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## **UNIT 4 RESEARCH METHODS IN APPLIED SOCIAL PSYCHOLOGY II\***

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### **4.0 OBJECTIVES**

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With the help of this unit, you will be able to:

- Explain the meaning and characteristics of sampling techniques;
- Discuss the different methods or techniques of sampling; and
- Elaborate upon the ethical issues involved in applied social psychology research.

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## 4.1 INTRODUCTION

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In this unit, you will be introduced about the meaning and characteristics of sampling methods which are used by applied social psychologist in order to select participants from the target population. The present unit will also deal with different techniques of sampling methods. At the end of this unit, you will be explained about the various ethical issues involved in applied social psychology research.

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## 4.2 SAMPLING AND SAMPLING TECHNIQUES

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Sampling is very useful in research. It refers to selection of certain individuals or a subset of population to make statistical inferences from them and then generalise it on the population. It helps in determining the accuracy of the research or survey. If there is a mistake in the sample then it has a direct implication on the result. We can use various techniques to help us gather a sample based on the situation and need of the researcher. For the purpose of quantified research, sampling techniques are used extensively and their importance cannot be downplayed in any field of research. It is of great importance for our day-to-day activities. For example, when we buy fruit or vegetables we do not look at each individual piece, we just pick and examine a few items and form an idea about the whole lot. The physicians make inference about a patient's blood through examination of a single drop. Samples are devices for learning about large masses by observing a few individuals. Sampling is also widely used in the field of education and the census like the case of population count. For investigating a sample, we select a small number of units from the entire domain and think of them as being representative. Then we study them in depth and reach to the conclusions that are generalized for the entire domain. A sample investigation does not study all unit like a census investigation, it only chooses a few units on certain predefined basis. To illustrate this let us suppose a researcher wants to find out the percentage of expense on food by university students. Now, it is not feasible for him/her to survey the entire thousands of students, rather he may choose a representative sample of 500 students and then collect the figure from them. This figure can then be generalized for the entire university. If the data is collected diligently and the selection of students is representative then the reliability of the entire set will be very high.

### 4.2.1 Characteristics of Sampling Technique

The significance and value of the sampling techniques are brought forward by the following characteristics:

- 1) **Cost & Time:** It is highly cost effective and efficient thereby takes less time to make statistical inferences.
- 2) **Reliability:** If we choose the sample units carefully and the matter surveyed is not diverse in character then the results derived from the sample should have the same reliability as the population survey.
- 3) **In-depth Study:** Due to the fact that the number of units in a sample are relatively small, they can be studied in depth and observed from various angles and viewpoints.
- 4) **Scientific Approach:** The sampling technique follows a scientific approach as the results garnered from a particular set of units can be verified and applied to other set of units. The deviation from the norm can be determined by taking random samples.
- 5) **Suitability:** Maximum number of researches and surveys use a sampling technique because whenever the matter is not diverse in nature; the study of a small number of units is enough. This is applicable to most situations.

### Self Assessment Questions (SAQ I)

Answer the following questions in one or two lines:

1) Explain the meaning of sampling.

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2) Give any one characteristics of sampling.

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3) How is the method of sampling a scientific approach?

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4) Discuss the suitability of sampling techniques.

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### 4.3 METHODS/TECHNIQUES OF SAMPLING

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There can be many methods to derive a sample from a given data. The research problem, its scope and nature will determine the method used by the researcher but there must be a careful consideration given to the choice.

The sampling techniques can be broadly categorized into two:

- Probability Sampling
- Non- Probability Sampling

The fact that differentiates both (Probability and non probability sampling) is whether the sample is randomly selected or not. In case of a random sample each element or unit has an equal chance to be chosen or selected for the study.

