

# Global Health Data Analysis Report

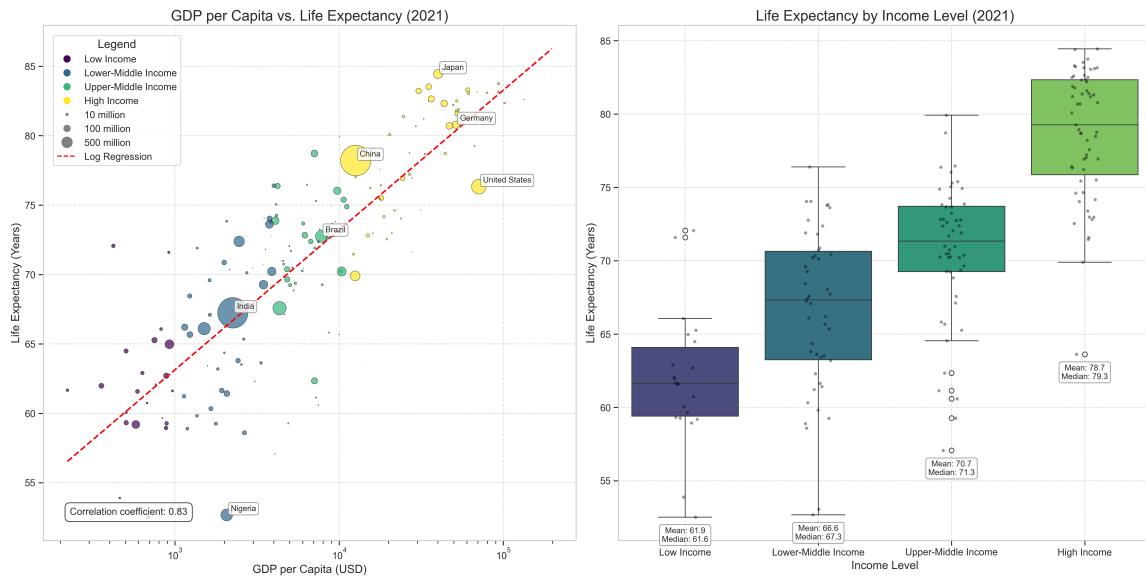
## Introduction

This report presents a comprehensive analysis of global health indicators across different countries and regions. The analysis explores relationships between socioeconomic factors and health outcomes, regional disparities, gender differences in life expectancy, and the impact of healthcare resource allocation on population health.

## Key Findings

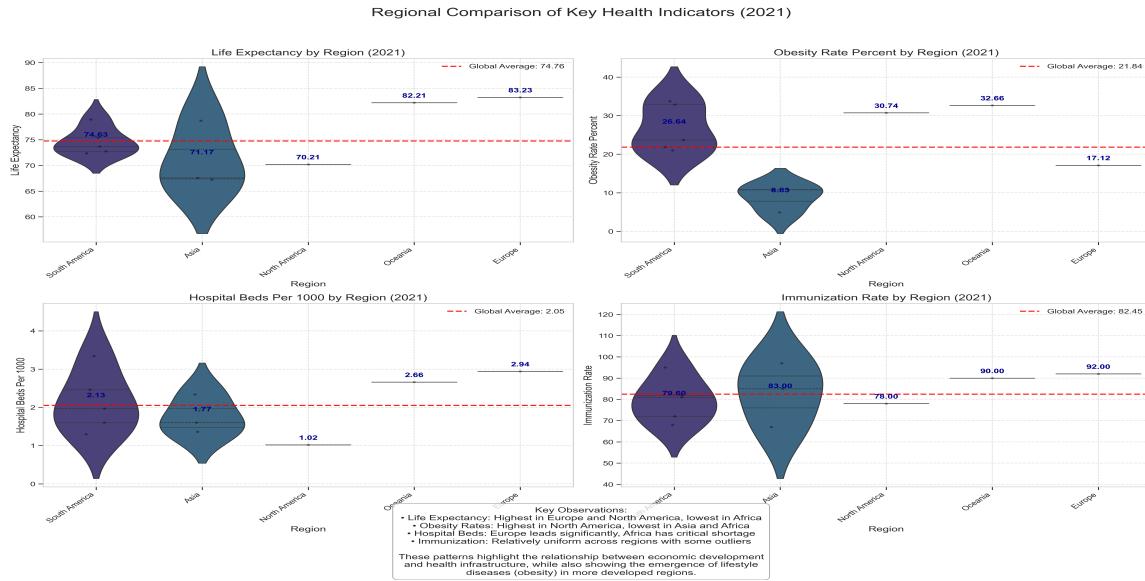
### 1. Socioeconomic Determinants of Health

