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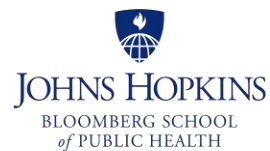
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Sampling Strategy

Binod Shrestha



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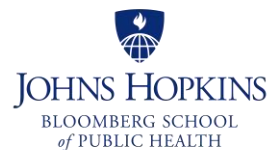
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SESSION OBJECTIVES

- Differences between sampling in qualitative and quantitative research
- Definitions of sampling terminology in quantitative research
- Principals of sampling
- Different types of sampling
- Concept of saturation point in qualitative research





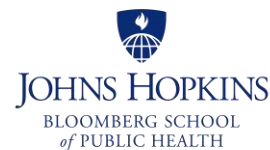
DIFFERENCES IN SAMPLING IN QUANTITATIVE AND QUALITATIVE RESEARCH

Quantitative research

- Representative
- Make inferences
- Predetermined sample size
- Large sample sizes
- Random samples

Qualitative research

- Information rich respondent
- Gain in-depth knowledge
- Collect until you 'understand' things
- Repeat visits





SAMPLING IN QUANTITATIVE RESEARCH

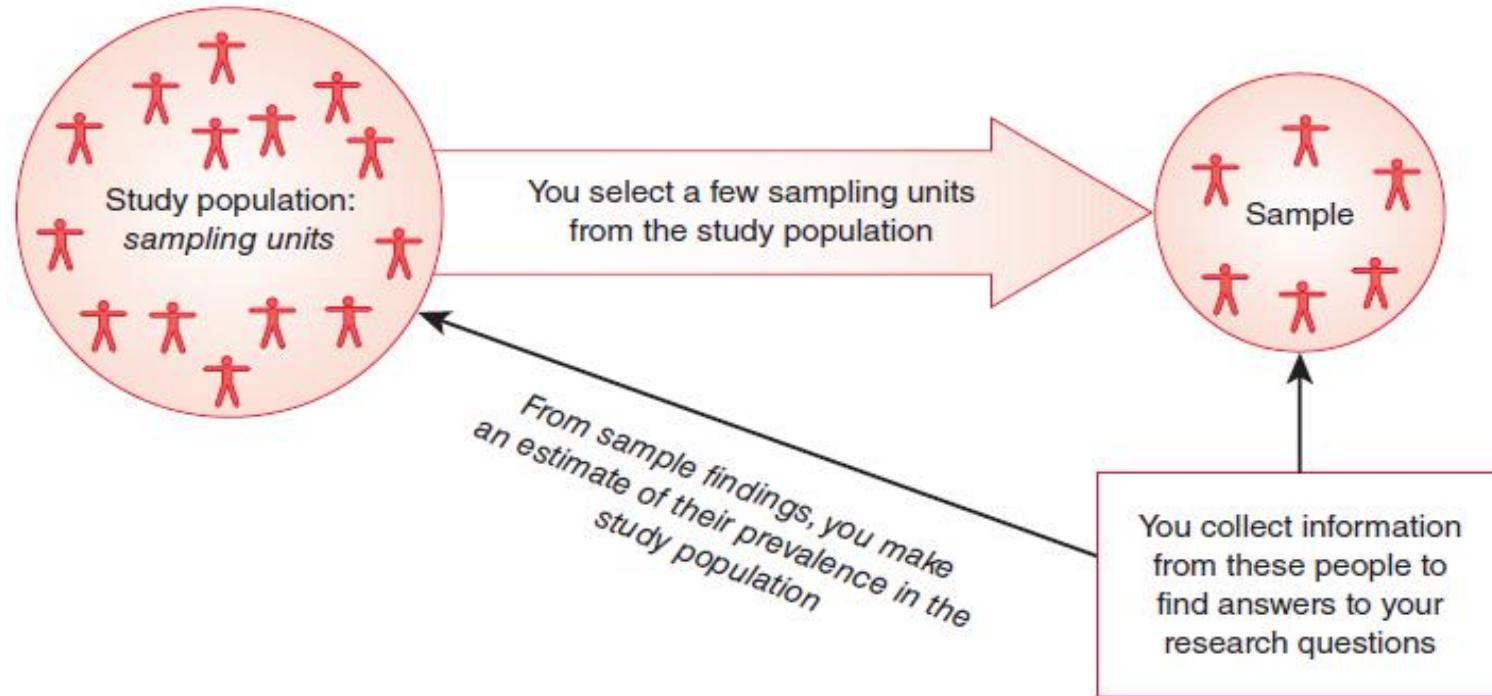
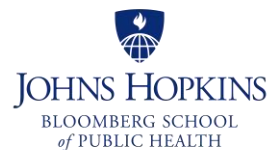


