Analysis of covid dataset using R and python

Insights from the OWID COVID-19 Dataset.

1. Total number of cases, deaths, recoveries, and vaccinations globally.
2. Countries with the highest and lowest total cases and deaths.
3. Countries with the highest vaccination coverage (percentage of population vaccinated).
4. Global case fatality rate (deaths/cases).
5. New cases and deaths trends (daily and smoothed).
6. Trends of cases, deaths, and vaccinations over time globally and by country.
7. Identify peaks in cases, deaths, and vaccinations over the observation period.
8. Reproduction rate trends to study the progression of the pandemic.
9. Time-series analysis of ICU and hospital admissions (weekly trends).
10. Relationship between testing rates and new cases over time.
11. Compare continents by total cases, deaths, and vaccinations.
12. Identify countries with the highest cases and deaths per million population.
13. Analyze testing rates across continents and countries.
14. Study the distribution of hospital beds per thousand people by continent.
15. Relationship between life expectancy and COVID-19 outcomes (cases/deaths).
16. Correlation between hospital beds per thousand and fatality rate.
17. Countries with high ICU admissions vs. those with high deaths.
18. Study the effect of handwashing facilities on the spread of the virus.
19. Analyze the relationship between positive test rate and cases detected.
20. Relationship between healthcare infrastructure and vaccination rollout.
21. Study the relationship between GDP per capita and vaccination rates.
22. Correlation between extreme poverty levels and COVID-19 case rates.
23. Analyze how population density impacted the spread of COVID-19.
24. Compare case and death rates across age groups (median\_age, aged\_65\_older, aged\_70\_older).
25. Study the role of smoking prevalence (male and female) in COVID-19 mortality.
26. Correlation between stringency index and new case trends.
27. Countries with the strictest policies and their impact on cases and deaths.
28. Relationship between vaccination rates and stringency index over time.
29. Test positivity rates by country over time.
30. Countries with the highest and lowest tests per case ratio.
31. Excess mortality trends by country and continent.
32. Calculate vaccination rates relative to GDP per capita.
33. Relationship between reproduction rate and total tests conducted.
34. Countries with the highest booster coverage.
35. Trends of daily vaccinations globally and by region.
36. Impact of boosters on reducing new cases or deaths.
37. Top countries achieving full vaccination for their population.
38. Total number of cases, deaths, and vaccinations globally.
39. Identify the top 10 most affected countries in terms of total cases and deaths.
40. Rank countries by vaccination rate (percentage of population fully vaccinated).
41. Compare cases, deaths, and vaccination trends by continents.
42. Calculate the global case fatality rate (CFR) and compare it by country and continent.
43. Study daily and cumulative trends of cases, deaths, and vaccinations over time globally.
44. Identify "waves" of the pandemic by analyzing new cases and deaths trends over time.
45. Analyze the relationship between the reproduction rate (R) and new cases.
46. Compare peaks in new cases and deaths across continents to identify lagging waves.
47. Observe trends in ICU admissions and hospitalizations during peak periods.
48. Top 5 countries with the highest and lowest **cases per million** and **deaths per million**.
49. Countries with disproportionately high or low death rates despite similar case numbers.
50. Analyze testing density (total tests per thousand) by country and continent.
51. Study the geographic distribution of countries with the highest vaccination rates.
52. Correlation between population density and cases/deaths per million globally.
53. Countries with the fastest vaccination rollouts (new vaccinations smoothed).
54. Compare vaccination rates between high-income and low-income countries.
55. Study trends in booster doses and their impact on reducing case and death rates.
56. Compare the percentage of fully vaccinated individuals with new cases to assess vaccine effectiveness.
57. Correlation between stringency index and vaccination rates over time.
58. Calculate and compare test positivity rates by country (positive\_rate = new\_cases / new\_tests).
59. Identify countries with the highest and lowest **tests per case ratio**.
60. Study the effect of testing density on the detection of cases and deaths.
61. Relationship between daily testing trends and daily new cases over time.
62. Testing strategies of countries with low death rates.
63. Study the correlation between **hospital beds per thousand** and **deaths per million**.
64. Compare ICU and hospital admissions in countries with high and low death rates.
65. Study the impact of limited handwashing facilities on the spread of COVID-19.
66. Analyze the effect of life expectancy on recovery rates and fatalities.
67. Correlation between healthcare infrastructure and vaccination coverage.
68. Relationship between the stringency index and the growth of new cases and deaths.
69. Identify countries with early stringent measures and their long-term impacts.
70. Countries with low stringency but high vaccination rates – were they successful?
71. Study the changes in the reproduction rate (R) before and after stricter policies.
72. Correlation between stringency index and ICU/hospital admissions.
73. Study the impact of **median\_age** on cases and death rates.
74. Compare countries with higher proportions of **aged\_65\_older** and **aged\_70\_older** to their fatality rates.
75. Analyze the role of smoking prevalence (male and female) in death rates.
76. Study the role of population density in spreading the virus across countries.
77. Compare vaccination rates among countries with high and low GDP per capita.
78. Study the relationship between extreme poverty levels and COVID-19 cases/deaths.
79. Compare GDP per capita and vaccination rollout speed by country.
80. Correlation between COVID-19 fatalities and human development index (HDI).
81. Study how stringency measures impacted economically weaker regions.
82. Analyze the excess mortality rate compared to reported deaths for different countries.
83. Study the lag time between infection peaks and vaccination increases in countries.
84. Compare ICU admissions and deaths per million to measure healthcare stress.
85. Calculate vaccination-to-case ratios by country and continent.
86. Relationship between GDP per capita and availability of hospital beds.
87. Calculate cumulative "recovery rates" using cases, deaths, and active cases data.
88. Forecast trends in cases, deaths, and vaccinations using smoothed time-series data.
89. Analyze countries that have "flattened the curve" vs. those with ongoing waves.
90. Study the impact of boosters on reducing case surges in highly vaccinated countries.
91. Examine the duration of new waves in countries with high vaccination rates.