Final Project

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Ideal Cardiovascular Health: An Analysis of Survey Data from Myanmar, 2021

R Coding Final Project

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These data were obtained from the distributor, the **Inter-university Consortium for Political and Social Research**. It was collected in a survey format, to evaluate Metabolic Syndrome. The information file in the hyperlink describes factor variable value assignments. The raw data will be used to assess our outcome of interest, "ideal cardiovascular health" status based on metrics from the American Heart Association.

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Literature Review

Background

Metabolic syndrome is a reversible state comprised of having 3 of the 5 health conditions (elevated waist circumference, high triglycerides, high blood pressure, low HDL cholesterol, high fasting glucose) that puts a person at risk of cardiovascular disease (CD), stroke, and type 2 diabetes (Cleveland Clinic, 2023). Though the data was intended to evaluate risk of these three health outcomes, the purpose of the present analysis is to hone in on current cardiovascular health. In Myanmar, Stroke and Ischaemic Heart Disease were in the top 4 leading causes of death amongst men and women in 2021 (World Health Organization, n.d). It is therefore important to identify patterns in the population as a whole, as well as identify vulnerable populations, so that action can be taken on a community and policy/public health level (Lloyd-Jones et al., 2010). The presence of Ideal Heart health is linked with lower rates of mortality due to cardiovascular disease, as well as lower mortality rates due to diseases such as cancer. It is also helpful in reducing risk of cardiac events and stroke in pediatric populations later in life. An Ideal Heart health score will be created using ranges provided by the American Heart Association; relevant metrics include: BMI, total cholesterol, smoking status, physical activity, healthy diet, fasting plasma glucose, and blood pressure, with age determining cutoff values. (Lloyd-Jones et al., 2010)

Socioeconomic status in Myanmar

According to the website Humanitarian Action the absolute poverty line is $2.15 per person per day in Myanmar, which is around 135385.5 kyats per person per month using today's exchange rate (OCHA, 2024). The socioeconomic status will be assessed by dividing monthly income of a person by number of children plus them self, to determine if they are at, above or below the poverty line. There is not enough information to assess marital contribution to household income.

Data Description

The data sources are linked in the abstract, coming from **Inter-university Consortium for Political and Social Research** hosted by the University of Michigan. The research was done by Su Su Maw from the University of Nursing in Yangon, Myanmar.