Figure 12.1 The concept of sampling



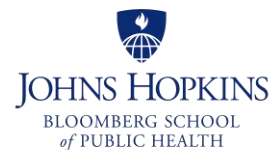


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SAMPLING IN QUANTITATIVE RESEARCH

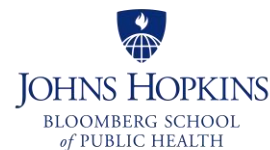
Sampling is the process of selecting a few (a sample) from a bigger group (the sampling population) to become the basis for predicting an outcome for the bigger group.





SAMPLING TERMINOLOGY

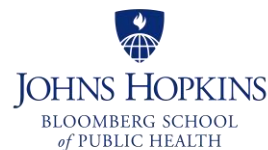
- **Study population** - the group from where the sample is taken
- **Sample size** - the number of items/people in the sample
- **Sampling Design** - the way you select sample
- **Sampling unit** – each items/people that becomes basis for selecting sample
- **Sampling frame** - list of each item/person in the study population
- **Sample statistics** – findings based on information obtained from sample





PRINCIPLES OF SAMPLING

1. There will be a difference between the sample statistics and the true population statistics, which is random error attributable to the selection of the units in the sample.
2. The greater the sample size, the more accurate the estimate of the true population mean.
3. The greater the difference in the variable under study in a population, for a given sample size, the greater the difference between the sample statistics and the true population mean.



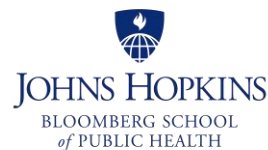


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RANDOM/PROBABILITY SAMPLING

- Simple random sampling
- Stratified random sampling
- Cluster sampling
- Systematic sampling





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SIMPLE RANDOM SAMPLING

- Small population
- Have list of all elements in the population
- Select each individual entirely by chance

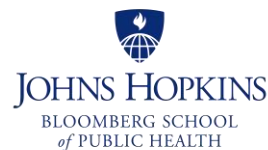




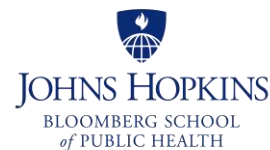
FIGURE 12.4 THE PROCEDURE FOR SELECTING A SIMPLE RANDOM SAMPLE

Step 1 Identify by a number all elements or sampling units in the population.

Step 2 Decide on the sample size n .

Step 3 Select n using the fishbowl draw, a table of random numbers or a computer program.

Figure 12.4 The procedure for selecting a simple random sample



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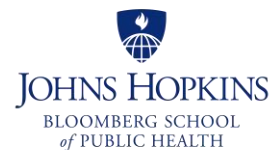


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STRATIFIED RANDOM SAMPLING

- Heterogeneous population with respect to characteristics of interest
- Stratify population in such a way that population within each stratum is homogeneous
- Eg: stratify population by gender





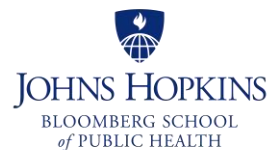
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- Step 1 Identify all elements or sampling units in the sampling population.
- Step 2 Decide upon the different strata (k) into which you want to stratify the population.
- Step 3 Place each element into the appropriate stratum.
- Step 4 Number every element in each stratum separately.
- Step 5 Decide the total sample size (n).
- Step 6 Decide whether you want to select proportionate or disproportionate stratified sampling and follow the steps below.

