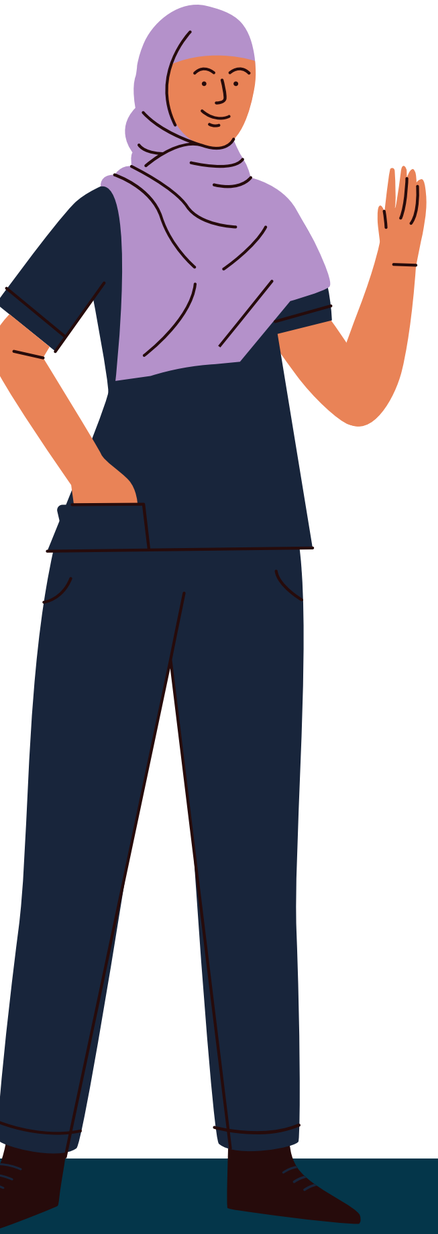
Healthcare Equity

ACCESSIBLE CARE FOR ALL

Kristen Lo

How can Data Science help improve Healthcare Equity?

In this project, we will examine what discriminatory factors can affect hospital admission rates so that we can better improve healthcare outcomes for all patients.



What impact can this have?

Scarborough Health Network saw over **150,000 patients** in the emergency department between **2021-2022**

United Health Network saw over **100,000 patients** in the emergency department between **2021 - 2022**

Were all patients treated fairly and equitably for the best possible healthcare outcome?

The Data

What does it look like?

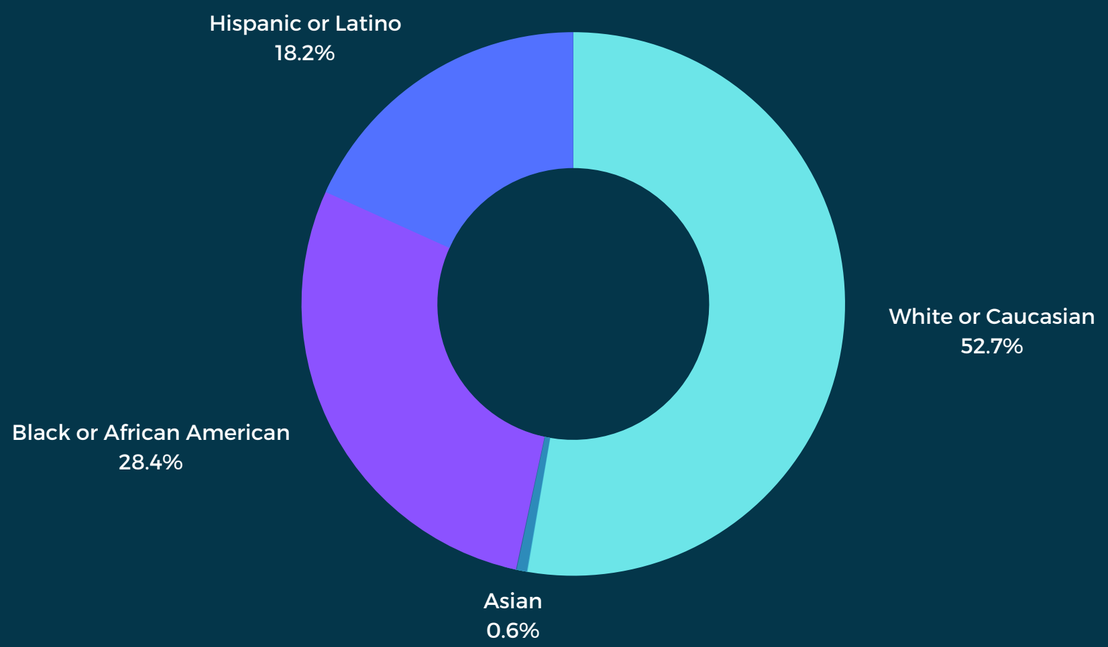
After basic cleaning, there were 480k rows and 509 columns.

