Analyzing Death Age Difference Of Right Handers With Left Handers

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Content Outline

Topics for discussion

INTRODUCTION

This data analysis project explores the age distribution of left- and right-handed individuals at their death. The prevailing belief that left-handers tend to die at a younger age has been questioned by researchers Avery Gilbert and Charles Wysocki, who propose that the difference in death age is primarily a result of changing social attitudes toward left-handedness across generations. The main objective of this project is to employ Bayesian statistics to investigate the probability of being a certain age at the time of death, given an individual's handedness, and to assess whether the reported age difference between left-handers and right-handers is statistically significant.

DATA CLEANING AND EXPLORATION

The project utilizes two key datasets. The first dataset contains lefthandedness rates across different age groups, providing insights intothe changing prevalence of left-handedness over time. The seconddataset comprises death distribution data for the United States in 1999,offering valuable information about the number of people who died ateach age..
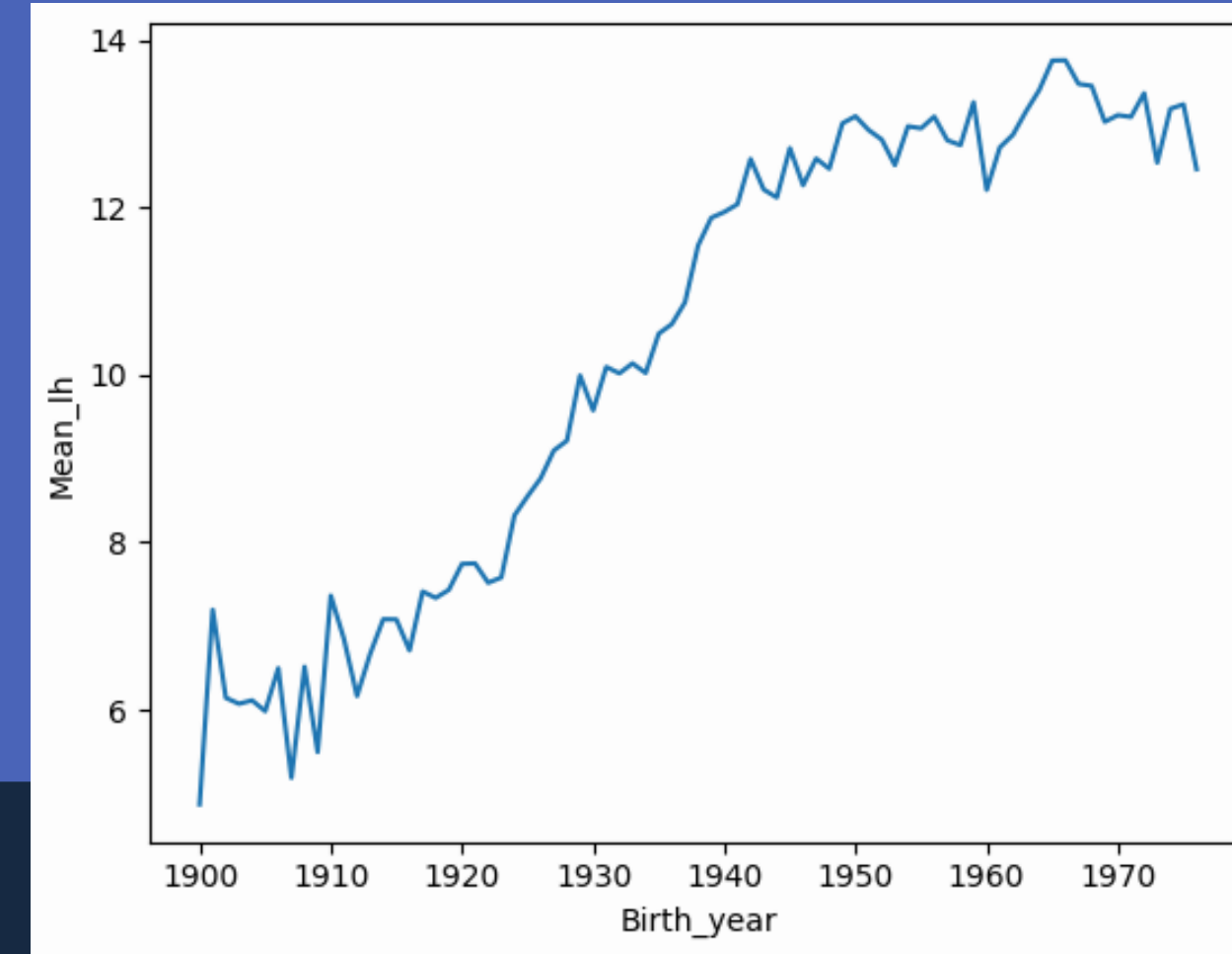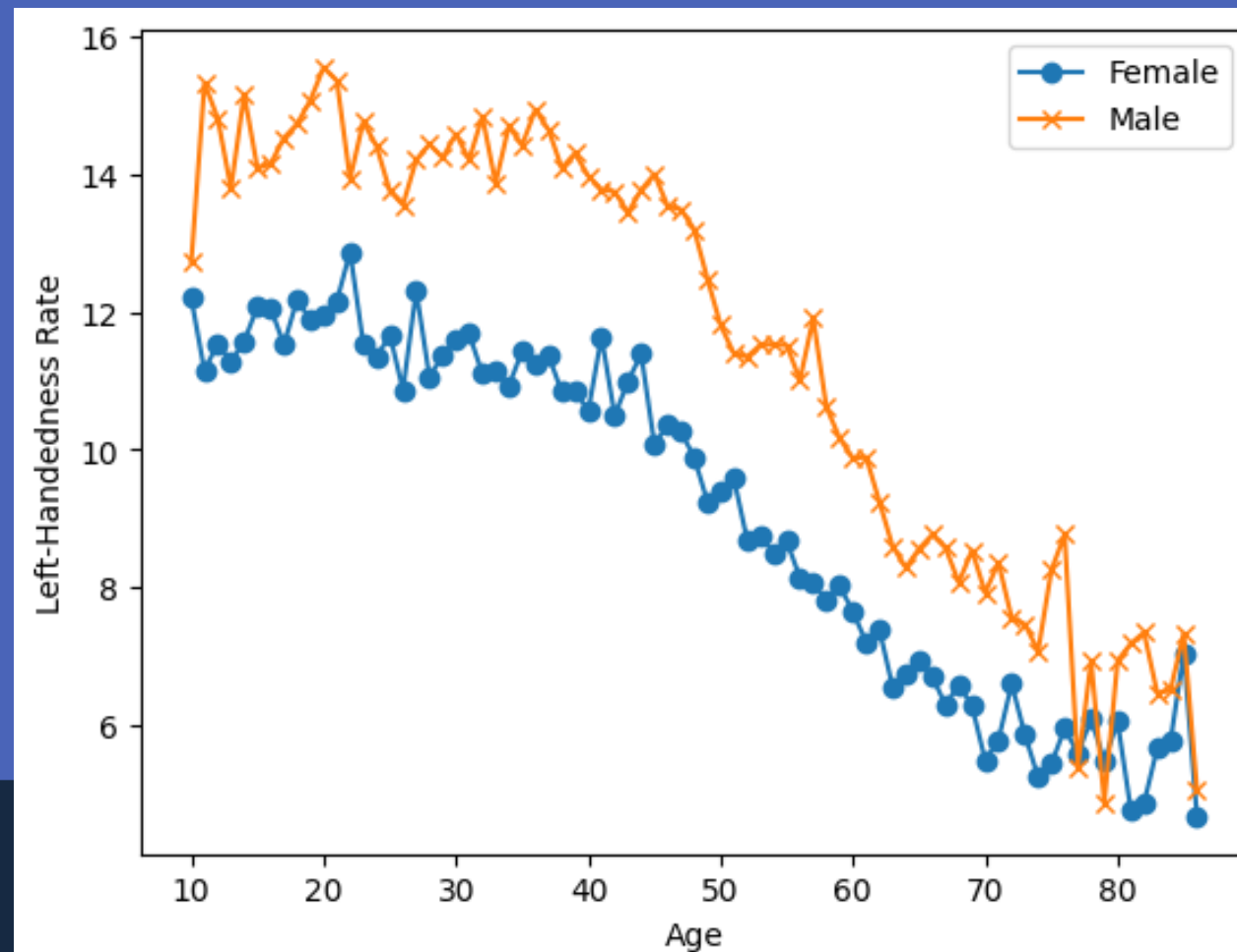
RESULTS
PRIMARY GOALS

