St. PAUL INSTITUTE
FOR REPRODUCTIVE HEALTH AND RIGHTS

Graphics in IBM SPSS

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Learning objectives

By the end of this session, learners should be able to

- Understand the functions of the different graphics
- Create various types of graphics using the “graphs” menu and using “frequencies”

Contents

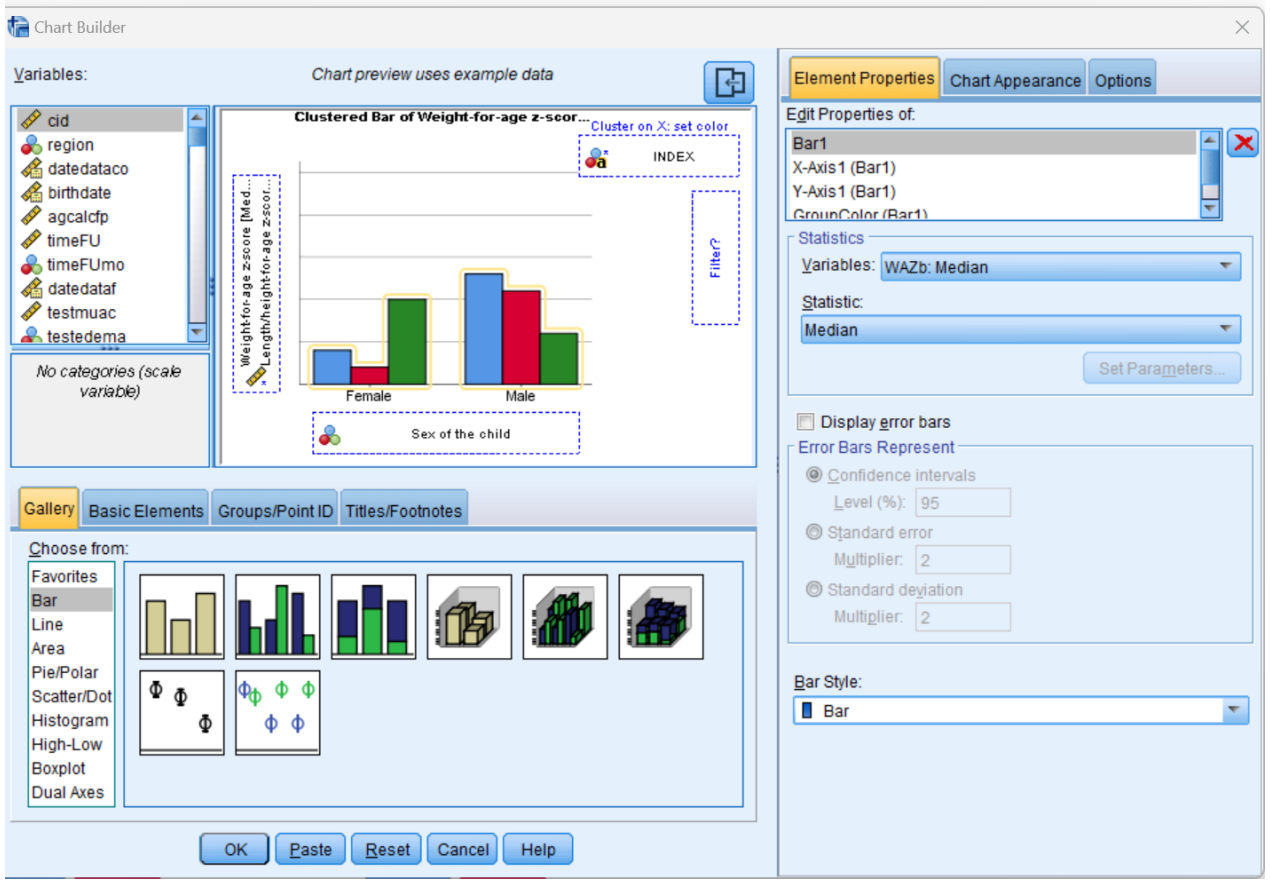
The Graphs menus :

- Chart Builder
- Graphboard Template Chooser
- Legacy Dialogs

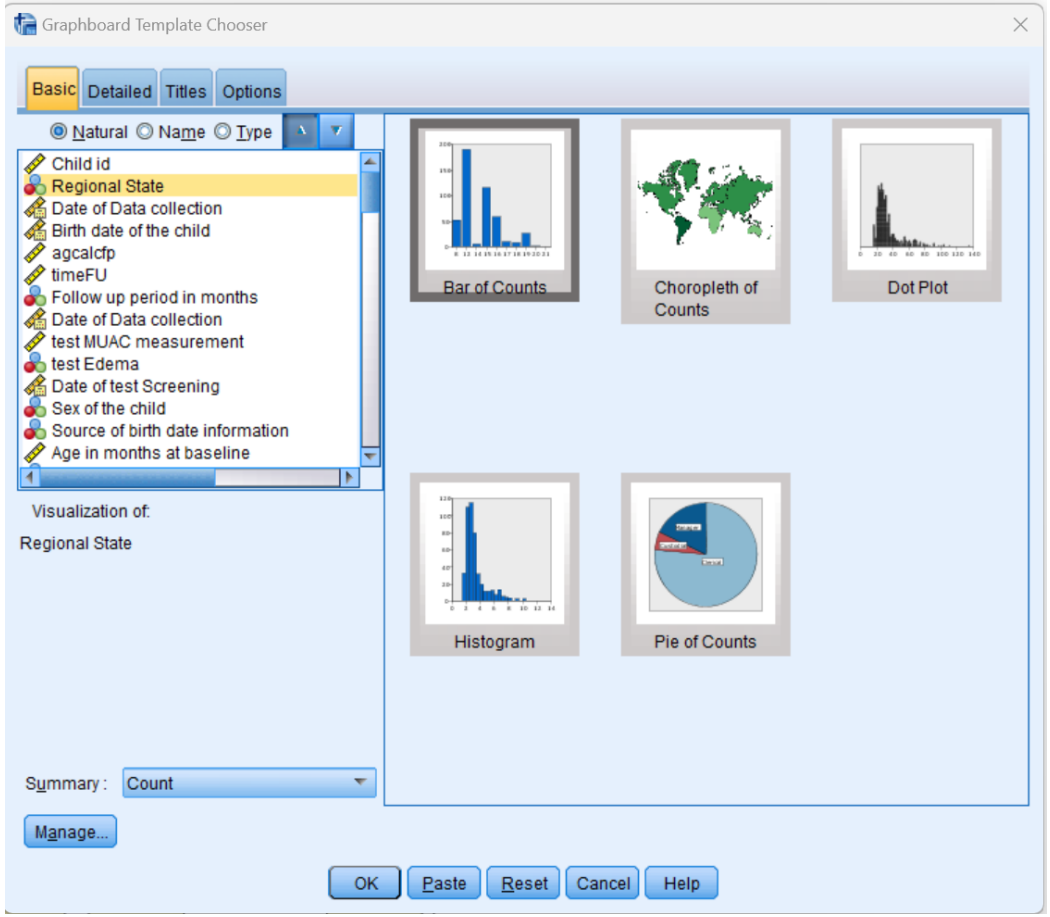
Graphboard Template Chooser

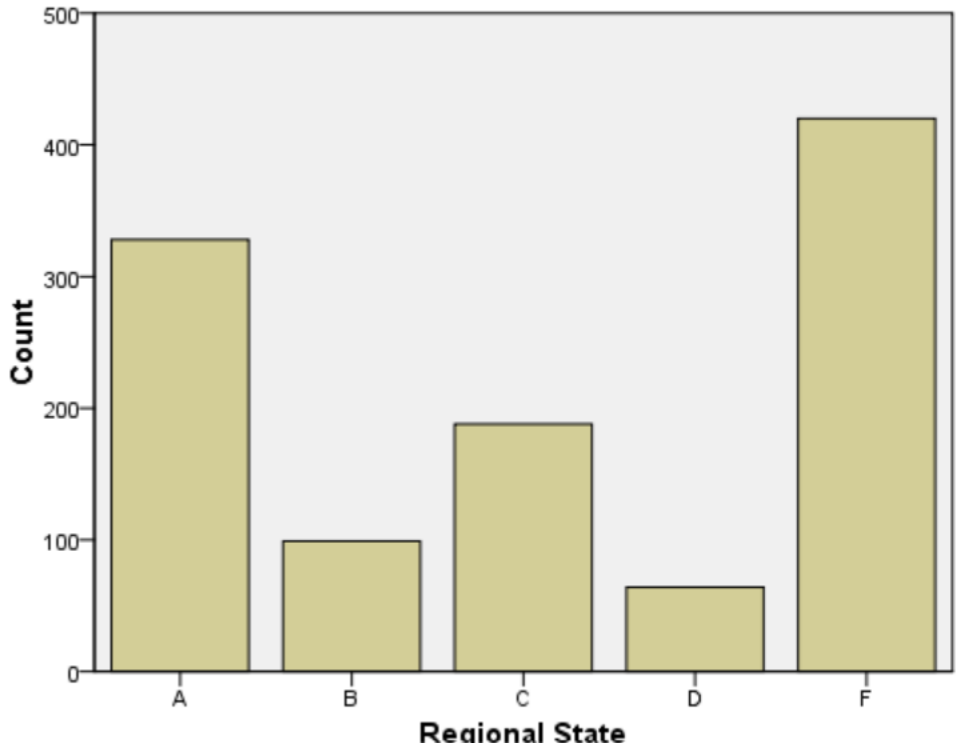
- Basic : Choose a variable first and then see the suggested graph
- Detailed: Chose graph style first, then choose the variables

Chart builder



Graphboard Template Chooser





Graphics

Various Graphics in SPSS

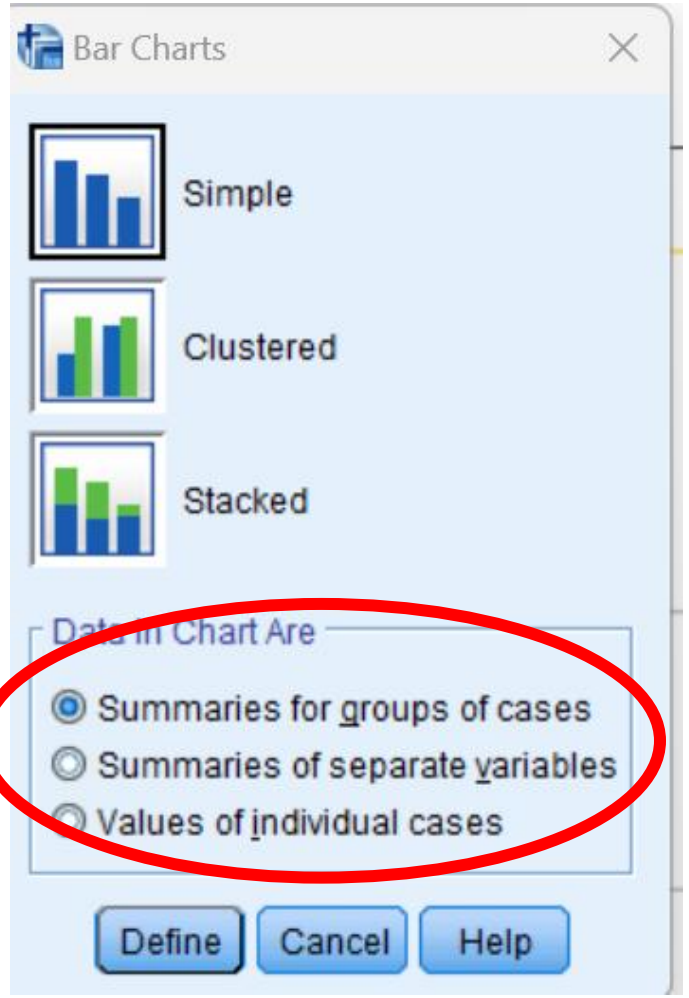
- Bar chart
- Pie chart
- Histogram
- Area chart
- Line chart
- Scatter plot

