Sampling and Sampling Distributions

Population - group from which a sample is drawn.
Sample – small group of members selected from a population to represent the population.

City population: 150,000 people. Sample: 1500
30% of 1500 people like red cars.
Infer: I am 85% sure that 30% of 150,000 people like red cars.
Ex: What percentage of people in city of Seattle like red cars
Ex: Covid 19 Clinical Trial

Group 1: Asian - 120K
Group 2: MiddleEastern - 150K
Group 3: White - 170K

Sample:
2 (Group 1), 2 (Group 2), 2 (Group 3)

Sampling – method that allows researchers to infer (guess) information about a population based on the

results from sample without having to investigate about every individual

Benefits: Reduce cost, reduce workload, easier to obtain information

ATTENTION: Decide carefully on how to gather sample

Types of Sampling

Probability Sampling: based on the fact that every member of a population has a known and equal chance of being selected (Coin flip – 50/50 chance)

Non-probability sampling: involves non-random selection based on convenience.

Probability Sampling Types

Random Sampling: Equal chance, random selection, remove bias

Stratified Sampling: Dividing the population in group by certain characteristics, and get at least 1 member from each group

Non-Probability Sampling

Convenience Sampling – convenient to the researcher. More accessible.

ATTENTION: Not 100% true for entire population

Sampling distribution

If you were to repeat the process of taking multiple samples from the same population and calculate the same statistics (AVERAGE) from each sample, you will end up with a distribution of sample statistics

Central Limit Theorem

Critical for inferential statistics because it allows us to make inferences about population parameters (mean) based on sample tests