MODULE 6

BASIC TERMINOLOGIES IN EVIDENCE-BASED DENTISTRY

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BIOSTATISTICS is the application of statistics to a wide range of topics in biology. The science of biostatistics encompasses the design of biological experiment.

DATA The value of variable associated with one element of a population or sample. This value may be a number, a word or a symbol.

- QUALITATIVE DATA
  - Nominal
  - Ordinal
- QUNTITATIVE DATA
  - Discrete
  - Continuous

Sample A subset of the population

Sampling is the process of selecting units from the population of interest.

- Non probability sampling
  a. Quota sampling
  b. Purposive sampling
  c. Convenience sampling
  d. Judgment
- Probability sampling
  a. Simple random sampling
  b. Systemic sampling
  c. Stratified sampling
  d. Cluster sampling
- Other sampling methods
  a. Multiphase sampling
  b. Multistage sampling

MEASURES OF CENTRAL TENDENCY

MEAN is obtained by summing up all the observation divided by the number of observations.

MEDIAN it is a simplest division of set of measurements into two halves – the upper and lower half. The point on the scale that divides the group in this way is median.

MODE it is the most frequently occurring value in a set of observation.

STANDARD DEVIATION

STANDARD DEVIATION: The most stable measures of variability. it takes into account each and every score in normal distribution.

SENSITIVITY It is a probability of correctly identifying a case of a diseases. It is directly related to screening test as sensitivity of a test is to identify correctly all those who have diseases.

$$\text{SENSITIVITY} = \frac{true\ \ positives}{true\ positives + false\ negatives}$$

SPECIFICITY It is probability of correctly identifying diseases free person. It indicates the proportion of truly diseased persons who are identified as non-diseased by the screening test. It is also known as the true negative rate

$$\text{SPECIFICITY} = \frac{true\ \ positives}{true\ positives + false\ negatives}$$

Hypothesis A Hypothesis is a conjectural statement of the relation between two or more variable (Kerlinger 1956)**.**

Hypothesis is a formal statement that presents the expected relationship between an independent and dependent variable (Crewswell, 1994)

NULL HYPOTHESIS IN statistical interference of observed data of a scientific experiment, the null hypothesis refers to a general statement or default position that there is no relationship between two measured phenomena.

RESEARCH HYPOTHESIS It is a statement of expectation or prediction that will be tested by research.

EPIDEMIOLOGY It is the study of the distribution and determinants of health-related states or events in specified populations and the application of this study to the control of health problem.

CLASSIFICATION OF EPIDEMILOGY

a. DESCRIPTIVE

b. ANALYTICAL

- Ecological study
- Cross sectional

- Case control
- Cohort study

c. EXPERIMENTAL

- Randomized control trial
- Field trial
- Community trial

Prevalence it is the proportion of a given population affected by a condition at a given point of time.

$$\text{Prevalence} = \frac{total\ number\ of\ cases\ of\ a\ disease\ at\ a\ given\ point\ of\ time\ (oled\ and\ new)}{estimated\ total\ population\ at\ the\ same\ point\ in\ the\ time} \times 100$$

INCIDENCE It indicates the number of new cases of specific diseases occurring in a particular period of time. It is a rate.

$$\text{INCIDENCE} = \frac{total\ number\ of\ cases\ of\ a\ disease\ at\ a\ given\ point\ of\ time\ (oled\ and\ new)}{estimated\ total\ population\ at\ the\ same\ point\ in\ the\ time} \times 100$$