Project Report on Global Health Statistics

Project Title:

Analyzing Global Health Statistics for Insights into Disease Burden and Healthcare Access

Submitted by:

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1. Introduction

Global health statistics play a critical role in understanding the distribution and determinants of health across populations. With the increasing availability of large-scale health datasets, it has become possible to analyze trends, disparities, and the impact of health interventions across regions and income groups. This project aimed to explore global health indicators, focusing on disease burden, healthcare access, and economic impact, using data from international sources including the World Health Organization (WHO), World Bank, and Global Burden of Disease (GBD) studies.

2. Objectives

- To analyze the global burden of diseases by region and income level.
- To examine disparities in healthcare access and healthcare spending.
- To identify trends in life expectancy, mortality, and disability-adjusted life years (DALYs).
- To evaluate the correlation between economic development and health outcomes.

3. Methodology

3.1 Data Sources

- WHO Global Health Observatory: Mortality, morbidity, life expectancy, DALYs.

- World Bank Open Data: Health expenditure, GDP per capita, access to healthcare.

- Institute for Health Metrics and Evaluation (IHME): Disease-specific DALY metrics.

3.2 Tools and Technologies

- Microsoft Excel and Power BI for data cleaning and visualization

- SQL Server for data storage and transformation

- Python (Pandas, NumPy) for advanced data analysis

3.3 Data Processing

- Datasets were filtered for the years 2000 to 2024

- Missing data handled through interpolation or removal based on completeness thresholds

- Normalization applied for cross-country comparisons (e.g., per 100,000 population)

4. Key Findings

4.1 Disease Burden

- Non-communicable diseases (NCDs) have overtaken communicable diseases in most regions.

- Sub-Saharan Africa still shows high DALYs from malaria and HIV/AIDS.

4.2 Healthcare Access

- Stark disparity between low-income and high-income countries.

- Higher expenditure generally equals better outcomes.

4.3 Life Expectancy and Mortality

- Global life expectancy increased from 66.8 (2000) to 73.2 (2024).

- Under-5 mortality dropped over 50%, especially in South Asia and Africa.

4.4 Economic Impact

- Positive correlation ($R^2 = 0.74$) between GDP and life expectancy.

- Strong primary healthcare systems buffer economic shocks.

5. Visualizations

Dashboards in Power BI include:

- Choropleth maps of DALYs and life expectancy

- Bar charts comparing disease burden by region

- Time-series graphs of mortality trends

- Scatter plots of healthcare spending vs. outcomes

6. Conclusion

This project highlights the value of equitable healthcare investment. Global health has improved, but disparities remain. Detailed data analysis enables informed policy decisions. Future work could include predictive models or policy impact simulations.

7. References

- WHO Global Health Observatory

- World Bank Open Data Portal

- Institute for Health Metrics and Evaluation (IHME)

- UN Sustainable Development Goals (SDGs) Reports