What changes were made?

Changing all numeric columns to categorial columns

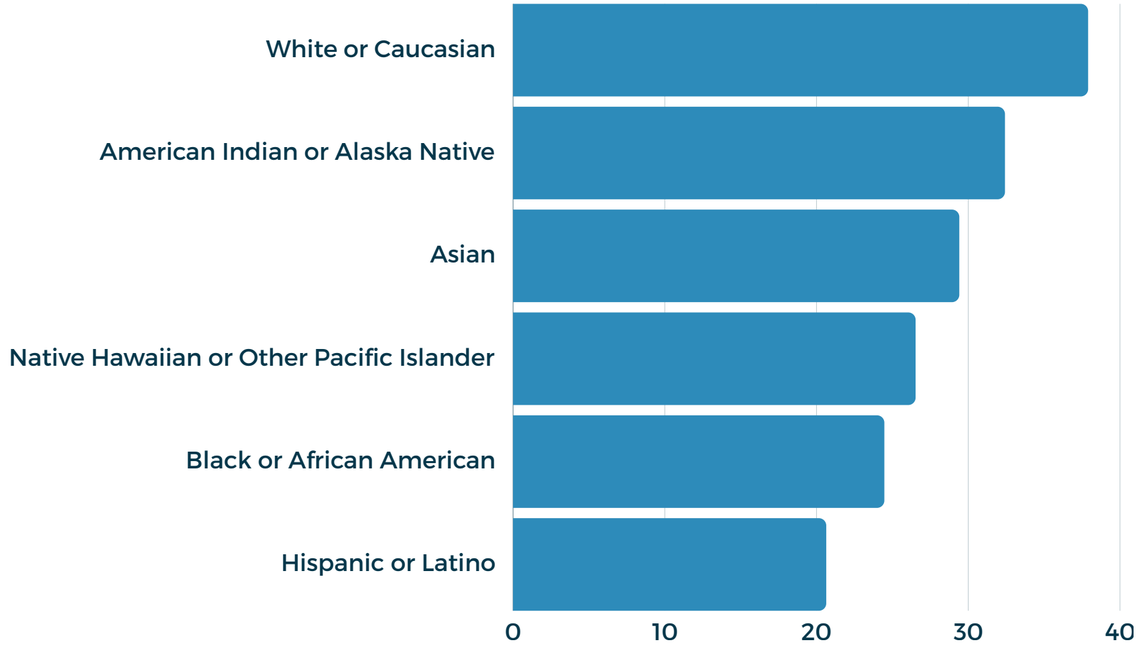
Motivation

To aid in the pre-processing of data for future modeling



