

Abstract

1

In the realm of healthcare, the ability to make informed decisions based on data-driven insights is paramount for improving patient outcomes, enhancing operational efficiency, and optimizing resource allocation.

2

This project explores the application of Microsoft Power BI, a robust business analytics tool, in enabling data-driven decision-making within the healthcare sector.

3

The creation of interactive reports and dashboards enables stakeholders to effectively communicate findings and drive decision-making processes.

4

Ultimately, the integration of Power BI into healthcare operations enables organizations to harness the power of data to enhance patient care, optimize resource utilization, and drive continuous improvement in healthcare delivery.

Problem Statement

- Healthcare organizations face significant challenges in effectively utilizing their data for data-driven decision-making.
 - 1) Data cleaning
 - 2) Utilizing DAX Functions
 - 3) Visualizations Creation
 - 4) Formatting and Testing
- Addressing these problems necessitates a comprehensive solution that streamlines data cleaning, provides guidance on DAX function usage, simplifies visualization creation, and facilitates rigorous testing to ensure accurate insights from healthcare data.
- This project explores how Microsoft Power BI can serve as a robust platform to empower healthcare organizations in making effective data-driven decisions.

Project Overview

- To enhance data analysis and visualization in healthcare, incorporating cards and slicers enables easy selection of specific date ranges or data subsets.
- Developing dashboards with various chart types such as pie charts, donut charts, table charts, stacked column charts, decomposition trees, line charts, and waterfall charts allows for comprehensive analysis.
- These charts can be utilized to examine metrics such as total patients by age group, male and female counts, gender percentage, instances of lung blood clots due to smoking, and patient counts by week day to identify peak periods.
- Integrating these features into healthcare analytics platforms like Microsoft Power BI enhances decision-making and insights generation for improved patient care and operational efficiency.