#### 4.3.1 Probability Sampling

It is a sampling technique in which each element of the population has an equal probability or chance of selection and this is because of randomization and hence it is also known as random sampling. This method provides a guarantee that the process is without bias and completely randomized. The simplest example of this would be to list the names of all individuals in the target population on separate chits of paper and then to draw the papers one by one from the total, till the sample size is met. Due to this randomized selection the results from the statistical methods are highly accurate. Also, by eliminating the sample bias and by being representative this method is also used to estimate the population parameters. It has the following types:

#### 4.3.1.1 Simple Random Sampling

Here each unit or element or individual from the population gets an equal opportunity to get selected. It is applied when the researcher does not have knowledge about the target population beforehand. To illustrate: If we were to choose 25 students from a class of 60 then each has an equal probability of  $1/60$  of getting selected. From all the ways of choosing the samples, random sampling technique is used the most; and is widely considered as the best for sample selection. This technique gives every unit an equal probability of getting selected and this selection is free from any kind of personal bias or preference of the researcher. No unit is chosen on the basis of personal likes or whims of the researcher and the entire process is based on chance giving equal opportunity to each unit.

**Random sampling is done through the following methods:**

- i) *Lottery Method:* It is the easiest way of choosing the sample. Each unit is assigned a particular number and these numbers are then written on a piece of paper and put in a box. Then a neutral person, who is blindfolded, is made to pullout the required number of units for the sample from the box. Here the sample is being chosen by simple chance and there is no favour or partiality involved. It is also important to ensure that the sheets of paper that are used should be of equal size and quality.
- ii) *Using the rotating drum:* This process is similar to the lottery method but with a slight modification. Here the units are itemized into lists and divided into categories from say 0 to 5. Then the same categories 0-5 are printed on pieces of wood or tin etc.(of same size) and placed in a drum. This drum is then rotated and the required number of the pieces is drawn. Now if we draw 5 zeroes 10 fives and 20 twos then we pick 5 units from the zero list 10 units from five list and 20 units from the twos list respectively.
- iii) *Selection based on a Sequential List:* This process involves maintaining the units in alphabetical, numerical or geographical sequence. In this procedure units are broken up in numerical, alphabetical or geographical Sequence. So for a numerical selection one can choose units that fall in multiples of 3, for alphabetical selection we can choose all the names that begin with vowels, etc. Precautions to be that need considered while choosing sample is That while conducting a random sample, the researcher must consider that the sample represents the entire population and the number of units selected are sufficient.

Following should be considered while choosing a random sample:

- The researcher should be aware of the entire variation of population from which s/he wants to select his/her sample. s/he should be aware of the main features of the field and its scope with the number of units in the population, so as to make a fair selection.
- The various items of a population must be similar and have common characteristics (homogeneous). If they differ too much then the sample will not be representative.
- The units of the field should not be dependent or linked otherwise it will not be possible for a random selection to take place.

#### 4.3.1.2 Stratified Sampling

When the population is divided into subgroups called *strata* formed in a way that the units within the group share common characteristics with each other but are heterogeneous with other subgroups, after which units are randomly chosen from each stratum, it is called stratified sampling. The researcher needs to have knowledge of the population beforehand so that s/he can form subgroups.

This technique uses both deliberate and random sampling. Firstly, we divide the entire population into subsets based on their homogeneous character, then using random sampling we choose elements from these subsets. Thus, this is a mixed sampling technique. This technique can be applied when the population can be divided into subgroups based on

common characteristics. This stratification is made in accordance to the special qualities of a group and from these strata units are randomly selected. For example, if a researcher wants to collect the data of the distribution of expenses of all residents in a city, s/he can divide the population on the basis of their profession and then choose some individuals or units randomly from these subgroups.

**Process of Stratifying:** The stratification of the total population or division of data must be done with utmost care as the success of this technique is based on successful stratification. Below mentioned points should be considered for the same:

- i) The researcher should have an in-depth information about all units in the data and should be able to identify the common characteristics to bunch them into subgroups that are different from each other.
- ii) Each stratum should be large enough to conduct random sampling.
- iii) While dividing them into subgroups it must be considered that each stratum is related to the domain in a similar way though being homogeneous themselves.
- iv) The number of units chosen from each subgroup for the survey, through random sampling, must be in the same proportion as the subgroup is to the entire population. For e.g if the total population is 10,000 out of which, the businessmen are 30% then the number of units chosen from the subgroup of businessmen should be 30% of all the units picked by random sampling. If the researcher observes the above mentioned precaution then s/he can achieve great results from this method as it has the qualities of both deliberate and random sampling.

