

*Tikrit University*

*College of Nursing*

*Basic Nursing Sciences*



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**Research Methods**

**(The Researcher's Questions)**

*by:*

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## **Research methods**

### **The nurse researcher usually asks such questions as:**

What is the advantage blood pressure reading of hypertensive patients during relaxation therapy?.

How much information does the average first time mother have about nutrition?.

Such questions seek a single number that best represents a whole distribution of measures.

The measurement of central tendency are the most concise summary of the raw data.

The three measures of central tendency commonly used in statistical analyses are the : Mode, the Median, and the Mean.

### **Mode**

It is one of the simplest measures of central tendency is the mode.

The mode can be determined by examination of an ungrouped frequency distribution of the data. The mode is the numerical value or Score that occurs with the greatest frequency.

### **Median**

The median is the score at that exactly center of the ungrouped frequency distribution. The median is obtained by rank ordering the Scores.

If there are uneven( odd) number of scores, exactly 50 Per Cent of the Scores are above the median, and 50 Per Cent are below the median.

If there are an even number of Scores, the median is the average of the two middle Scores.

The median is the most appropriate measures of central tendency for ordinal data and is frequently used in nonparametric analyses.

## **Mean**

The most commonly used measures of central tendency is the mean. The mean is the sum of the Scores divided by the number of Scores beingsummed. The mean is often called the average, however, this is a layman's term and is not used by researchers.

The mean is the appropriate measures of central tendency for interval and ratio level data.

### **The formula for calculating the mean is listed below:**

$$\bar{X} = \frac{\sum X}{N}$$

Where:

$\bar{X}$  = the mean

$\Sigma$  = Sigma ( the statistical symbol for the process of summation)  $X$  = a single raw Score

$N$  = number of scores being entered in the calculation.

## **Measure of Dispersion**

Measures of dispersion, or variability, give some indication of how scores in a sample are dispersed around the mean. These measures provide information about the data not available from measures of central tendency. They indicate how

different the Scores are, the extent to which individual scores deviate from one another.

If individual scores are similar, measures of variability are small and the sample is relatively homogenous in terms of those Scores.

The measures most commonly used are : Modal percentage, Range, Deviation Scores, and Sum of Squares, Variance and the Standard deviation. However for the purpose of this chapter, only the Range and Standard deviation will be discussed.

**Range** : the simplest measures of dispersion is the range. The range is obtained by subtracting the lowest score from the highest score. The range is a different Score, which uses only the two extreme Scores for the comparison.