

# Healthcare Utilization Analysis: Analysing Trends in Doctor-Patient Visits, Gender Dynamics, and Insurance Patterns.

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**APPLY\_172684756366ed9a4b66be3**



# PROBLEM STATEMENT

- Understanding Healthcare Utilization: Analyze the factors influencing the number of doctor visits, such as age, income, and health status.
- Gender Disparities: Investigate if there are any significant differences in healthcare utilization between genders.
- Impact of Socioeconomic Status: Examine how income and access to private health insurance affect healthcare utilization.



# Project Description

This project explores healthcare utilization patterns with a focus on the relationship between doctor visits, socioeconomic factors, and insurance coverage. Using the dataset which includes variables such as age, income, insurance status (private, government-provided, and government old-age insurance), gender, and chronic health conditions, the analysis aims to uncover trends and associations in healthcare-seeking behavior.

Key objectives include evaluating how different types of insurance influence healthcare visits, determining the impact of income levels, and examining demographic factors like gender. The study also analyzes the frequency and purpose of visits, highlighting whether visits are predominantly for routine checkups, consultations, or more serious medical conditions.

Through various data visualizations and statistical analysis, the project sheds light on how socioeconomic status and insurance access shape healthcare engagement, providing insights that may guide policy decisions, resource allocation, and strategies for improving healthcare access and effectiveness.

# WHO ARE THE END USERS?

- **Healthcare Providers:** To optimize resource allocation and improve patient care strategies.
- **Policy Makers:** To design policies that address disparities in healthcare access and utilization.
- **Researchers:** To study the socio-economic factors affecting healthcare utilization.

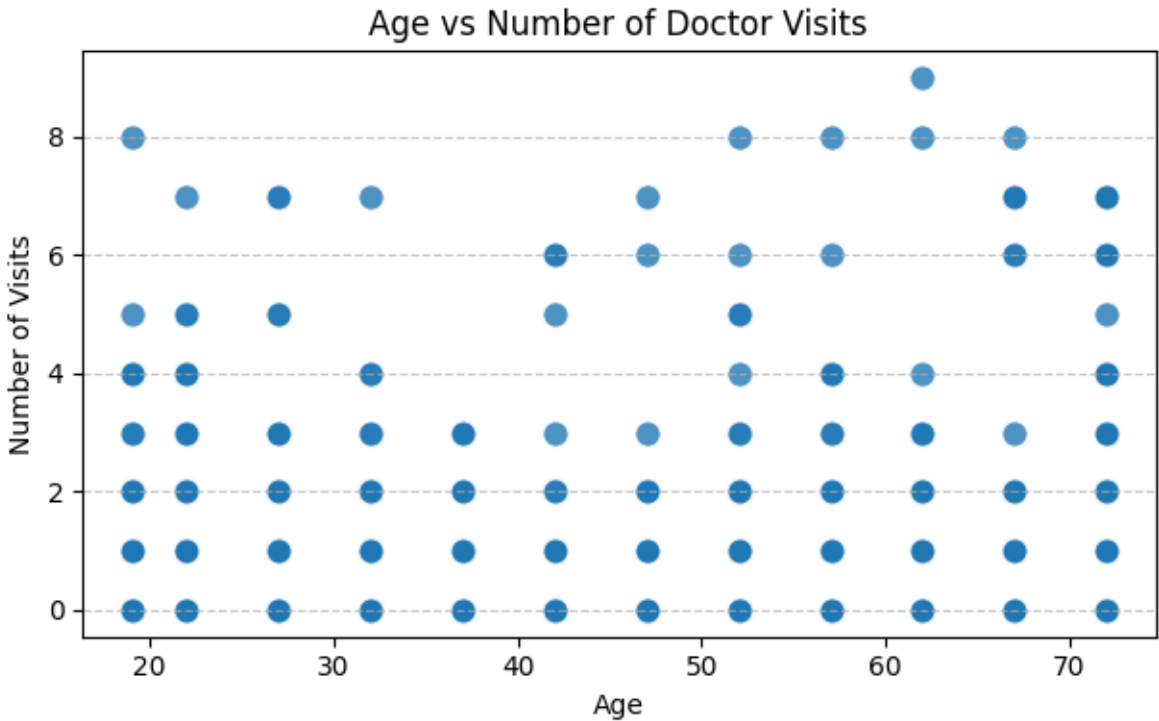
# Technology Used

- Programming Language: Python
- Libraries: NumPy, Pandas, Matplotlib, Seaborn
- IDE: Google Colab

