
Screening for Diabetes

A model and guide by Eva Mizer
Flatiron Flex Data Science Program

—

Agenda:

Our Business Problem

- Client
- What they need
- How they'll use it

Our Model

- Dataset used
- The model
- Results

Recommendations

- How to implement model into practice via screening, testing, and patient care

The Business Problem

- Medical providers need a quick and efficient way to screen for diabetes
- They need to know most important variables to look out for
- Knowing these, they can tailor medical testing to confirm diagnosis, and counseling to patients to lower their risk

Data Used

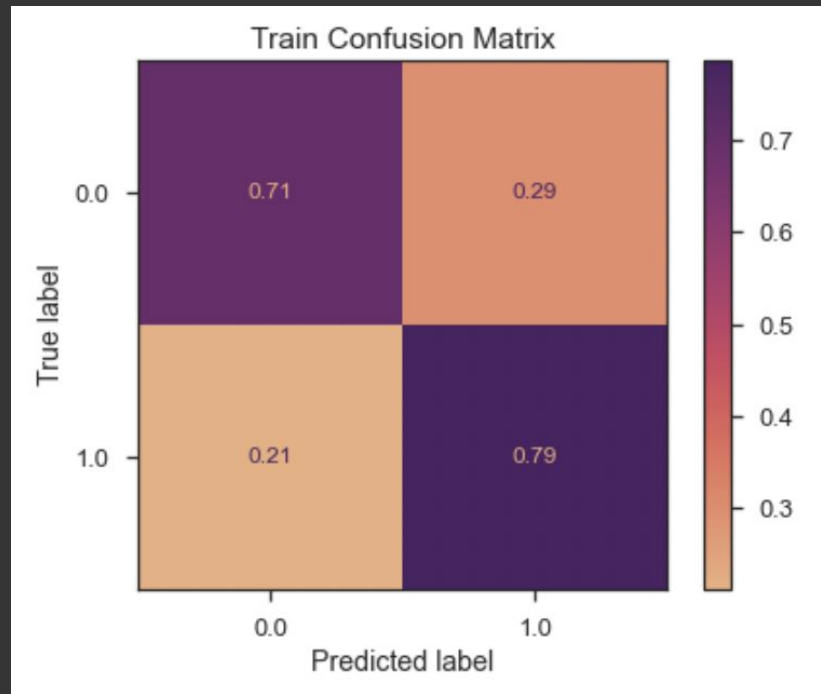
- Subset of the [Behavioral Risk Factor Surveillance System \(BRFSS\)](#)
- Over 70,000 entries and 18 categories
- Random sample
- Health conditions
- Lifestyle trends

Note:

This dataset does **not** distinguish between type I and type II diabetes

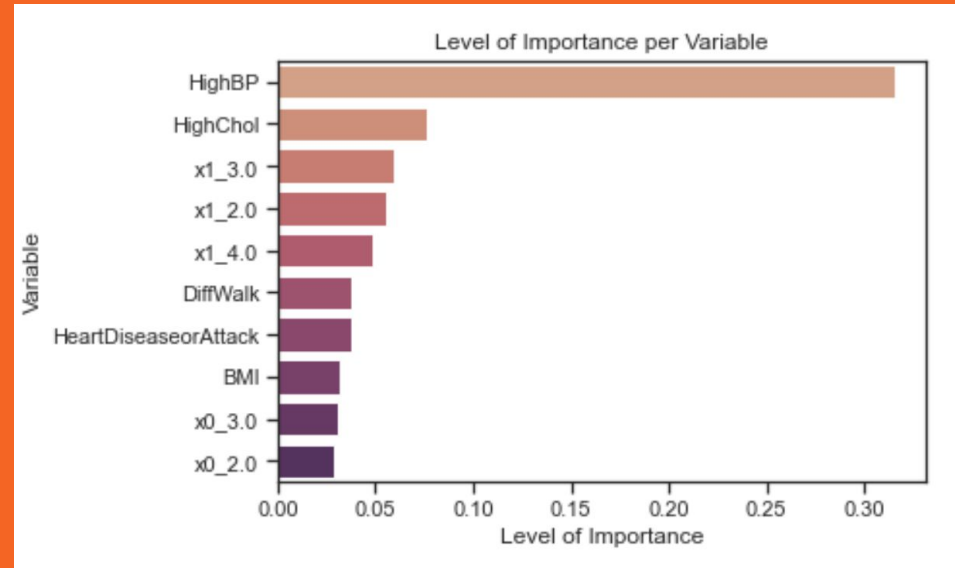
The Model

- XGBoost tweaked with GridsearchCV
- Focus on recall
- Accurately predict a positive diabetes status 79% of the time
- 71% of the time for a negative diabetes status

