

Chapter 8: One-sample hypothesis tests

Calories in school lunches. India's Mid-Day Meal scheme mandates that high schools that are part of this scheme must serve lunches that contain at least 700 calories and 20 grams of protein. Suppose a nutritionist believes that the true mean number of calories served at lunch at all high schools that are part of this scheme is less than 700 calories.

- Identify the parameter of interest.
- Specify the null and alternative hypotheses for testing this claim.
- Describe a Type I error in the words of the problem.
- Describe a Type II error in the words of the problem.

a. X = number of calories served at lunch at a high school part of the scheme India's Mid-Day Meal

μ = mean number of calories served at lunch at one of these schools
↓
parameter of interest

b. $H_0: \mu \geq 700$

$H_1: \mu < 700$

c. Type I error = Decide that $\mu < 700$ when this is not true.

d. Type II error = Decide that $\mu \geq 700$ when, in fact, $\mu < 700$.