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Q2(2) **Presentation of data :-**

Data are colleded should be presented in a such a as to be easily understand. The style of presentation depends of course on type of data.

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

⇒ Frequency table:

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.persent	comulative percent
disagree Valis strongly	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	100.0
total	100	100.0	100.0	

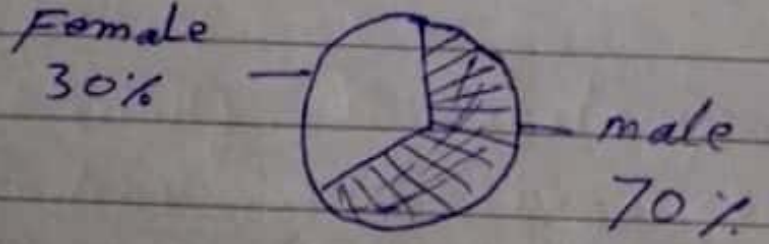
⇒ Graphs:

Graphs is another way to summarize and display data is through the use of graph or pectorial representation of numerical data. Graph should be designed so that they convey at a single glance the generate patterns a set of data.

⇒ Pie chart:

Pie chart can also be used to display nominal or ordinal data.

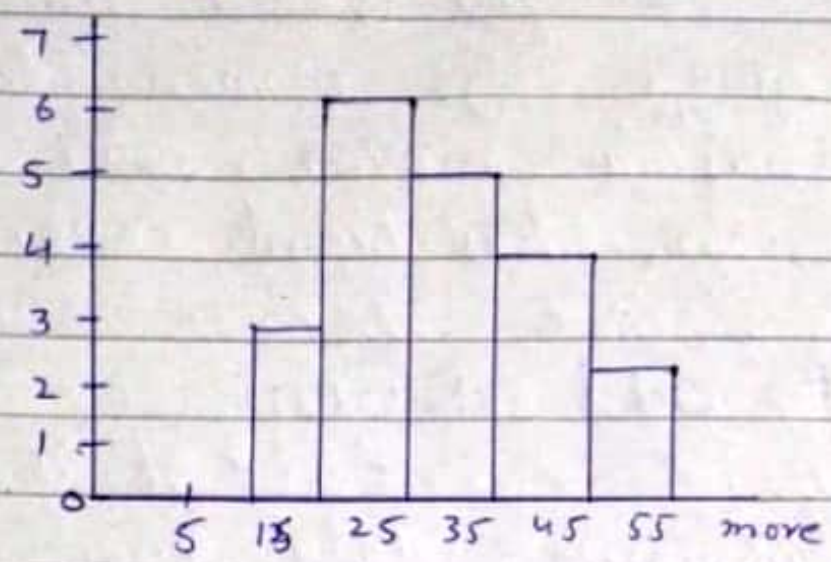
Gender distribution



⇒ Histogram:

A histogram describe a frequency distribution for quantitative data

Histogram :-



Q (3) Relative Risk :

It can be used for data from studies with a randamly seleted sample.

It can be used to calculate the attributable risk.

⇒ Usually in prospective , cross-sectional trail studies.

⇒ It needs incidence of the disease.

⇒ It demonstrate temporarily.

⇒ Examples:

It You could have two groups of women. One group has a mother, sister or daughter who has breast cancer.

⇒ Odd Ratio:-

It is used to summarize data from most studies. Incidence cannot be measured in case control studies because we start with the diseased people (cases) and non diseased people (controls).

⇒ Give an estimate of risk when the prevelence is not known.

⇒ Usually in restrospective studies and in cross-sectional

⇒ It does not need incidence for calculation.

→ It has good estimate for relative risk in case of low frequency.

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

$2/7 \;/\; 5/7 = 0.40$

Q (5) **Hypothesis:-**

Hypothesis is a testable theory or statement of belief used in evaluation of a population parameter of interest. eg:

mean or proportion.

⇒ **Steps of hypothesis testing:**

⇒ (1) statement of research question in terms of statistical 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 missleading 5% significance level mean that we are ready to take 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.

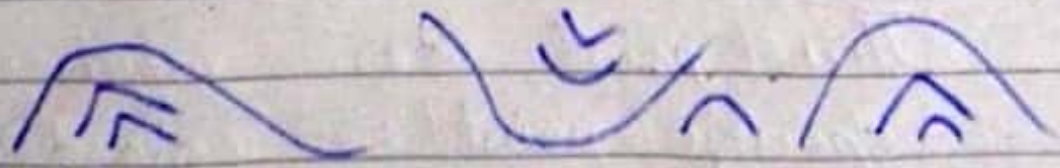
p value: Indicates the probability or likelihood of obtaining a result at least as extreme as that observed in a study by chance alone, assuming that here is truly no association between exposure and outcome

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 a 5% probability of observing an association as large or larger than that there is no association between exposure and outcome. If p value 0·05 don't reject the null hypothesis.

⇒(4) performing calculations and obtaining p value.

⇒(5) Drawing conclusions rejecting null hypothesis if the p value is less than the set significance level.



Q(1) Ans:

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

(i) mean = $\frac{\text{Sum of numbers}}{\text{Number of students}}$

" $= \frac{48+50+68+70+77+79+89+90+92}{9}$

" $= \frac{663}{9}$ = 73.66

(ii) median :

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

median = 77

(iii) mode :

There is no repeated numbers so the mode is zero.

Q2 (4) Prevalence in research:-

Prevalence quantifies the proportion of individuals in a population who have the disease at a specific instant and provides an estimate of the probability that an individual 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 and as such is also referred to as point prevalence.

This point can refer to a specific point in calender 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 prosto-perative 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 treatment between 26- April to 25 may 2019.