



Parametric Change Point Analysis

Bayesian Inference

Change Point Analysis Network Meta Analysis CLINICAL TRIAL DESIGN

Bayesian Change Point Detection Correlated Time Series Processes

Biomarker Data Analysis LATENT VARIABLE MODELING EPIGENETICS

Translational Research

SURVIVAL ANALYSIS

Clinical Trial Designs

Multivariate Methods

Generalized Linear Models

Mixed Effect Models

CLUSTER ANALYSIS

Longitudinal Data



**OSlides** 

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Record #15- starts from 11:15

NOTE: This lecture is mostly practical and the doctor explained it on SPSS directly. If you want to understand more, you can go back to the record.

# **Getting to know SPSS**

**SPSS:** is a software used for data analysis.

We use it to analyze quantitative data (number oriented).

To use nominal/ordinal data (qualitative data) in this program, words should be transferred into numbers in order to be processed.

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- O Processing Questionnaires
- O Reporting in Tables and Graphs
- O Analyzing: Means, Chi-square, Regression ...and much more...
- Studying correlations

SPSS comes into picture after data has been collected by let's say: questionnaires.

Questions in the questionnaire are mapped into Variables in SPSS.

- \*Important factors to consider before data entry into SPSS:
- 1-Question response formats
- 2-Scale characteristics
- 3-Levels of measurement

## Scale characteristics are of three types in SPSS:

#### 1-Nominal:

A variable can be treated as nominal when its values represent categories with no intrinsic ranking; for example, the department of the company in which an employee works.

#### 2-Ordinal:

A variable can be treated as ordinal when its values represent categories with some intrinsic ranking; for example, levels of service satisfaction from highly dissatisfied to highly satisfied.

#### **3-Scale** (also called as interval or ratio):

A variable can be treated as scale when its values represent ordered categories with a meaningful metric, so that distance comparisons between values are appropriate. Examples of scale variables include age in years and income in thousands of dollars.

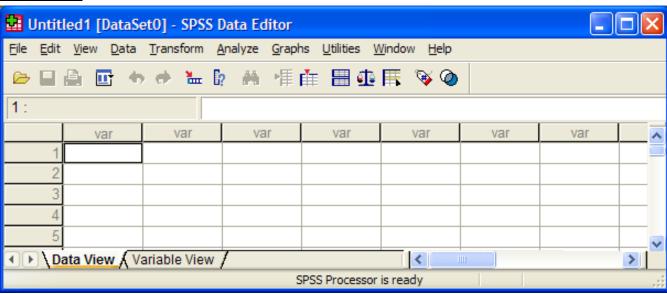
#### SPSS has two tabs:

Data view & variable view.

Data view is where the numbers are inputted.

Variable view is where you see behind the data, i.e. where you tell SPSS what the numbers represent.

#### **Data view:**



#### **Variable view:** 🔛 \*Untitled1 [DataSet0] - SPSS Data Edit File Edit View Data Transform Analyze phs <u>U</u>tilities <u>W</u>indow <u>H</u>elp <u>> 🔲 👜 📑</u> 🤚 🧼 🟪 🦆 👍 🗏 🗗 🐺 🝑 Name Type Width Decimals Label Values Missing Columns Align Measure ◆ Data View \ Variable View / < > SPSS Processor is ready

#### Variable view

O Name:

The first character of the variable name must be alphabetic and no spaces are allowed

O Type (Numeric, mostly):

The two basic types of variables that you'll use are numeric and string

O Label:

You can specify the details of the variable.

O Values (= the codes of the answers)

This is used to suggest which numbers represent which categories when the variables represent a category

- O Measure (= Level of Measurement)
- O Width:

Allows you to determine the number of characters SPSS will allow to be entered for the variable

O Decimals:

Number of decimals

O Alignment:

Right or left

O Measurements:

The most important thing to fill out. (Scale/continuous, nominal, or ordinal)

**NOTE1:** in SPSS our number one concern is to fill out these 3 labels;

Variable name, values & measurements.

**NOTE2:** we can't determine a value for continuous variables.

O Missing data:

What we mean be missing data is when someone does not answer a question in the survey what should we do with this missing data; should we guess it or fill it automatically with the mode or the mean or something else. That's determined in the missing data tab.

**Note:** \*we cannot use the data view before filling out the variable view.

\*number of variables you can enter is infinite.

## Coding data into the SPSS:

#### **Convert Questions** → Variables

- Name of the variable
- Variable label

Ex: gender

Value labels (data codes)

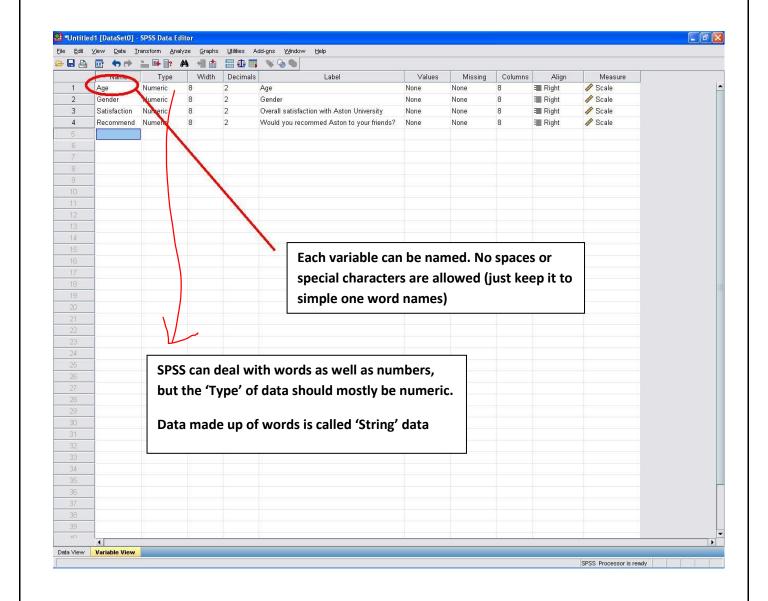
Ex: 1=female 2=male

Level of measurement (Measure)

EX: level of education; to convert it to numbers:

1 = sub school 2 = high school

3 = Bachelor 4 = graduate degree



Note: 1-The 'value' tab is where you turn your numbers into meaningful values.

E.g. 1 = Female, 2 = Male

2-This label tab is where you can give your variable a meaningful label.

This will be the label that appears in tables and graphs.

**Note:** the best way to collect the data is in the continuous form and the worst way is the nominal form. Try to stay away from the dependent form.

## **Types of Regression:**

## 1. Multiple regression:

- a. Step-wise:
  - When the study is new and not tested before.
  - It tells us which variables are significant and which are not.
- b. Hierarchal:
  - The study is done before but not in Jordan.
- c. Logistic:
  - For dichotomous data.

## 2. Linear regression

The End