CS 249, Winter 2024

Project Proposal

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Abstract: Hypertension is one of the leading causes of death for Americans. According to the final data in 2017 from the National Vital Statistics Report, nearly 2.9 million Americans were reported having hypertension in the United States. Death ratio of hypertension was 731.9 : 100,000 in the U.S. standard population. This ratio increased 0.6% from the 2016 rate, and the overall/average life expectancy has decreased by 0.1% from the 2016 rate. The age-adjusted death rate decreased from 2016 but increased in 2017. Also according to the NCHS Data Brief, Number 364, 2017-2018, hypertension increased with age 22.4% for age from 18 to 39, 54.5% from 40-59, and 74.5% for age 60 and over.

Motivation: There are a lot of conditions that cause hypertension. My study for this project is to verify if age is the major condition of hypertension. Even though the report says the risk of hypertension increases with age. If the null hypothesis is true, then we can conclude that age is the major condition of hypertension. If we reject the null hypothesis, then we continue to discover other relationships with hypertension.

This study is focusing on quantifying the uncertainty of different age groups and measuring how certain am I estimated number of age groups is the major condition to hypertension. I also want to make a best guess on a specific condition for hypertension(not necessarily from age groups but other factors)

Dataset: For this study I will use the dataset from https://ncdrisc.org/. The source that focuses on geographic data on hypertension. Also it focuses on other diseases related to hypertension. The databases of NCD-RisC are accessed against inclusion and exclusion criteria. Note: Other creditable data sources may be added accordingly throughout the study progress.

Methods: Since I am applying Hypothesis testing, these methods will be applied:

- Sampling and random sampling
- Hypothesis testing
- One-sample t-test
- Two-sample t-test
- ANOVA (k-groups)
- Multiple Hypotheses testing