Various Options for Graphics in SPSS

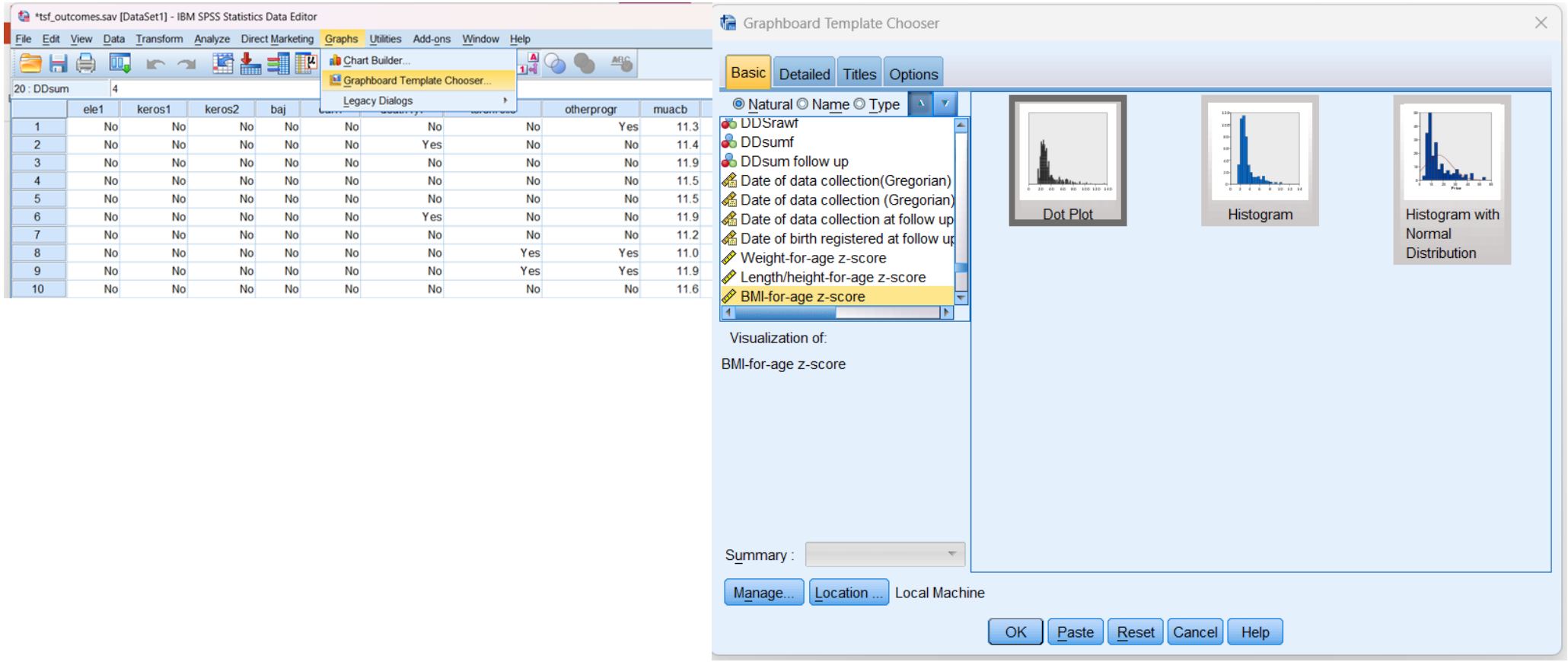
- Simple graphics: Use the Chart option in Analyze > Descriptive Statistics > Frequencies
- Complex graphics: Use Graphs in the Menu bar

Bar chart

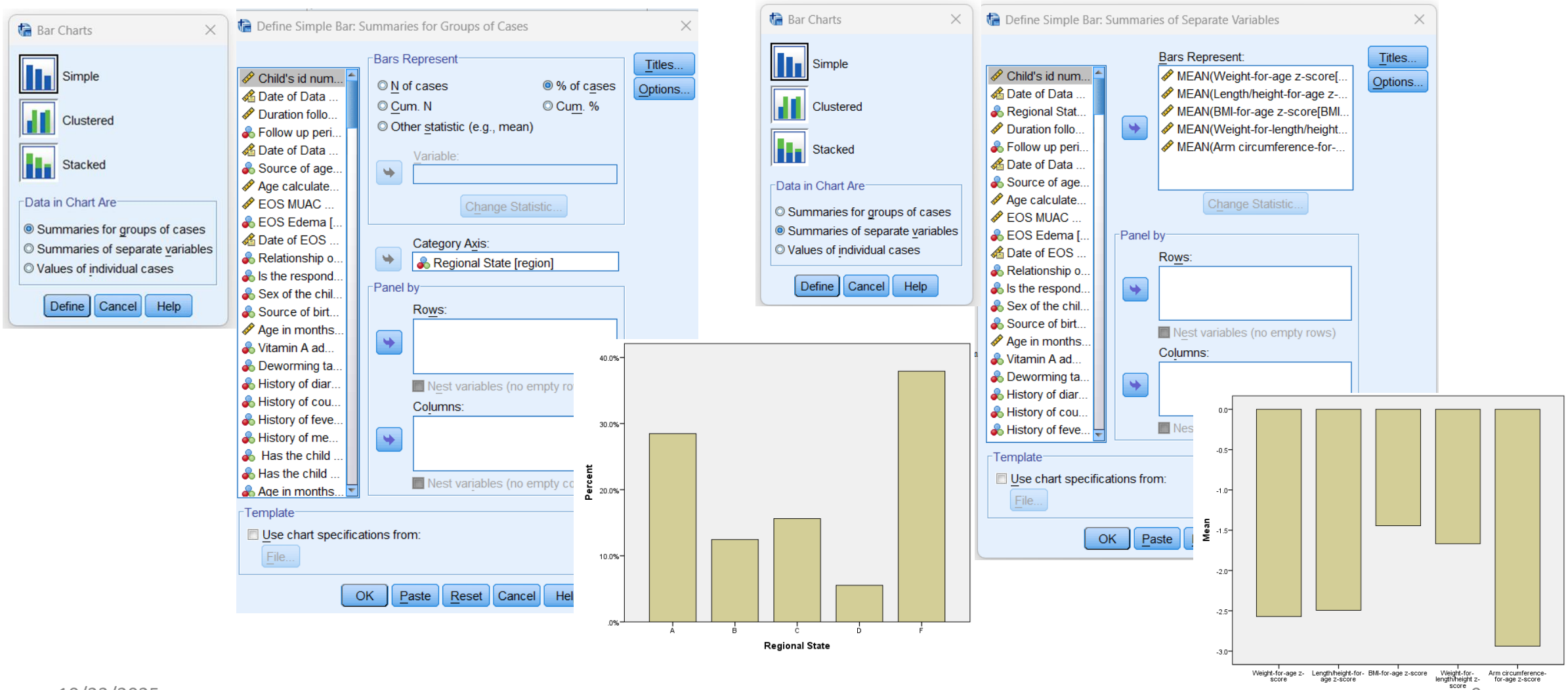
- One : Simple bar chart
- Two : Grouped bar chart
- Three : Multiple variable



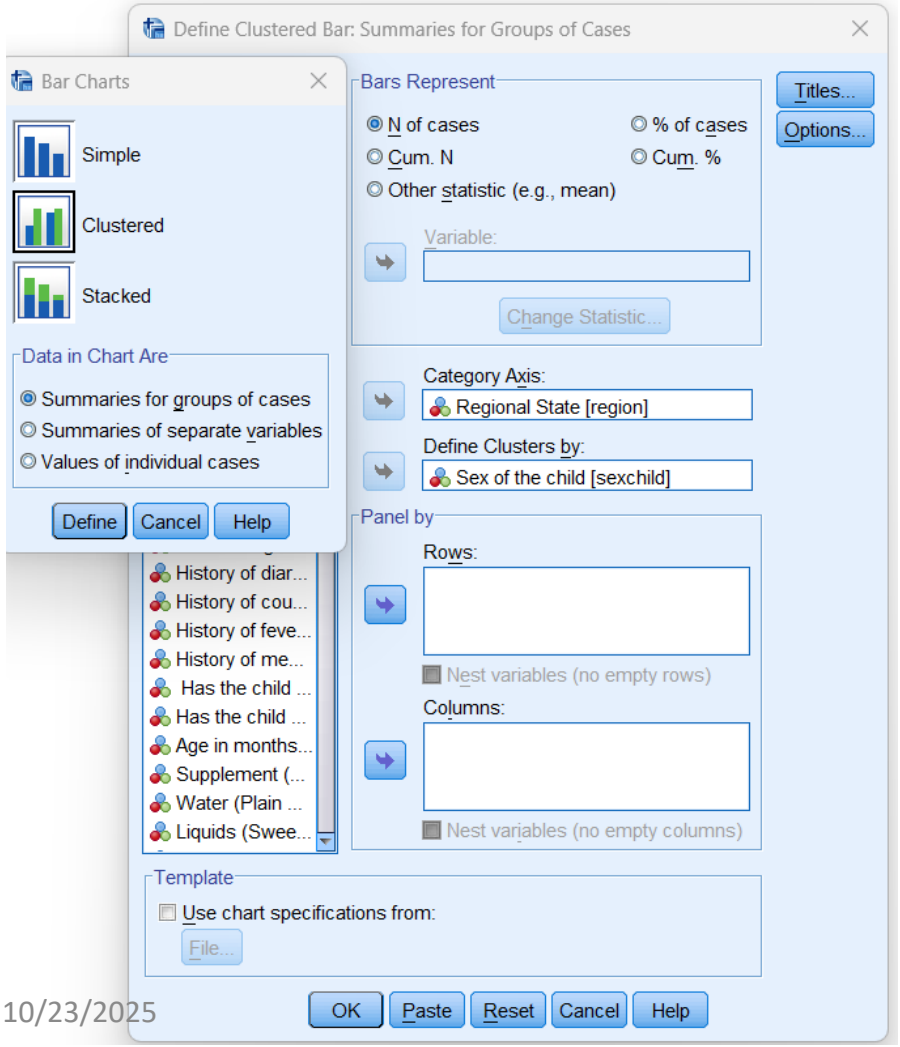
Bar chart

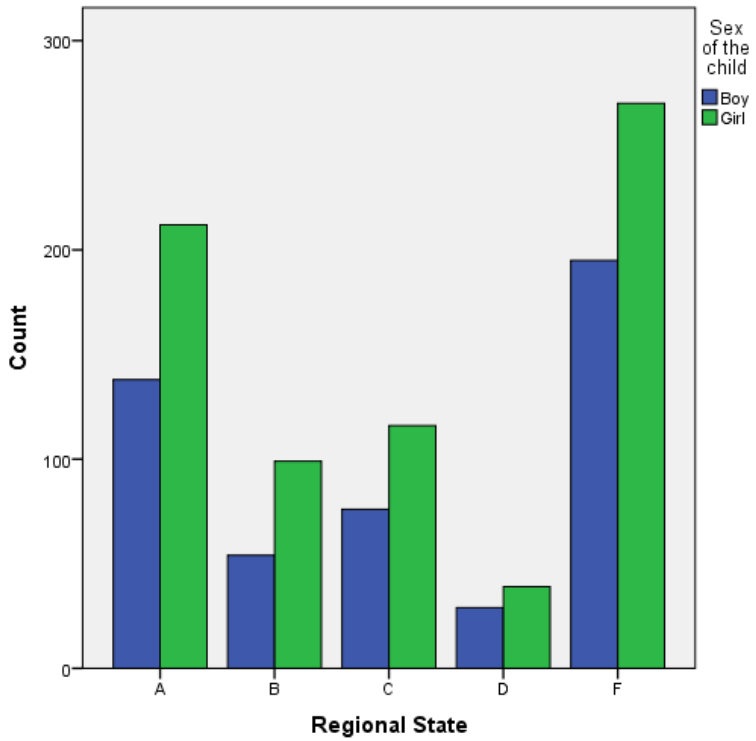

*tsf_outcomes.sav [DataSet1] - IBM SPSS Statistics Data Editor
File Edit View Data Transform Analyze Direct Marketing Graphs Utilities Add-ons Window Help
Chart Builder...
Graphboard Template Chooser...
Legacy Dialogs
20 : DDsum
4
ele1 keros1 keros2 baj otherprogr muacb
1 No No No No No No No Yes 11.3
2 No No No No No Yes No No 11.4
3 No No No No No No No No 11.9
4 No No No No No No No No 11.5
5 No No No No No No No No 11.5
6 No No No No No Yes No No 11.9
7 No No No No No No No No 11.2
8 No No No No No No Yes Yes 11.0
9 No No No No No No Yes Yes 11.9
10 No No No No No No No No 11.6
Graphboard Template Chooser
Basic Detailed Titles Options
Natural Name Type
DDSrawf
DDsumf
DDsum follow up
Date of data collection(Gregorian)
Date of data collection (Gregorian)
Date of data collection at follow up
Date of birth registered at follow up
Weight-for-age z-score
Length/height-for-age z-score
BMI-for-age z-score
Visualization of:
BMI-for-age z-score
Dot Plot
Histogram
Histogram with Normal Distribution
Summary :
Manage... Location ... Local Machine
OK Paste Reset Cancel Help