Rate of left-handedness with right handedness

RATE OF LEFT-HANDEDNESS OVER TIME

The analysis of left-handedness rates as a function of age reveals aninteresting trend. Rates of left-handedness were approximately 13% forindividuals younger than 40 but steadily declined to about 5% for thoseaged 80 and above. This suggests that changing societal attitudes, ratherthan age-specific factors, influence left-handedness prevalence.
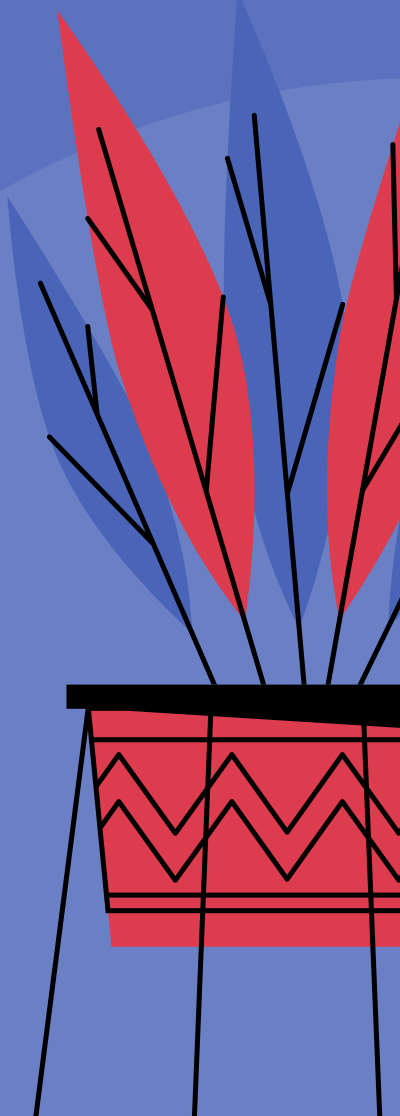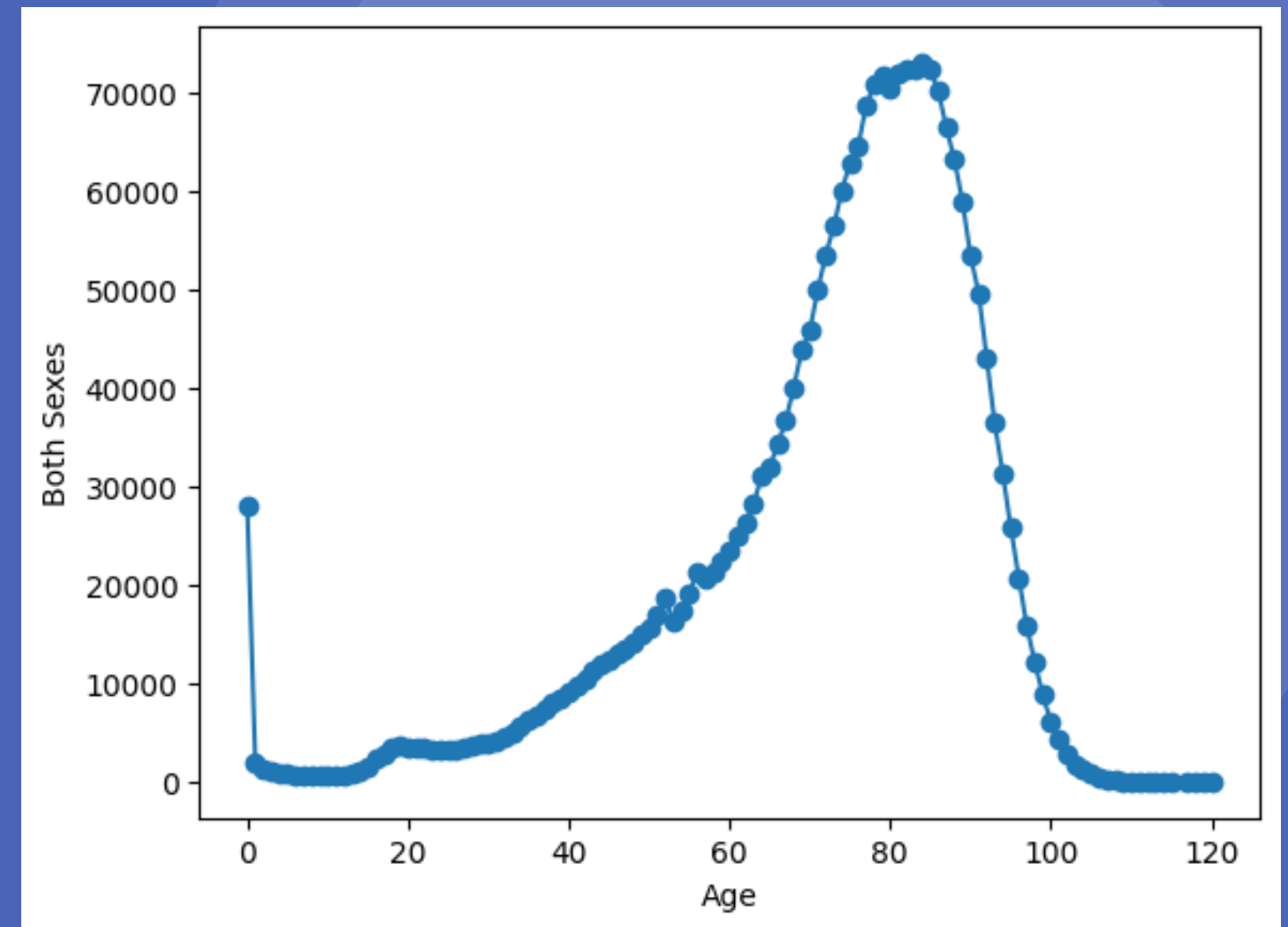
APPLYING BAYES RULE

