NHST and Bayesian Statistics Hypotheses

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Non-Directional Hypotheses

Null Hypothesis Significance Testing Approach

The null hypothesis predicts that the BMI of adults who are physically active will not differ from the BMI of adults who are physically inactive.

H_0: $BMI_{active} = BMI_{inactive}$

The alternative hypothesis predicts that the BMI of adults who are physically active will differ from the BMI of adults who are physically inactive.

H_1: $BMI_{active} \neq BMI_{inactive}$

Bayesian Approach

H_1 = the BMI of adults who are physically active does not differ from the BMI of adults who are inactive
H_2 = the BMI of adults who are physically active differs from the BMI of adults who are inactive

$P(D|H_1,X) << P(D|H_2,X)$

Directional Hypotheses

Null Hypothesis Significance Testing Approach

The null hypothesis predicts that the BMI of adults who are physically active will be greater than or equal to the BMI of adults who are physically inactive.

H_0: $BMI_{active} \geq BMI_{inactive}$

The alternative hypothesis predicts that the BMI of adults who are physically active will be less than the BMI of adults who are physically inactive.

H_1: $BMI_{active} < BMI_{inactive}$

Bayesian Approach

H_1 = the BMI of adults who are physically active is greater than or equal to the BMI of adults who are physically inactive
H_2 = the BMI of adults who are physically active is less than the BMI of adults who are physically inactive

$P(D|H_1,X) << P(D|H_2,X)$