

Summary of Data Analysis: Ghofran & Adi

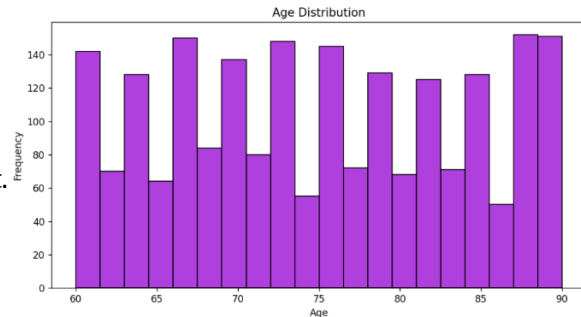
Overview:

This report summarizes the findings from an analysis of a dataset focused on Alzheimer's diagnosis, examining the distribution of age, gender, and diagnosis status among participants. The primary objective was to determine whether age and gender significantly impact the likelihood of an Alzheimer's diagnosis.

Key Findings & Visualizations:

Age Distribution

The graph shows the age distribution of patients in the dataset. The main goal is to understand how ages (from 60 to 90) are distributed and the number of patients in each age group.

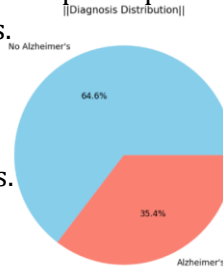


Gender Distribution

- The dataset has nearly equal numbers of male and female participants.
- This balance ensures unbiased gender-based analysis.

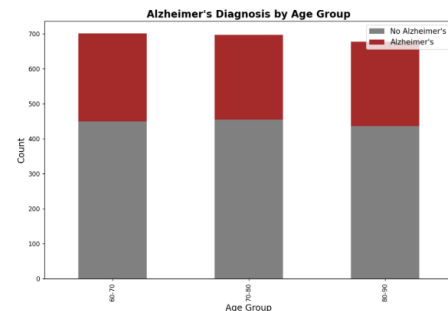
Diagnosis Distribution

- 64.6% of participants do not have Alzheimer's.
- 35.4% of participants are diagnosed with Alzheimer's.



Alzheimer's Distribution by Age

- Analysis across different age groups (60-70, 70-80, 80-90) shows a slight increase in Alzheimer's cases with age, but not significantly.
- Age appears to be a factor but not a determining one.



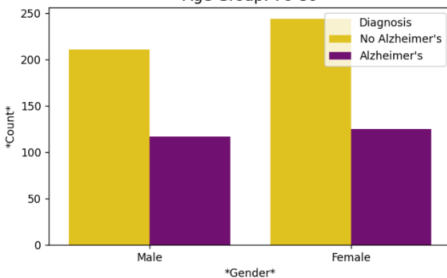
Alzheimer's Distribution by Gender

- Males and females are almost equally affected.
- A slightly higher proportion of females are diagnosed in the 70-80 age group.

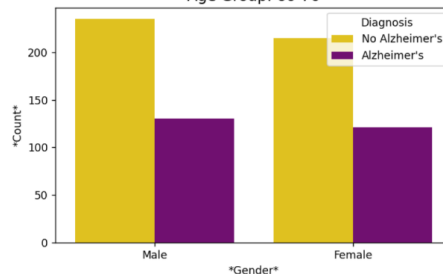
Diagnosis Trends in Age Groups

- 70-80 Age Group: 34.7% diagnosed, 65.3% not diagnosed.
- 80-90 Age Group: 35.6% diagnosed, 64.4% not diagnosed.
- 60-70 Age Group: 35.8% diagnosed, 64.2% not diagnosed.
- Diagnosis percentages remain consistent across age groups.

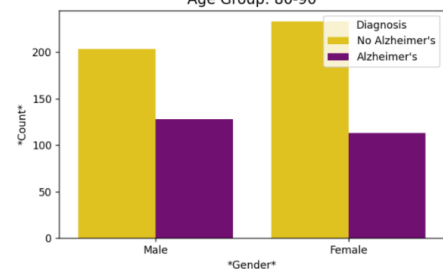
Age Group: 70-80



Age Group: 60-70



Age Group: 80-90



Age-Specific Trends

This graph visualizes the age distribution of individuals in the dataset, categorized by their Alzheimer's diagnosis.

Green bars: Represent the count of individuals without Alzheimer's at each age.

Yellow bars: Represent the count of individuals with Alzheimer's at each age.

Green line: Shows the overall trend of individuals without Alzheimer's across different ages.

Yellow line: Shows the overall trend of individuals with Alzheimer's across different ages.

Patients Without Alzheimer's (Green Bars and Line):

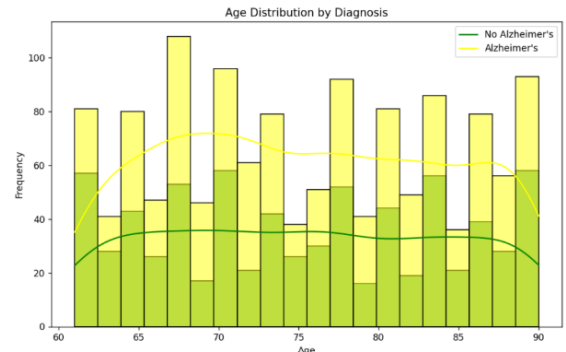
The green bars remain relatively consistent across all age groups, indicating that the number of individuals without Alzheimer's does not vary significantly with age. The green trend line is relatively flat, confirming this consistency.

Patients With Alzheimer's (Yellow Bars and Line):

The yellow bars and trend line peak around age 67, indicating a higher prevalence of Alzheimer's in this specific age.

After this peak, the yellow line gradually declines as age increases beyond 67.

While the peak at age 67 indicates a slightly higher prevalence of Alzheimer's, the difference is not very significant compared to other ages. Across all age groups, the number of individuals without Alzheimer's remains consistently higher, and the variation in the prevalence of Alzheimer's is relatively small.



Statistical Analysis:

Missing Data Check

- No missing values were detected in the dataset.

Age T-Test

- T-statistic: -0.2817 (slightly lower average age for Alzheimer's cases, but minimal difference).

- P-value: 0.7782 (not statistically significant).

- Conclusion: Age does not significantly impact Alzheimer's diagnosis.

Gender Chi-Square Test

- Chi2 value: 1.2709 (weak association between gender and Alzheimer's diagnosis).

- P-value: 0.2596 (not statistically significant).

- Conclusion: Gender does not significantly impact Alzheimer's diagnosis.

Final Conclusion

"Does age and gender have an effect on Alzheimer's diagnosis?"

Based on both visual patterns and statistical tests:

- Neither age nor gender shows a significant effect on Alzheimer's diagnosis.
- While there are slight trends in the data (e.g., peak prevalence around age 67 and minor gender differences in some age groups), these are not statistically significant.
- The findings suggest that other factors beyond age and gender might contribute to Alzheimer's risk.