HIGH YIELD

Measures of Dispersion
I- Range
2-Interquartile range
3- Variance
4- Stander Deviation
5- Coefficient of variance
*There are three main measures in common use .

I.The Range
-simplest-most obvious one of dispersion
It is the distance from the smallest to the largest
The range is affected by skewness sensitive to the addition or removal of an outlier value
Its disadvantage
it is based on only two observations (the lowest and highest value) and give no idea about others,
It is not very useful measures of variation,

2.Variance S2
It is the Average of squared deviation of observation
from the mean in a set of data +
The Disadvantage or drawback of variance
that its unit is squared Kg2 , bacteria2 ....., So
Restore the squared unit into its original form
by taking the square root of this (S^2) value, this is known
Stander Deviation (S.D).

$$S^2 = \frac{\sum (X - \overline{X})^2}{N-1}$$

$$\sqrt{\frac{\sum (X - \overline{X})^2}{N-1}} = \pm S.D$$

± S.D (S) it is the square root of the Average square
deviation of observation from the mean in a set of data
**it uses all the information in the data

Disadvantage Limitation or Drawback of S.D
It is depend on the unit of measurement, we can't compare between two or more data to overcome this

$$S.D = \pm \sqrt{\frac{\sum X^2 - \frac{(\sum X)^2}{N}}{N-1}}$$

الطب والجراحة لجنة

HIGH YIELD

4.Coefficient of Variation C.V

It is representing by measuring the variation in relation to the percentage of mean of that data
Percentile
The pth percentile (25%) (30%):
is a value such that at least p percent of the observations are less than or equal to this value
Three Steps for computing a percentile.

I. Sort the data from low to high;

2. Count the number of values (n);

3. Select the p*(n+I) observation
مهم مليووون the deciles which subdivide the data values into I0 (not I00)equal division,and Quintiles which sub-divide the values into five equal –sized groups

A quartile is :

a division of observations into four defined 25% 50%
The interquartile range
is not affected either by
BUT
it does not use all of the information in the data set
since it ignores the bottom and top quarter of values

Interquartile rang (i q r).

One solution to the problem of the sensitivity

to extreme value (outlier) is to
√chop the quarter(25 percent) of the values of both ends
of the distribution
(which removes any troublesome outliers)
then measure the range of the remaining values

الطب والجراحة لجنة