



# Diabetes

Trends and Prevalence

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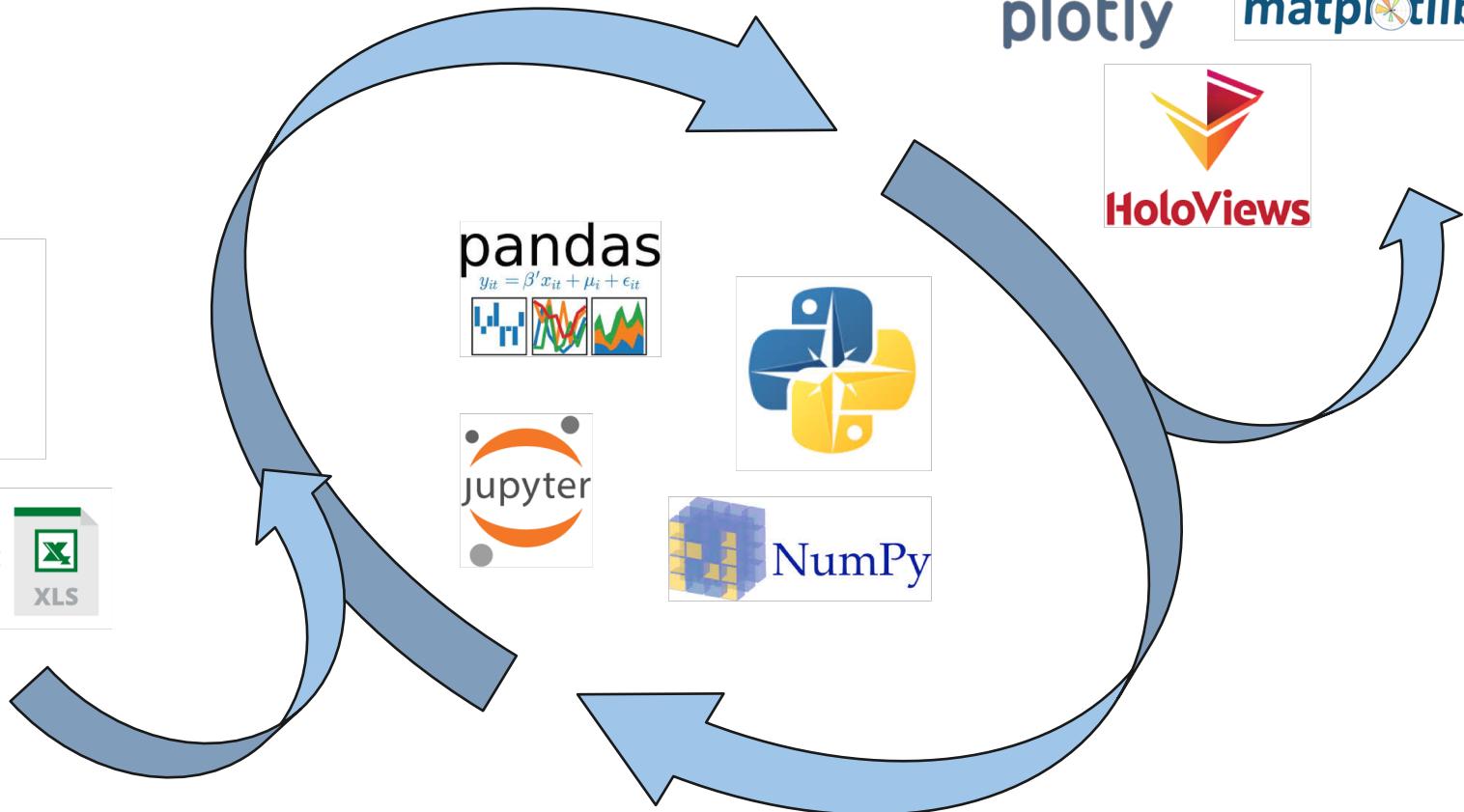
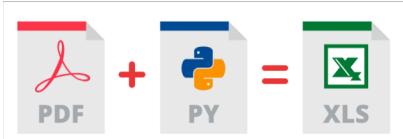
# What is diabetes, and why do we care?



- Diabetes - high levels of blood sugar
- Unable to regulate - low insulin levels
- Leads to heart disease, stroke
- Has no cure
- >3.5 Million deaths in 2017
- 245 Billion \$ spent