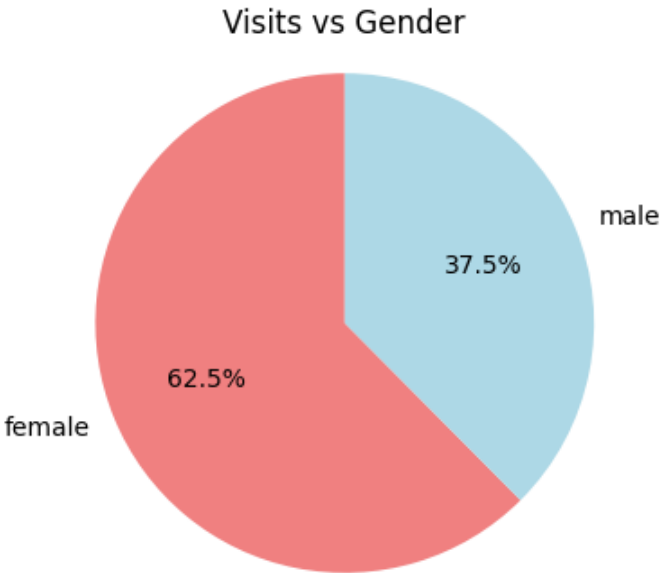
# RESULTS - Health Care

## Utilization and Gender Analysis

We can see that patients aged 72 years has the most doctors' visits followed by 22 years aged patients, and out of the total records, females are dominant receiving with 62% of total doctors' visits.



Correlation between age and visits:	0.12453676134371779
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[Demo Link](#)

# RESULTS - Health Care Utilization and Gender Analysis

## Understanding Healthcare Utilization:

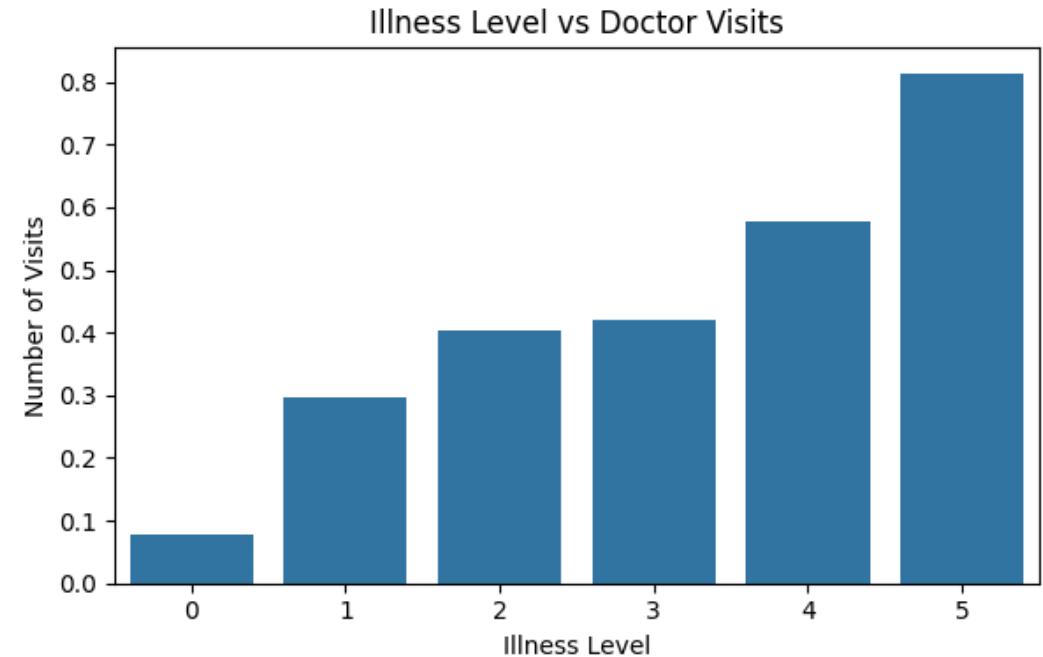
