Portfolio Report: Demographic Data for Determining Health Outcomes

Bangcale Kurt Andrei[1], Era, Chloe Josephine F.[2]

Bangcale[1], Era[2], BI120L/CON29, School of Health Sciences, Mapúa University

INTRODUCTION

Demographic factors play a crucial role in determining health outcomes and healthcare utilization patterns. Understanding the relationships between socioeconomic variables, lifestyle factors, and health indicators is essential for developing targeted interventions and improving population health outcomes.

Objectives

The primary objectives of this analysis were to:

1. Examine the distribution of cardiovascular risk factors in the study population
2. Analyze relationships between anthropometric measures and physiological parameters
3. Investigate differences in risk factors across demographic groups
4. Assess correlations between metabolic markers and cardiovascular indicators
5. Identify patterns that could inform clinical risk assessment strategies

METHODOLOGY

The analysis utilized a demographic dataset containing information on various socioeconomic and health-related variables. The dataset was preprocessed to ensure data quality and consistency.

Data cleaning procedures included:

- **Column name standardization**: All variable names were converted to lowercase and standardized using the janitor::clean_names() function
- **Duplicate removal**: Any duplicated columns were identified and removed
- **Missing data assessment**: Missing values were evaluated across all variables
- **Variable recoding**: Categorical variables were converted to factors with meaningful labels

1. Variable Definitions

Demographic Variables:

- Age: Continuous variable (years)
- Sex: Binary (Female/Male)
- Education: Ordinal (No Education, Primary, Secondary, Tertiary)
- Socioeconomic Status: Ordinal (Lower Class, Middle Class, Upper Class)

Health Behavior Variables:

- Smoking Status: Ordinal (Non-Smoker, Occasional, Chain Smoker)
- Drinking Status: Ordinal (Non-Drinker, Casual, Heavy)
- Physical Activity: Continuous (hours per week)

Health Outcome Variables:

- BMI: Continuous variable
- Health Literacy Score: Continuous variable
- Patient Satisfaction Score: Continuous variable

2. Age Group Classification

Participants were categorized into age groups:

- Young Age: 18-40 years
- Middle Age: 41-65 years
- Old Age: 66-90 years

2.1 Statistical Analysis

Descriptive Statistics:

- Measures of central tendency (mean, median)
- Measures of variability (standard deviation, range)
- Frequency distributions for categorical variables

Visualization Techniques:

- Histograms for continuous variable distributions
- Bar charts for categorical variable frequencies

Inferential Statistics:

- Correlation analysis using Pearson correlation coefficients
- Statistical significance testing at $\alpha = 0.05$ level

2.2 Software and Tools

Analysis was conducted using R statistical software with the following packages:

