Sampling Methods

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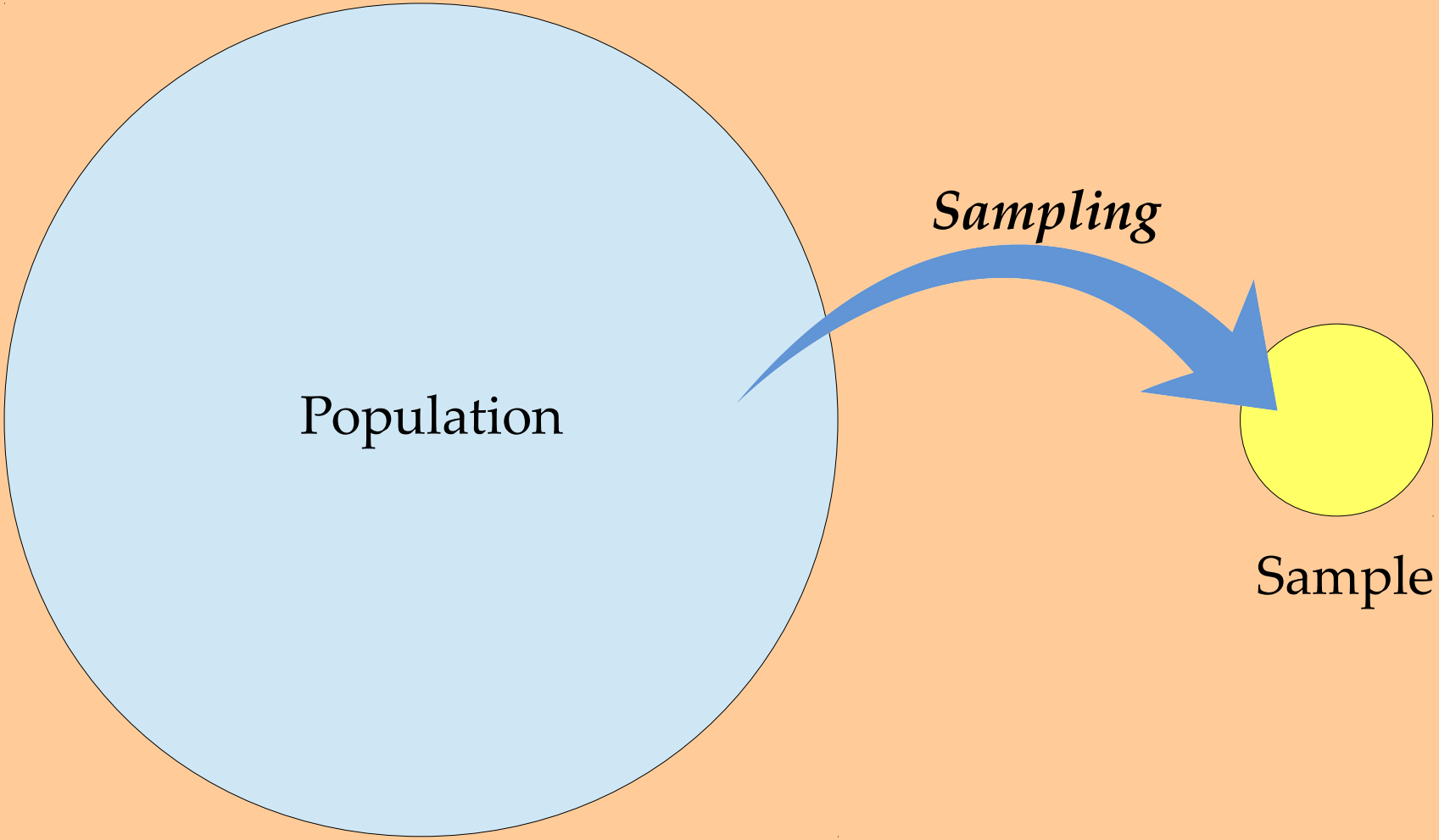
Outlines

- Probability Sampling
- Non-probability Sampling

Sampling

- What is sample?
- What is sampling?

Sample & Sampling



Sampling

- Divided (Trochim, 2006) into:
  - Probability
  - Non-probability

Probability Sampling

- Every subject has a chance to be selected.
- Random selection method.
- 5 Methods:
  1. Simple
  2. Stratified.
  3. Systematic.
  4. Cluster.
  5. Multistage.