Disproportionate stratified sampling	Proportionate stratified sampling
<p>Step 7 Determine the number of elements to be selected from each stratum</p> $= \frac{\text{sample size } (n)}{\text{no. of strata } (k)}$	<p>Step 7 Determine the proportion of each stratum in the study population (p)</p> $= \frac{\text{elements in each stratum}}{\text{total population size}}$
<p>Step 8 Select the required number of elements from each stratum by simple random sampling</p>	<p>Step 8 Determine the number of elements to be selected from each stratum = (sample size) \times p</p> <p>Step 9 Select the required number of elements from each stratum by simple random sampling</p>
<p>As this method does not take the size of the stratum into consideration in the selection of the sample, it is called disproportionate stratified sampling.</p>	<p>As the sample selected is in proportion to the size of each stratum in the population, this method is called proportionate stratified sampling.</p>

Figure 12.5 The procedure for selecting a stratified sample



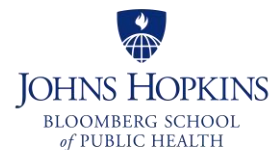


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CLUSTER SAMPLING

- Useful in sampling large population
- Difficult and expensive to list each element in population
- Divide population into various clusters
- Can be single or multiple clustering



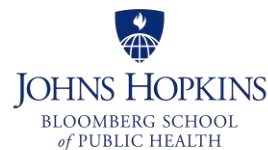


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PROCEDURE FOR CLUSTER SAMPLING

- Divide the sampling population into groups (based on easily identifiable characteristics) called cluster
- Select clusters randomly
- Decide on sample size
- Select elements within each cluster using SRS technique





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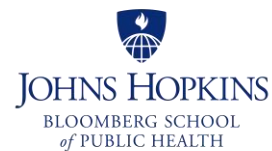
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SYSTEMATIC SAMPLING

- Sampling frame divided into intervals
- Individuals selected at regular intervals



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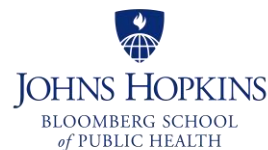
PROCEDURE FOR SYSTEMATIC SAMPLE

- Step 1 Prepare a list of all the elements in the study population (N).
- Step 2 Decide on the sample size (n).
- Step 3 Determine the *width of the interval* (k)

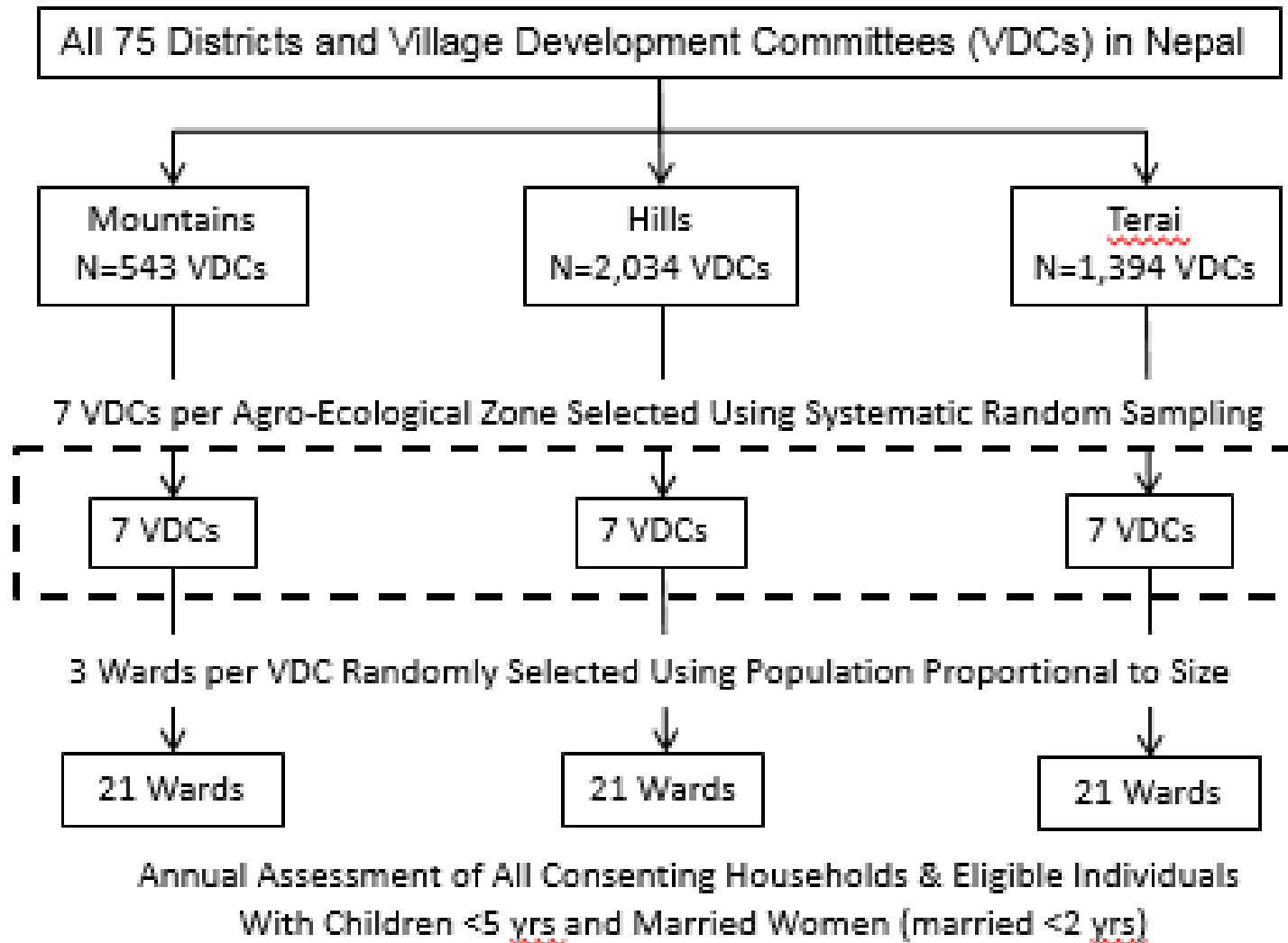
$$k = \frac{\text{total population } (N)}{\text{sample size } (n)}$$