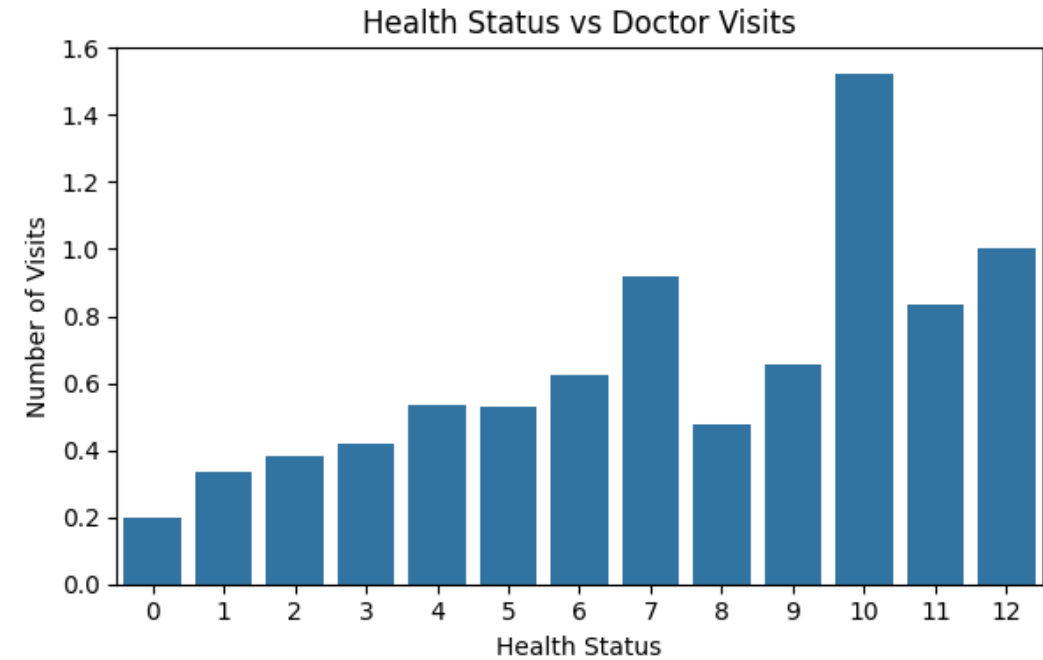
- **Age vs. Doctor Visits:** The correlation between age and visits is weak at 0.125, indicating age is not a strong predictor of doctor visits.
- **Health Status vs. Doctor Visits:** As expected, poorer health status correlates with more doctor visits.
- **Illness Level vs. Doctor Visits:** Higher illness levels are associated with increased doctor visits.
- **nchronic vs. lchronic:** it appears that patients without chronic conditions (whether limiting or non-limiting) have more doctor visits than those who do.