# Data Overview / Methodology



# Questions to be answered

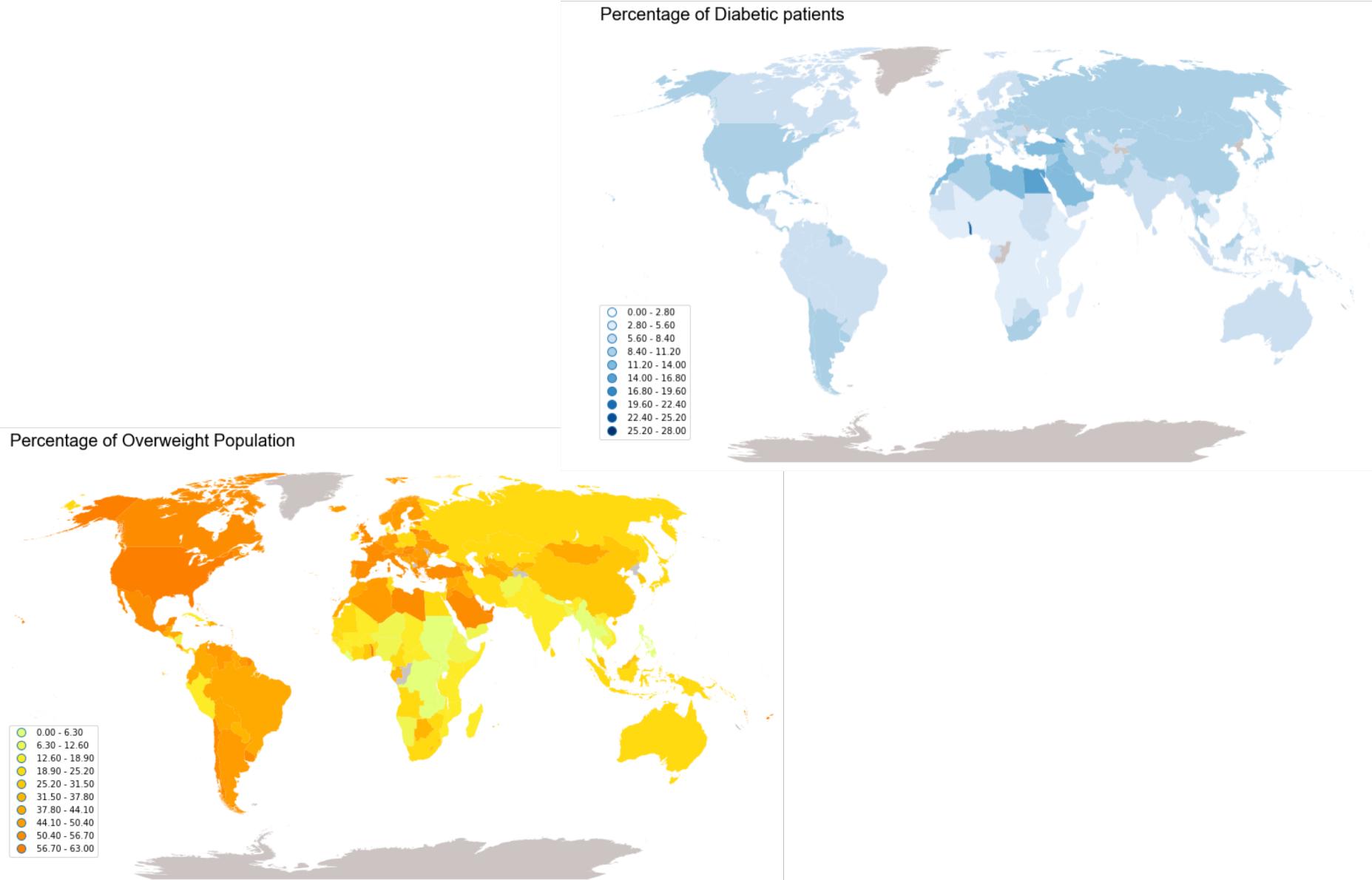


- What is prevalence of diabetes across the world and what is its correlation to being overweight?
- What are the most effective metrics to predict high rates of diabetes?
- How can changes in lifestyles across geographical regions decrease diabetes in the population?
- How does income affect a person's ability to effectively treat diabetes?

