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Q 2/- Write a short note on Presentation of research data?

Ans :-> Presentation of Data :->

→ Data once collected should be presented in a such a way as to be easily understood. The style of presentation depends, of course, on type of data.

→ Data can be presented in as frequency tables, charts, graphs, etc. Here we would discuss some of the important means of presentation.

Q 5/- what is Hypothesis? Also explain different steps in testing of hypothesis.

Ans :-> Hypothesis :->

A testable theory, or statement or belief used in evaluation of a population parameter of interest.

e.g. Mean or Proportion.

Steps in Hypothesis Testing

1. Statement of research question in terms of statistical hypothesis (Null and alternate hypothesis)

2. Selection of an appropriate level of significance. The significance level is the risk we are willing to take that a sample which showed a difference was misleading. 5% significance level means that we are ready to take a 5% chance of wrong results.

3. Choosing an appropriate statistics t test, Z test for continuous data, chi square for proportions etc.

Test statistics is computed from the sample data and is used to determine whether the null hypothesis should be rejected or retained

Test statistics generates p value
 P value: Indicates the probability or likelihood of obtaining a result at least as extreme as that observed in a study by chance alone, assuming that there is truly no association b/w exposure and outcome under consideration.

4. Performing calculations and obtaining p value

5. Drawing conclusions, rejecting null hypothesis if the P value is less than the set significance level.

Q4/- what is meant by prevalence in research? Also explain Point and Period Prevalence

Ans \Rightarrow Prevalence \Rightarrow

- Prevalence quantifies the proportion of individuals in a population who have the disease at a specific instant and provides an estimate of the probability (risk) that an individual will be ill at a point in time.
- The formula for calculating the prevalence $P = \frac{\text{number of existing cases of a disease}}{\text{total population (at a given point in time)}}$

Point Prevalence \Rightarrow

- Prevalence can be thought of as the status of the disease in a population at a point in time and as such is also referred to as point prevalence.
- The "point" can refer to a specific point in calendar time or to a fixed point in the course of events that varies in real time from person to person,

Such as the onset of menopause or puberty or the third postoperative day.

Period Prevalence :->

• It represents the proportion of cases that exist within a population at any point during a specified period of time.

• The numerator thus includes cases that were present at the start of the period plus new cases that developed during this time

E.g. Frequency of patients receiving psychiatric Rx b/w.

Q 3/- Differentiate b/w Relative risk and odds ratio with examples.

Ans :-> Relative Risk :->

• Incidence in exposed individuals = $a/a+b$ or proportion of exposed people who developed the disease.

• Incidence in non-exposed individuals = $c/c+d$ or proportion of non exposed people who develop disease

Relative Risk = $\frac{\text{Incidence in exposed}}{\text{Incidence in non exposed}}$

$$RR = \frac{a/a+b}{c/c+d}$$

Example :->

For example you could have two groups of women. One group has a mother, sister or daughter who has had breast cancer. The other group does not have any close female relative who have had the disease.

The group with close family members who have had the disease or more likely to develop breast cancer.

Odds Ratio :->

Incidence cannot be measured in case control studies because we start with the diseased people (case) and non diseased people (controls), hence we calculate.

Example :->

For example in the treatment group the odds of an events is in the number of tutored students who failed a class / the number of students in the tutored group who passed all their classes.

Q1/- Nine students take a test, their scores out of 100 are 50, 79, 70, 48, 90, 68, 89, 92, 77, Find the Mean, Median and Mode of their scores.

Ans:- Mean :->

First we find mean of the given data or number.

To find the mean, add up the number like;

$$50 + 79 + 70 + 48 + 90 + 68 + 89 + 92 + 77 = 663$$

663 is to obtain value of students test.

Let's find the mean

$$663 / 9 = 73.66$$

So, the mean is 73.66 of whole students

Mode :->

The repeating value is the mode of that data or number.

So, here is no repeating value.

So no mode of this data or number.

Median :->

Finding median now, total number in set is 9.

$$50, 79, 70, 48, 90, 68, 89, 92, 77$$

If we arrange this set of given data or number like

$$48, 50, 68, 70, 77, 79, 89, 92$$

Its median is 77

or,

In random form its median is 90.