This can provide insights into healthcare needs and service utilization, suggesting that factors other than the presence of chronic conditions may drive visits, such as prevention, check-ups, or other health concerns. For those with limiting chronic conditions, fewer visits might be due to accessibility challenges or other healthcare barriers.

## Gender Disparities:

As we observed earlier, females have a higher average number of doctor visits compared to males, suggesting potential gender differences in healthcare utilization.

[Demo Link](#)



# RESULTS - Socio Economic Status

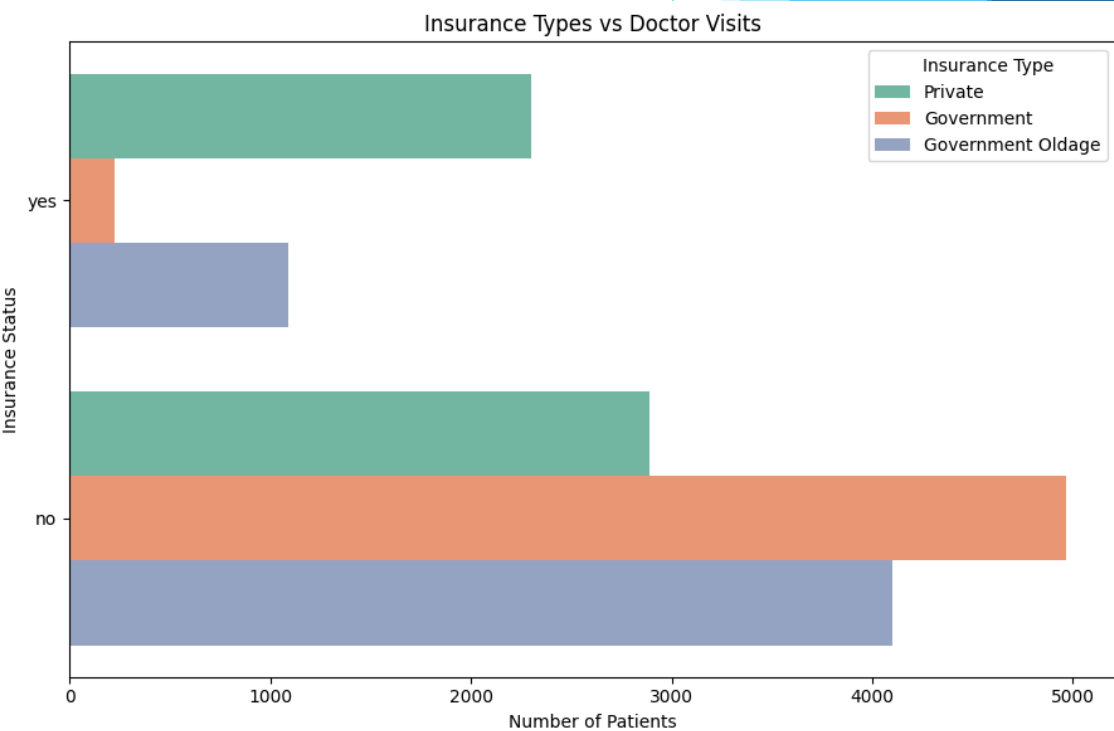
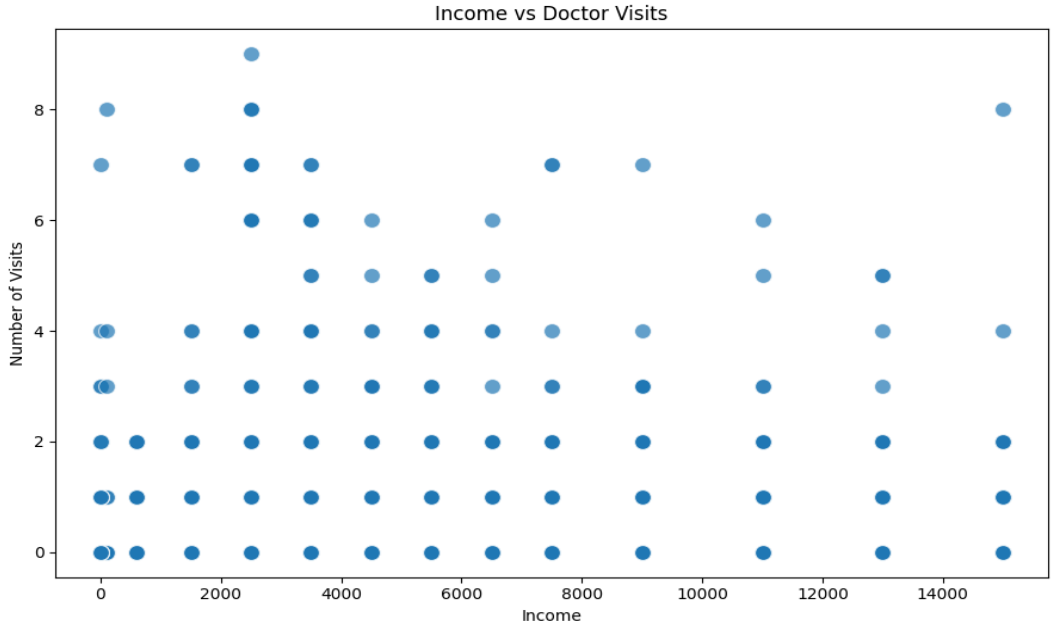
- Among the three categories (Private, Freepoor(Government), and Freerepat(government Old age) Insurance), the plot indicates a majority of patients are not reliant on insurance, with Private being the more preferred option among those with insurance.

Correlation between Income and Visits	-0.07683982934758839
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Private Insurance	Doctors' Visits
No	0.307400
Yes	0.294604

- Income shows a weak negative correlation with doctor visits, indicating it is not a significant predictor.
- Private insurance status shows a slight difference in the average number of visits, with insured individuals having slightly fewer visits.
- This might indicate that many doctor visits are for routine checkups or consultations that do not require insurance claims, and Patients may rarely seek serious treatment or chronic condition management through their insurance.

[Demo Link](#)





# Conclusion

- The analysis highlights that health status and illness levels are significant factors influencing healthcare utilization, while age and income are not strong predictors.
- Gender differences exist, with females utilizing healthcare services more than males.
- Socioeconomic factors like private insurance have a modest impact on healthcare utilization.
- These insights can guide healthcare providers and policymakers in designing targeted interventions to improve healthcare access and efficiency. Further research could explore additional variables or external factors influencing healthcare utilization.

# Thank you

My Sincere Gratitude to Connecting Dreams Foundation and  
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resources.

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