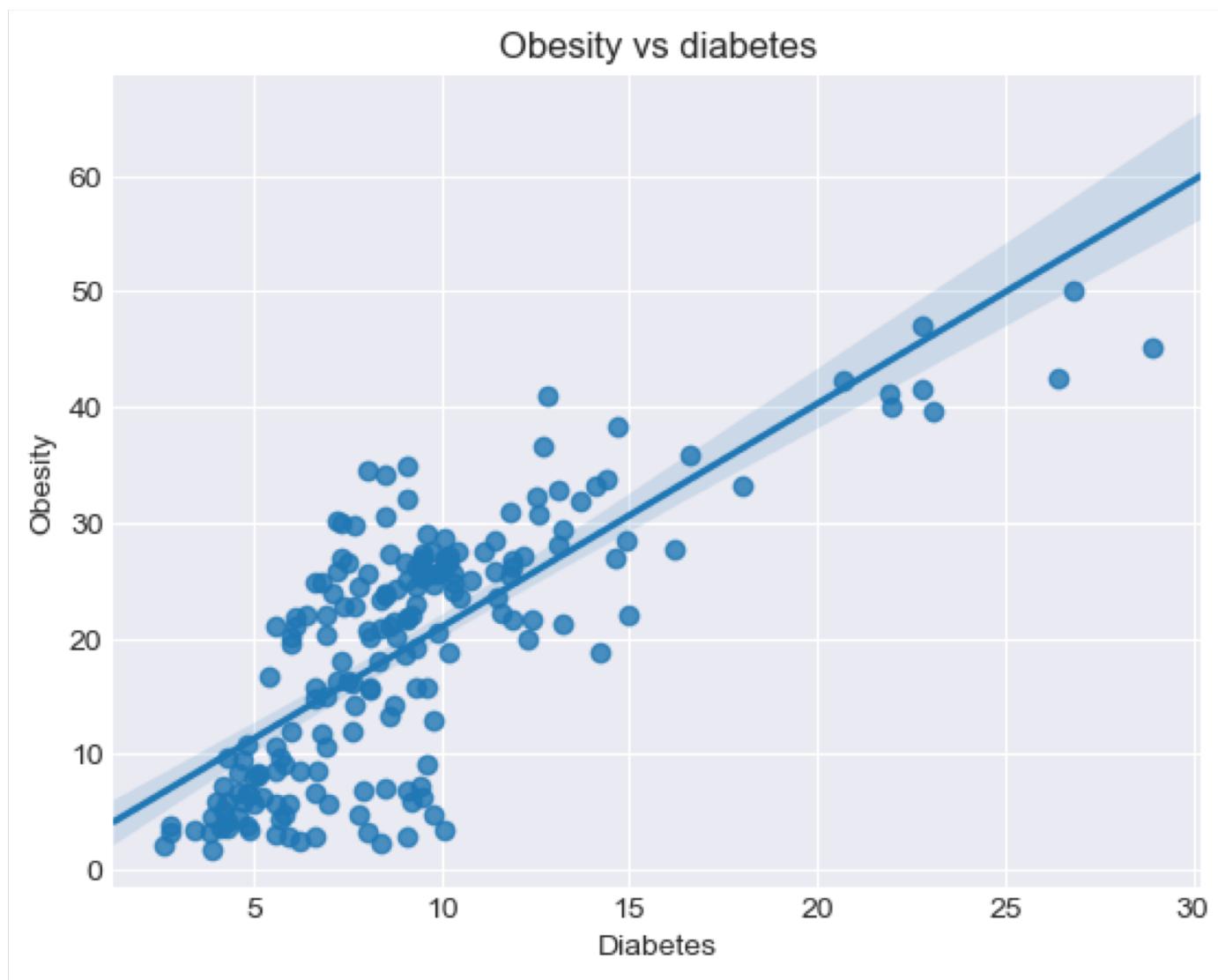


# Global Data

# Overweight vs. Diabetes

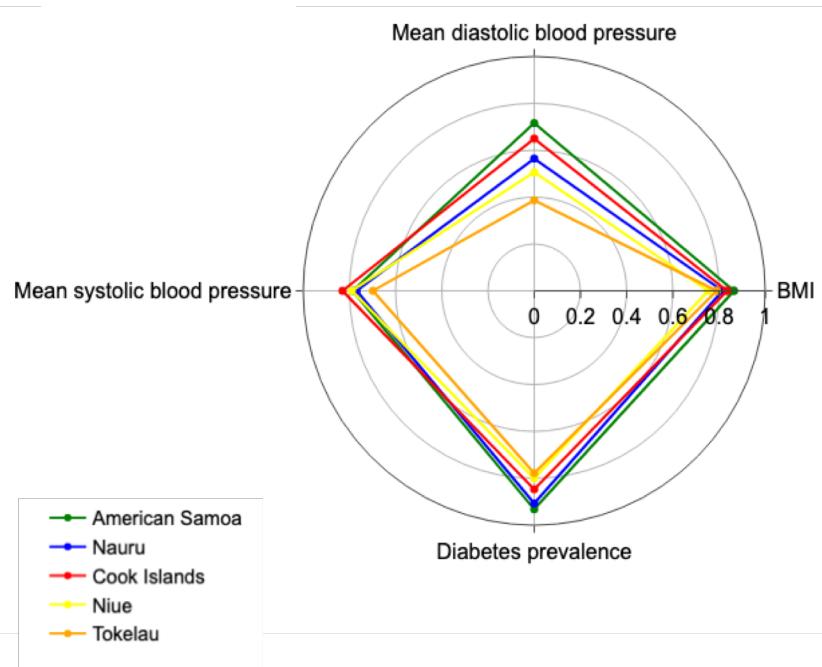


# Correlation plot

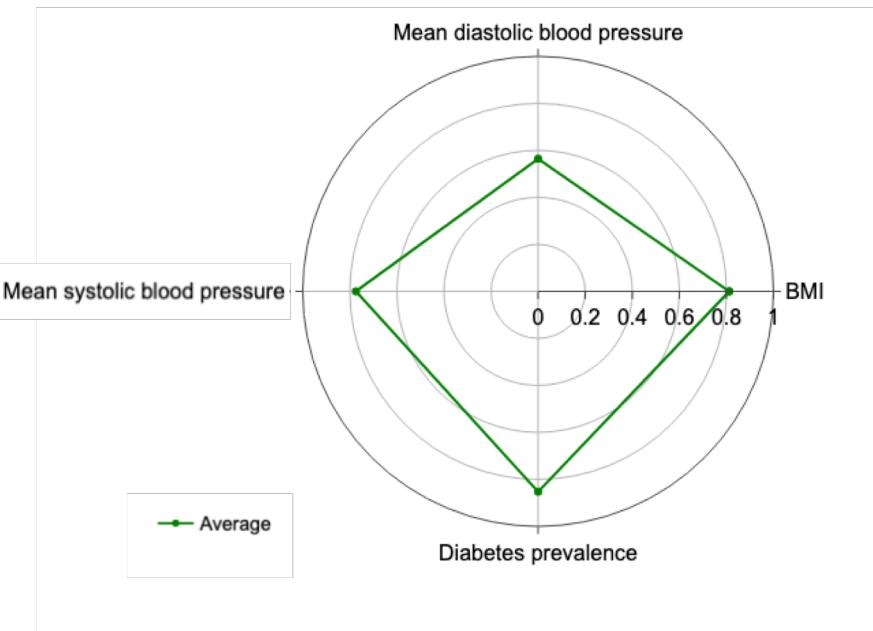


# What is a good metric?

