COVID-19 Data Analysis Report

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1. Visualizations Used

Visualization Type	Description
Line Chart	Trend of daily confirmed, recovered, and deceased cases over time.
Stacked Area Chart	Cumulative confirmed, recovered, and deceased cases (from case_time_series).
Bar Chart	State-wise confirmed cases to show the most affected regions (raw_data_Indian_states).
Map Visual	Geographical distribution of cases by state or vaccination status by country.
Donut Chart	Vaccination distribution: percentage of people with at least one dose vs. fully vaccinated (vaccination-data).
Card Visuals (KPIs)	Total confirmed, recovered, deceased, and vaccinated figures for a quick overview.

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2. Justification for Chosen KPIs

KPI	Reason
Total Confirmed Cases	Measures the spread of the virus.
Total Recovered	Indicates recovery rate and healthcare system performance.
Total Deceased	Tracks fatality impact and helps in crisis response planning.
Active Cases	Assesses the current burden on the healthcare system.
Vaccination Coverage	Critical for understanding immunity development and planning future measures.
Daily Trends	Helps identify spikes or flattening trends in virus spread.

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3. Insights Derived from the Data

- The initial wave began slowly in early 2020, with a sharp rise during mid-2020 and subsequent waves in 2021.

- Peak infection periods are clearly visible with sharp spikes in daily confirmed cases.

- States like **Maharashtra, Kerala, and Delhi** were among the most affected based on confirmed case counts.

- Some states consistently show lower testing, suggesting possible underreporting or limited access to healthcare resources.

- Countries like **India, USA, and EU nations** show high vaccination counts.

- Despite widespread vaccine availability, some regions still lag behind in full vaccination coverage.

- Sudden drops or spikes in daily cases may indicate data reporting delays or mass testing events.

- Discrepancies between state-level and national data highlight potential issues in data synchronization or reporting standards.