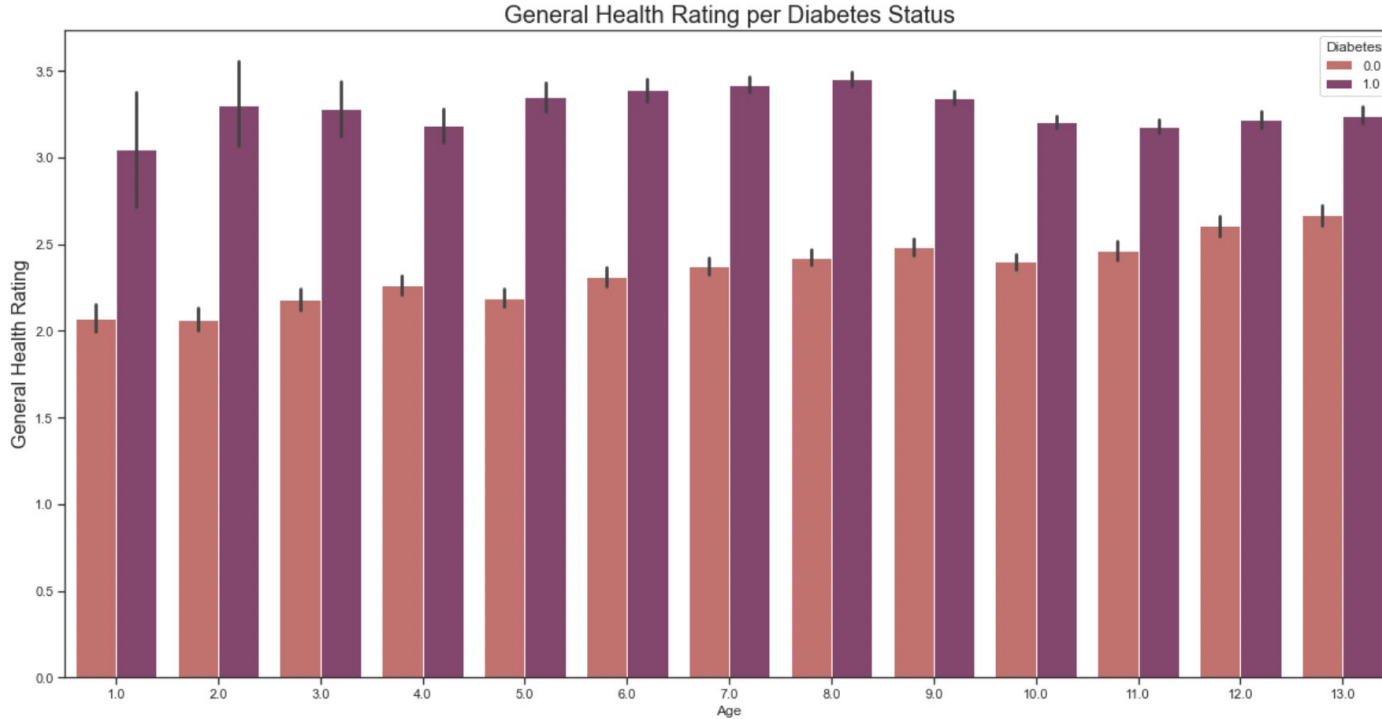


Top Indicators

- High Blood Pressure
- High Cholesterol
- General Health
- Difficulty Walking
- Heart Disease or Heart Attack
- BMI
- Age