Bayes' theorem plays a crucial role in this analysis, allowing for the calculation ofthe probability of dying at a certain age given an individual's handedness (P(A | LH)and P(A | RH)). A specialized function was used to extrapolate left-handedness rates forages beyond the original data range.

P(A|LH) = P(LH|A)P(A) / P(LH)

$$P(A|LH) = \frac{P(LH|A)P(A)}{P(LH)}$$

THE PROBABILITY OF PEOPLE DIED AS FUNCTION OF AGE

By using the death distribution data, the overall probability of being lefthanded at the time of death (P(LH)) was computed. Normalizing the dataallowed for the creation of a probability distribution representing thelikelihood of dying at a particular age

PROBABILITY OF BEING AGE A AT DEATH (LEFT/RIGHT)

The combination of P(A), P(LH), and P(LH | A) using Bayes' rule resulted in probability distributions for the age at death, given an individual (P(A | LH) and P(A | RH)). These distributions indicated a distinct difference between left-handed and right-handed individuals, with left-handers being more likely to be younger at the time of their death.
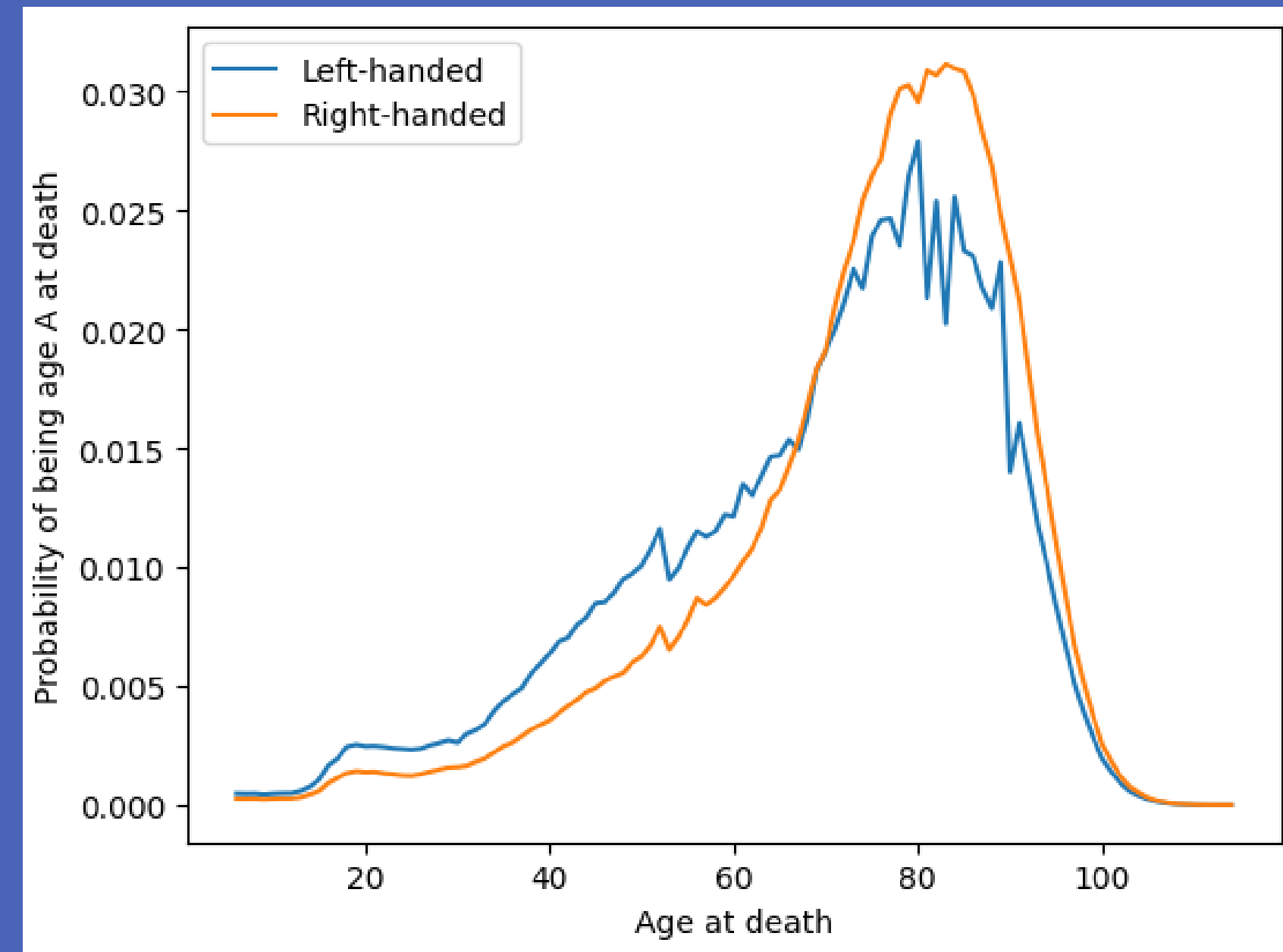
Average age of left-handed people at death = ∑AAP(A|LH)
Average age of right-handed people at death = ∑AAP(A|RH)

