

Bio Statistic:-

Bio statistic relates to the study of defects, injuries, diseases, efficiency of drugs , vital events like death, birth. Bio statistics is a collection of statistical tools and techniques that are used to convert data into meaningful information in the field of medical and health/bio logical science.

Bio Statistic also help us answer the following questions:-

- What is the important cause of specific diseases?
- What is the leading cause of death?
- Whether a specific disease is rising and falling in prevalence?
- What age group, place area, social groups is affected the most?
- Which medicine treatments plan is more effective?
- Age, sex composition of population in a certain community?

Learning the methods and tools of bio statistics, the clinical researcher, medical student and public health officer able to understand the basic method of collecting observations applications of statistical methods in his clinical research and practice for better health care management system.

Applications of Bio statistics:-

- In anatomy physiology:-

Human characteristics like height, weight, blood pressure are studied in

The medical discipline of anatomy and physiology. Statistical methods are used to find the differences in mean BP, mean height, mean weight of normal person of two places of two different periods. The relationship between age and BP is best studied by statistics.

- In medicine:-

Statistics has an ever growing role in the field of medicine to test the

effectiveness of difference medicine treatments methods. It helps to find the association between two attributes like cancer and smoking.

- In hospital management:-

The hospital management formulates the policy and makes the

Planning for future like how many doctors, nurses and premedical staff needed.

- In bio medical research:-

Information (data) is an essential features of bio medical/

clinical research. Incomplete partial and false information can badly affect the result and research finding. Statistical method helps the clinical researcher in collecting valid and reliable data also helps in estimating population parameter on the basis of sample observation and to make valid conclusion using statistical tests.

- In medical lab:-

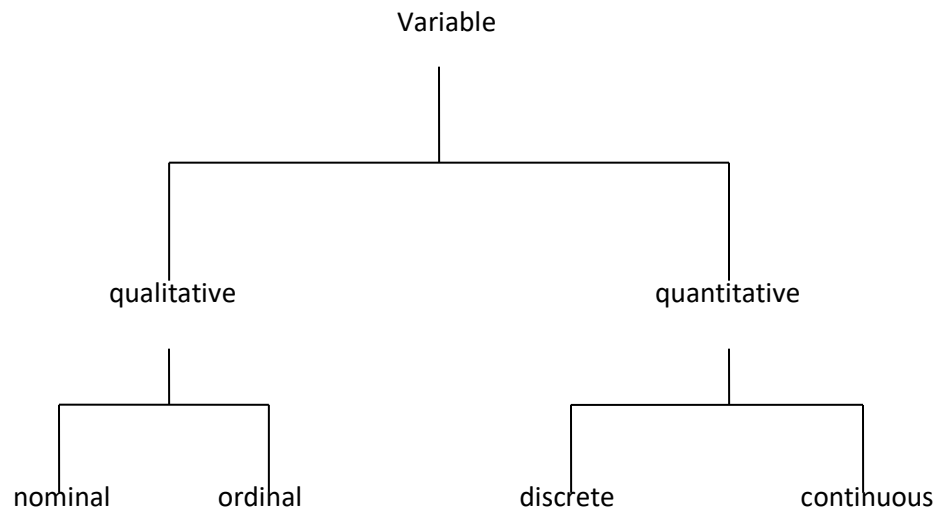
In medical labs, statistical quality control methods are helpful in maintaining the quality of lab procedure.

- In public health:-

Statistical method are used to test the effectiveness area and vaccine in field.

Variables:-

Variable is used for something which can take different numerical values for different individuals or object. On different wards the number of patients may be as 12, 17, 23, 08, 25. The number of patients is called variable. The variable are usually represented by last English letters X,Y,Z. any characteristics which varies in quantity from one individual to another individual place to place or time to time and object to object is called variable. Height of student, weight of student, daily temperature, B.P patients, Uric acid of patients are called example of variable.



Qualitative variable:-

A characteristics which varies only in quality from one individual to another individual is called qualitative variable. It is also called as attribute or categorical variable.

For example:-

Beauty, intelligence, severity of diseases, color, educational level.

Quantitative variable:-

Characteristics which can be measured numerically and vary from one individual to another individual.

For example:-

Height, weight, B.P, temperature of patients, and number of patients in different wards of a hospital.

Discrete variable:-

A variable is called discrete variable if it can take some selected values in a given interval or a variable whose value is taken from some counting process.

For Example:-

The numbers of patients in a wards, room in a houses

Continuous variable:-

The variable takes any value within a interval that variable is called continuous variable or the variable whose values is taken from some measuring process.

For example:-

B.P, Temperature, height or weight of patients.

Binary variable:-

The site of a cancer can be any of many parts of human body , but there are discrete variable in medicine that can possibly have two alternatives. The presence of liver diseases is either yes or no. gender is either male or female. Such variables are called binary.

Independent and dependent variables:-

In clinical/medical research especially in experimental research our main concern is with independent and dependent variables.

For example:-

The efficiency of a certain drugs, the effectiveness of a certain surgical procedure these are independent variable. On the other hand the status of B.P after medicine is the example of dependent variable.

A variable whose effect is to be determined or which is responsible for change is called independent variable.

For example:-

Drug, medicine, method & training program.

The independent variable may be continuous or categorical. On other hand the response of an independent variable is called dependent variable.

For example:-

Efficiency, result, death and diseases are dependent variable.

Dependent variable may be continuous or categorical.