

AIR QUALITY AND RESPIRATORY HEALTH DASHBOARD: A GLOBAL INSIGHT



DATA ANALYSIS AND VISUALISATION PROJECT USING POWER BI

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PROJECT OVERVIEW

Objective:

To analyze the impact of air quality on respiratory health globally and provide visual insights for informed decision-making.

Focus Areas:

- Air Quality (AQI)
- Hospital Visits & Respiratory Admissions
- Mask Usage
- Regional Comparisons

DATA SOURCE

- Source: Kaggle Dataset
- Rows: 3,000
- Columns: 26
- Data Features:
 - AQI, hospital visits
 - Respiratory conditions
 - Mask usage
 - Regional data
 - Dates

DATA PREPROCESSING

1. Upload the dataset to Power BI
2. Transform Data using Power Query:
 - Renamed columns for clarity
 - Ensured data types are appropriate
 - Ensured data consistency
 - Handled null values
 - Removed duplicates
3. Loaded the clean data into Power BI for analysis

CREATED MEASURES

❑ Using DAX in Power BI, the following measures were created:

- Average AQI = AVERAGE([AQI])
- Number of Hospital Visits = SUM([Hospital Visits])
- Average Respiratory Admissions = AVERAGE([Respiratory Admissions])
- Maximum AQI = MAX([AQI])

DASHBOARD OVERVIEW

1. Hospital visits by region (Bar chart)
2. Mask usage rate by region (Pie chart)
3. AQI by region (Horizontal bar chart)
4. Respiratory admissions over time (Line chart)
5. AQI vs hospital visits correlation (Scatter plot)
6. Quarterly AQI comparison (Donut chart)
7. Average AQI (KPI)
8. Total hospital visits (KPI)
9. Average respiratory admissions (KPI)
10. Average mask usage rate (Gauge chart)
11. Interactive filters:
 - Region-based filter for targeted analysis
 - Date filter to analyze trends over time
 - All visuals respond dynamically to filters

Key Insights:

- Highest AQI and hospital visits in East region
- Mask usage varies regionally – highest in Central
- Clear correlation between AQI and hospital visits
- Seasonal patterns in respiratory admissions

CONCLUSION

- High AQI → Increased Hospital Visits
- Mask usage positively influences health outcomes
- Dashboard supports public health monitoring