Simple bar chart (using summaries of cases, variables)

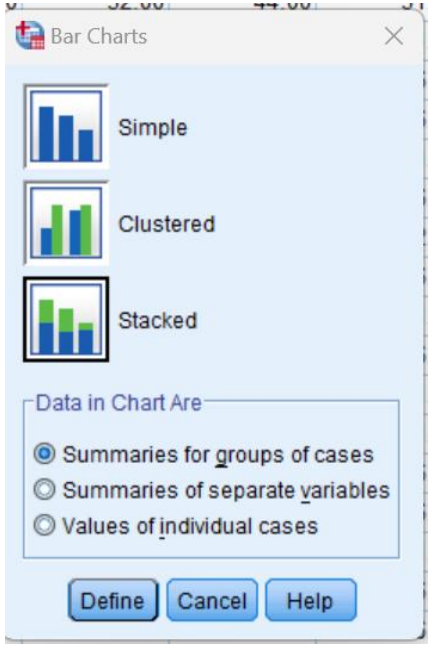


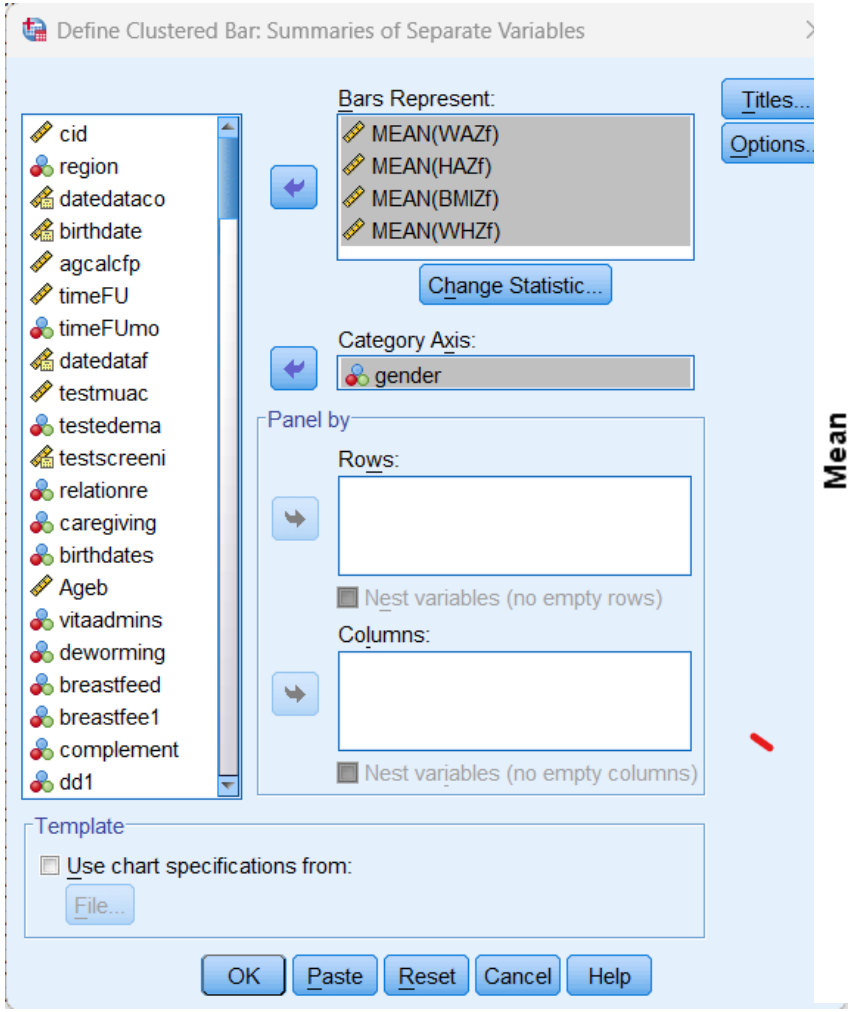
Clustered bar chart

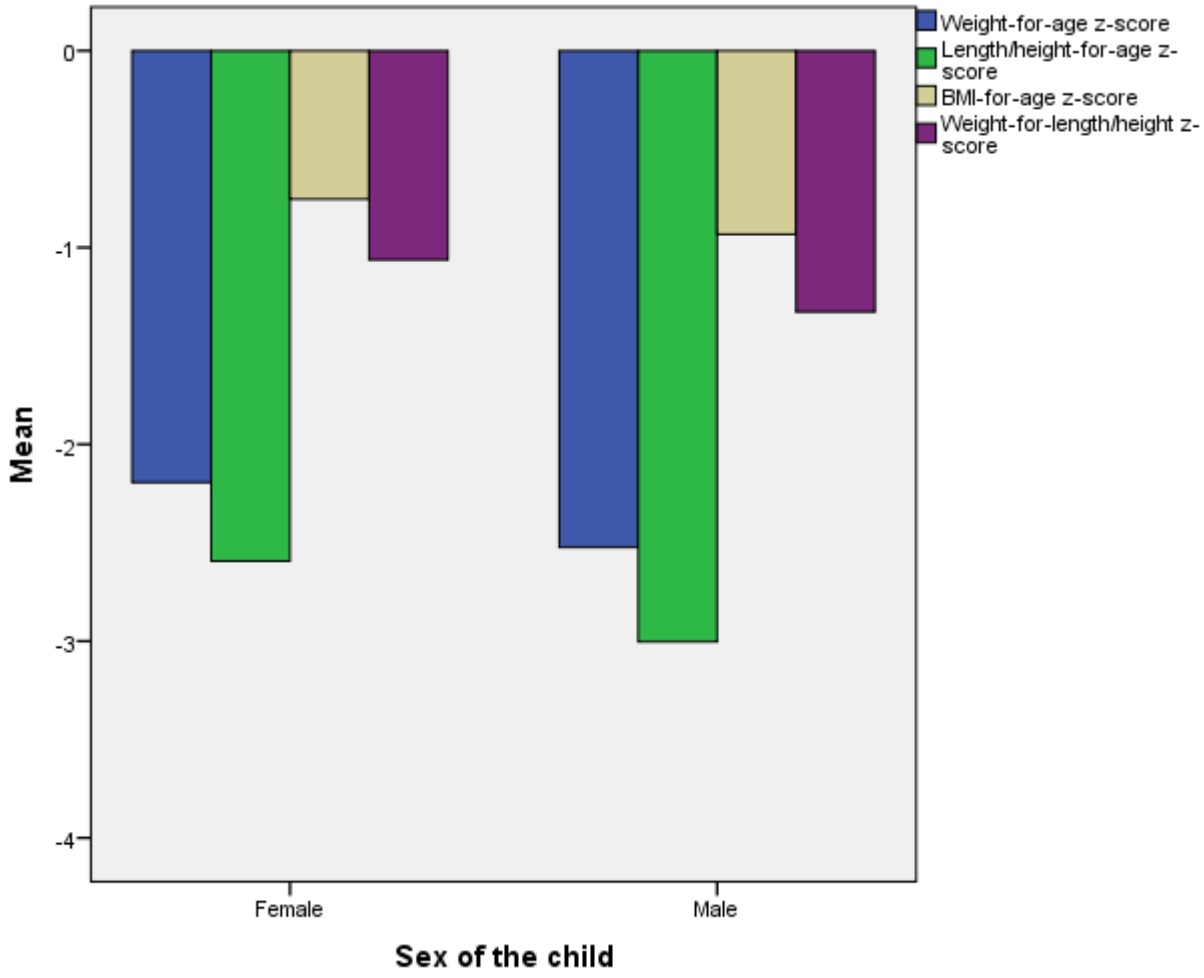




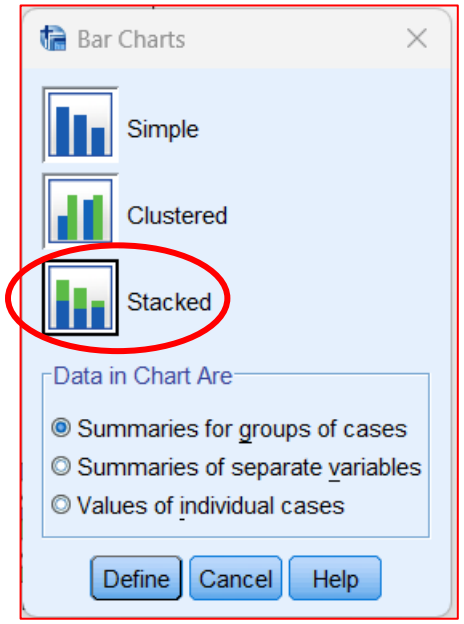
Clustered bar chart

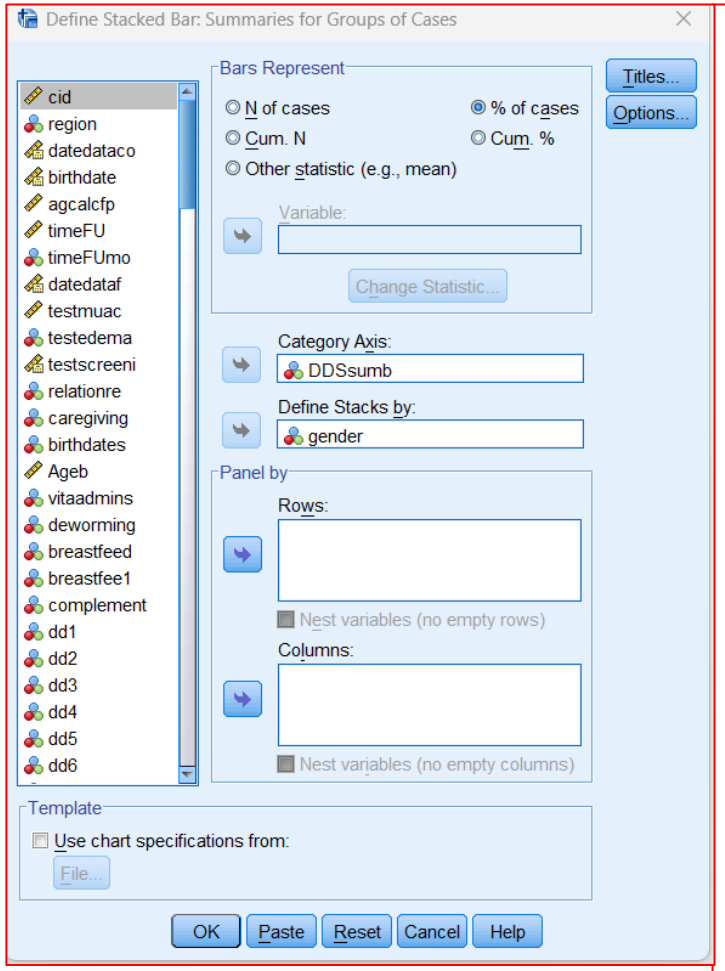


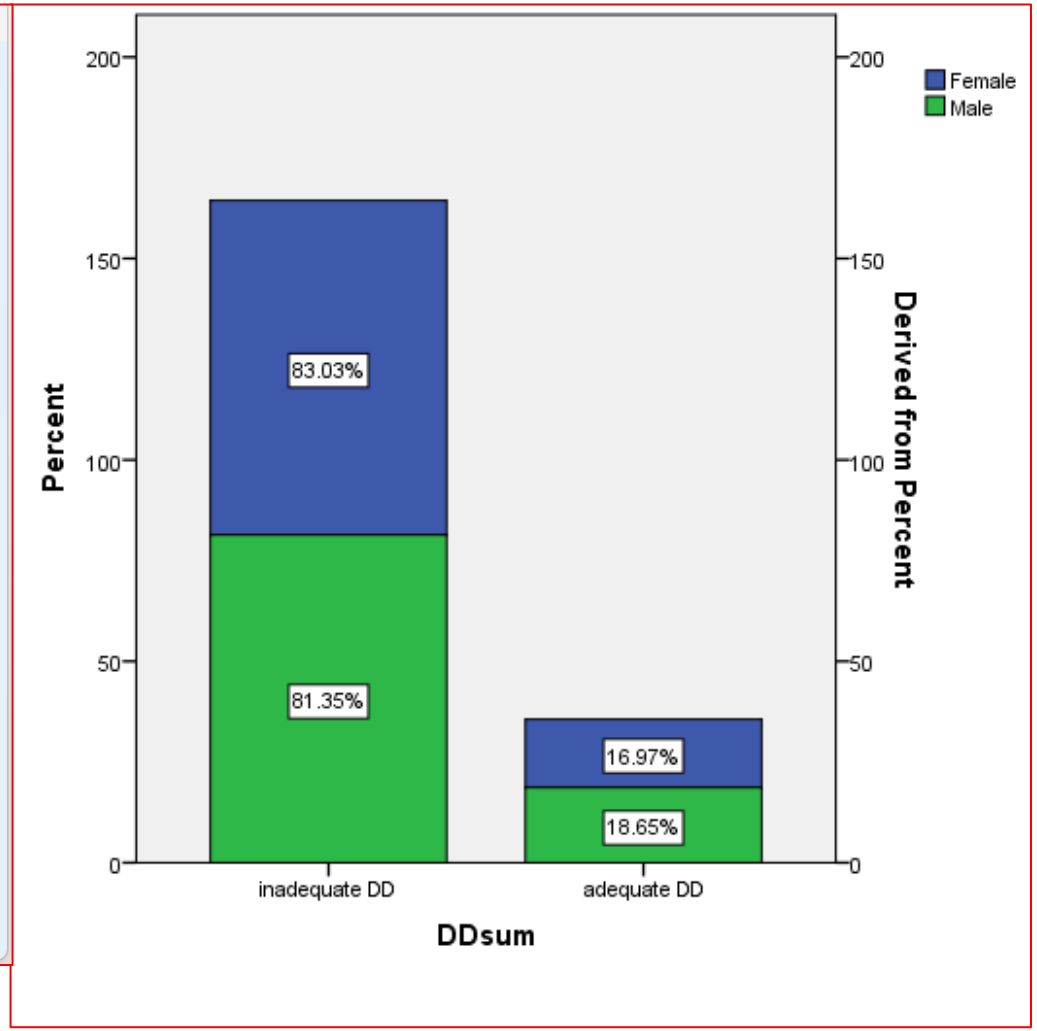




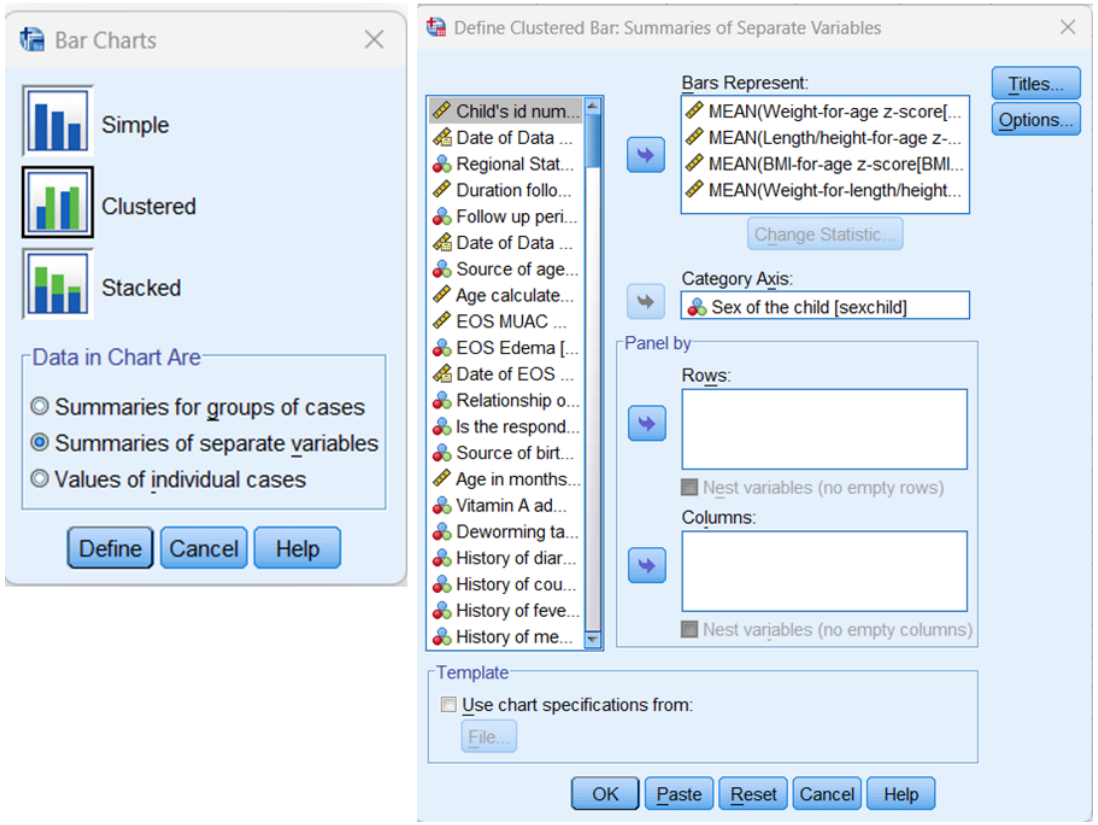
Stacked bar chart

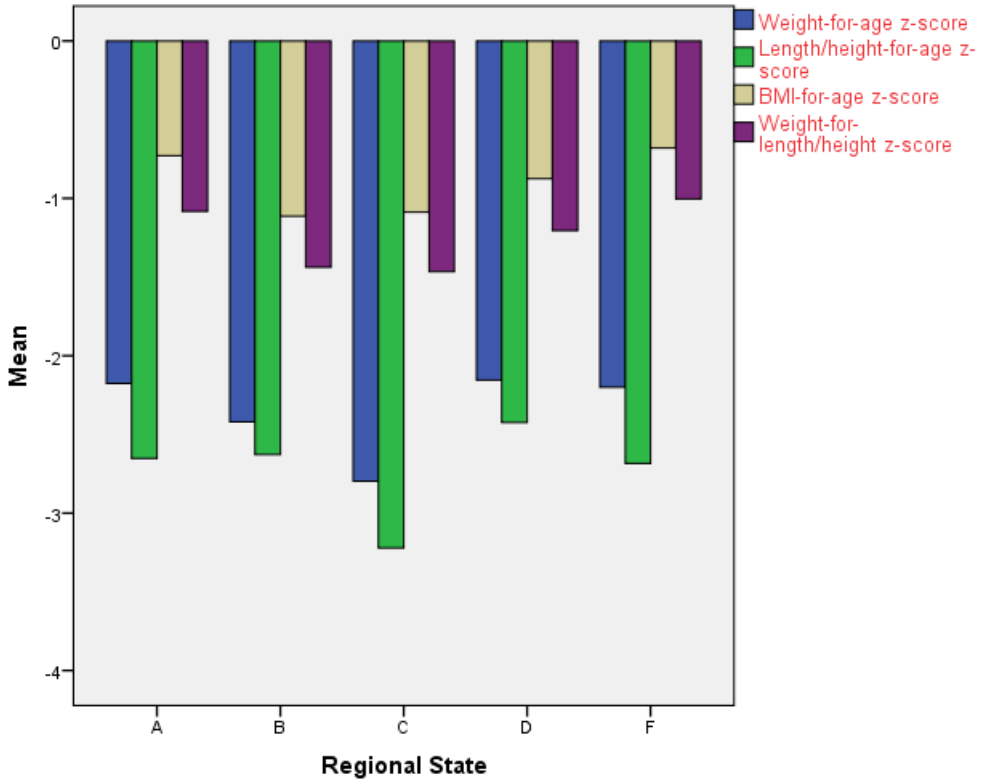






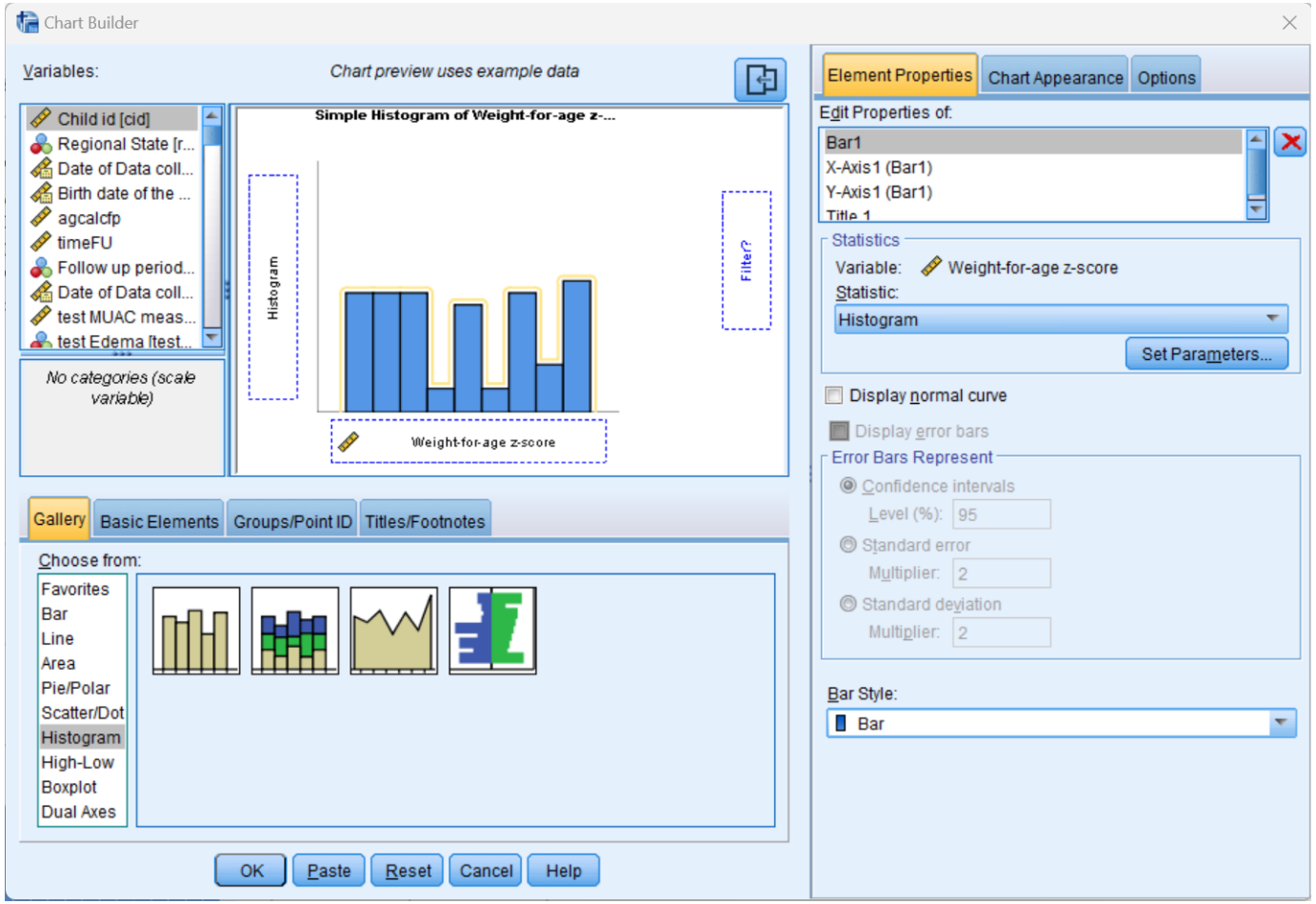
Multiple variables



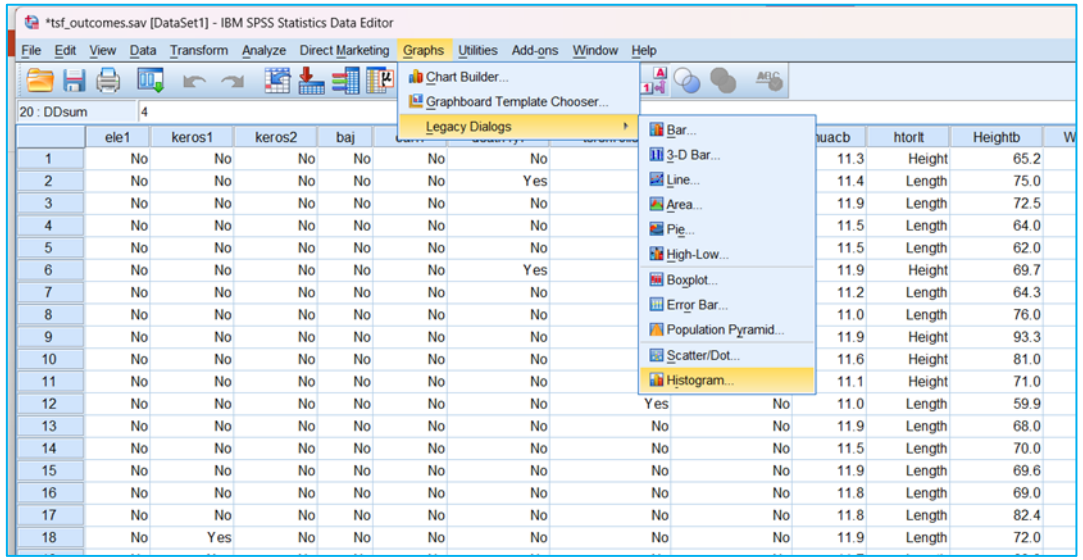


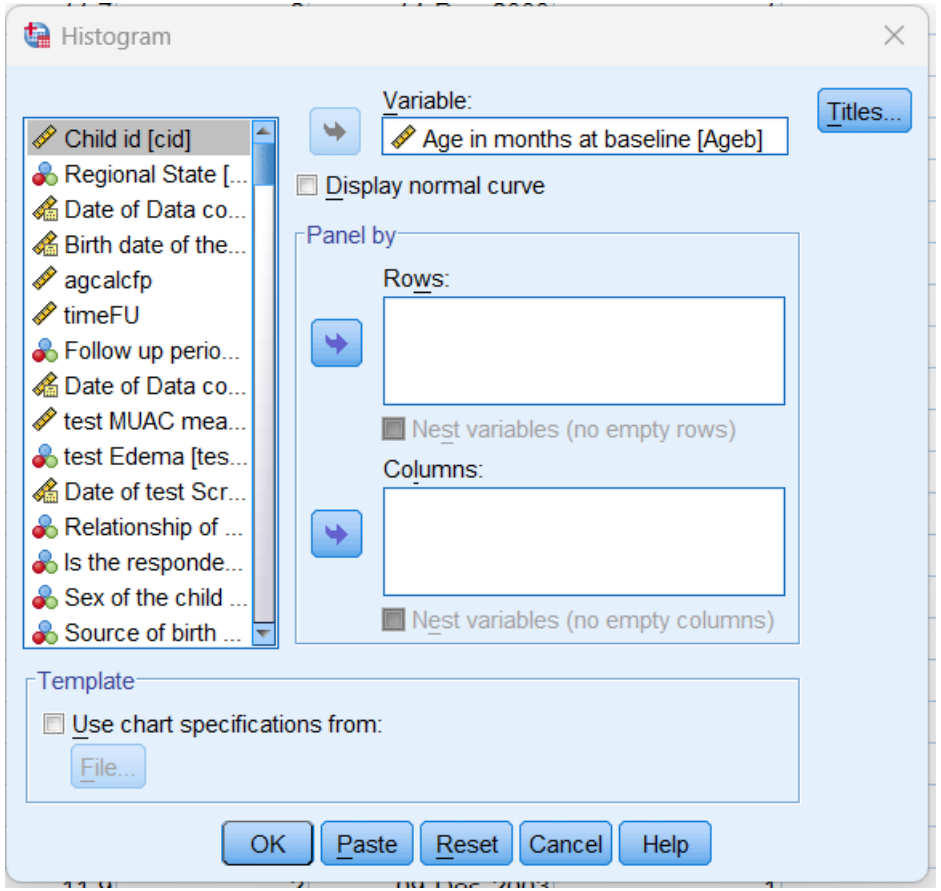
Histograms

- Used with data
  - Quantitative