Related Risk Factors for 5 countries with Highest Diabetes Prevelence

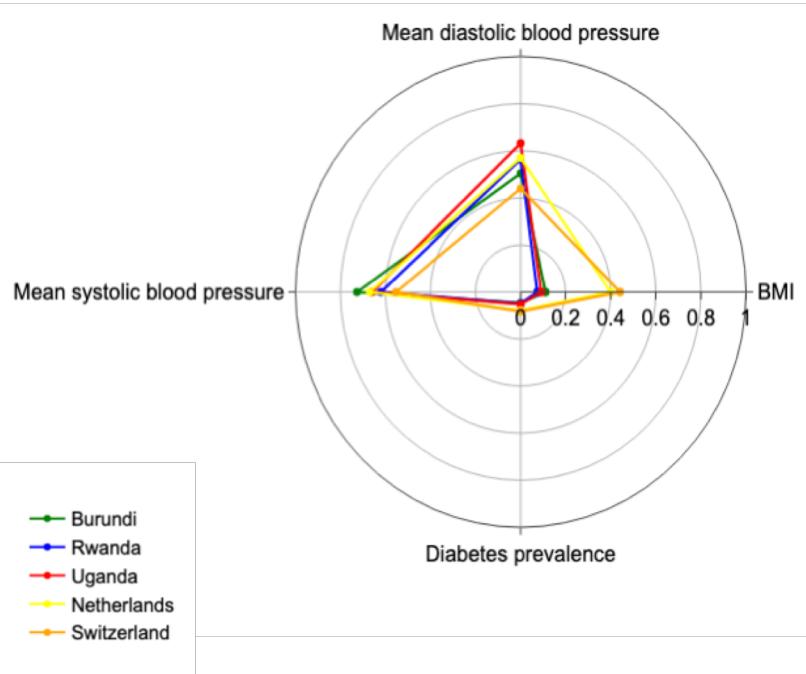


Related Risk Factors for 5 countries with Highest Diabetes Prevelence

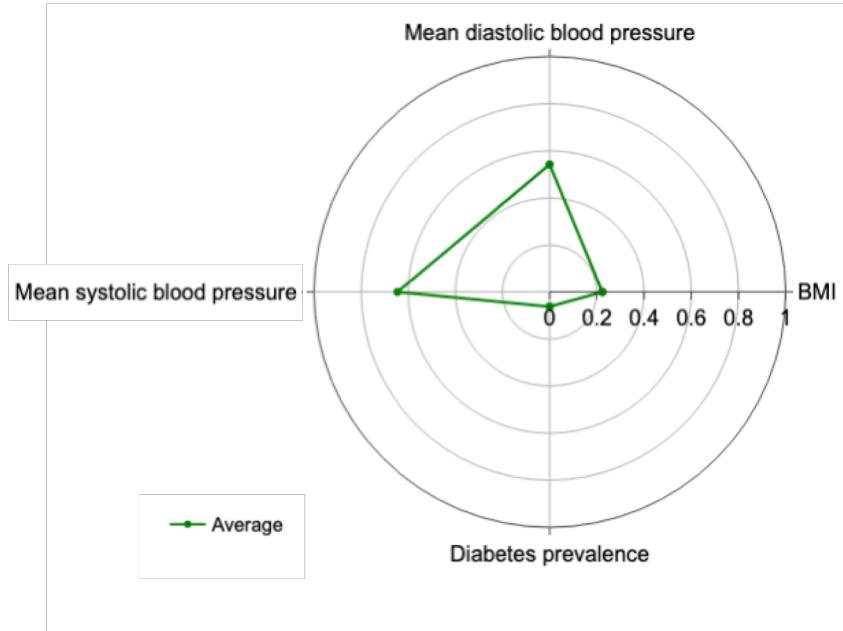


# What is a good metric?