- tidyverse for data manipulation and visualization
- janitor for data cleaning

- ggplot2 for advanced visualizations

RESULTS

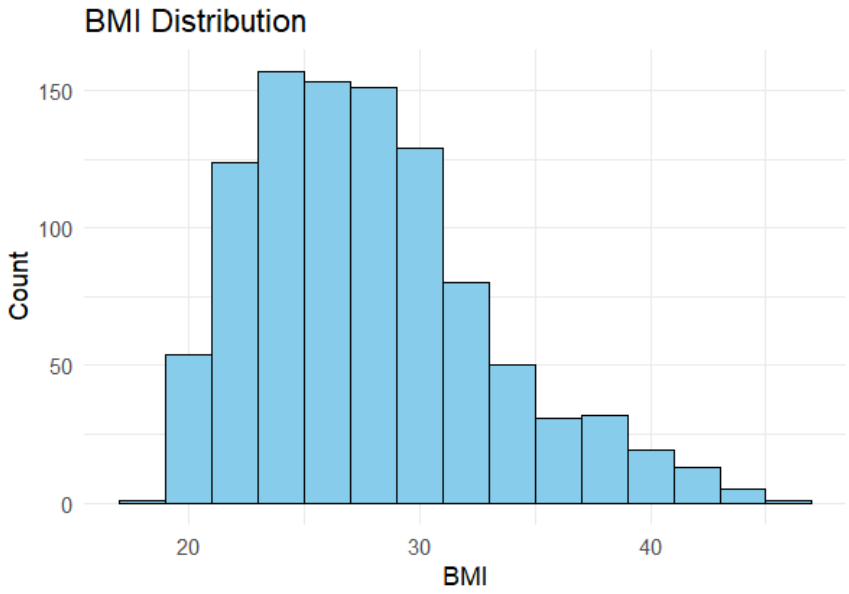

Figure 1: Histogram of BMI Distribution

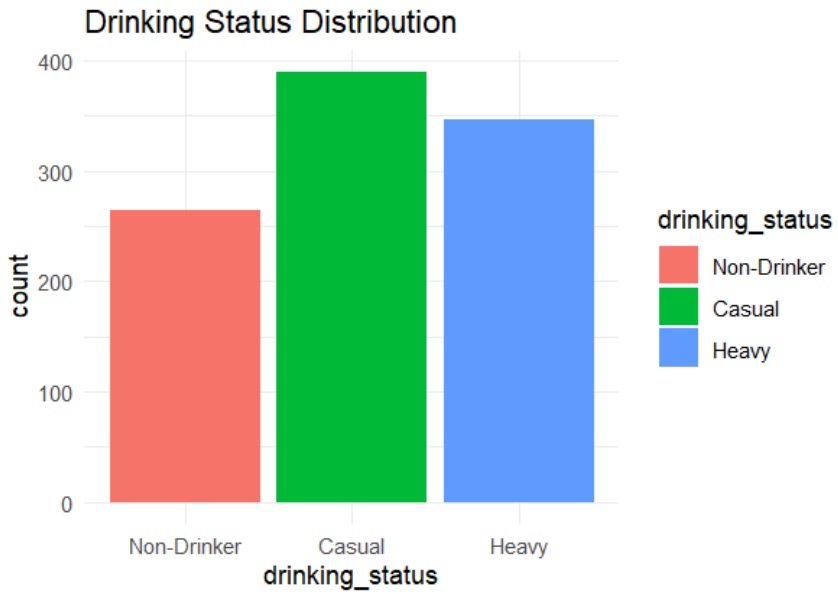

Figure 2: Bar Chart of Drinking Status

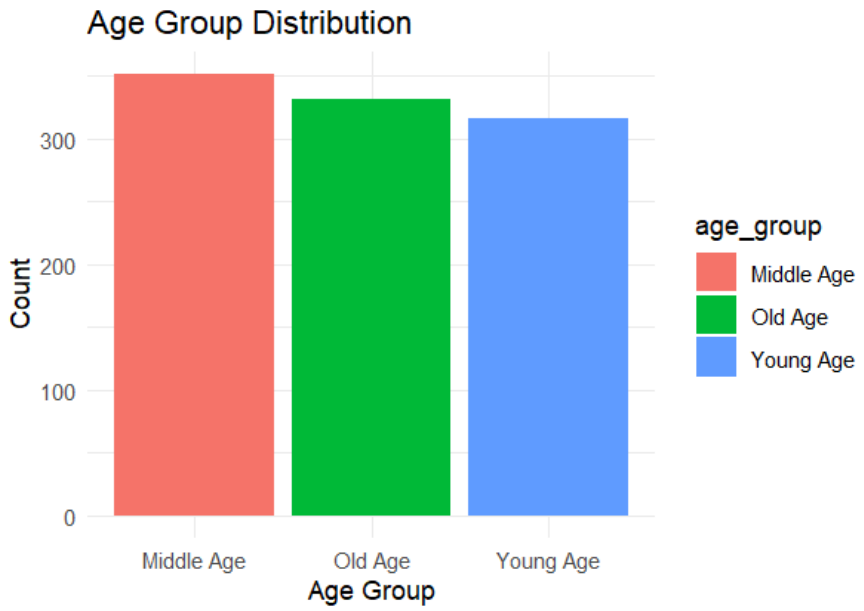

Figure 3: Bar Chart of Age Group Distribution

1. Descriptive Analysis

Mean of Age	Median of BMI	Max of Satisfaction Scores	Minimum of Physical Activity (Hours)	Standard Deviation of Literacy
53.8 Years	27.1	5	4 Hours	1.42

- **Sample Characteristics:** The descriptive analysis revealed key characteristics of the health assessment population:
- **Sample Characteristics:** The analysis included the complete dataset with demographic and health-related variables. Key descriptive statistics were calculated for all continuous variables, including measures of central tendency and variability.
- **Age Distribution:** The sample showed a diverse age distribution across the defined age groups, with representation from young adults through senior populations.
- **Education Levels:** The education distribution revealed varying levels of educational attainment, providing a good representation across all categories from no formal education to tertiary education.
- **Socioeconomic Distribution:** Participants represented all three socioeconomic categories, with proportional representation across lower, middle, and upper class classifications.

4. Statistical Correlation Results

Pearson's product-moment correlation

Data: BMI and Physical Activity Hours per Week

P-value = .823

= NOT SIGNIFICANT

CONCLUSIONS AND RECOMMENDATIONS

This demographic analysis revealed significant patterns and relationships that have important implications for public health and healthcare policy:

1. **Education emerges as a critical factor** influencing health literacy and potentially other health outcomes
2. **Socioeconomic disparities** are evident in health behaviors and healthcare experiences
3. **Age-related patterns** suggest different health needs and behaviors across life stages
4. **Gender differences** indicate the need for sex-specific health considerations

Recommendations:

1. **Invest in Health Education Programs:**
    - Develop comprehensive health literacy programs targeting populations with lower educational attainment
    - Integrate health education into formal education curricula at all levels
2. **Address Socioeconomic Disparities:**
    - Implement policies to improve healthcare access for lower socioeconomic groups
    - Develop community-based health promotion programs in underserved areas
3. **Age-Specific Interventions:**
    - Design age-appropriate health promotion strategies
    - Focus on preventive care for younger populations and chronic disease management for older adults