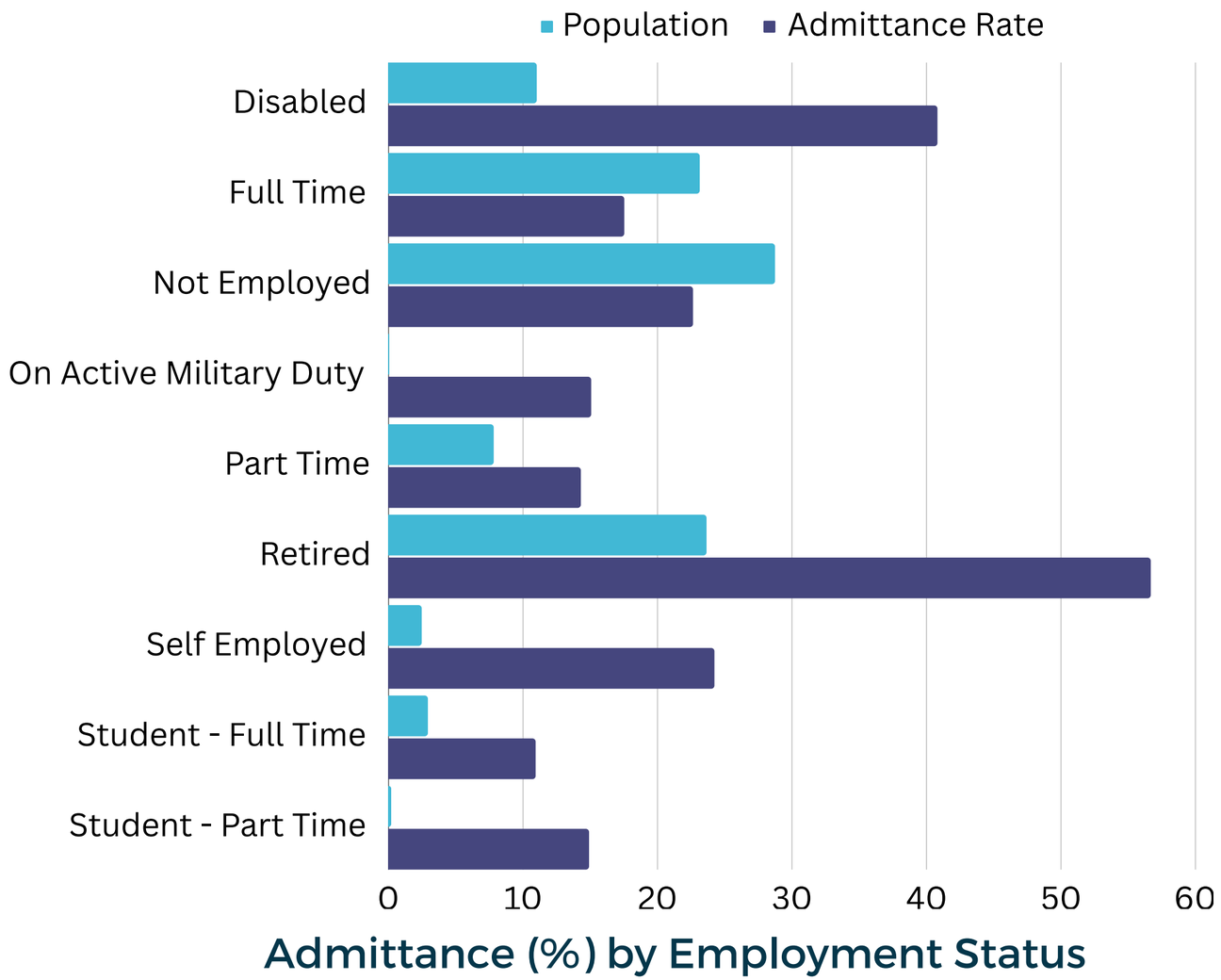
Distribution of Patient Race

Black or African American and Hispanic or Latino patients make up a **large majority of patients**