- Step 4 Using SRS, select an element from the first interval (i th position).
- Step 5 Select the i th element from each subsequent interval.

Figure 12.8 The procedure for selecting a systematic sample



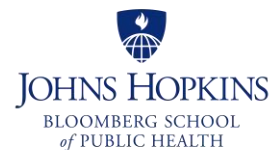
SAMPLE SELECTION IN POSHAN COMMUNITY STUDIES





NON-RANDOM/ NON-PROBABILITY SAMPLING DESIGNS

- Quota sampling
- Purposive sampling
- Expert sampling
- Snowball sampling



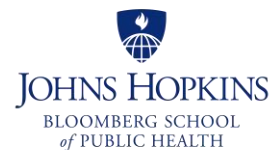


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QUOTA SAMPLING

- Group population based on some visible characteristics such as gender or race
- Select sample convenient to you
- Sample until required quota is filled



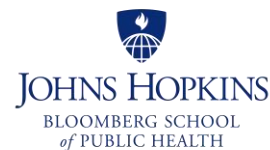


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PURPOSIVE SAMPLING

- Subjects selected by choice of investigator
- Researcher may have specific group in mind such as high level of business executives
- It may not be possible to specify population
- Select individuals who are knowledgeable and willing to provide info that you need



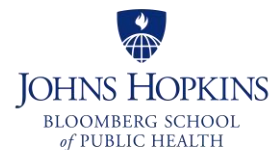


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EXPERT SAMPLING

- Similar to purposive sampling
- Respondents are known experts in the field of your interest
- When you want high degree of knowledge about study



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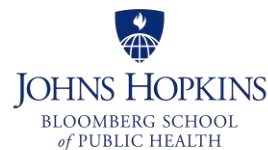


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SNOWBALL SAMPLING

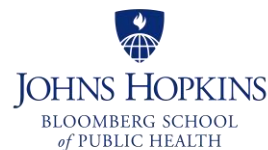
- Selecting sample using network
- Useful when you want to reach population that are hard to find or are inaccessible
- Eg-you are studying risk behavior among intravenous drug users
- Survey on street children
- Identify one or two potential participants in a population
- You ask participants to nominate other users to be interviewed





CONCEPT OF SATURATION POINT IN QUALITATIVE RESEARCH

- Qualitative research uses non-probability sampling
- No predetermined number of people
- Sampling until saturation point is reached (no new information collected)
- Guided by judgment as to who is likely to provide the 'best' information.



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