#### 4.3.1.3 Cluster Sampling

When the total population is bifurcated into clusters or sections and then sections are chosen randomly, it is called cluster sampling. All the units or participants in a given cluster are surveyed. These clusters can be determined on the basis of age, gender, geographic presence, etc. Cluster sampling is performed using following methods:

- Single Stage Cluster Sampling: We choose the whole section for sampling.
- Two Stage Cluster Sampling: Firstly the section is randomly chosen and then the elements are selected randomly for sampling.

#### 4.3.1.4 Systematic Sampling

In this type of sampling, we choose the elements systematically and not randomly with the exception of the first element. There is a regular interval in the population at which these elements are chosen. All these elements are sequenced first wherein each of them gets an equal probability of being chosen.

#### 4.3.1.5 Multi-Stage Sampling

It combines two or more methods that have been explained above. In this type of sampling the total population is split up into various clusters and these are further split and put together in multiple subgroups or strata based on common characteristics. Then the researcher can randomly choose a singular cluster or multiple clusters from each stratum and this process will go on till the cluster cannot be fragmented any further. For example, the researcher may split the population of a country on the basis of their states, districts, urban vs rural and the homogeneous areas can be joined to form a stratum. Yet, the researchers don't favour this sampling technique to a great extent. The elements are selected at random at various stages. For example, if one needs to find the yield per hectare of land in Maharashtra, s/he will first do a random selection of certain number of districts, say 5, and then s/he will randomly choose a certain number of villages in a district, say 10. After that s/he will randomly pick a certain number acres of fields in each village, say 5. Hence, s/he will have to examine 250 acres of land, spread over 10 villages in 5 districts spread over entire Maharashtra. This

number can vary as per the suggestions given by experts. This can also be explained by the below mentioned table:

### **Entire Data:**

Maharashtra

Districts                      Stage 1

Villages                        Stage 2

Acres of land                Stage 3

### **4.3.2 Non- Probability Sampling**

It is the sampling technique that does not depend on randomization. It banks upon the ability of the researcher to choose the elements of a sample. The result from this technique can have a bias thereby making it difficult for all elements or units of population to have an equal representation. It is also known as non-random sampling. It is the sampling technique where each member of the population does not have an equal chance to get selected. Because of this we can assume that the sample does not completely represent the target population. There is also a possibility that the individuals were chosen deliberately by the researcher to take part in the study. This method is generally applied for qualitative research, case studies, pilot studies and for developing hypotheses. Non probability sampling method is usually used in studies that do not have an interest in the parameters of the total population. This technique is preferred by some researchers because it is easy, quick and cheap.

Below mentioned are its types:

#### **4.3.2.1 Convenience Sampling**

In this sampling technique the elements or items of the study are selected as per the convenience of the investigator. There is no endeavor to collect information as per a plan or process. This is a technique which is used by tourists while travelling. They interact with a few people that they meet, transact with them and based on this they generate a perception and generalize this to the entire population of the country or state this approach has zero scientific credibility and is termed as a "hit or miss method". This is why some of the travelogue written by such travellers are extreme.

In a convenience selection a researcher chooses its sample on the basis of availability and uses it when the sample availability turns out to be costly and rare.

#### **4.3.2.2 Purposive Sampling**

It is also called deliberate sampling. This method allows the investigator to choose the sample as per his/her whims with complete freedom. Some items are chosen from the entire data and then studied. The investigator is absolutely free to choose any item that s/ he feels or as per his/her judgment will be able to, represent the complete data or total population. This simple technique of sampling is used by the investigator when the data is not diverse and s/he has knowledge of various facets of the problem. This method does not point to a random choice even though it is deliberate; on the contrary, it signifies the elements that represent the entire population will be selected.

#### **4.3.2.4 Referral /Snowball Sampling**

This method of sampling is used by the researcher when s/he is completely unaware about the population, s/he then picks one element or individual and asks him/her for reference or recommendation of other individuals whose characteristics s/he may describe to suit the need of the sample. This is called as a snowball technique because the size of the sample constantly grows as new referrals keep adding.

### Self Assessment Questions (SAQ II)

Fill in the following blanks:

- 1) ..... method of sampling is used by the researcher when s/he is completely unaware about the population.
- 2) ..... sampling technique does not depend on randomization.
- 3) In ..... method, each unit is assigned a particular number and these numbers are then written on a piece of paper and put in a box.
- 4) In ..... sampling, we choose the elements systematically and not randomly with the exception of the first element.