Proposed Solution



Data Importing and Cleaning



Data Analysis Expression-DAX



Creating new columns and new measures



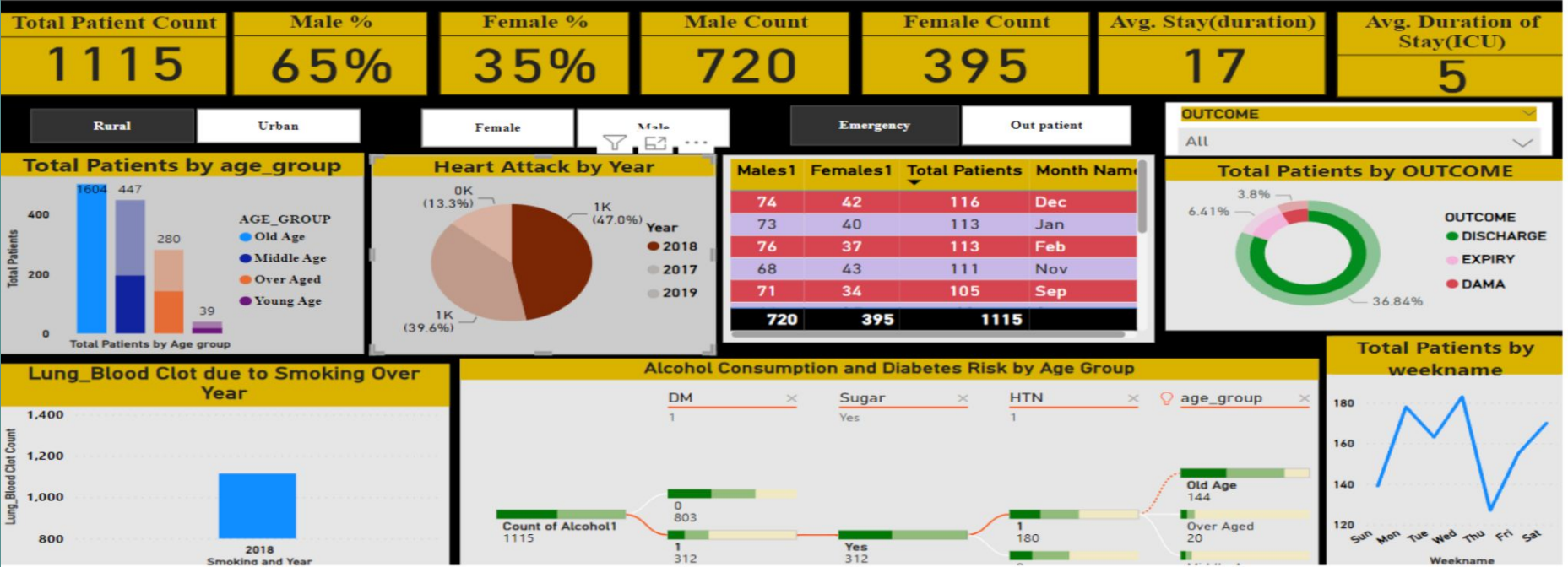
Creating Visualization and Dashboard



Formatting and Testing

Result

Health Care Data Driven Decisions using Power BI



Rural

Urban

Female

Male

Emergency

Out patient

OUTCOME

All

Total Patients by age_group

AGE_GROUP	Count
Old Age	1604
Middle Age	447
Over Aged	280
Young Age	39

Heart Attack by Year

Year	Count	Percentage
2018	1000	47.0%
2017	1000	39.6%
2019	0	13.3%

Males1

Females1

Total Patients

Month Name

74	42	116	Dec
73	40	113	Jan
76	37	113	Feb
68	43	111	Nov
71	34	105	Sep
720	395	1115	

Total Patients by OUTCOME

OUTCOME	Percentage
DISCHARGE	36.84%
EXPIRY	6.41%
DAMA	3.8%

Lung_Blood Clot due to Smoking Over Year

Year	Count
2018	1115

Alcohol Consumption and Diabetes Risk by Age Group

DM

Sugar

HTN

age_group

Category	Count
Count of Alcohol	1115
DM	803
Sugar	312
HTN	180
Old Age	144
Over Aged	20

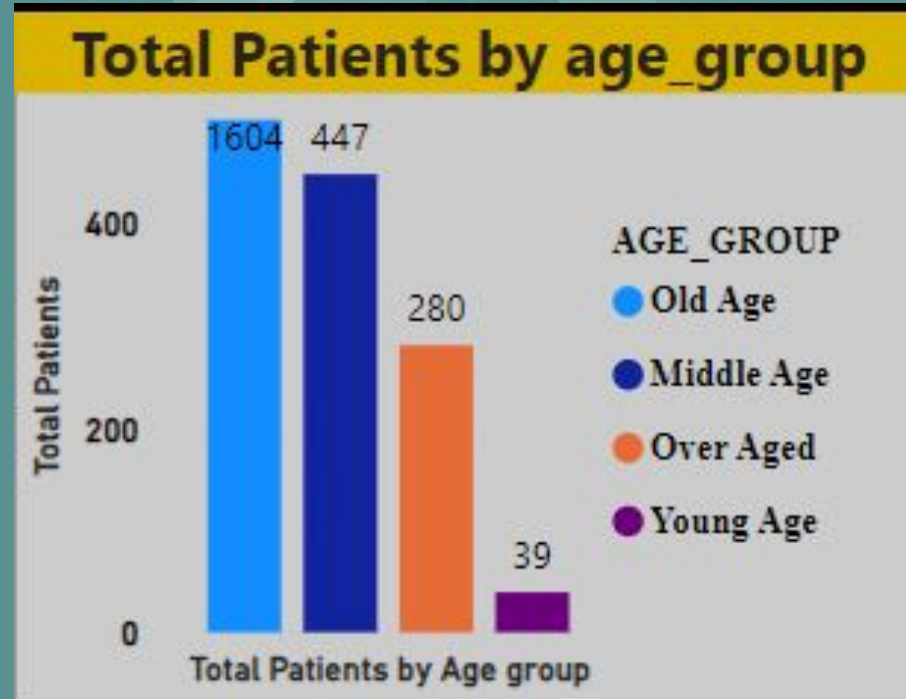
Total Patients by weekname

Weekname	Count
Sun	140
Mon	180
Tue	165
Wed	185
Thu	130
Fri	155
Sat	170

Modelling & Result

Insight1:

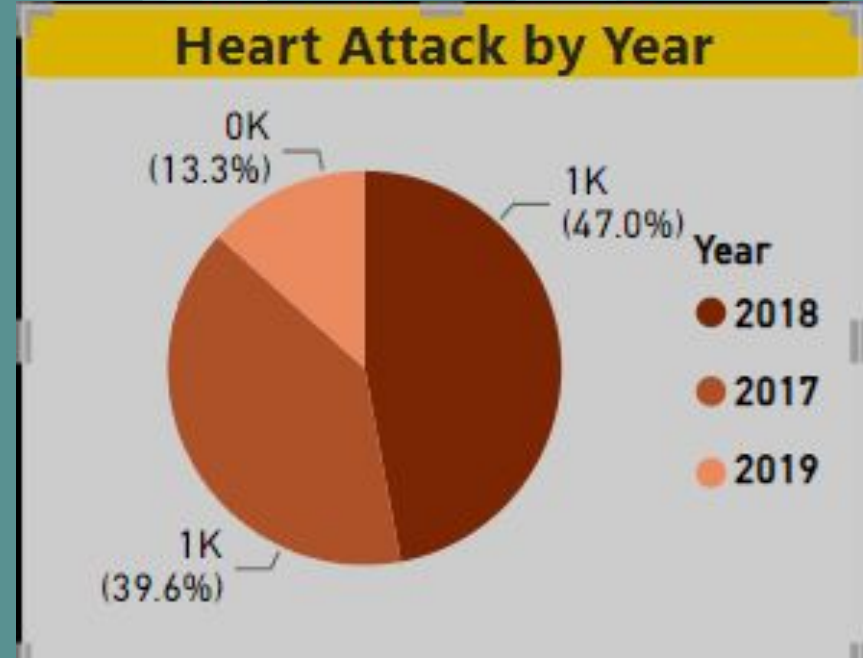
- Through the stacked columns chart analysis, it's evident that the *older age group* comprises the majority of patients compared to other age demographics.
- Specifically, there are approximately **1604 patients** in the old age group, indicating a higher prevalence among this demographic.



