

Name = Hazrat Bilal.

ID = 13717

program = Bs. DT (6th)

Department = AHS.

Mid term Assignment.

Research Methodology

instructor = Sir Attahullah.

Q No 1

Ans:

Mean:

Given Data:-

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

Mean Formula:-

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

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 = 5<sup>th</sup> 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 repetition of data in a set of given observations.

Q2:

Do not include the raw data in the results section. The raw data is what you organized to get the result section. You should include summary table or graphs.

Remember, you are summarizing the results, not reporting them in full detail.

In many cases, the easiest way to accomplish this is to first create your tables and figures and then organize them in a logical way.

Next, write the summary text to support your illustrative materials.

Do not include tables and figures if you are not going to ~~take~~ talk about them in the body text of your data analysis section.

Always assume that your readers have a solid understanding of analysis strategies.

There's no need to explain what a Content analysis is or how to design a protocol.

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

Ans: Relative Risk:-

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

Incidence in non-exposed individuals  
 $S = c/c+d$  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:-

	CHD <sup>+</sup>	CHD <sup>-</sup>	Total
Smoker	112	176	288
Non-Smoker	88	224	312

$$\begin{aligned} \text{Incidence in exposed} &= a/a+b = \\ &= 112/288 = 0.38 \end{aligned}$$

$$\begin{aligned} \text{Incidence in non-exposed} &= c/c+d \\ &= 88/312 = 0.28 \end{aligned}$$

$$RR = 0.38 / 0.28 = 1.38$$

## Odds Ratio:-

Incidence cannot be measured in Case Control Studies b/c we start with diseased 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

$$\text{odds} = 140/40 = 3.5$$

$$\text{odds} = 370/234 = 1.6$$

$$OR = 3.5/1.6 = \boxed{2.2}$$

Compared to the control the odds of being a passive smoker are 2.27 in a breast case.

Q 4 =

Ans = Prevalence :

Def: prevalence is the proportion of a population who have a specific characteristic in a given time period.

Prevalence Estimated:

\* To estimate prevalence, researchers randomly select a sample from the entire population they want to describe. using random selection methods increases the chances that the characteristic of the



of the sample will be representative  
of (similar to) the characteristics  
of the population.

\* point prevalence.

is the proportion  
of a population that has the  
characteristic at a specific  
point in time.

\* period prevalence;

is the proportion  
of a population that has the  
characteristic at any point during  
a given time period of interest  
"past 12 months" is a commonly  
used period.

## Hypothesis:-

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

Suppose a study is being conducted to answer questions about differences b/w two regimens for the management of diarrhea in children.

— The sugar based modern ORS and  
— The time tested indigenous herbal solution made from locally available 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.