M.A PSYCHOLOGY SEMESTER-2
PSYCHOLOGICAL ASSESSMENT (CC9)
TOPIC: MEASUREMENT SCALES

Dr. Saba Farheen

UGC NET, UGC PDF, Rajasthan SET, PhD

Part Time Assistant Professor

Department of Psychology, Patna University

Email id- sabapupatna786@gmail.com

- Science use measurement for the development of knowledge. Measurement is the assignment of numbers to objects or events according to some rule. The rules are the specific procedures used to transform qualities of attributes into numbers. This helps scientists and researchers to obtain quantitative data or information about objects, phenomena, systems or their attributes. If this process is applied systematically, then to a large extent, a phenomenon that is measured is made more easily subject to confirmation and analysis, and thus is made more objective as well.
- Psychological Measurement- Also called Psychometrics. Psychological Measurement ultimately evolved from the study of individual differences in human Psychology which has aimed to be more objective in its descriptions of people. It understands the Psychology of the individual in the social, educational, clinical, Health and other settings. Measurement results in quantification which enables more details to be gathered than through personal judgement.
- The science of psychology operates on the basis of clear criteria and standardized measurement scales.

PROPERTIES OF SCALES:

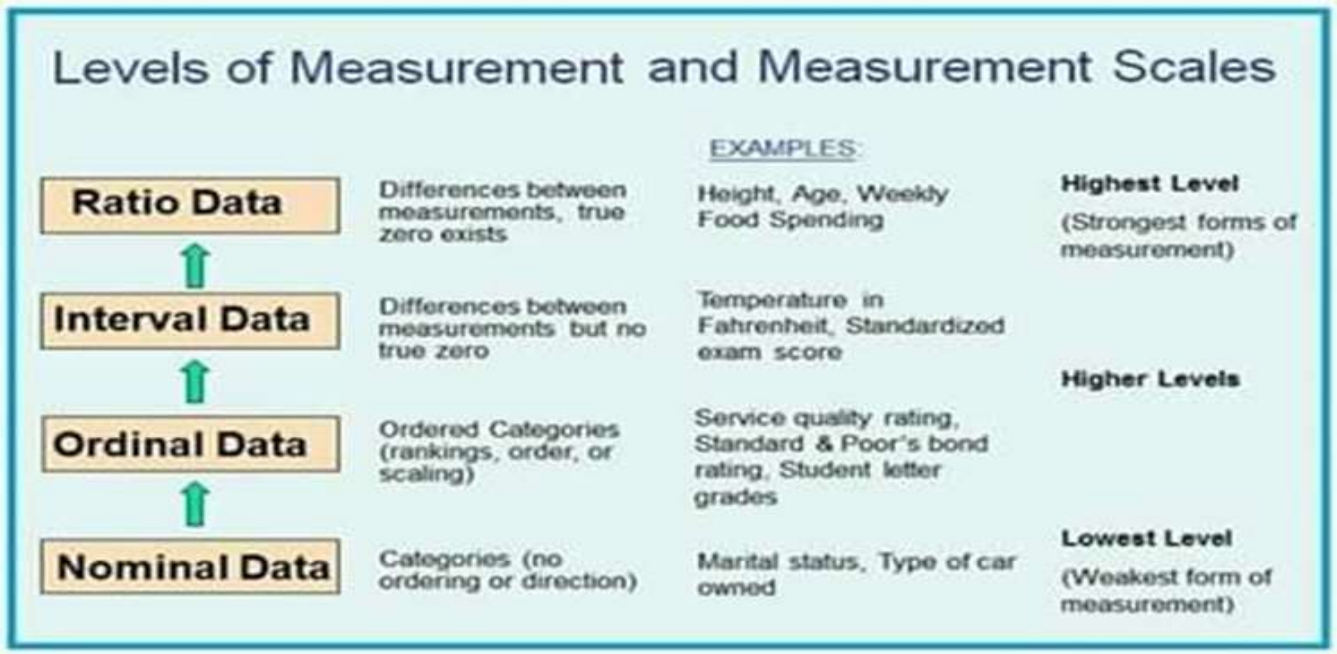
- **Magnitude**- A scale has the property of magnitude. On a scale of height, for example, if we can say that Ramesh is taller than Suresh, then the scale has the property of magnitude.

- **Equal Intervals-** A scale has the property of equal intervals if the difference between two points at any place on the scale has the same meaning as the difference between two other points that differ by the same number of scale units. For example, the difference between 2 Kilogram and 4 Kilogram on a weighing machine represents the same quantity as the difference between 10 Kilogram and inch 12 Kilogram : exactly 2 inches.

- **Absolute 0-** An absolute 0 is obtained when nothing of the property being measured exists. For example, if a person measures aggression on a scale from 1 to 10, then it is hard to define what it means for a person to have absolutely no aggression.

TYPES OF MEASUREMENT SCALES:

- There are four types of measurement scales in Psychology:
- 1. Nominal,
- 2. Ordinal,
- 3. Interval and
- 4. Ratio.

