**LIFE EXPECTANCY ANALYSIS**

**INTRODUCTION**

Life expectancy is influenced by many factors, but past studies often overlooked immunization and the Human Development Index (HDI), focusing mainly on demographic variables, income, and mortality rates.

This research fills those gaps by developing a mixed-effects and multiple linear regression model using global data from 2000 to 2015. It will examine key immunizations such as Hepatitis B, Polio, and Diphtheria, along with economic, social, and health factors. The goal is to identify major predictors of life expectancy, offering insights to help countries improve population longevity.

**OBJECTIVES**

* To identify key predictors of life expectancy and provide insights for policy recommendations aimed at improving population longevity.
* To identify top 10 countries that require attention based on their life expectancy rate.

**OBSERVATION**

1. Europe leads globally in life expectancy with approximately 78 years, while Africa lags with an average of approximately 59 years.
2. Diseases like HIV are notably prevalent in Africa while Oceania and Asia/Europe recorded the lowest rates. Immunization rates exhibit a more equitable distribution in America and Europe, contrasting with lower rates in Africa and Asia.
3. A positive correlation is evident between education levels, and health expenditure against life expectancy, with better education and higher spending associated with better life expectancy.
4. All Nations with the lowest life expectancy rates were located in Africa. These includes Nigeria, Swaziland, Zimbabwe, Chad, Cote d’Ivoire, Malawi, Angola, Lesotho, Central Africa and Sierra Leone.

This project underscores the imperative to invest in education and healthcare in these nations to elevate their life expectancy rates.

**METHODOLOGY**

- Data sources: Global Health Observatory Data

- Data analysis tools: Excel, Power BI

- Statistical methods: Descriptive statistics, correlation analysis, and regression modeling

**CONCLUSION**

The visualization helps us understand the impact of factors such as GDP, health intervention such as immunization against infections, and education on life expectancy. The top 10 countries needing attention are in Africa, a continent with the lowest life expectancy.

Policy makers should focus on developing policies that prioritize investments in health, GDP an education in these countries to enhance their life expectancy.