Statistics and Probabilities

Basic concept, uses and measurement Scales

- Definition
- Classification
- Scopes
- Uses of statistics in Health Research
- Variables,
- Measurement scale
- **Organizing Raw Data**
- Why organizing Data
- Concept of Frequency Distribution
- Relative Frequency
- Gender rule for preparation of table
- Constructing frequency distribution from Numerical data
- Some terms
- Exclusive method
- Inclusive method
- Important points for classifying data
- Outliers
- Raw data

Presentation of Data

- Purposes of Data presentation
- Tabulation
- Purposes of Graphical presentation
- Limitations /Dangers of Graphs
- Merits and Demerits of Graphical presentation
- Basic principles of Drawing graphs,

Quantitative Data

- Histogram, Frequency Polygon, Frequency Curve
- Line Chart or Graph, Cumulative Frequency Diagram or Ogive
- Scatter or Dot Diagram,

Qualitative Data

- Bar Diagram
- Multiple Bar
- Proportional Bar
- Pie Chart

Descriptive Statistics

Measures of central tendency

- Arithmetic Mean
- Median
- Mode
- Weighted mean

Measures of Dispersion

Absolute measure

- Dispersion
- Range
- Mean Deviation
- Variance
- Standard deviation

Relative measure

- Coefficient of Variation

Estimation

- ➤ Point estimation
- ➤ Interval estimation
- ➤ Sampling Distribution
- ➤ SE

Probability
- ➤ Define Probability
- ➤ Properties of Probability
- ➤ Addition and Multiplication Rule

Confidence Interval and p value
- ➤ Pop. Mean
- ➤ Pop. Proportion
- ➤ P value

The Normal Distribution
- ➤ Definition, Formula of Normal Curve
- ➤ Characteristics of Normal Curve
- ➤ Standard Normal Distribution
- ➤ Formula of Distribution
- ➤ Z score
- ➤ Application of Normal Curve

Chi Square Test
- ➤ Random sample data
- ➤ Sufficiently large sample size
- ➤ Adequate cell size
- ➤ Independence
- ➤ Known distribution
- ➤ Non directional Hypothesis, Finite Values
- ➤ The analysis of contingency tables
- ➤ How is Pearsonian chi-square calculated for tabular data

Test of Significance
- ➤ Null Hypothesis
- ➤ Alternative Hypothesis
- ➤ Type I error
- ➤ Type II error

Compare means
- ➤ Compare a single mean with an assigned mean – one sample situation
    - Tests: z or t test

- ➤ Compare two sample means – Two sample situation
    - Tests: z or t test

- ➤ Paired situation
    - Test: Paired t test

Compare Proportions

- ➤ Compare a single proportion with an assigned proportion – one sample situation
    - Test: z test

- ➤ Compare two sample proportions – Two sample situation
    - Test: z test