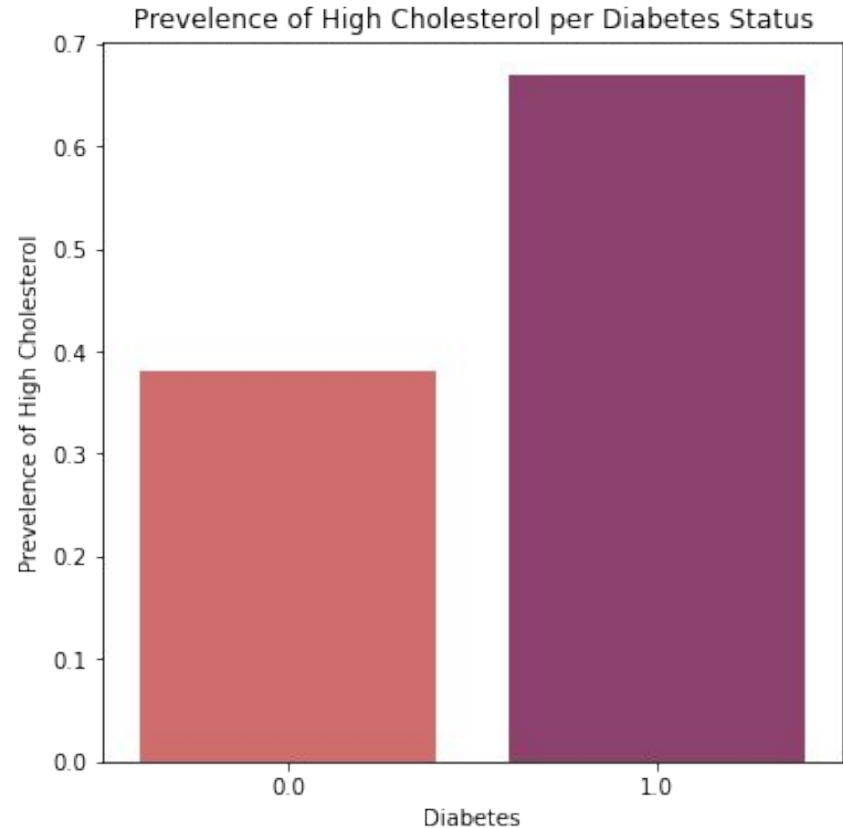
General Health



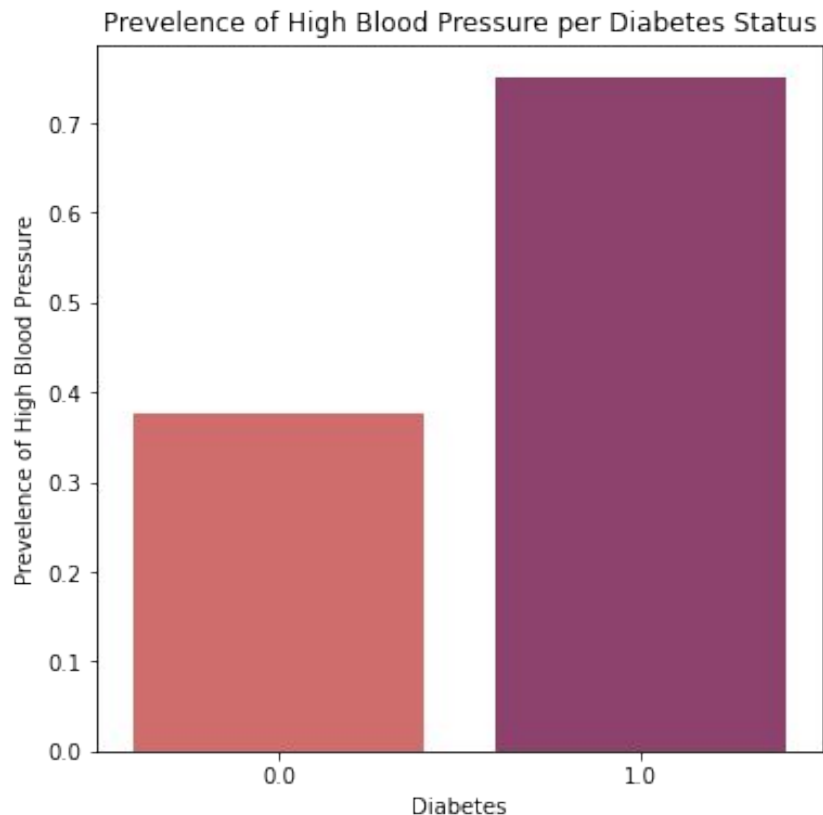
- **38% worse general health ratings for diabetics**

