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Subject Research Methodology

Q4:- What is meant by prevalence in research ? Also explain point & period prevalence ?

Ans: Prevalence:-

* Prevalence quantifies the proportion of individuals in a population who have the disease at a specific instant & provides an estimate of the probability (risk) that an individuals will be ill at a point in Time.

* The formula for calculating the prevalence P = number of existing cases of a disease / Total population (at a given point in Time)

→ Point prevalence:-

* Prevalence can be thought of as the status of the disease in a population at a point in Time & as such is also refered to as point prevalence.

* This "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 prevalance:-

* It represents the proportion of Cases that exist with in 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 developing during this time.

Example:- Frequency of patients receiving psychiatric Rx between May 31 - Dec 01-08

Q No (1)

Ans:-

Mean:

Given Data:-

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

Mean Formula:-

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

By putting value:-

$$\text{Mean} = \frac{663}{9}$$

$$\boxed{\text{Mean} = 73.66}$$

Median:-

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

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

Median = 5th term in given data.

$$\boxed{\text{Median} = 77}$$

(when data is arranged in order of Lowest to greatest)

Mode:-

Mode = 0 because There is no repeation of data in a set of given observation.

Qs:- What is Hypothesis? Also explain different Steps in Testing of Hypothes?

Ans: Hypothesis:-

A testable Theory, or Statement of belief used in evaluation of a population parameter of interst example:- Mean or proportion.

→ Suppose a Study is being Conducted To Answer questions about differences b/w two regimens for the mangement of diarrhea in children.
— The Sugar based modern ORS and
— The time tasted indigenous herbal Solution made from Locally availble herbs.

→ Steps in Testing of Hypothesis:-

(1) Statement of research questions in terms of Statistical hypothesis (Null & 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) performing calculations & obtaining P value

Drawing Conclusions, rejecting null hypothesis if the P value is less than the set Significance level.

Q3:- Differentiate b/w Relative risk and odd ratio with example?

Ans: Relative Risk:-

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

Incidence is non-exposed individuals or proportion of non-exposed people who develop disease.
$S = c/c+d$

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

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

Example:-

	CHD+	CHD-	Total
Smoker	112	176	288
Non-Smoker	88	224	312

Incidence in exposed $= a/a+b$
$= 112/288 = 0.38$

Incidence in non-exposed $= c/c+d$
$= 88/312 = 0.28$

$RR = 0.38/0.28 = 1.38$

=> Odds Ratio:-

Incidence cannot be measured in Case Control Studies b/c we start with the disease people (cases) & non diseased people (control)
Hence we Calculate OR

Example:-

	Case	Control
Exposed	a	b
Non-Exposed	c	d

$$OR = \frac{a/c}{b/d} \text{ or } \frac{ad}{bc}$$

			Total
Exposed	140 a	370 b	510
Non-Exposed	40 c	234 d	274

odds = 140/40 = 3.5
odds = 370/234 = 1.6
OR = 3.5/1.6 = **2.2**

Compared to the Control the odds of being a passive Smoker are 2.2 in a breast Case.

Q2:- Write a short note on presentation of research data?

Ans:- presentation of Data:-

Data once collected should be presented in a such as to be easily understood - The style of presentation depends of course on type of data. Data can be presented in a frequency tables charts, graph etc.

=> Frequency Tables :—

In a frequency table data is presented in a tabular form. It gives the frequency with which a particular value appears in the data.

	f	percent %	v-percent	Cumulative percent
Strongly disagree	2	2.0	2.0	2.0
Disagree	13	13.0	13.0	15.0
Average	26	26.0	26.0	41.0
agree	26	26.0	26.0	67.0
Strongly agree	33	33.0	33.0	100.7
Total	100	100.0	100.0	

→ **Graph:-**

Graph is another way to summarize and display data - through the use of graphic representation of numerical data. Graph should be designed so that they convey at a single glance the general patterns in a set of data.

→ **Pie Chart:-**

pie chart can also be used to display nominal or ordinal ratio.

→ Gender Distributions:

→ **Histogram:-**

A histogram describe a frequency distribution for quantitative data.