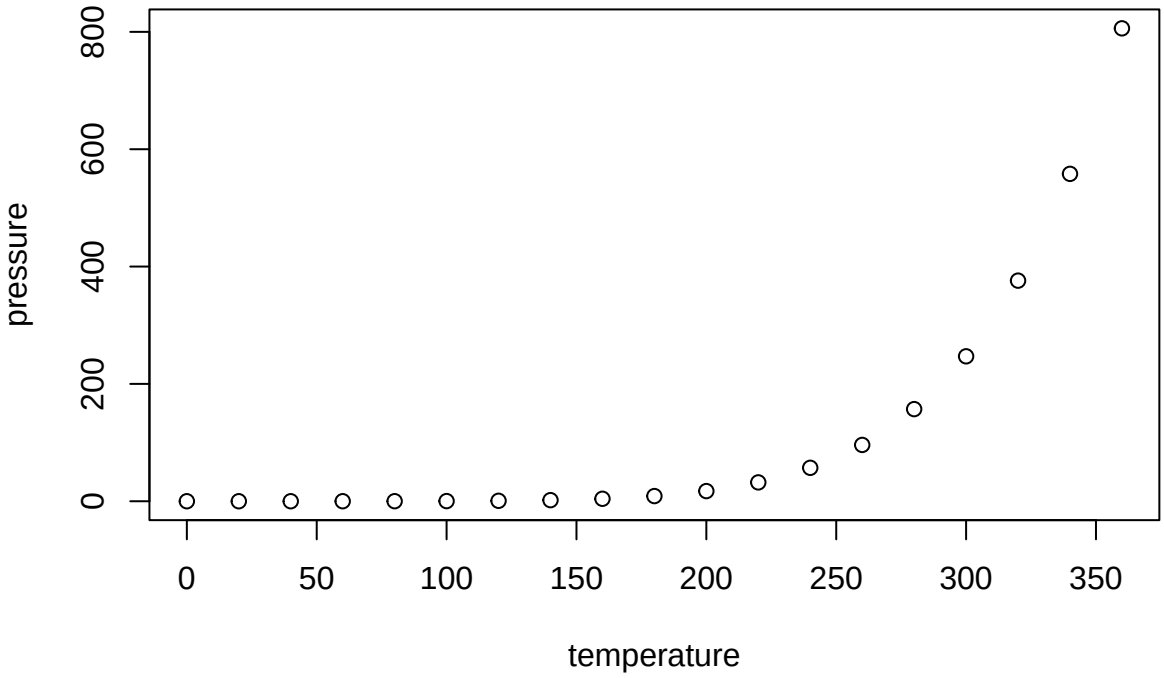
Summary Statistics for numeric variables of interest

```
library(readr)
setwd('C:/Users/smdot/OneDrive/Desktop/R-Summer25/Data/raw')
mydata=read.csv("MetS data to upload.csv")
summary_stats=summary(mydata[,c(5,7,9,17,18,21,22,23,24,25,26,29,30,31,32,33)])
summary_stats
```

```
##   EducationYrs        Income        FamilymembersNo       Age
##  Min.   : 0.000   Min.   :      0   Min.   : 0.000   Min.   :18.00
##  1st Qu.: 4.000   1st Qu.:      0   1st Qu.: 3.000   1st Qu.:33.00
##  Median : 5.000   Median :  95000   Median : 4.000   Median :43.00
##  Mean   : 5.997   Mean   : 122722   Mean   : 3.954   Mean   :44.07
##  3rd Qu.: 9.000   3rd Qu.: 200000   3rd Qu.: 5.000   3rd Qu.:55.00
##  Max.   :16.000   Max.   :1500000   Max.   :12.000   Max.   :83.00
##    ChildrenNo        HbA1c             FBS        TotalCholesterol
##  Min.   : 0.00   Min.   : 4.600   Min.   : 66.0   Min.   : 96.0
##  1st Qu.: 1.00   1st Qu.: 5.500   1st Qu.: 87.0   1st Qu.:165.2
##  Median : 2.00   Median : 5.900   Median : 97.0   Median :191.5
##  Mean   : 1.95   Mean   : 6.124   Mean   :107.5   Mean   :193.9
##  3rd Qu.: 3.00   3rd Qu.: 6.400   3rd Qu.:108.0   3rd Qu.:222.8
##  Max.   :14.00   Max.   :12.900   Max.   :389.0   Max.   :303.0
##  Triglycerides        HDL              LDL             BMI
##  Min.   : 36.0   Min.   : 28.00   Min.   : 28.0   Min.   :15.13
##  1st Qu.: 88.0   1st Qu.: 48.00   1st Qu.: 84.5   1st Qu.:22.02
##  Median :120.5   Median : 57.00   Median :107.0   Median :25.20
##  Mean   :142.2   Mean   : 57.88   Mean   :108.4   Mean   :25.54
##  3rd Qu.:167.0   3rd Qu.: 64.00   3rd Qu.:130.0   3rd Qu.:28.95
##  Max.   :593.0   Max.   :252.00   Max.   :240.0   Max.   :40.57
##  Waistcircumference   SystolicBP     DiastolicBP     Sleepduration
##  Min.   : 58.00     Min.   : 95.0   Min.   : 49.00   Min.   : 4.000
##  1st Qu.: 74.00     1st Qu.:116.0   1st Qu.: 75.00   1st Qu.: 7.000
##  Median : 82.00     Median :127.0   Median : 82.00   Median : 8.000
##  Mean   : 82.32     Mean   :128.4   Mean   : 82.58   Mean   : 7.912
##  3rd Qu.: 90.00     3rd Qu.:138.8   3rd Qu.: 89.00   3rd Qu.: 9.000
##  Max.   :116.00     Max.   :192.0   Max.   :125.00   Max.   :12.000
```

Including Plots

You can also embed plots, for example:



Note that the `echo = FALSE` parameter was added to the code chunk to prevent printing of the R code that generated the plot.