Related Risk Factors for 5 countries with lowest Diabetes Prevelence



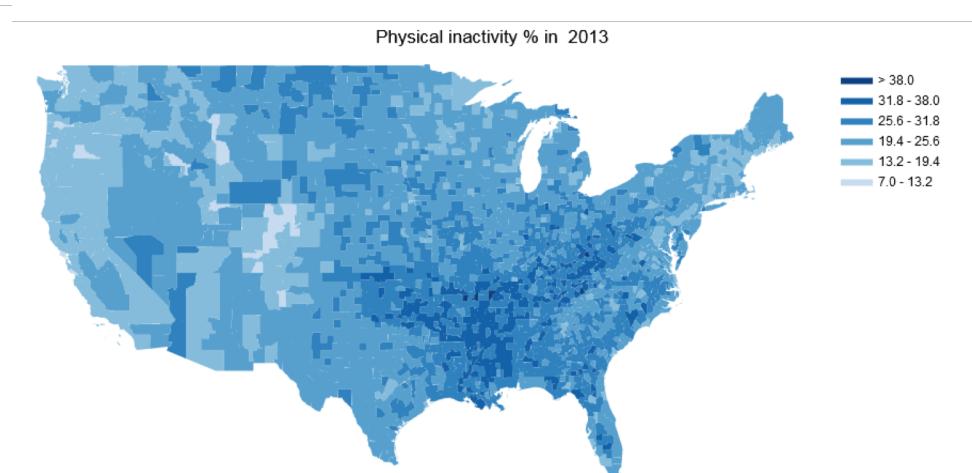
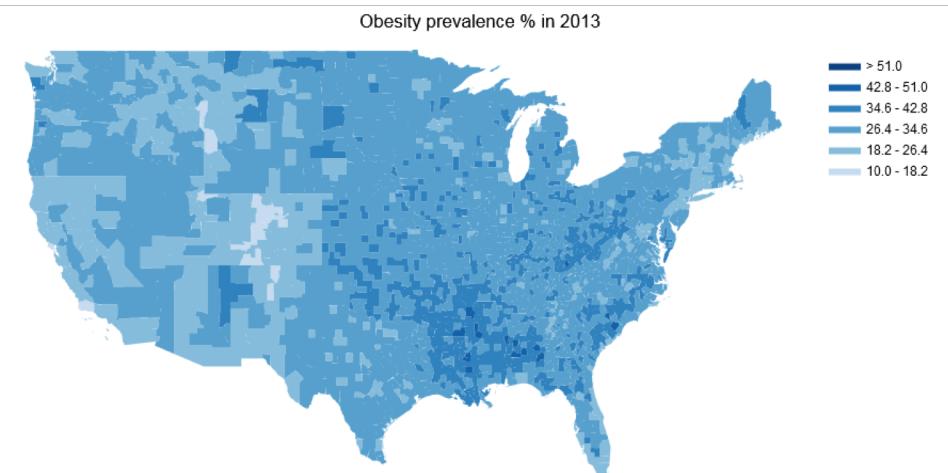
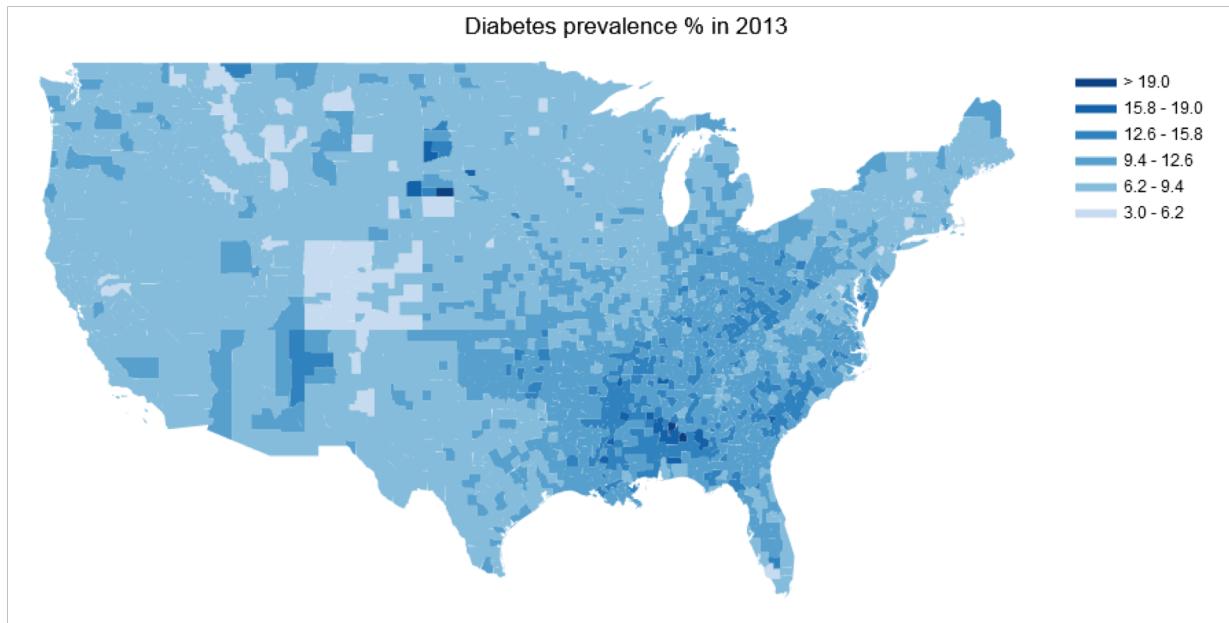
Related Risk Factors for 5 countries with Lowest Diabetes Prevalence Averaged



