**Report**

**Life Expectancy and Socioeconomic Factors**

**Introduction**

This report investigates the relationship between life expectancy and socioeconomic factors, utilizing the "Life Expectancy (WHO)" dataset from Kaggle. The primary objective is to understand how factors like GDP, adult mortality, and immunization rates influence life expectancy across different countries.

**Data Analysis and Methodology**

The dataset was imported into SPSS and underwent thorough cleaning to address missing values, inconsistencies, and outliers.

A multiple linear regression model was constructed to examine the relationship between life expectancy (dependent variable) and socioeconomic factors (independent variables).

The model's performance was assessed using metrics like R-squared, coefficient significance, and p-values.

The model was used to simulate the impact of changes in socioeconomic factors on life expectancy.

The model's predictions were compared to actual life expectancy values, and sensitivity analysis was conducted to understand the impact of changes in independent variables.

**Key Findings**

* **Significant Relationships.** The regression analysis revealed significant relationships between life expectancy and several socioeconomic factors.
  + **GDP per capita.** Higher GDP per capita was associated with increased life expectancy.
  + **Adult Mortality Rate.** Lower adult mortality rates were linked to higher life expectancy.
  + **Immunization Rates.** Higher immunization rates were positively correlated with life expectancy.
* **Simulation Results.** Simulations demonstrated that increasing GDP, reducing adult mortality, and improving immunization rates could lead to substantial improvements in life expectancy.
* **Policy Implications.** The findings suggest that policies focusing on economic development, healthcare improvements, and public health initiatives are crucial for enhancing life expectancy.

**Limitations and Future Research**

The linear regression model relies on certain assumptions, such as linearity and homoscedasticity.

Other factors, such as healthcare access, environmental conditions, and social determinants of health, may also influence life expectancy.

The relationship between socioeconomic factors and life expectancy may vary across different regions.