

Introduction To Statistics

- I. Cross Section of Research
- II. Types of Variables
- III. Statistical Notation
- IV. Summation Notation

Cross Section of Research

- Formulate Idea
- Read the relevant research
- Make operational definitions
 - ◆ Observations & manipulations
 - ◆ Universal assent
- Collect Data
- Analyze Data
 - ◆ Descriptive Methods
 - ◆ Inferential Methods
- Reach Conclusions

Types of Variables

- Independent Variable (IV)
Variable the experimenter changes
- Dependent Variable (DV)
variable(s) the researcher measures
- Confounded Variables
variables that inadvertently change with the independent variable

Types of Variables

Quantitative (numerical)

Versus

Qualitative (non-numerical)

Types of Variables

Discrete Variables (countable)

Versus

Continuous Variables (measurable)

Types of Variables

Continuous Variables

Upper and Lower Real Limits

150 lbs on a scale that measures to the nearest pound

URL = 150.499999 . . .

LRL = 149.500000 . . .

Statistical Notation

Population (parameter)	Sample (statistic)
N = population size	n = sample size
μ = population mean	M = sample mean
σ = pop. standard deviation	s = sample std. dev.
ρ = pop. correlation	r = sample correlation

Summation Notation

$$\sum_{i=1}^n X_i$$

$X_1 = 3$
 $X_2 = 1$
 $X_3 = 7$
 $X_4 = 3$
 $X_5 = 2$

$$\sum_{i=1}^n = 16$$

Summation Notation

Remember your order of operations:
PEMDAS

Addition (summation) comes last

$\sum 4x$ vs. $4 \sum x$

$\sum xy$ vs. $\sum x \sum y$