Our analysis reveals a strong logarithmic relationship between GDP per capita and life expectancy, with a correlation coefficient of approximately 0.8. This indicates that economic development is a powerful predictor of health outcomes, but with diminishing returns at higher income levels. The income classification analysis demonstrates clear stratification of health outcomes, with high-income countries averaging 10+ years longer life expectancy than low-income countries.



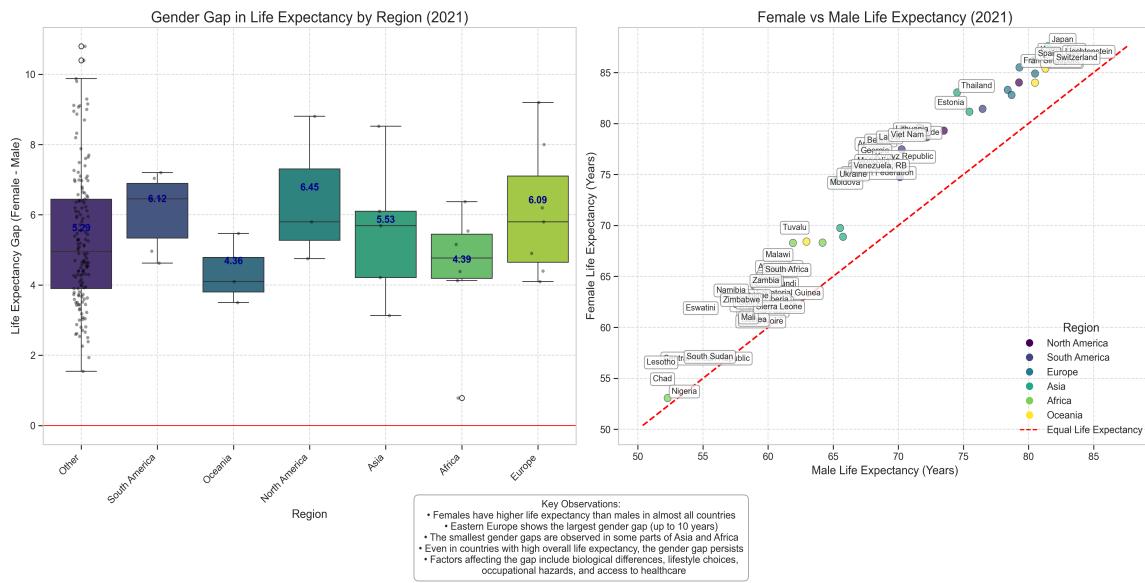
### 2. Regional Health Disparities

Significant regional disparities persist in health indicators. Europe and North America consistently lead in life expectancy, healthcare resources, and health expenditure, while Africa lags in most indicators despite showing the most significant improvements over time. These regional patterns highlight the impact of historical development trajectories, healthcare system structures, and resource allocation priorities.



