Health Question 5

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Data

```
Health <- read.csv("C:/Users/sukol/Documents/Masters frst s
```

This dataset captures various health and lifestyle metrics of individuals participating in a weight management study. Each participant is uniquely identified and described by age, gender, and baseline weight. Key physiological and behavioral variables include basal metabolic rate (BMR), daily caloric intake, and physical activity level. The dataset tracks weight change over a given duration, based on caloric surplus or deficit, while also incorporating diet composition, sleep quality, and stress levels. These factors collectively allow for analysis of how lifestyle and biological traits affect weight outcomes.

Introduction

Analysis

```
library(tidyverse)
```

```
## Warning: package 'ggplot2' was built under R version 4.4

## Warning: package 'tibble' was built under R version 4.4.

## Warning: package 'purrr' was built under R version 4.4.3

## -- Attaching core tidyverse packages ------------------
## v dplyr     1.1.4     v readr     2.1.5
## v forcats   1.0.0     v stringr   1.5.1
## v ggplot2   3.5.2     v tibble    3.3.0
## v lubridate 1.9.4     v tidyr     1.3.1
## v purrr     1.0.4
## -- Conflicts ------------------------------------------
## x dplyr::filter() masks stats::filter()
## x dplyr::lag()    masks stats::lag()
## i Use the conflicted package (<http://conflicted.r-lib.
```

Regression

In this section I created a binary variable that combines low stress and good sleep quality to define "Good Health".

```
Health$GoodHealth <- ifelse(Health$Stress.Level <= 4 & Heal

# Load required library
library(tidyverse)

# Simulate the proxy for "Good Health"
data <- Health %>%
  mutate(GoodHealth = ifelse(Stress.Level <= 4 & Sleep.Qual

# Convert categorical variables
data$Gender <- as.factor(data$Gender)
data$Physical.Activity.Level <- factor(data$Physical.Activi
                                       levels = c("Sedentar
data$Sleep.Quality <- factor(data$Sleep.Quality,
                             levels = c("Poor", "Fair", "Go
```

Conclusion

This presentation highlights key insights into the determinants of good health based on survey data. We find that poor sleep quality and high stress levels are strongly associated with worse health outcomes, while higher physical activity and better sleep correlate with improved health. Although regression results were inconclusive due to data limitations, visual analyses clearly show consistent trends. These findings emphasize the importance of managing stress and improving sleep for better well-being. Our recommendations focus on promoting healthier lifestyle habits as cost-effective public health interventions.