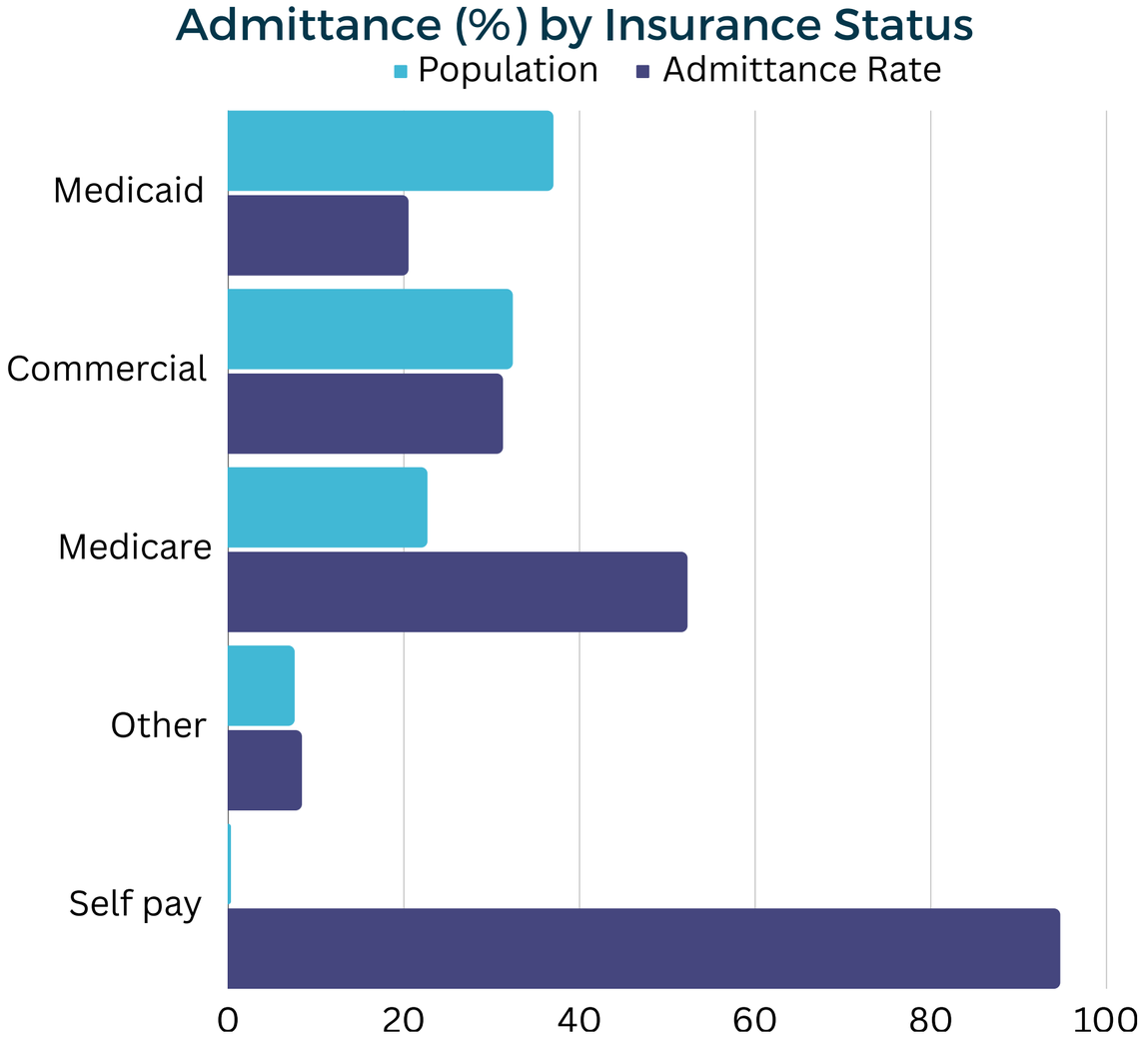


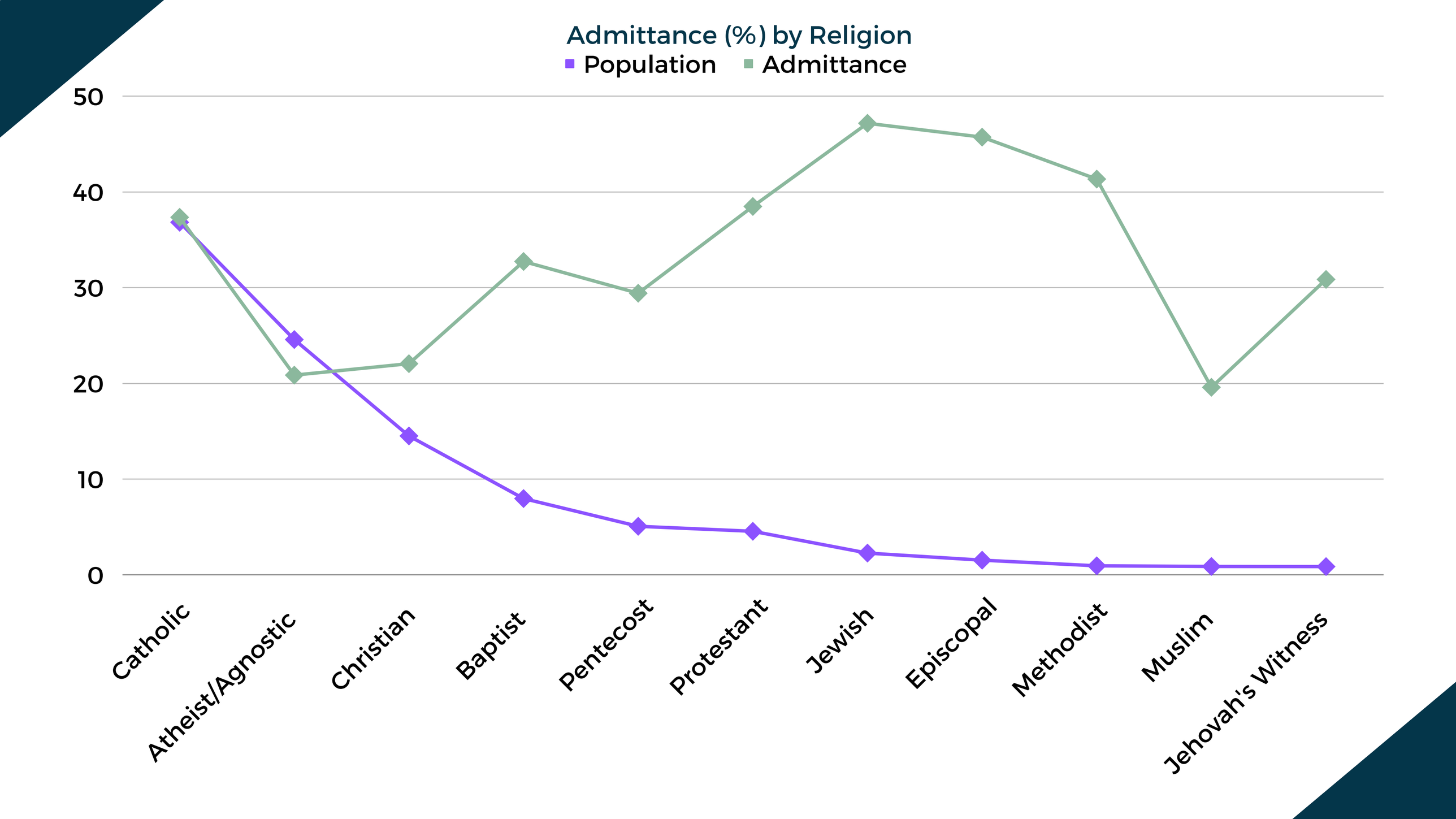
Admittance (%) by Race