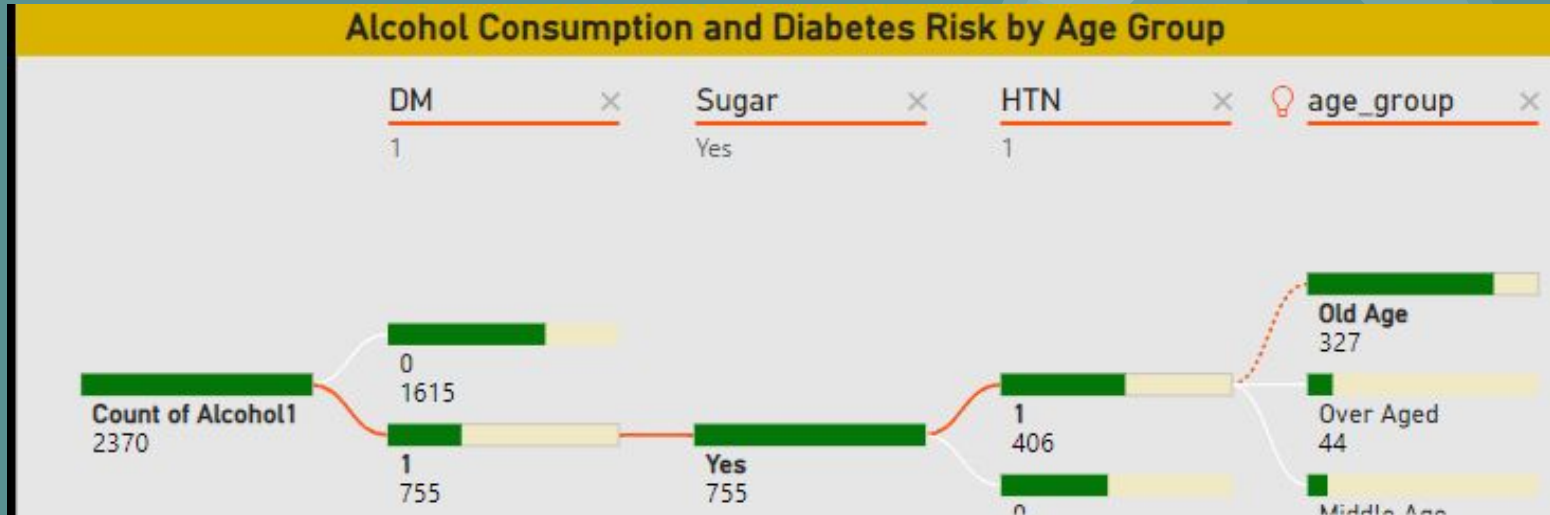
Modelling & Result

Insight2:

- The pie chart analysis reveals a **significant increase** in the number of individuals experiencing heart attacks in **2018 compared to other years.**
- Specifically, around **47%** of cases occurred in **2018**, contrasting with a smaller proportion in 2017.
- Furthermore, there was a **notable decrease in 2019**, with only **13%** of recorded heart attacks.



Modelling & Result



Insight6:

- The decomposition tree analysis indicates a correlation between alcohol consumption and diabetes mellitus, leading to elevated sugar levels and hypertension.
- Furthermore, among the identified correlations, it's observed that a substantial count of 327 individuals are of old age.

Conclusion

- This project harnesses Microsoft Power BI to extract valuable insights from healthcare data, facilitating informed decision-making.
- Through diverse visualizations like stacked columns, pie charts, donut charts, waterfall charts, line charts, and decomposition trees
- **Key findings** are highlighted: **older age groups** dominate patient counts, 2018 saw a surge in heart attack cases, and Wednesday registers the highest patient influx.
- Moreover, correlations between alcohol consumption, diabetes mellitus, elevated sugar levels, and hypertension are identified, underscoring the significance of data-driven approaches in healthcare.