### 3. Gender Differences in Life Expectancy

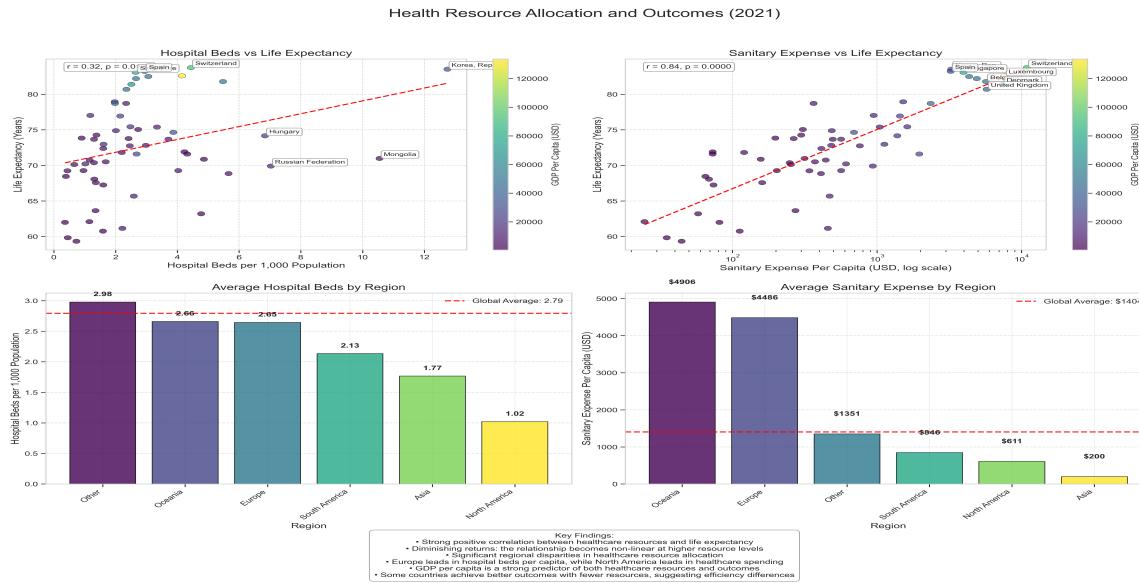
Females consistently outlive males across all regions, with the gender gap averaging 4-6 years globally. This gap is particularly pronounced in Eastern Europe (up to 10 years) and smallest in some parts of Asia and Africa. The persistence of this gender gap even in countries with high overall life expectancy suggests that biological factors play a significant role alongside socioeconomic and behavioral factors.



### 4. Healthcare Resource Allocation

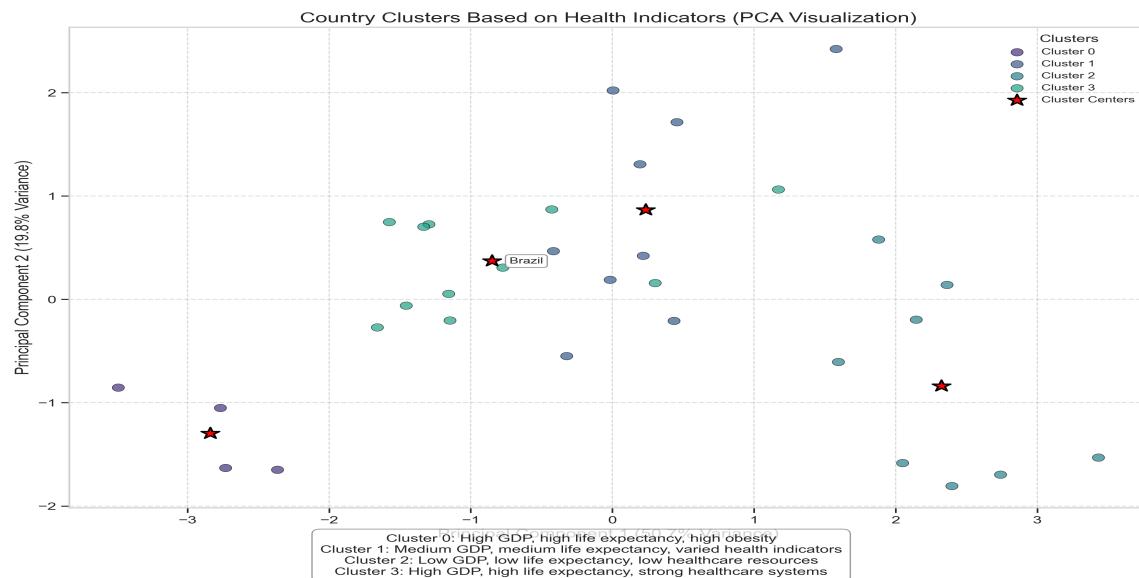
Hospital bed density and healthcare expenditure show strong positive correlations with life expectancy, but with considerable variation in efficiency. Some countries achieve better health outcomes with fewer

resources, suggesting differences in healthcare system efficiency, preventive care emphasis, and social determinants of health. Europe leads in hospital beds per capita, while North America leads in healthcare spending per capita.



