these regions.

Overall, this analysis underscores the need for a comprehensive understanding of various factors influencing COVID-19 outcomes. It highlights the importance of stringent measures, considerations of comorbidities, and the capacity of healthcare systems in managing the pandemic effectively. Further research and investigation are necessary to explore the specific factors contributing to the persistently high mortality rates in certain regions, despite vaccination efforts and other interventions.