1. Simple Random

Population N=1000

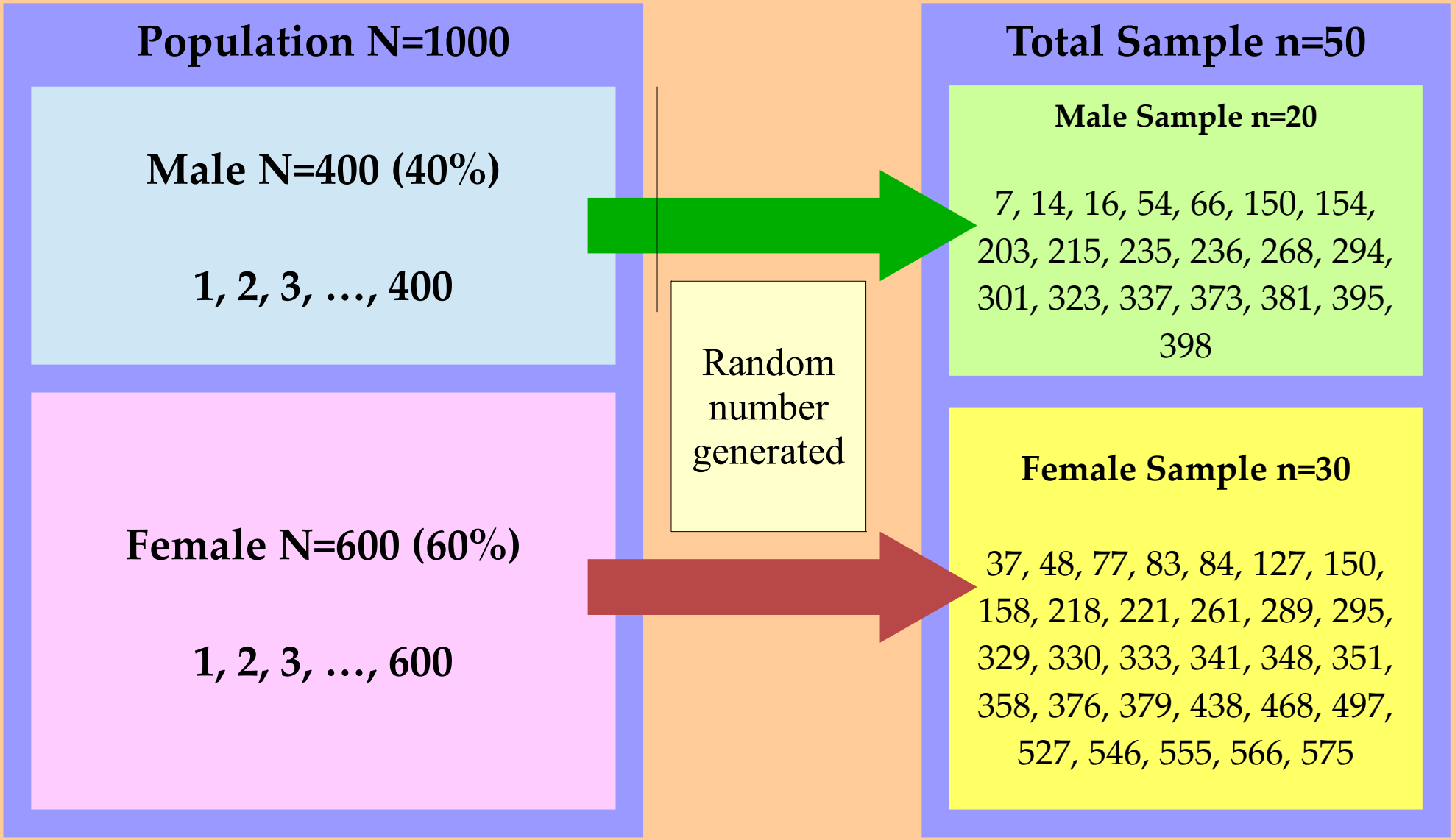
1
2
3
.
.
.
1000

Sample n=30

7, 17, 18, 48, 71, 109, 141,
165, 214, 219, 277, 279,
288, 440, 475, 483, 576,
660, 735, 763, 764, 780,
863, 883, 888, 914, 917,
927, 993, 996

30 random number between 1 – 1000 generated using computer e.g. `http://www.randomizer.org/`

2. Stratified random



3. Systematic Random

1. Interval = N/n = 100/20 = 5

2. Starting point = Random number between 1 – 5, e.g. 3

3. Then every interval of 5

Population N=100

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100

Sample n=20

3, 8, 13, 18, 23, 28, 33, 38, 43, 48, 53, 58, 63, 68, 73, 78, 83, 88, 93, 98

4. Cluster Sampling

- Cluster = Group of people
- Sampling Unit = Cluster e.g. House, Class, Ward etc. → Clusters to be sampled.
- Have to inflate n to adjust for cluster effect (Naing, 2011)

Inflated n = [1 + (cluster size – 1)*r*] x n

- *r* is correlation between subjects in a cluster → unknown, can assume r = 0.5

4. Cluster Sampling

Population N=300

1, 2, 3, … , 300

1. 50 houses in area

2. On average, 6 persons/house = cluster size

Sample n=30

Inflated n = [1+(6–1)0.5] x 30 = 105

n of house to sample = 105/6 = 17.5 ≈ 18 houses

House, N=50

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50

House, n=18

2, 7, 11, 12, 15, 18, 20, 22, 25, 26, 30, 31, 32, 33, 36, 38, 43, 44

5. Multistage

- Any combination of previous 4 methods.

Non-probability Sampling

- Random selection method not used.
- Selection based on preset criteria set by researcher.
- Could be biased, not representative of population.

Non-probability Sampling

- Among the methods:
  - Convenient:
    - Choose those easily available/sampled
    - e.g. my friends, friends of my friends, relatives, room mates, etc.
  - Purposive:
  - Choose those fulfilling criteria.
  - e.g. only those who come to clinic on Monday, handsome/cute persons only, etc.

References

1. Arifin, W. N. (2012). Random sampling and allocation using SPSS. Education in Medicine Journal 4(1), 129-143.
2. Trochim, W. M. K. (2006). Research methods knowledge base. Retrieved March 27, 2012, from http://www.socialresearchmethods.net.
3. Naing, N. N. (2011). A practical guide on determination of sample size in health sciences research. Kelantan: Pustaka Aman Press.