  - Scaled
  - Interval/ratio level
- It is called a scale of justice
- What does it do?
  - Shape
  - Outliers
  - Gaps
  - Symmetry

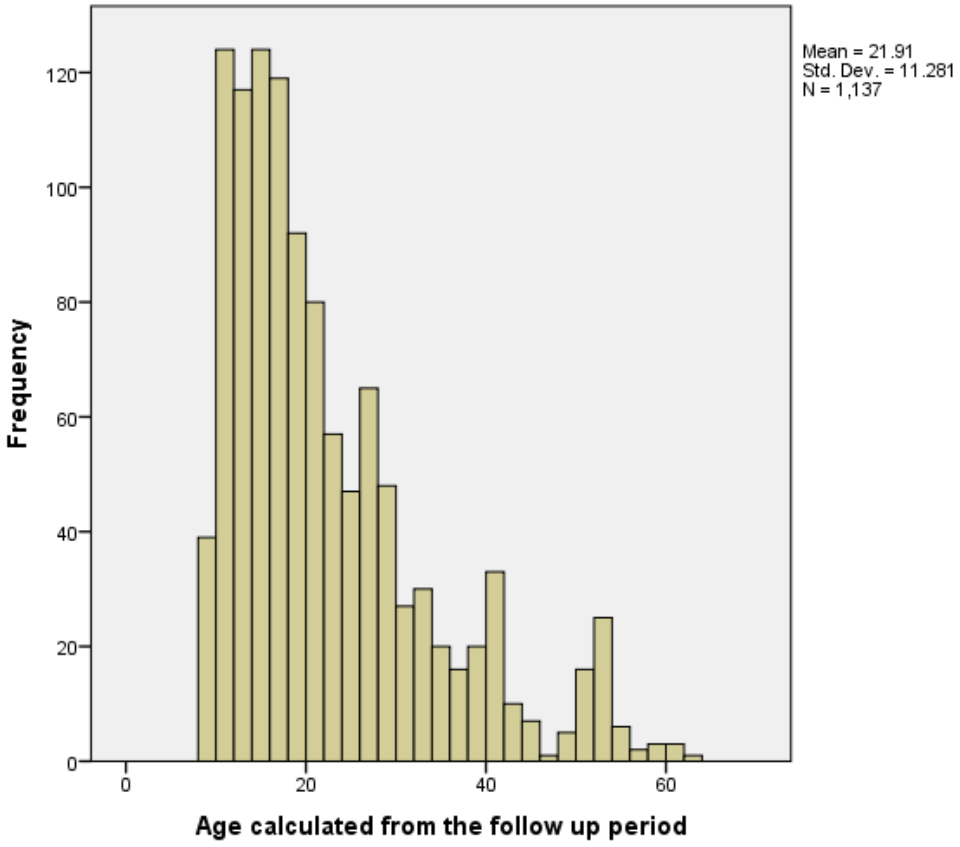


Histograms

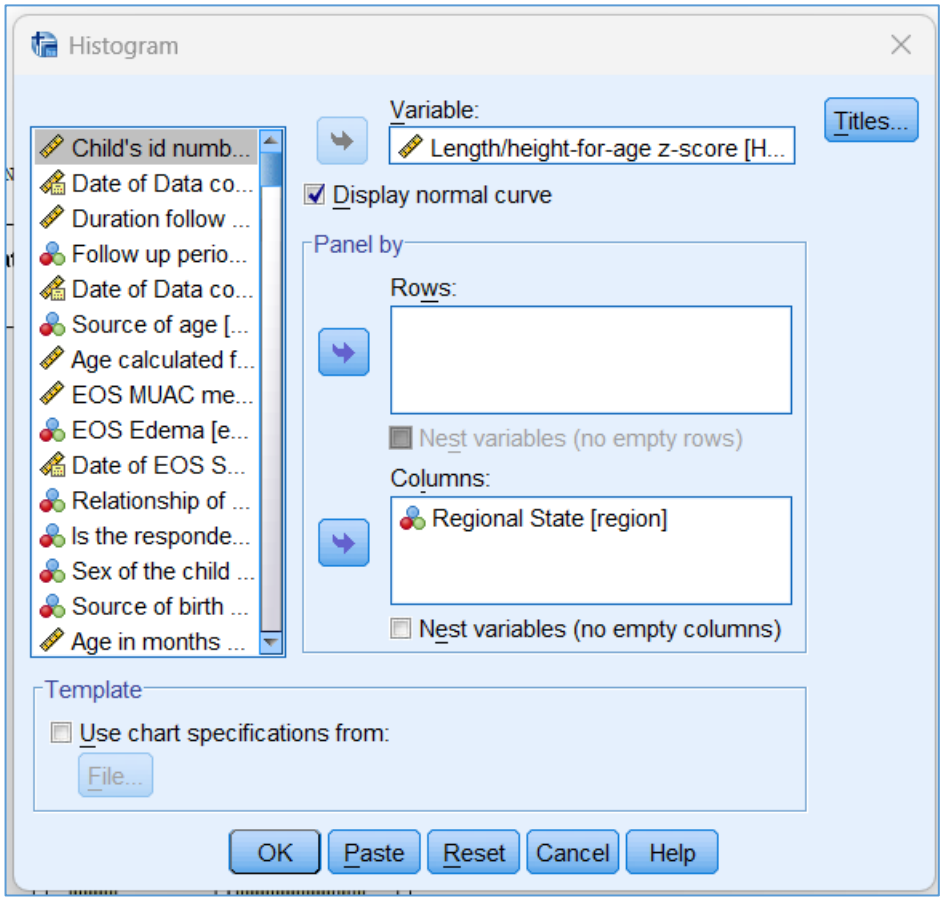

*tsf_outcomes.sav [DataSet1] - IBM SPSS Statistics Data Editor
File Edit View Data Transform Analyze Direct Marketing Graphs Utilities Add-ons Window Help
Chart Builder...
Graphboard Template Chooser...
Legacy Dialogs
Bar...
3-D Bar...
Line...
Area...
Pie...
High-Low...
Boxplot...
Error Bar...
Population Pyramid...
Scatter/Dot...
Histogram...
20 : DDsum
4
ele1 keros1 keros2 baj htorlt Heightb
1 No No No No 11.3 Height 65.2
2 No No No No Yes 11.4 Length 75.0
3 No No No No No 11.9 Length 72.5
4 No No No No No 11.5 Length 64.0
5 No No No No No 11.5 Length 62.0
6 No No No No Yes 11.9 Height 69.7
7 No No No No No 11.2 Length 64.3
8 No No No No No 11.0 Length 76.0
9 No No No No No 11.9 Height 93.3
10 No No No No No 11.6 Height 81.0
11 No No No No No 11.1 Height 71.0
12 No No No No No Yes No 11.0 Length 59.9
13 No No No No No No No 11.9 Length 68.0
14 No No No No No No No 11.5 Length 70.0
15 No No No No No No No 11.9 Length 69.6
16 No No No No No No No 11.8 Length 69.0
17 No No No No No No No 11.8 Length 82.4
18 No Yes No No No No No 11.9 Length 72.0