Average age of lefthanded - 67.24503662801027
Average age of righthanded - 72.79171936526477
The difference in average age is 5.5 years

CONCLUSION

The analysis refutes the claim that left-handers die at a younger age due to their handedness. Instead, it demonstrates that the observed age difference can be attributed to changing rates of lefthandedness across generations. The apparent age gap between left-handed and right-handed individuals is statistically significant, with left-handers tending to be younger at the time of their death.

IMPLICATIONS

Understanding the influence of changing societal attitudes on handedness prevalence and its impact on mortality rates holds significance in various fields, including public health and sociology. The dynamic nature of left-handedness prevalence emphasizes the need for further research to explore its long-term trends and implications for demographic trends.
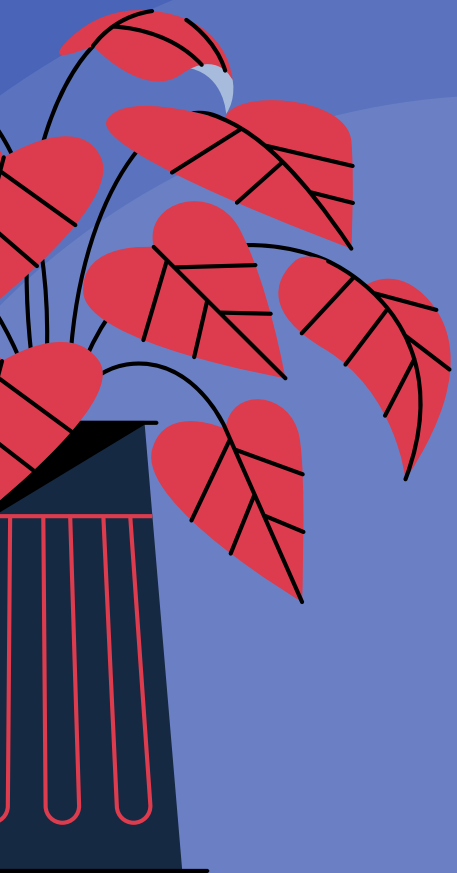
RECOMMENDATIONS

- Based on the findings, further studies could consider additional factors such ascultural influences, healthcare access, and lifestyle choices to gain a comprehensiveunderstanding of mortality trends among left-handed and right-handed individuals.
- Exploring the influence of handedness on other health-related outcomes could offervaluable insights into human behaviour and physiology.
- In conclusion, this project contributes to the broader understanding of humanbehaviour and demographic trends.
- It challenges preconceived notions and reinforces the significance of consideringcultural shifts when analysing mortality data.
- The findings encourage further research in this domain and prompt a deeperexploration of the intricate relationship between handedness and mortality.

THANK YOU

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