PSY 250

Sampling: Selecting Research Participants

Sampling

- Selecting a sample of participants from the population
  - Sample = subgroup of general population
- Generalize to:
- Population
  - Large group of interest to the researcher

Representative Sample

- Represents the population of interest
- E.g. I am interested in gorillas
- Is a captive population really representative of all gorillas
  - E.g. what about wild gorillas, rehabilitated gorillas, human-reared gorillas?

Representativeness

- How closely sample mirrors or resembles population
- Free of bias
  - Different characteristics than population
  - E.g. race, age, gender, IQ etc.
- Selection or Sampling Bias
  - Favors selection of some individuals over others
    - E.g. interviewing shoppers at Walmart Vs. Papa Joes or Whole Foods
    - Golf Club members – richer than average pop.

Populations

- Target Population
  - Group defined by the researcher's specific interests
  - Individuals usually share one characteristic
- Accessible Population
  - Small sample of target population that the researcher has access to

Why Sample?

- Practical reasons
- Economics
- Time
- Manageability and control

Probability Sampling

- Requires extensive knowledge of population
- Odds of selecting particular individual known
- Each individual equally likely to be selected
- Researcher must use unbiased method of selection
  - Random process – every outcome is equally likely

Probability Sampling

- Simple random
  - equal and independent probability of being chosen
  - Leaves selection to chance so COULD theoretically end up with distorted sample
  - Sampling with Replacement
    - Once individual is selected, returned to pool
  - Sampling without Replacement
    - Once individual selected, removed from pool
    - Ensures no individual appears more than once in single sample
    - Probability of being selected changes with each selection

Random Sampling

- Also called random selection
- Try to choose diverse group
- E.g. of all undergraduates – select from various course majors, age groups, gender, ethnicity, GPA etc.
- If we selected only Honors students would they be representative of all college students?

Random Sampling Procedure

- Define the population
- List all the members
- Use random process to select individuals from list
  - Pick numbers from hat
  - Random generator programs
  - Random number table

Probability Sampling

- Systematic
  - Select every *n*th participant from list containing total population, after random start
  - Begins like simple random, but no longer random after selection of first participant
  - *n* determined by dividing population size by desired sample size
  - Ensures high degree of representativeness but principle of independence is violated

Probability Sampling

- Stratified random
  - representation based on proportion in population
  - Identify specific subgroups (strata) to be included in sample
  - Select equal random samples from each of pre-identified subgroups, using simple random sampling procedures
  - Combine subgroups into one overall sample
  - Good technique for examining and comparing subgroups

Rochester Demographics

- White 20%
- Black 20%
- Asian 20%
- Multi-Racial 20%
- Hispanic 20%

- subgroup may get overrepresented in sample

Probability Sampling

- Proportionate Stratified Random Sampling
  - Identify set of subgroups
  - Determine what proportion of population corresponds to each subgroup
  - Obtain sample so that proportions in the sample exactly match proportions in overall population

Rochester 2010 Demographics

- White 86.8% 87
- Black 3.6% 3
- Asian 5.5% 6
- Multi-Racial 1.2% 1
- Other 0.2%
- Hispanic 2.7% 3

- Some sub-groups may be too small to analyze

Probability Sampling cont.

- Cluster
  - Randomly sample pre-existing clusters or groups
  - Concerns with independence of individual scores
- Multistage
  - form of cluster sampling
  - breaking down into further clusters

Probability Sampling cont.

- Combined-Strategy
  - Combine 2 or more sampling strategies
  - Divide districts into regions (stratified)
  - Then select classrooms from regions (cluster)
  - Optimizes chances that sample is representative

Non-probability Sampling

- Odds of selecting particular individual unknown b/c researcher doesn't know population size or members
- Researcher doesn't use unbiased or random method of selection

Non-probability Sampling

- Convenience
  - Practical
  - Availability and willingness to respond
  - Strong possibility of bias
- Haphazard
  - "hit or miss"
  - must consider sample characteristics
  - Landon vs. Roosevelt (1936)

Non-probability Sampling

- Purposive
  - based on certain characteristic
  - typical group of _____
- Self-Selected Samples

Non-probability Sampling cont.

- Quota
  - make up of population
  - Same goal as stratified random sampling
  - E.g. Take first 15 girls and 15 boys – after 15th boy take no more boys

Non-probability Sampling cont.

- Hidden Populations
  - Chain-referral methods
    - Snowball Sampling
      - Target group members provide names of others
    - Key Informant Sampling
      - Information from knowledgeable individuals
    - Targeted Sampling
      - Where do they congregate?
    - Respondent-driven Sampling
      - Incentives

Research Participants

- What has been used in past studies of this question?
  - Sample characteristics should be the same between your sample and the samples used by past studies in this area