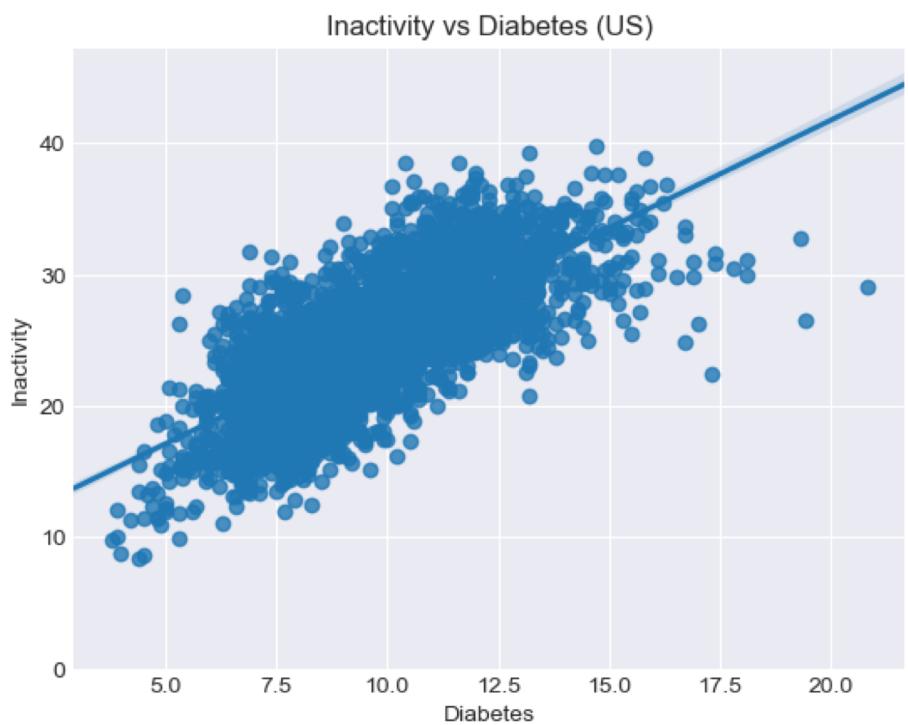
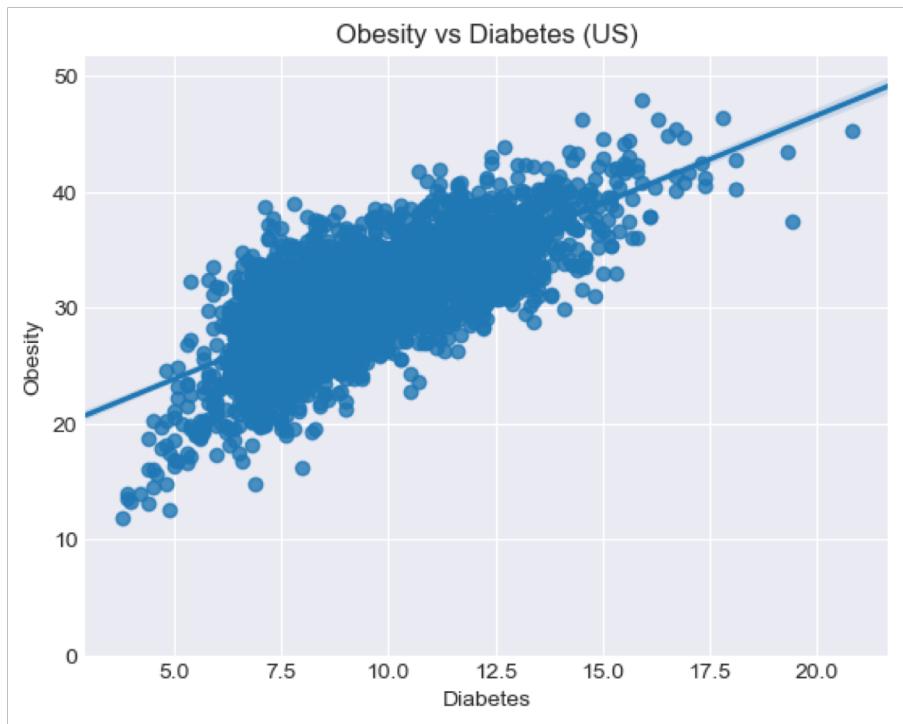


