Project: Healthcare - Persistency of a drug

Week 8 Deliverables

Batch code: LISUM20

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Project Team:

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Problem Description:

ABC Pharma is facing a significant challenge in understanding the persistency of drug usage as per physician prescriptions. The persistency of drug usage refers to the extent to which patients continue to take their prescribed medications over a specific period of time.

Currently, ABC Pharma Company relies on manual methods to track and analyze drug persistency. This involves reviewing patient records, conducting surveys, and relying on self-reporting, which can be time-consuming, prone to errors, and lack real-time insights.

To address this challenge, ABC Pharma Company has decided to approach an analytics company to automate the process of identifying drug persistency. The goal

is to develop a data-driven solution that can accurately and efficiently track the usage of prescribed medications by patients, enabling ABC Pharma Company to gain valuable insights into the patterns of medication adherence.

Data Understanding:

The target variable in the dataset is the persistency flag. This flag indicates whether a patient was persistent or not in taking their prescribed medication. It serves as the target variable for the analysis, with values such as 'persistent' or 'non-persistent'. Hence the persistency flag is the dependent variable which means other factors determine whether a patient was persistent or non-persistent with the drug.

Adherence refers to the extent to which patients follow their prescribed medication regimens. It is an important factor in accessing the effectiveness of treatments and patient outcomes. The adherence-related features in the dataset provide insights into the patient's medication adherence behaviors.

Understanding adherence patterns and factors affecting adherence is crucial for pharmaceutical companies like ABC Pharma to evaluate the effectiveness of their drugs and develop strategies to improve patient adherence. By analyzing the adherence-related features, ABC Pharma can gain insights into medication-taking behaviors, identify potential barriers to adherence, and tailor interventions to improve patient compliance and persistency.

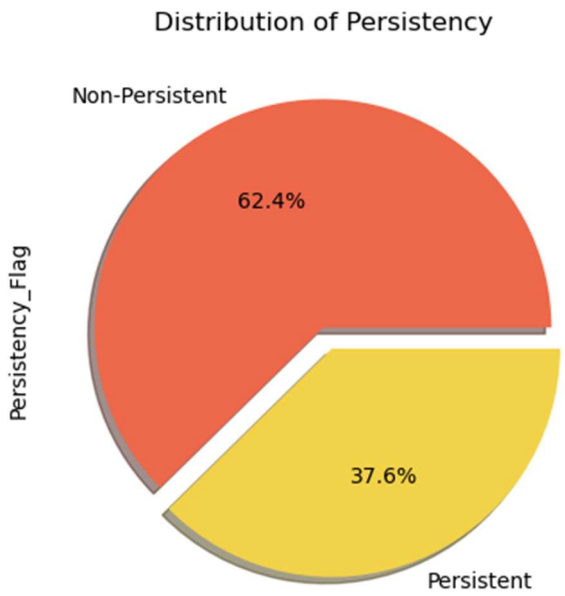
Tabular data details:

Total number of observations	3424
Total number of files	1
Total number of features	69
Base format of the file	.xlsx
Size of the data	898 KB

Exploratory data analysis:

Target Analysis:

There are 37.6% of patients are persistent in taking prescription drugs while 62.4% are non-persistent.



Null values:

There are no null values in the dataset. So, no need to handle NA or missing values.

Outlier Analysis:

There are outliers for Dexa_Freq_During_Rx(number of DEXA scans taken during Rx) and Count_Of_Risks(count of risks).

Identified Outliers using Inter Quartile range and Box plot and removed the outliers.

After removing outliers, the observations of data frame are 2942 with 69 columns.

Skewness:

Dexa_Freq_During_Rx is highly right skewed and applying transformations did not correct skewness.

Proposed Approach:

- There are no missing values in the dataset.
- There are no duplicate values in the dataset.
- Identified outliers and removed using the Inter Quartile range and box plot.

GitHub Repo Link:

https://github.com/bmusham/Healthcare-Persistency-of-a-drug/tree/main/Week8