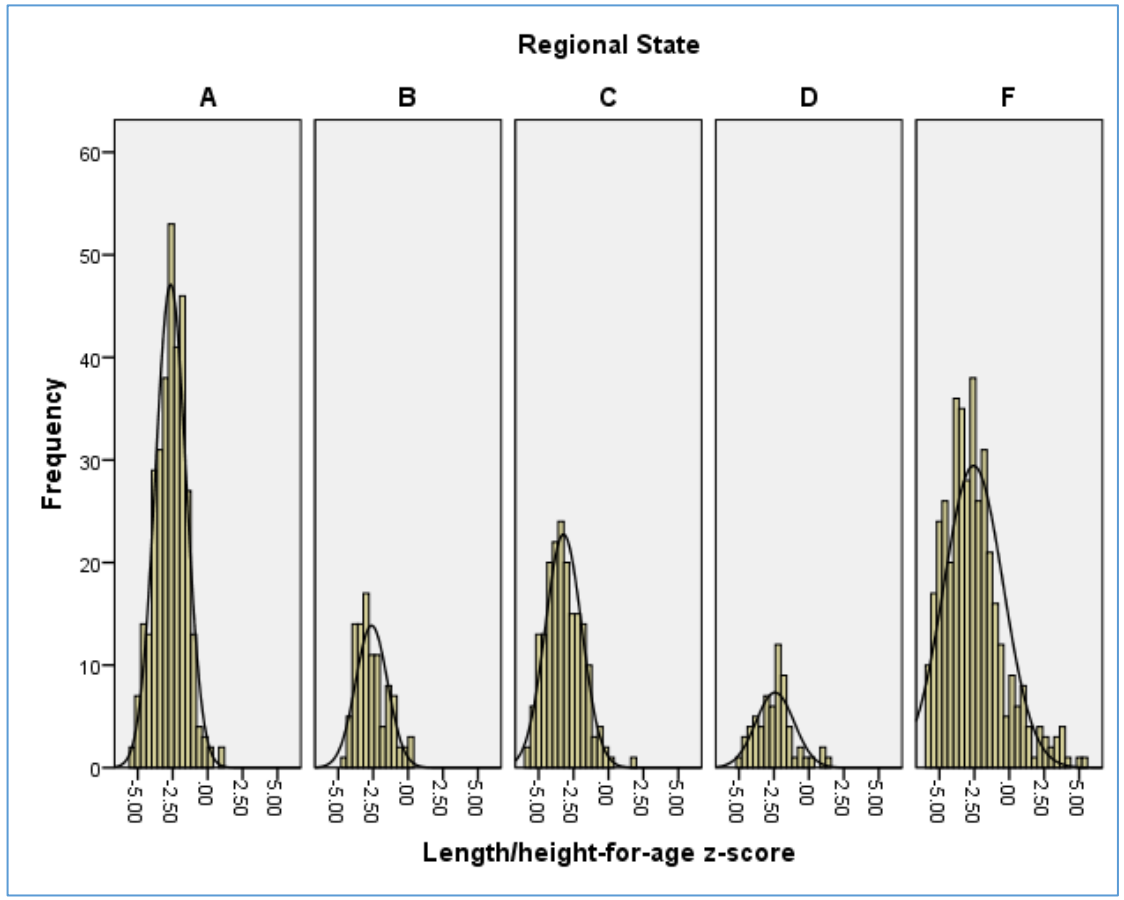

Histogram
Child id [cid]
Regional State [...
Date of Data co...
Birth date of the...
agcalcfp
timeFU
Follow up perio...
Date of Data co...
test MUAC mea...
test Edema [tes...
Date of test Scr...
Relationship of ...
Is the responde...
Sex of the child ...
Source of birth ...
Variable:
Age in months at baseline [Ageb]
Titles...
Display normal curve
Panel by
Rows:
Nest variables (no empty rows)
Columns:
Nest variables (no empty columns)
Template
Use chart specifications from:
File...
OK
Paste
Reset
Cancel
Help

Histogram


Mean = 21.91
Std. Dev. = 11.281
N = 1,137
Frequency
120
100
80
60
40
20
0
0
20
40
60
Age calculated from the follow up period

Histograms


Histogram
Variable:
Length/height-for-age z-score [H...
Titles...
Child's id numb...
Date of Data co...
Duration follow ...
Follow up perio...
Date of Data co...
Source of age [...
Age calculated f...
EOS MUAC me...
EOS Edema [e...
Date of EOS S...
Relationship of ...
Is the responde...
Sex of the child ...
Source of birth ...
Age in months ...
Display normal curve
Panel by
Rows:
Nest variables (no empty rows)
Columns:
Regional State [region]
Nest variables (no empty columns)
Template
Use chart specifications from:
File...
OK
Paste
Reset
Cancel
Help


Regional State
A
B
C
D
F
Frequency
0
10
20
30
40
50
60
-5.00
-2.50
.00
2.50
5.00
Length/height-for-age z-score

Scatter plots

What does it do?

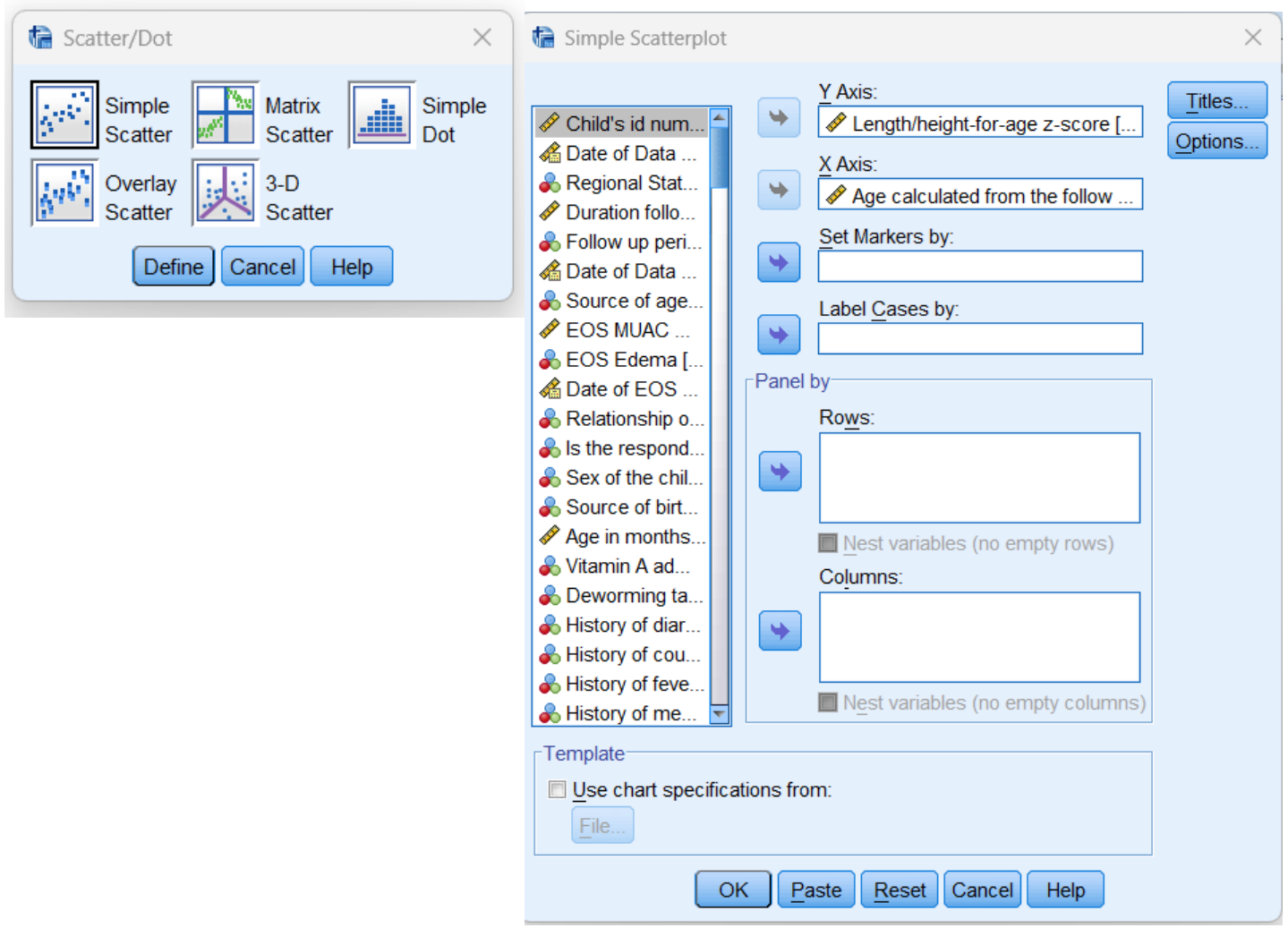
- Association between two quantitative/numerical variables
- What goes with what variable?
- Helps to visualize the association between two quantitative variables

We can visualize :

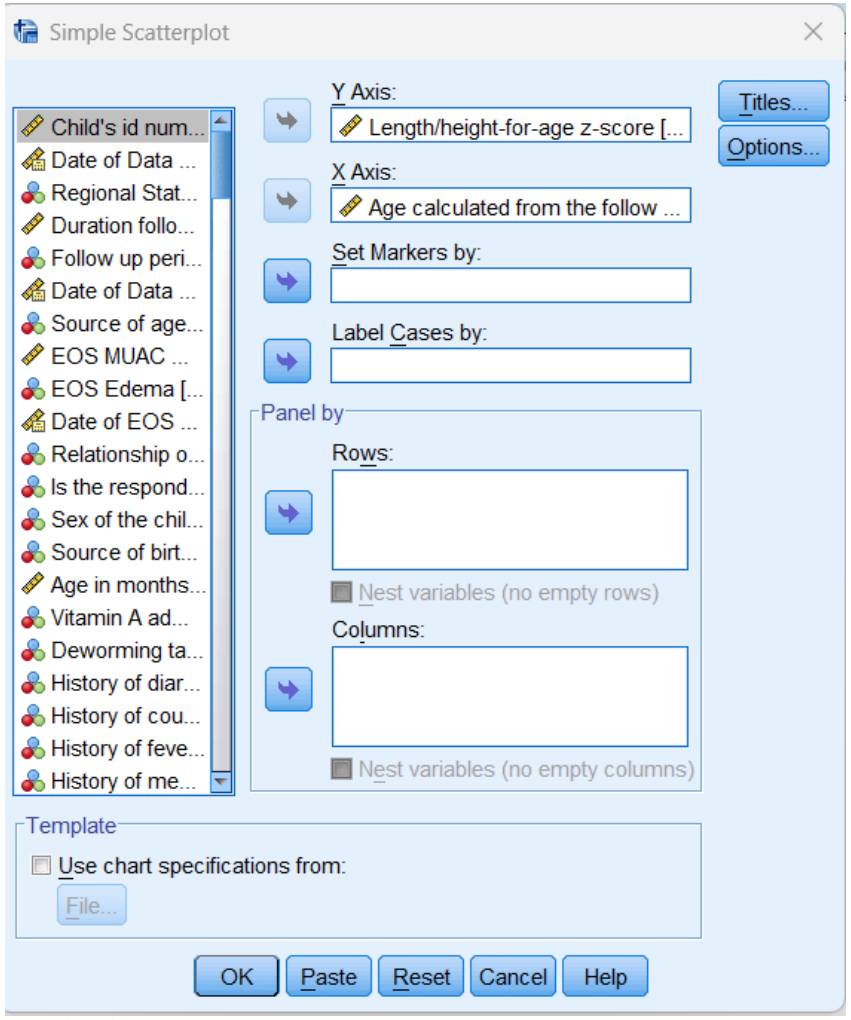
- Linearity
- Spread / heterogeneity of the data
- Outliners
- Correlation
  - Strong, weak, or no correlation,
  - Positive or negative