# United States Data

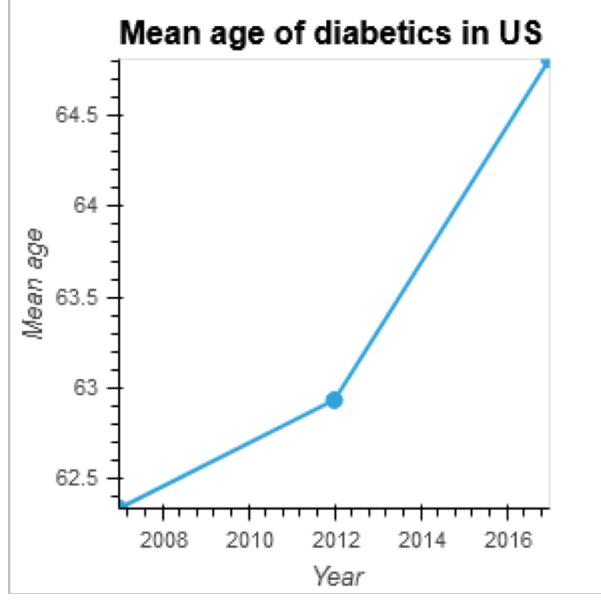
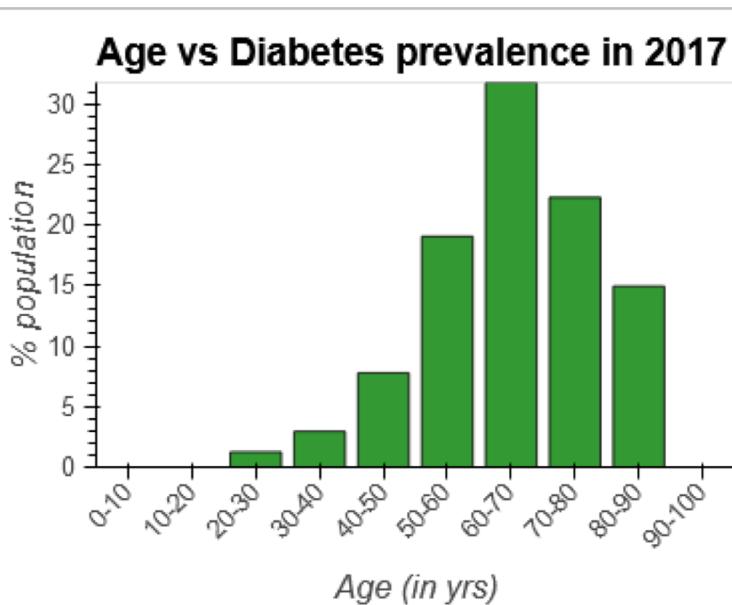
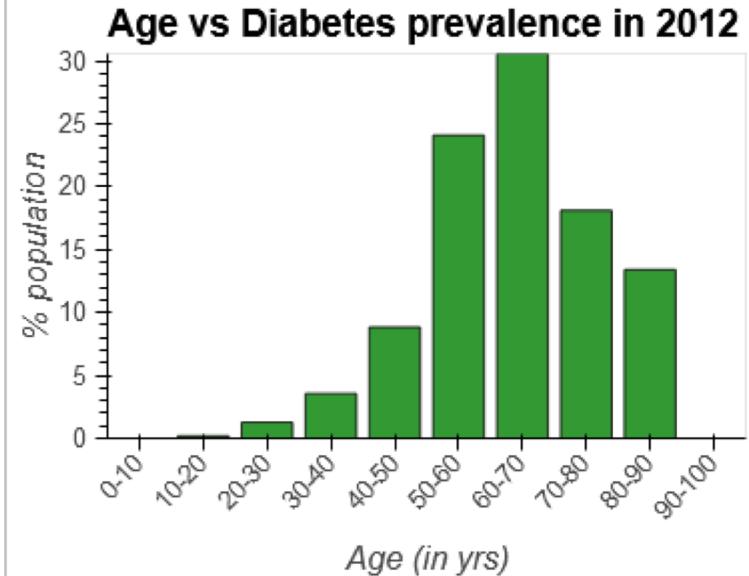
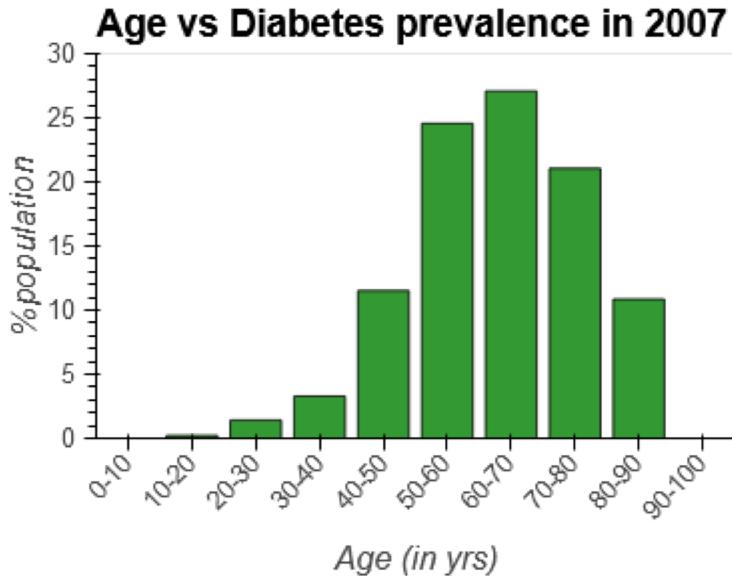
# How does lifestyle affect diabetes?