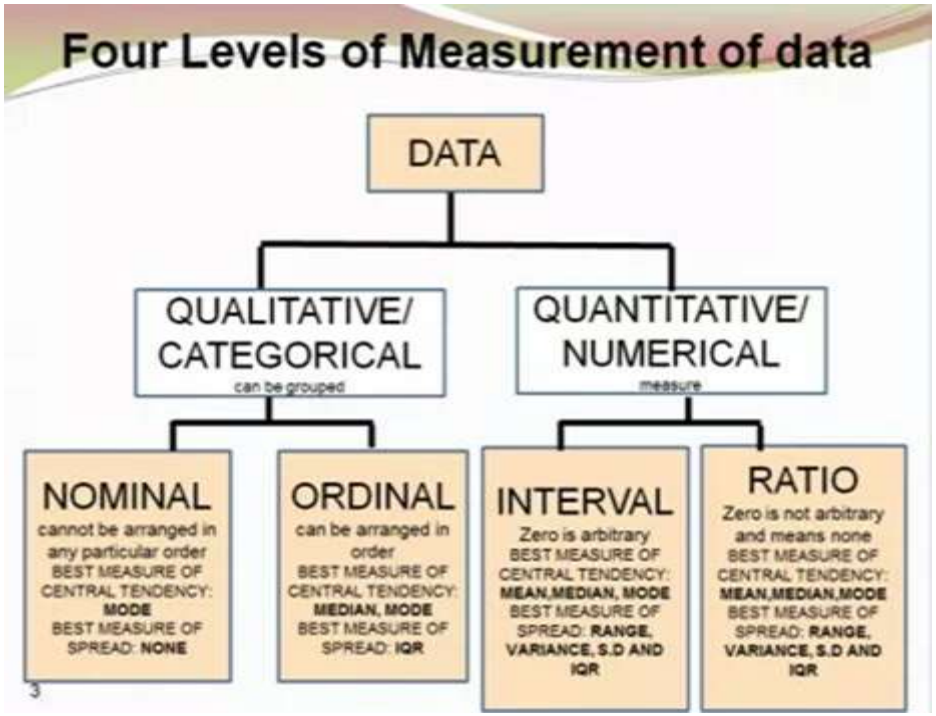


- **Nominal scale-** It is the simplest form of scaling. In a nominal scale, the numbers serve only as category names. Nominal scales provide convenient ways of keeping track of people, objects and events. It is used for naming or describing things, for example by describing occupation, ethnic group, country of origin or gender (male= 1, female= 2) in terms of numbers, although it can't be used to indicate the order or magnitude of them. In this scale, the numbers are just a simplified form of naming. Nominal scales are really not scales at all; their only purpose is to name objects. They are used when the information is qualitative rather than quantitative.
- Nominal scale is the least powerful level of measurement. It simply describes differences between things by assigning them to categories. Nominal data are, thus, counted data. Despite these, nominal scales are still very useful and are widely used in surveys and other ex-post-facto research when data are being classified by major sub-groups of the population. There is no generally used measure of dispersion for nominal scales.
- Chi-square test is the most common test of statistical significance that can be utilized, and for the measures of correlation, the contingency coefficient can be worked out.

- **Ordinal scale-** An ordinal scale constitutes a form of ordering or ranking. Rank orders represent ordinal scales and are frequently used in research relating to qualitative phenomena. These scales indicate an individual's position regarding some variable where this can be ordered, for example from low to high or from first to last as in a competition. This can help decide whether one person is equal to, greater than, or less than another person based on the attribute concerned. If students were asked to rank order four types of food as to which they would prefer to have, the preferred order might be 1 for Pizza, 2 for Burger, 3 for Chocolate, 4 for Noodles. Here the numbers are not interchangeable. This scale allows to rank individuals or objects but not to say anything about the meaning of the differences between the ranks. The problems with this are that the scale does not indicate the absolute position of individuals on what is being measured and that there is no way of knowing the actual difference between them.
- Since the numbers of this scale have only a rank meaning, the appropriate measure of central tendency is the median. A percentile or quartile measure is used for measuring dispersion. Correlations are restricted to various rank order methods.

- **Interval scale-**In the case of interval scale, the intervals are adjusted in terms of some rule that has been established as a basis for making the units equal. Like ordinal scales, interval scales assign numbers to indicate whether individuals are less than, greater than or equal to each other, but also represent the difference between them.
- The examples of Interval Scales are Fahrenheit and IQ scales. Interval scales can have an arbitrary zero. The main feature of this scale is numerically equal distances on the scale indicate equal distances in the properties of the objects that are being measured. It is also called the equal interval measurement scale.
- The primary limitation of the interval scale is the lack of a true zero, it does not have the capacity to measure the complete absence of a trait or characteristic. Powerful statistical measures can be used with interval scales. Mean is the appropriate measure of central tendency, while standard deviation is the most widely used measure of dispersion. Product moment correlation techniques are appropriate and the generally used tests for statistical significance are the ‘t’ test and ‘F’ test.

- **Ratio scale-** It is the highest level of measurement scale. Ratio scale represents the actual amounts of variables. On this scale, basis measurement can be interpreted in a meaningful way since the ratio scale is an interval scale in which people's distances are given relative to a rational zero.
- Measures of physical dimensions such as weight, height, distance, etc. are examples. A Ratio Scale has all the characteristics of Nominal, Ordinal and Interval Scales and, in addition, an absolute or natural zero point representing the absence of magnitude of a variable attribute.
- Generally, all statistical techniques are usable with ratio scales.


Four Levels of Measurement of data
DATA
QUALITATIVE/ CATEGORICAL
can be grouped
QUANTITATIVE/ NUMERICAL
measure
NOMINAL
cannot be arranged in any particular order
BEST MEASURE OF CENTRAL TENDENCY: MODE
BEST MEASURE OF SPREAD: NONE
ORDINAL
can be arranged in order
BEST MEASURE OF CENTRAL TENDENCY: MEDIAN, MODE
BEST MEASURE OF SPREAD: IQR
INTERVAL
Zero is arbitrary
BEST MEASURE OF CENTRAL TENDENCY: MEAN,MEDIAN, MODE
BEST MEASURE OF SPREAD: RANGE, VARIANCE, S.D AND IQR
RATIO
Zero is not arbitrary and means none
BEST MEASURE OF CENTRAL TENDENCY: MEAN,MEDIAN,MODE
BEST MEASURE OF SPREAD: RANGE, VARIANCE, S.D AND IQR
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