# Analysis plan

**Background and Rationale/Unmet Need:**

This study aims to investigate the impact of sleep duration on BMI and blood pressure in adults. This study addresses the unmet need by focusing on the specific relationship between sleep duration, BMI, and blood pressure in a large and diverse adult population.

**Study Aims**

**Primary Study Aim**

The primary aim of this study is to examine the relationship between the sleep duration and BMI in adults.

**Secondary Study Aim**

The secondary aim of this study is to examine the relationship between the sleep duration and Blood Pressure in adults.

**Study Hypothesis**

**Primary Outcome**

Null Hypothesis (H0): There is no significant difference between sleep duration and BMI.

Alternative Hypothesis (H1): There is a significant difference between sleep

duration and BMI.

**Secondary Outcome**

Null Hypothesis (H0): There is no significant difference between sleep duration and Blood Pressure.

Alternative Hypothesis (H1): There is a significant difference between sleep

duration and Blood Pressure.

**Data Extraction and Analysis plan**

**Study Cohort Definitions**

**Inclusion Criteria**: Adults aged 18 and above.

**Data Criteria:** Individuals within the specified age range with available data on sleep duration, BMI, and blood pressure

**Analysis to perform**

**Descriptive Statistics:**

* Determine the blood pressure, BMI, and sleep duration by computing the means, standard deviations, minimum, and maximum values.
* Provide data visualisations, like box plots or histograms, to show how blood pressure, BMI, and sleep time are distributed.

**Statistical Analysis:**

**Hypothesis Testing:**

* Utilize suitable statistical tests (e.g., z tests, t-tests, or regression analysis) to test the hypotheses outlined in the study:
  + Null Hypothesis (H0): There is no significant difference between sleep duration and BMI, and Blood Pressure.
  + Alternative Hypothesis (H1): There is a significant difference between sleep duration and BMI, and Blood Pressure.