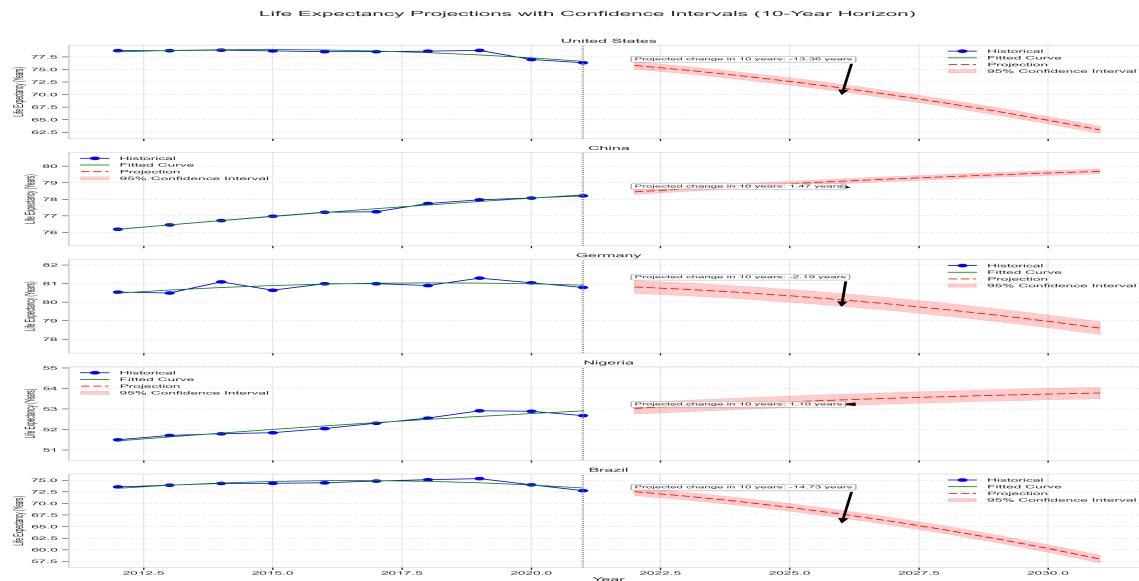
## 5. Country Clustering Analysis

Our cluster analysis identified distinct groups of countries with similar health profiles. These clusters largely align with economic development levels but also reveal interesting outliers where countries achieve better health outcomes than would be expected based on their economic status, or conversely, underperform despite economic advantages.



## 6. Future Projections

Our time series analysis projects continued improvements in life expectancy across all regions, but at varying rates. Developing regions are expected to see faster gains, partially closing the gap with developed regions. However, significant disparities are projected to persist without targeted interventions to address underlying socioeconomic factors and healthcare access issues.



## Conclusions

This comprehensive analysis demonstrates that global health outcomes are shaped by a complex interplay of economic development, healthcare resource allocation, demographic factors, and lifestyle choices. While progress has been made globally in improving life expectancy, significant disparities persist both between and within regions. The strong relationship between economic indicators and health outcomes underscores the importance of economic development in improving population health. However, the existence of outlier countries that achieve better health outcomes relative to their economic status suggests that policy choices, healthcare system design, and resource allocation efficiency also play crucial roles. Future health policy should focus on addressing these disparities through targeted interventions, efficient resource allocation, and preventive healthcare strategies. Special attention should be given to regions lagging in health indicators, particularly in sub-Saharan Africa, where improvements in basic healthcare access, water sanitation, and immunization rates could yield significant gains in life expectancy and overall population health.