National Health and Nutrition Examination Survey (NHANES) - Analysis

**Introduction:**

The National Health and Nutrition Examination Survey (NHANES) is a continuous, cross-sectional survey conducted by the National Center for Health Statistics (NCHS) to assess the health and nutritional status of adults and children in the United States. The survey, which consists of interviews, physical examinations, and laboratory tests, collects a broad range of health data. This includes demographic information, dietary habits, health questions, medical and dental exams, and physiological measurements. The findings are used to determine the prevalence of major diseases, assess nutritional status, and establish national standards for measurements like height, weight, and blood pressure. NHANES data is widely used by government agencies, universities, researchers, clinicians, and industry to inform health policies and research.

**Dataset:** 2017-March 2020 Pre-pandemic (<https://wwwn.cdc.gov/nchs/nhanes/continuousnhanes/default.aspx?Cycle=2017-2020>)

**Selected Files:**

* Demographics data: P\_DEMO
* Laboratory data: P\_HDL, P\_TRIGLY, P\_TCHOL
* Examination data: P\_BPXO
* Dietary data: P\_DSQTOT

**Deliverable:** Analysis of basic health checks and identifying trends in laboratory, examination and dietary data based on gender and race.

Major **codes** used throughout the analysis:

|  |  |
| --- | --- |
| Parameter | Significance |
| SEQN | Respondent sequence number |
| RIAGENDR | Gender |
| RIDAGEYR | Age in years at screening |
| RIDRETH3 | Race/Hispanic origin w/ NH Asian |
| WTINTPRP | Full sample interview weight |
| DSQTPROT | Protein intake |
| DSQTCARB | Carbohydrate intake |
| DSQTSUGR | Sugar intake |
| DSQTFIBE | Dietary Fiber intake |
| DSQTTFAT | Total Fat intake |
| BPXOSY2 | Systolic blood pressure |
| BPXODI2 | Diastolic blood pressure |
| BPXOPLS2 | Pulse |
| LBDHDDSI | High Density Cholesterol |
| LBDLDLSI | Low Density Cholesterol |
| LBDTCSI | Total Cholesterol |

**Age Breakouts:** 55+, 55-64, 65-80

**Gender Labels:** 1: Male, 2: Female

**Workflow:**

* data preparation
* weighted mean calculation and segmentation.
* visualizations

It provides insights into how indicators of health differ by age (specifically, above 55 population), gender and race/ethnicity.

**Analysis Outcomes:**

Supplement Intake: Age

*Average carbohydrate and sugar intake increased with age, while average protein intake decreased as people got older. This suggests older adults may be consuming more foods high in carbs and sugar but less protein-rich foods compared to younger people.*

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Supplement Intake: Age and Gender

*While carb intake was almost balanced for both males and females of the same age, males had higher average protein intake. However, females consumed more sugar than males in the same age range.*

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Supplement Intake: Age and Race

*Non-Hispanic Asians have the highest average protein and fat intake. Carbohydrate intake is highest among non-Hispanic Asians, non-Hispanic Blacks, and Mexican Americans. Non-Hispanic Blacks have the highest sugar consumption, while Mexican Americans have the highest fiber intake.*

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Blood Pressure Parameters: Age

*Systolic and Diastolic blood pressure trends leveled off after age 55.*

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Blood Pressure Parameters: Age and Gender

*While males had higher average blood pressure than females overall, the gender gap did not widen significantly across the older age brackets.*

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Blood Pressure Parameters: Age and Race

*Highest blood pressure levels seen in non-Hispanic Blacks and lowest in non-Hispanic Asians.*

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Cholesterol Parameters: Age

*LDL levels peaked in the 55-64 age bracket before declining slightly in the older groups.*

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Cholesterol Parameters: Age and Gender

*Average LDL cholesterol levels were higher for females compared to males across age groups. The peak in the 55-64 age range was also higher in women.*

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Cholesterol Parameters: Age and Race

*The racial/ethnic groups with the highest average LDL cholesterol levels within age brackets were Other Hispanics, Mexican Americans, and Non-Hispanic Whites. Non-Hispanic Blacks lower mean LDL cholesterol overall, though levels still increased with age.*

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**Results Table:**

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**References:**

<https://wwwn.cdc.gov/nchs/nhanes/>

<https://matplotlib.org/stable/gallery/index.html>