High Cholesterol

- **Rate of High Cholesterol averaged 75% higher for diabetics**

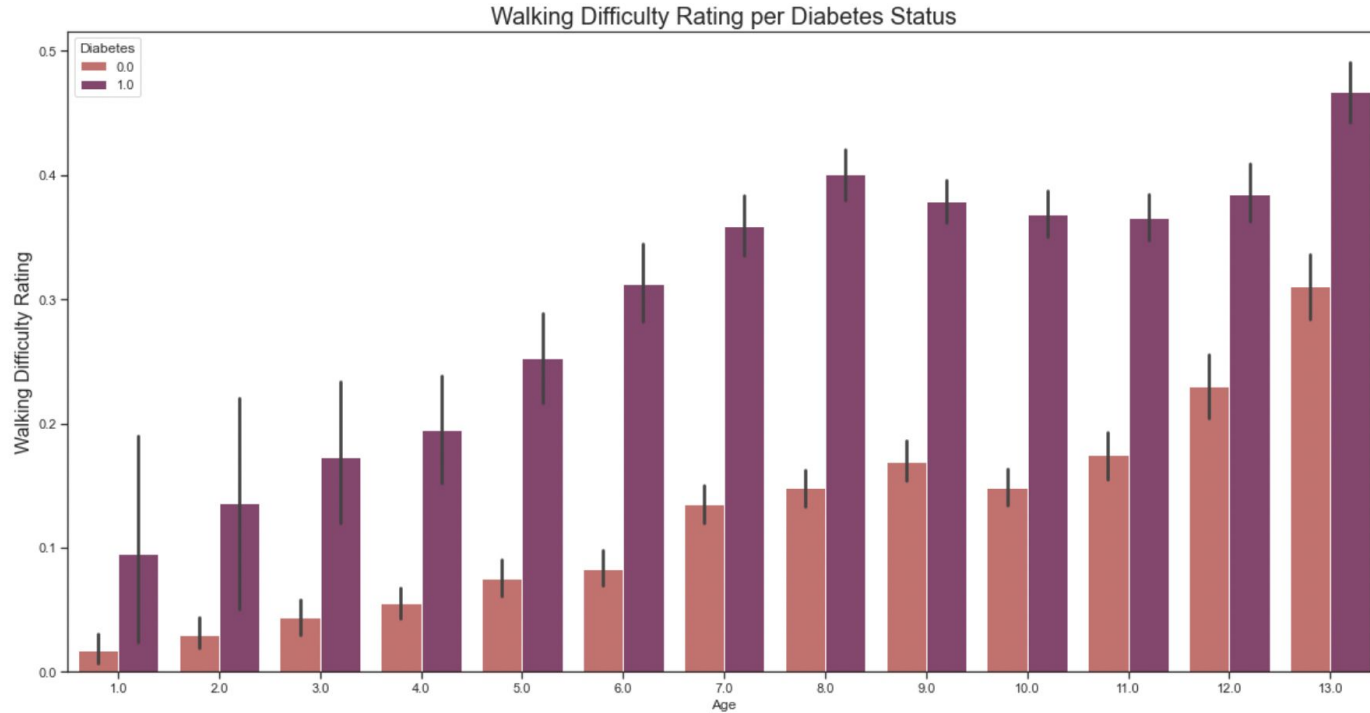


High Blood Pressure



- **Diabetics have about 99% higher rates of high blood pressure**

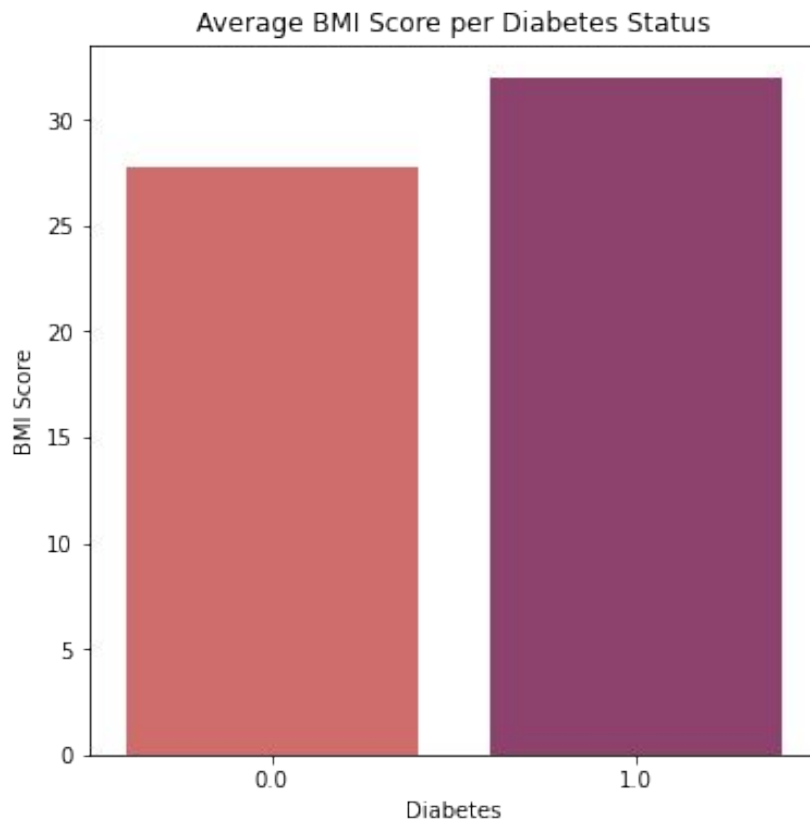
Difficulty Walking



Patients with diabetes are **169% more likely** to have difficulty walking

Body Mass Index (BMI)

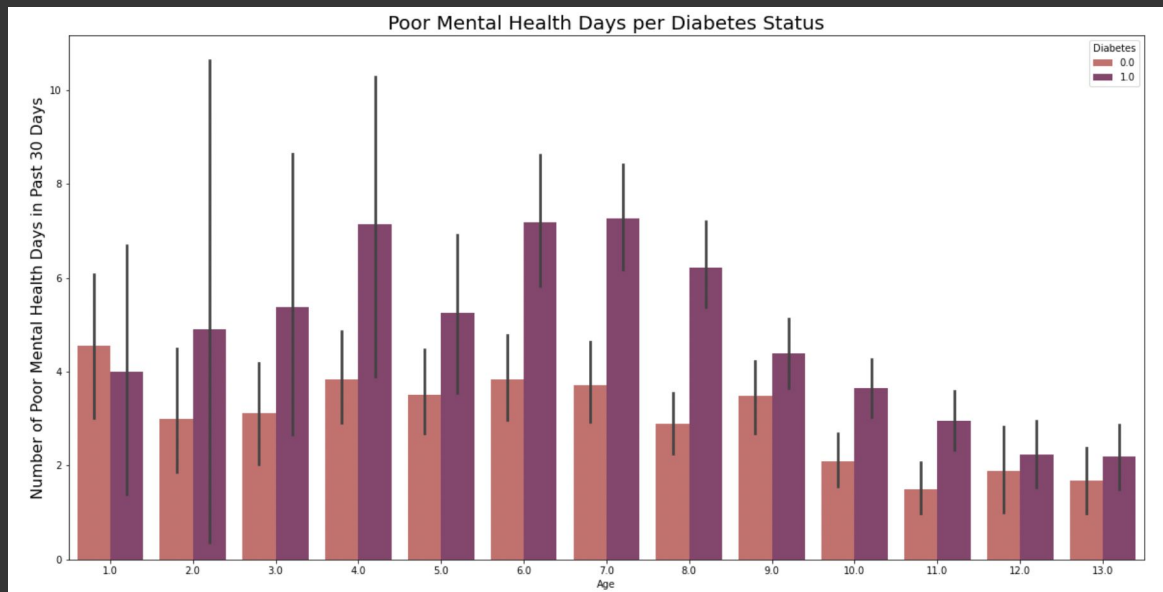
- On average, BMIs are about **15% higher** for those with diabetes



Mental health!

(Something to consider)

- 68% more poor mental health days
- Youngest had up to 46% more poor mental health days than older



Recommendations:

By implementing this model into your current workflow, you can use this for:

Screening

New and existing patients

Testing

Conduct medical tests to confirm diagnosis

Counseling

Give patient advice to improve overall physical health, refer mental services as needed

Any questions?

I hope you found this presentation helpful!

Feel free to reach out to me with any questions you may have.

Student name: Eva Mizer

Email: ev@evamizer.com

Instructor name: Morgan Jones

Blog post URL:

<https://www.blogger.com/blog/posts/4845670283059937521?pli=1>