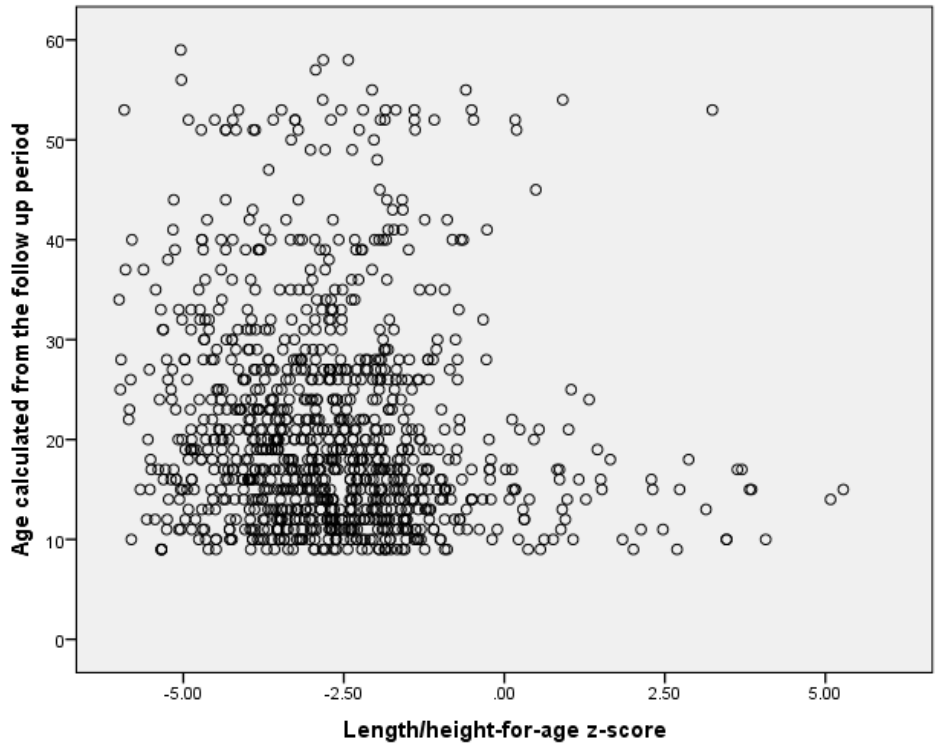
Types of scatter plots

- Simple scatter
- Matrix scatter



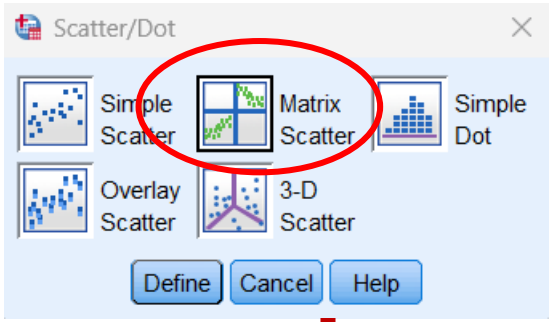
Scatter age vs LFA z-score

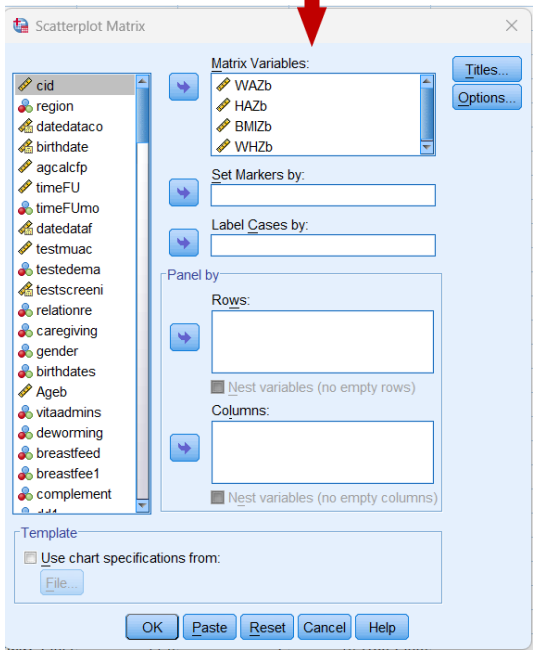


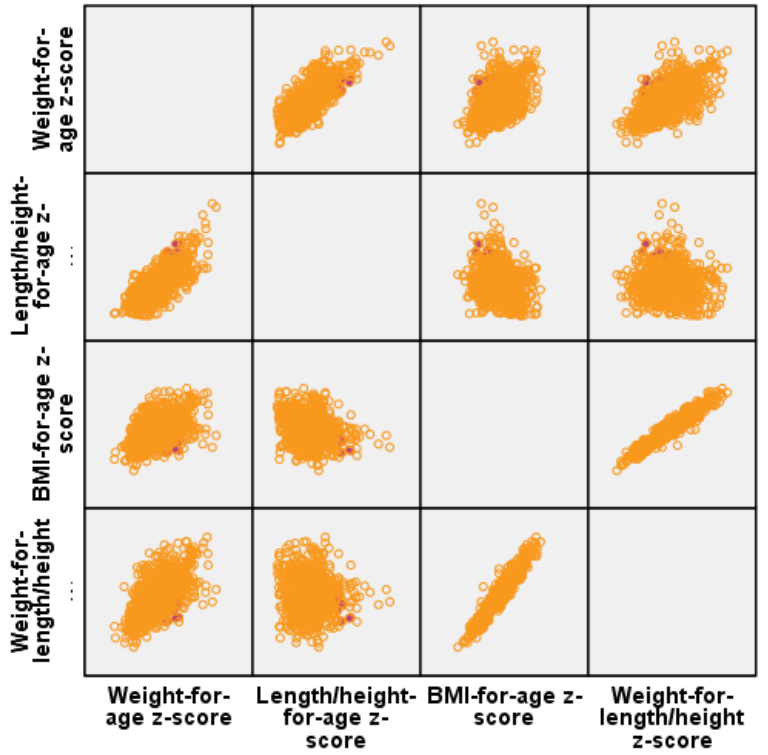


Matrix scatter

- A matrix scatter is a pair-wise scatter plot of several variables presented in a matrix format.
- What does it do?
  - Check correlation
  - Check if the correlation is negative or positive

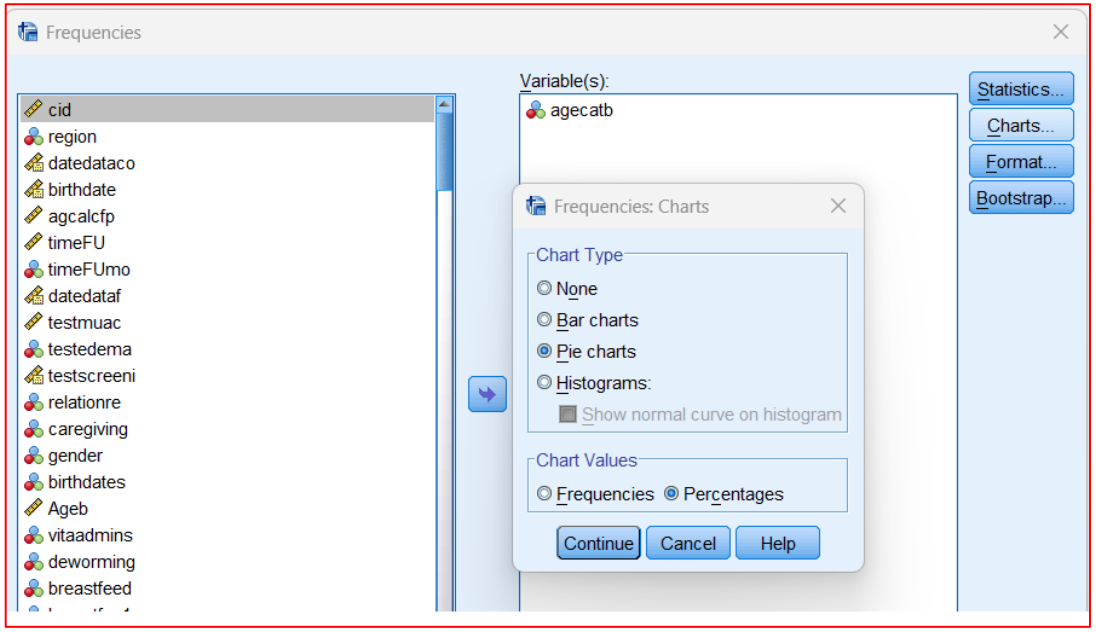






Pie charts

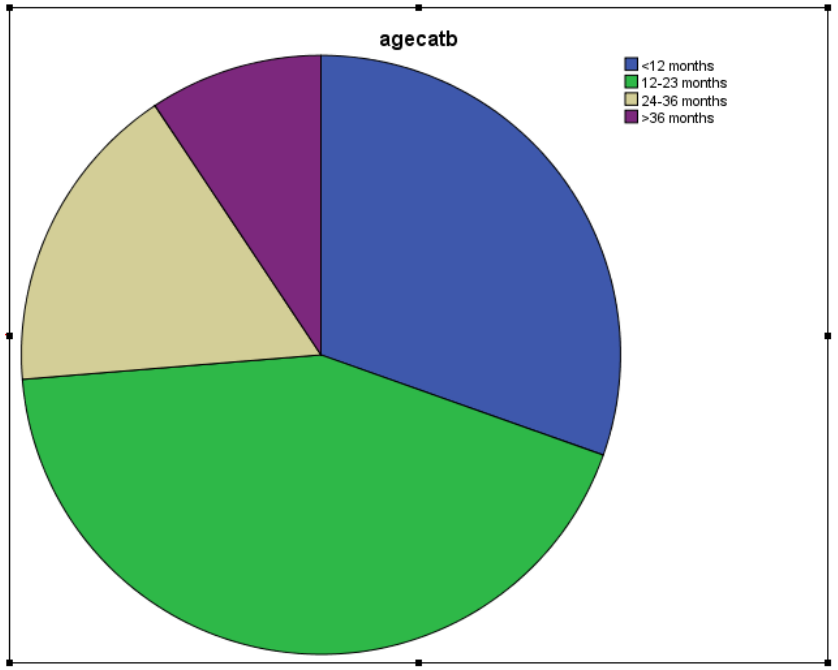
- Pie charts are ideal for showing proportions and summarizing data
- They can be made using raw data or pre-aggregated data

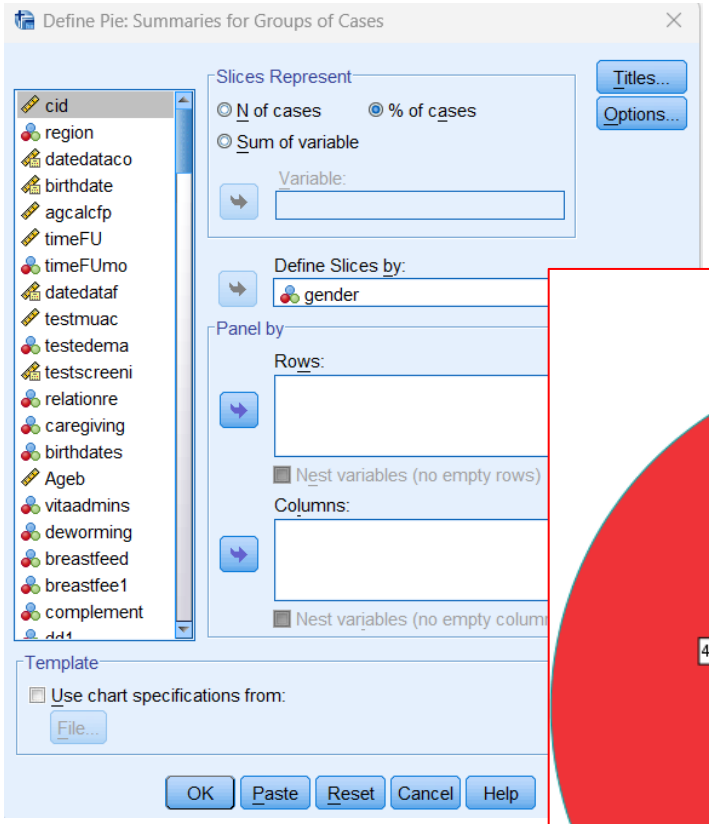


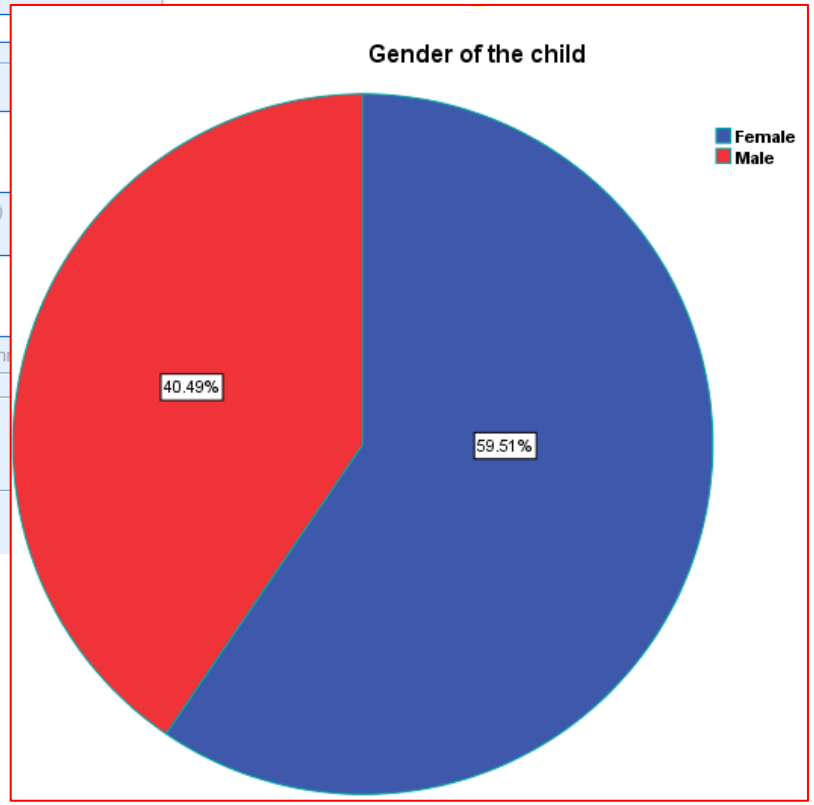
Pie charts

agecatb

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	<12 months	332	30.2	30.4	30.4
	12-23 months	472	42.9	43.3	73.7
	24-36 months	185	16.8	17.0	90.7
	>36 months	102	9.3	9.3	100.0
	Total	1091	99.3	100.0	
Missing	System	8	.7		
Total		1099	100.0		