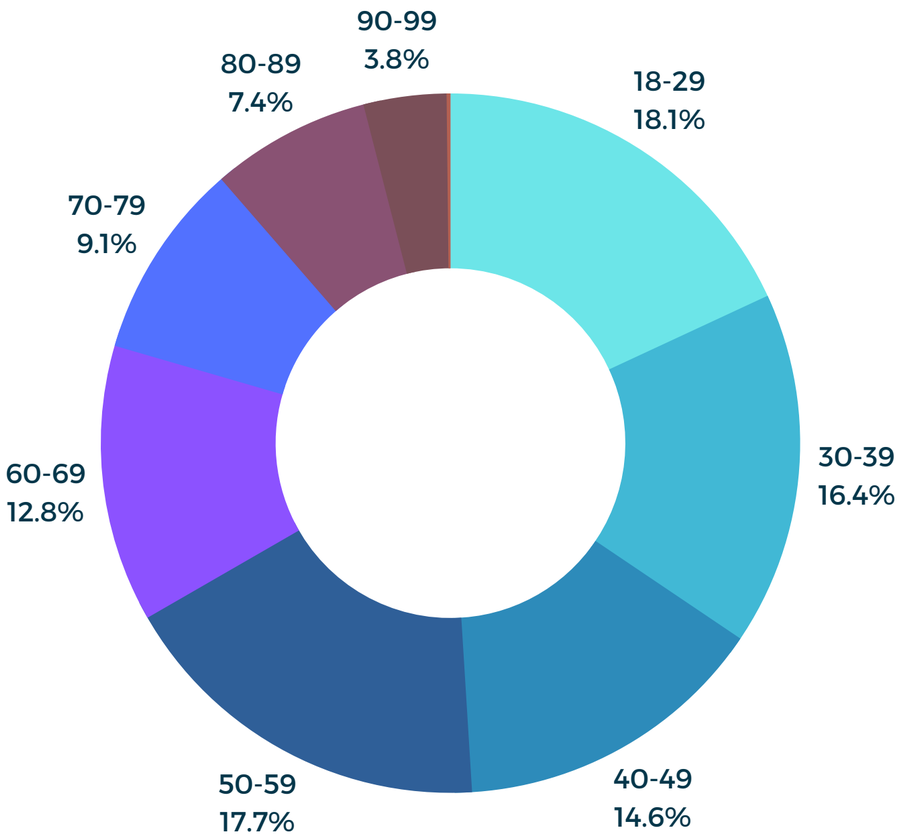
Black or African American and Hispanic or Latino patients get **admitted to the hospital the least**



