Lec. 9

Biostatistics

Biostatistics: is the branch of statistics responsible for the proper interpretation of scientific data generated in the biology, public health and other health sciences (i.e., the biomedical sciences).

Purpose of Statistics:

- Assemble, Organize and Analyze Data
- Draw Conclusions about Data
- Form Predications

Variable: characteristic which varies from one person to the other.

Data: are characteristics or information, usually numerical, that are collected through observation.

Types of data

Depending on the nature of the **variable, data is classified into two categories:**

1) Qualitative data: when the data is collected on the basis of attributes **or qualities like gender, malocclusion, cavity types etc., it is called qualitative data.**

2) Quantitative data: when the data is collected through measurement**, like arch length, arch width, fluoride concentration in water supply etc., it is called quantitative data which can be classified into** two kinds:

a. Discrete (counted): when the variable take only fixed values like whole numbers e.g. the DMFT.

b. Continuous (measured): if the variable can take any value in a given range, decimal or fractional like arch length, mesiodistal width of the erupted teeth.

The main source of data are:

1. Primary source: the data is obtained by the investigator himself.

2. **Secondary source: the data is already recorded is utilized to serve** the purpose of the study.

Methods of primary data collection:

(a) Direct personal (face to face) interview
In this method, there is a face-to-face contact with the persons from whom the information is to be obtained. The advantage of this method is that all information can be collected accurately and any ambiguity can be clarified

(b) Oral health examination.
When information is needed on the oral diseases, this method provides more valid (useful) information than health interviews. It is conducted by dentists, technicians, and the investigators.

(c) Questionnaire: In this method, a list of the questions relating to the survey - known as questionnaire-is prepared. This method is easy to adopt when a wide geographic area is to be covered. It is relatively cheap and fast. The questions should be short, easy to understand. There should be no ambiguity while answering the questions. As far as possible, the questions should be close-ended i.e., objective multiple choice questions.

• **Population** is the group of all individuals who are the focus of the investigation. For example if it is decided to get the prevalence of dental caries in school children, then all children of the school form the population.
If the information is obtained from each individual in the population, this may be not feasible always because of time, cost, and personnel required to conduct this investigation. Thus we will use sample.
Sample: is a portion of the population actually available for the investigation.