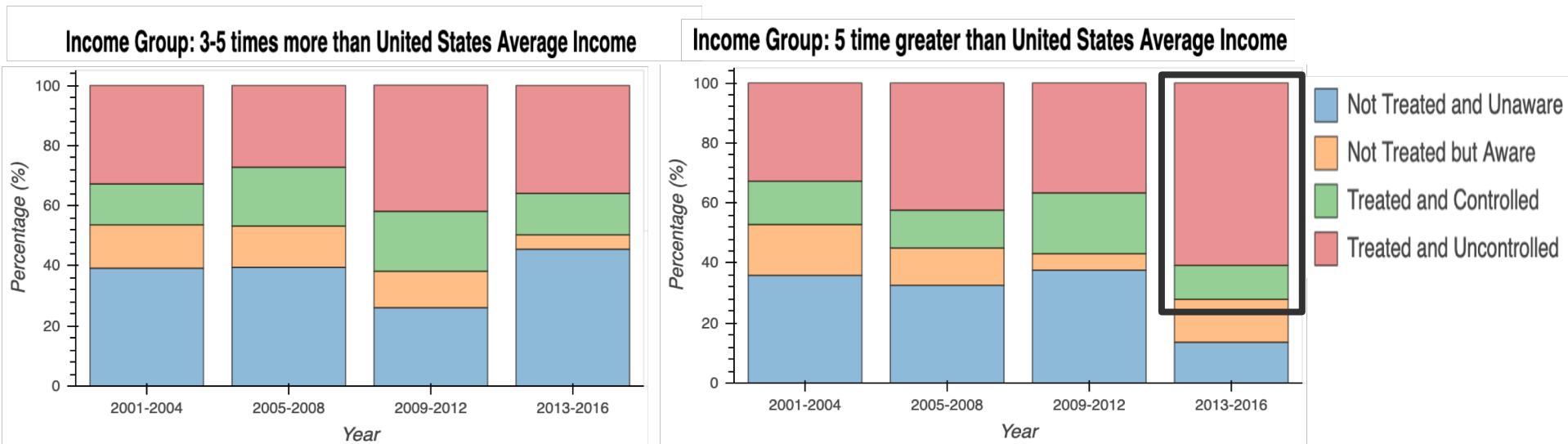
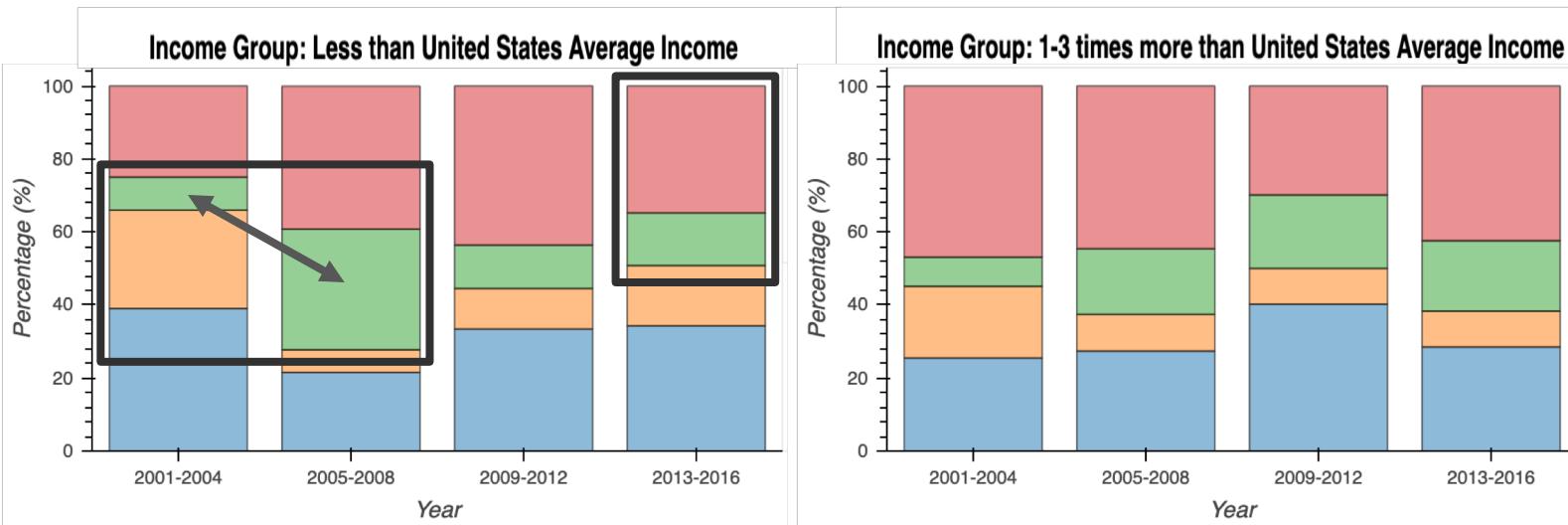
# Correlation plots



# We got healthier!



# How does income affect treatment?



# Conclusion



- Diabetes has a very large correlation with obesity/BMI
  - These metrics can serve as an effective predictor of diabetes
- Across income groups, there is variation in what percentage of diabetics are diagnosed and treated
  - Spikes or dips in certain income groups at certain times may be caused by government policies that increase access to diabetes testing, for example
- Although diabetes has no cure, it can often be prevented by making lifestyle changes

# Sources

- [https://www.cdc.gov/nchs/nhis/nhis\\_2017\\_data\\_release.htm](https://www.cdc.gov/nchs/nhis/nhis_2017_data_release.htm)
- [https://www.cdc.gov/diabetes/statistics/slides/long\\_term\\_trends.pdf](https://www.cdc.gov/diabetes/statistics/slides/long_term_trends.pdf)
- <https://www.medicalnewstoday.com/articles/318472.php>
- <https://catalog.data.gov/dataset?tags=diabetes>
- <https://mchb.hrsa.gov/whusa13/health-status/health-indicators/p/diabetes.html>
- <https://data.world/health/diabetes-prevalence/workspace/file?filename=rows.csv>
- [https://letsgethealthy.ca.gov/goals/living-well/decreasing-diabetes-prevalence/#\\_data-snapshot](https://letsgethealthy.ca.gov/goals/living-well/decreasing-diabetes-prevalence/#_data-snapshot)
- <https://towardsdatascience.com/machine-learning-for-diabetes-562dd7df4d42>
- <https://www.who.int/diabetes/country-profiles/en/>
- <https://data.worldbank.org/indicator/sh.sta.diab.zs>
- <http://publichealthintelligence.org/content/prevalence-diabetes-world-2013>
- <https://healthmetrics.heart.org/prevalence-of-prediabetes-and-diabetes-in-the-united-states-1999-2016-stacked-bar-graph/>
- <http://ncdrisc.org/multiple-factors.html>
- <https://healthmetrics.heart.org/prevalence-of-prediabetes-and-diabetes-in-the-united-states-1999-2016-stacked-bar-graph/>



# Thank you!

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