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## 4.4 ETHICAL ISSUES IN APPLIED SOCIAL PSYCHOLOGY RESEARCH

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The research conducted in the field of applied social psychology not only helps in resolving issues and developing intervention strategies, it also helps in testing theories as well as developing new theories and applications. However, there are certain ethical issues that need to be taken care while conducting such researches. They can be pointed out as follows:

- **Informed Consent:** It is the duty of the researcher to inform the participants about whatever experiment or test will be administered upon them and they can carry upon the research only if the participants give their consent after getting the detailed information.
- **Debrief:** It is a process which is done after the experiment or research has been conducted upon participants. The researcher conducts a structured or semi structured interview and discusses the details of the research as well as gives the participants an opportunity to ask questions from them.
- **Protection of Participants:** The security and safety are the prior concern of a researcher. No personal harm or violation of the rights of the participants should take place.
- **Deception:** The researcher should clearly specify the method, investigation, analysis and interpretation of research. No information or method can be deceived from the participants.
- **Confidentiality:** The personal information and other details of the participants should be kept completely confidential and can not be disclosed, unless it involves any legal issues.

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## 4.5 LET US SUM UP

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It can be summed up from the above discussion that, sampling is very useful in research. It helps in determining the accuracy of the research or survey. If there is a mistake in selection of the sample then it has a direct implication on the result. We can use various techniques to help us gather a sample based on the situation and need of the researcher. Later part of the unit discussed about the characteristics and meaning of sampling techniques. The unit also discussed about the different techniques of sampling. The various ethical issues were discussed at the end to give you an idea of the concerns that a researcher should be aware of, even before conducting such researches.

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## 4.6 UNIT END QUESTIONS

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- 1) Describe the various characteristics of sampling techniques.

- 2) Explain the different types of probability sampling.
- 3) Discuss the various types of non-probability sampling.
- 4) Write a short note on the ethical issues related to the field of applied social psychology research.

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## 4.7 ANSWERS TO SELF ASSESSMENT QUESTIONS

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### SAQ I

- 1) Sampling helps in determining the accuracy of the research or survey.
- 2) Due to the fact that the number of units in a sample are relatively small, they can be studied in depth and observed from various angles and viewpoints.
- 3) The sampling technique follows as scientific approach as the results garnered from a particular set of units can be verified and applied to other set of units.
- 4) Sampling method is used by maximum number of researches and surveys because whenever the matter is not diverse in nature; the study of a small number of units is enough. This is applicable to most situations.

### SAQ II

- 1) Snowball sampling
- 2) Non probability
- 3) Lottery method
- 4) Systematic sampling

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## 4.8 GLOSSARY

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**Probability Sampling :** It is a sampling technique in which each element of the population has an equal probability of selection and this is because of randomization and hence it is also known as random sampling.

**Simple Random Sampling:** Here each unit or element or individual from the population gets an equal opportunity to get selected.

**Stratified Sampling:** A strata formed in a way that the units within the group share common characteristics with each other but are heterogeneous with other subgroups, after which units are randomly chosen from each stratum.

**Cluster Sampling:** When the total population is bifurcated into clusters or sections and then sections are chosen randomly, it is called cluster sampling.

**Systematic Sampling:** In this type of sampling, we choose the elements systematically and not randomly with the exception of the first element.

**Multi-Stage Sampling:** It combines two or more methods of sampling.

**Referral /Snowball Sampling:** When he/she is completely unaware about the population, he then picks one element or individual and asks him for reference or recommendation of other individuals whose characteristics he may describe to suit the need of the sample.

**Non-Probability Sampling:** It is the sampling technique that does not depend on randomization. It banks upon the ability of the researcher choose the elements of a sample.



**Purposive Sampling:** It signifies that only the elements that represent the entire population will be selected.

**Quota Sampling:** In this method the data is divided equally amongst the investigators and each of them is required to pick a certain number of items from his subgroup to form the sample. Convenience Sampling In this sampling technique the elements or items of the study are selected as per the convenience of the investigator.

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## 4.9 SUGGESTED READINGS AND REFERENCES

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