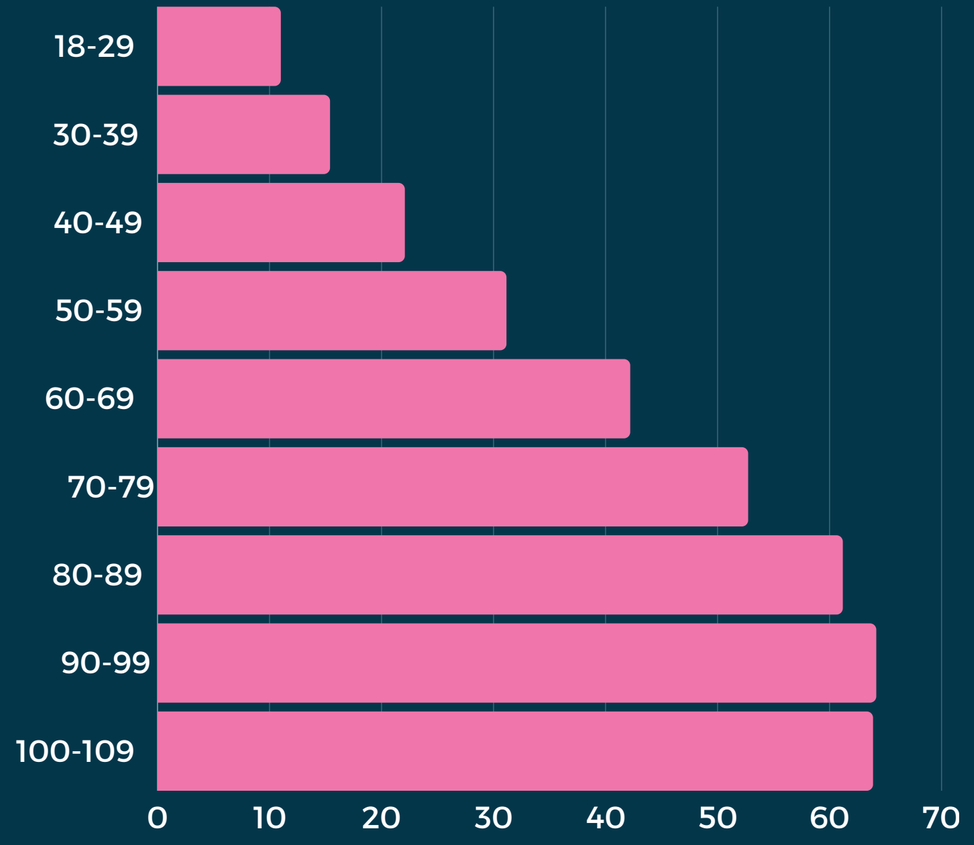
Admittance (%) by Employment Status




Admittance (%) by Religion
Population
Admittance
50
40
30
20
10
0
Catholic
Atheist/Agnostic
Christian
Baptist
Pentecost
Protestant
Jewish
Episcopal
Methodist
Muslim
Jehovah's Witness



Distribution of Patient Age Groups



Admittance (%) by Age Group

What are the next steps?

More EDA!

Understand the relationship between unique categorical data and disposition

Dummy Data

Convert unique categorical data into dummy columns

Advanced Modeling

Explore Random Forest, SVM, and xGBoost and optimize the best one

Feature Engineering

Feature selection and dimensionality reduction with RFE

Start Modeling

Create a baseline logistic regression with lasso regularization to predict admittance rate