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Q NO 1

Nine students take a test.
their score out of 100 are
50, 79, 70, 48, 90, 68, 89,
92, 77.

Now find out the mean,
median and mode of their
scores:

Ans.

MEAN:-

First we find mean
of the given data or numbers
to find the mean add up
the number like:

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

663 is the obtain value of
students test.

lets find the mean:

$$663 / 9 = 73.66$$

Mean of whole students is

$$\boxed{73.66}$$

MODE:-

The repeating value (~~of~~) is the mode of that data or number. So here is no repeating value.

Hence \rightarrow No mode of this data or numbers.

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.

So its median is 77.

Q NO 2

Write a short note on presentation of research data.

Ans.

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

three methods:

- Textual
- Tabular
- Graphical

Data once collected should be presented in a such way as to be easily understood.

The style of presentation depends on type of data.

Data can be presented in frequency tables, charts and graphs etc.

Q. NO 3

⇒ Differentiate between Relative risk and odds ~~ratio~~ with example.

Ans. RELATIVE RISK :-

The relative risk or risk ratio is the ratio of the

probability of an outcome in an exposed group to the probability of an unexposed group.

It is computed as, where is the incidence in the exposed group and is the incidence in the unexposed group.

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

An odds ratio is a measure of association between an exposed/exposure and an outcome. The "OR" represents the odds that an outcome will occur given a particular exposure.

Compare to the odds of the outcome occurring in the absence of the exposure.

Incidence can not be measured in case control studies because we start with the diseased people (cases) and non-diseased people (controls)

EXAMPLE:

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

The numerator is the same as that of a probability. But the denominator here is different. It is a measure of events out of all possible events. It is a ratio of events to non-events.

You can switch back and forth between probability and odds - both give you the same information. Just on different scale.

Q. NO 4

What is meant by Prevalence in Research? Also explain Point and period prevalence.

ANS.

PREVALENCE:-

Prevalence quantifies the proportion of individual in a population who have the disease at a specific instant and provides an estimate of the probability (risk)

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that an individual will be in at a point in time.

The formula for calculating the prevalence

$P = \frac{\text{Number of existing cases of a disease}}{\text{total population (at a given point time)}}$

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POINT PREVALENCE:-

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 be 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 population of cases that exist within a population at any point during a specified period of time

The numerator - thus include cases that were present at the start of the period plus new cases that developing or developed during this time

eg. → Frequency of patients receiving psychiatric Rx between May 31 - Dec 1 2008

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What is hypothesis?
Also Explain different steps in testing of hypothesis?

ANS. HYPOTHESIS:-
A testable theory or statement of belief used in evaluation of a population parameter or

⇒ 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 proportion etc.

Test Statistics is computed from the sample data

and is use to determined whether the null hypothesis should be rejected or retained

Test Statistics generates P value.

P value: indicates the probability of 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 between exposure and outcome under consideration.

By convention the P value is set at 0.05 level thus any value of P less than or equal to 0.05 indicates that there is at most 5 percent probability of observing and association as large or larger than that found in the study due to chance alone given that there is no association between exposure and outcome.

if $P \text{ value} > 0.05$ do not reject the null hypothesis

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4 Performing calculation and obtaining

P value.

5 Drawing conclusions, rejecting

Null hypothesis if the P

value is less than set signifi-

cance level.