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Subject Research Methodlogy

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Question NO. 1

What is Hypothesis? Also explain different steps of testing of hypothesis?

Hypothesis:

Testable theory, or statment of belief used in evaluation of a population parameter of interest e.g Mean or proportion

- Suppose a study is being conducted to answer question about different between two regimens for the managment of diarrhea in children. The sugar based modern ORS and the time-tasted indigenous herbal solution made from locally availble herbs.
- One question that could be asked is:

"In the population is there a difference in overall improvement (after three days of treatment) b/w the ORS & the herbal solutions"

Steps of testing hypothesis

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

2. Selection of an appropriate statistics t test, z test for continous data. chi Square for proportion etc- Test statistic is compute from the sample data and is used to determine whether the null hypothesis should be rejected or retained test statistics generates P values.

P value: Indicates the probability or likehood of obtaining a result at least as extrem as that there is truly no association b/w exposur and outcome under consideration.

By convention the P value is set at 0.05 level Thus any value of P less then or equal to 0.05 indicate that. There is at most a 5% probability of observing an association as

large or larger than that found in the study due to chance alone given that if p value >0.05 ; do not reject the null hypothesis

4. Performing Calculation and obtaining p value

5. Drawing Conclusions rejecting null hypothesis if p value is less than the set significance level.

α & β error

Testing of Significance	True to Hypothesis	False hypothesis
Accept the Hypothesis	Correct Decision	Wrong Decision = β Error
Reject	Wrong Decision = α Error	Correct Error

Question NO-2

Differentiate B/w Relative risk and odd ratio with examples

Odds ratio	Relative risk
• results can be combined across strata using Mantel-Haenszel methods	• result are difficult to combine across strata.
• Can be used to summerize data from most studies	• Can only be used to data from studies

given an estimate of risk when the prevalence of the outcome is not known: example if you are normally on call 2 out of 7 days in a week, then the odds of you being on call on a certain day of the week is [(2/7)/(5/7)] = 0.4.

with randomly selected sample eg cohort & cross sectional studies
- Can be used to calculate attributable risk.

example: you could have two groups of women: one group has a mother, sis or daughter who has had breast cance

Question NO-3

Write a short note on Presentation of research data?

Presentation of Research Data:

This refers to the organization of data into tables, graphs or charts, so that logical and statistical conclusion can be derived from the collected measurements

Data may be presented in (3 Methods):

- Textual
- Tabular
- Graphical.

Textual Presentation:

The data gathered are presented in paragraph form.

- Data are written & read
- It is a combination of texts & figures.

TABular Presentation:

- Method of presenting data using the statistical table.
- A systematic organization of data in columns & rows.

Graphical Presentation:

1. Bar Graph- used to show relationship comparison b/w group.
2. Line graph- most useful in display data that changes continuously over time.
3. Pictograph. or pictogram it uses small identical or figure of object called isotopes in making comparisions - Each picture represent

a define quantity.

Question NO-4

What is meant by Prevalence in research? Also explain point & period prevalence.

Prevalence In Research:

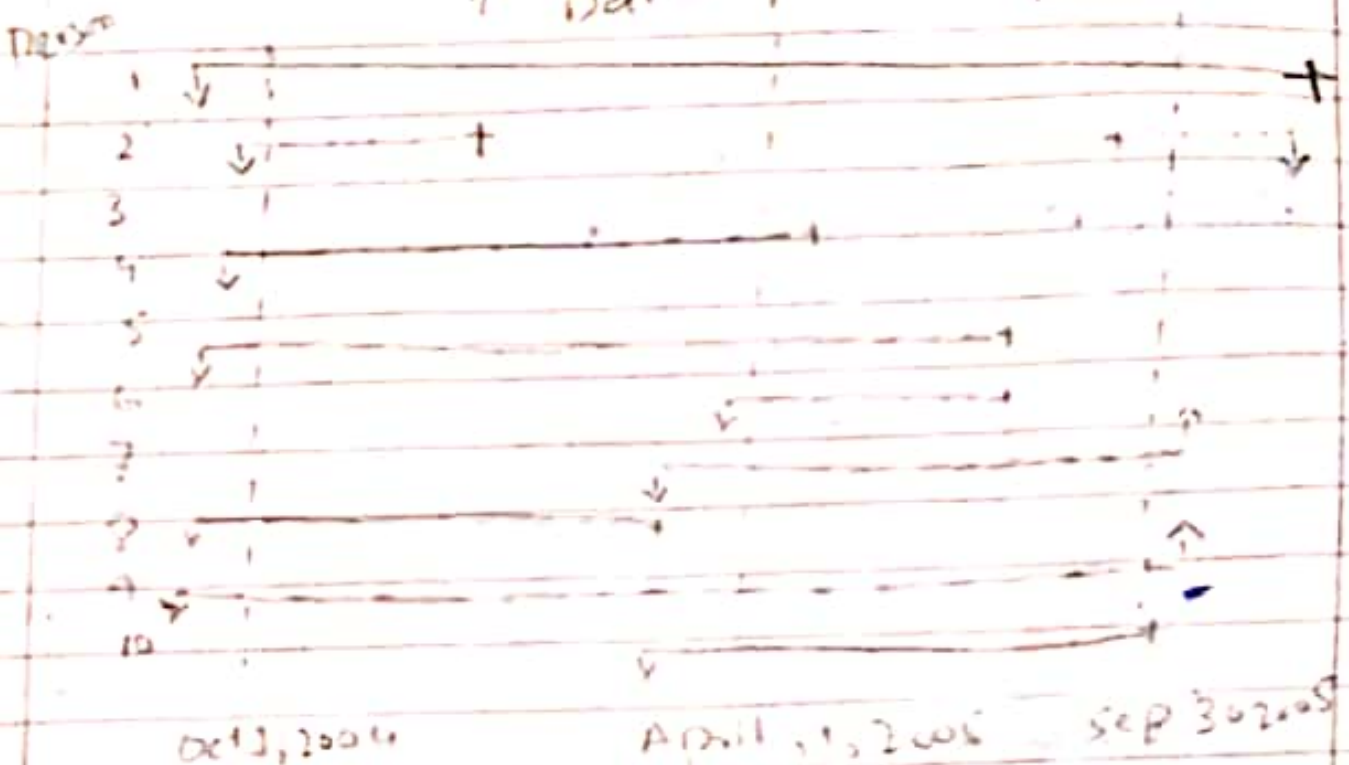
Prevalence is the proportion of a population who have a specific characteristic in a given time period.

Explain point and period prevalence:

Point prevalence refers to the prevalence measured at a particular point in time. It is the proportion of person with a particular disease or attribute on a particular date. Period prevalence refers to prevalence measured over an interval of time.

P.T.O.

↓ Date of onset of illness
↓ Date of death
↑ Date of recovery



Question NO-5

Nine students take a test. Their score out of 100 are 50, 70, 79, 48, 90, 68, 89, 92, 77 find out the mean, mode, median of their score.

Mean

Given Data:

15, 50, 68, 70, 77, 79, 89, 90, 92,

Mean $\frac{\Sigma x}{n}$

Mean: $\frac{663}{9}$

Mean = 73.66

Median:

$$\text{Median} = \frac{n+1}{2}$$

$$= \frac{9+1}{2}$$

$$= 5^{\text{th}} \text{ term in given data}$$

Median : 77 when data is arranged in order of lowest to greater

Mode:

'0' because there is no repation of data in a set of given observation.

Finish