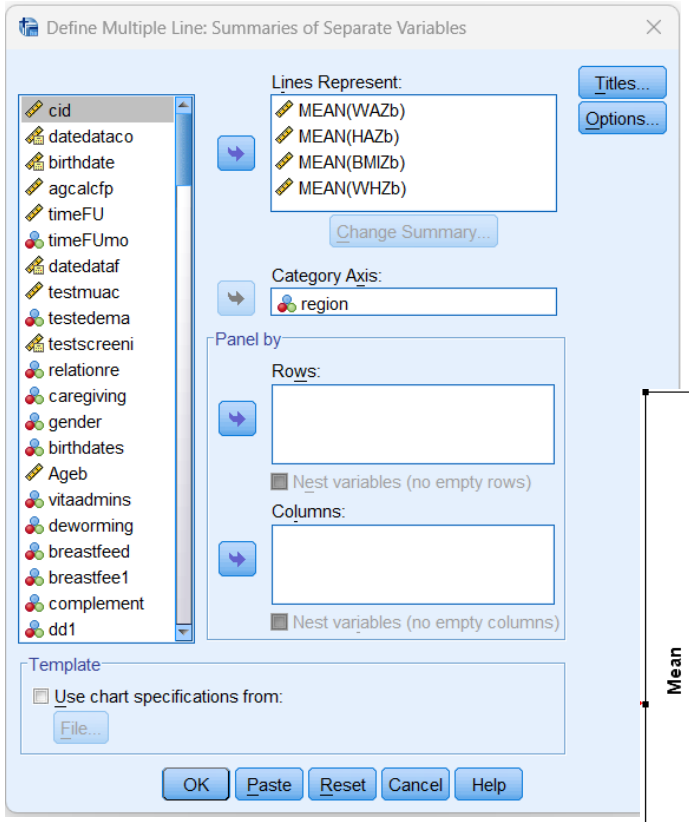


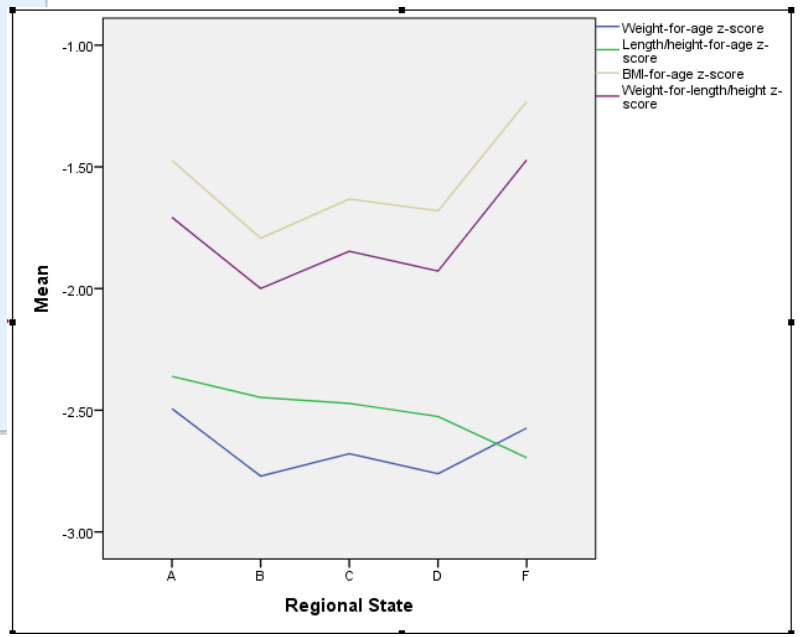




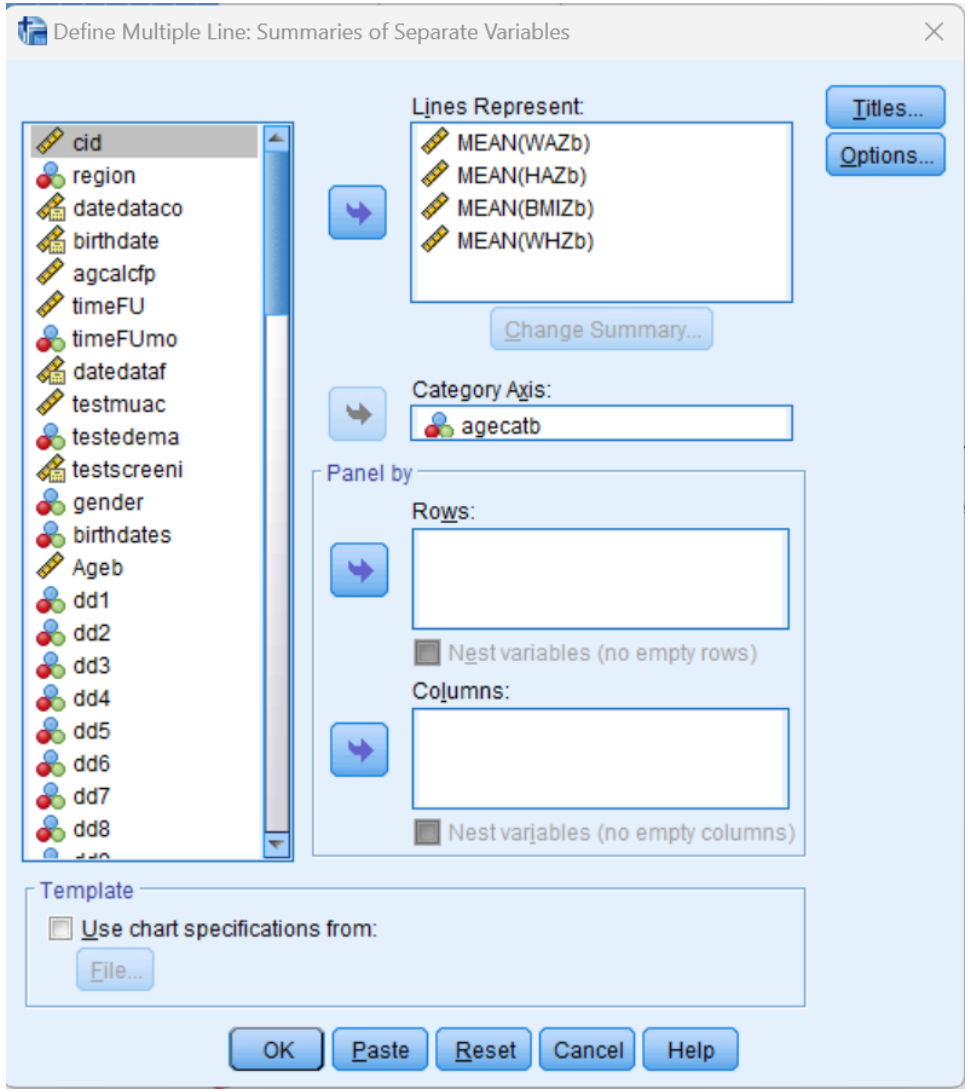
Line graphs

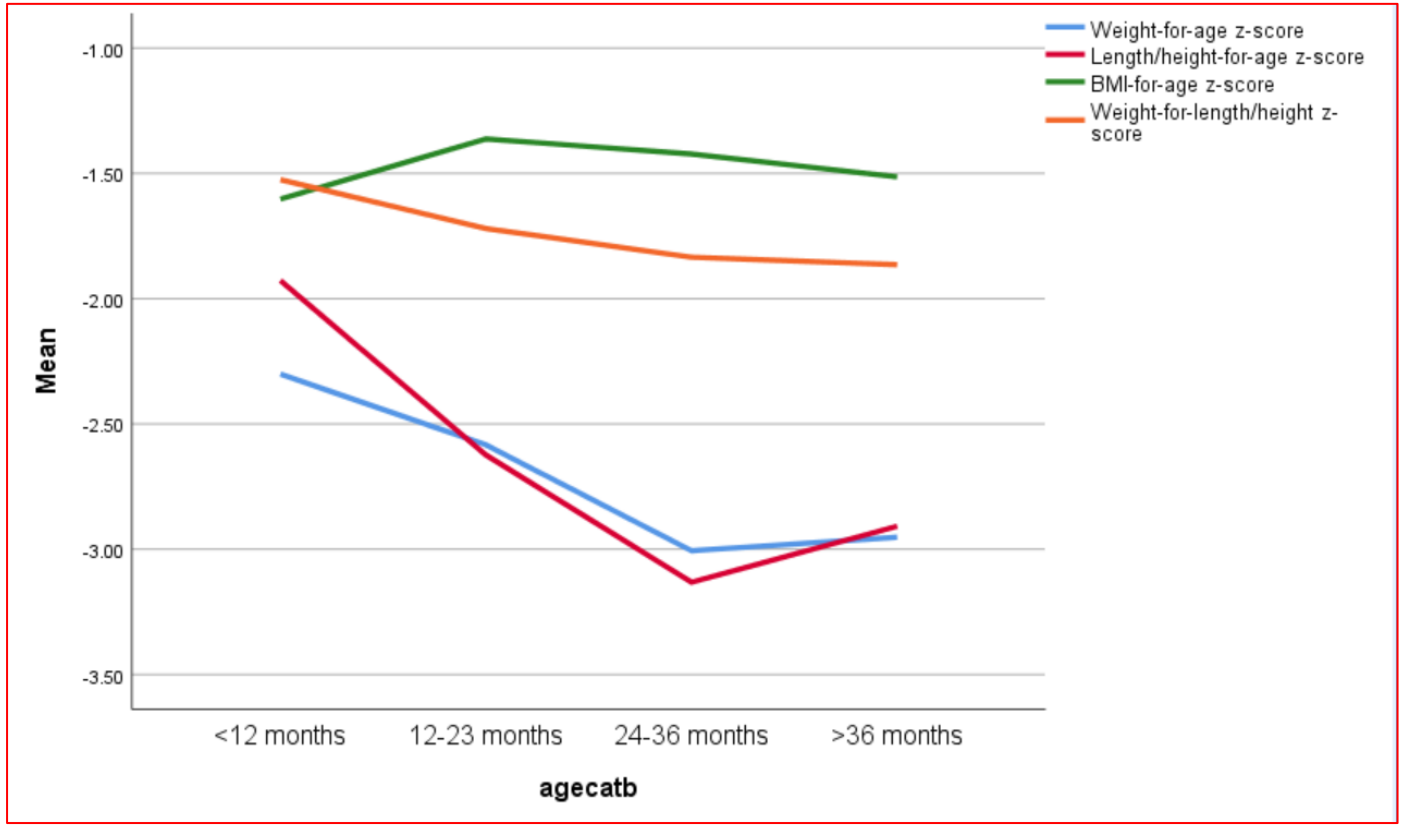
- Line graphs are useful in time-based designs
- Typically consists of a numerical variable over time
- More than one line can be plotted at once, as long as the time variable is consistent



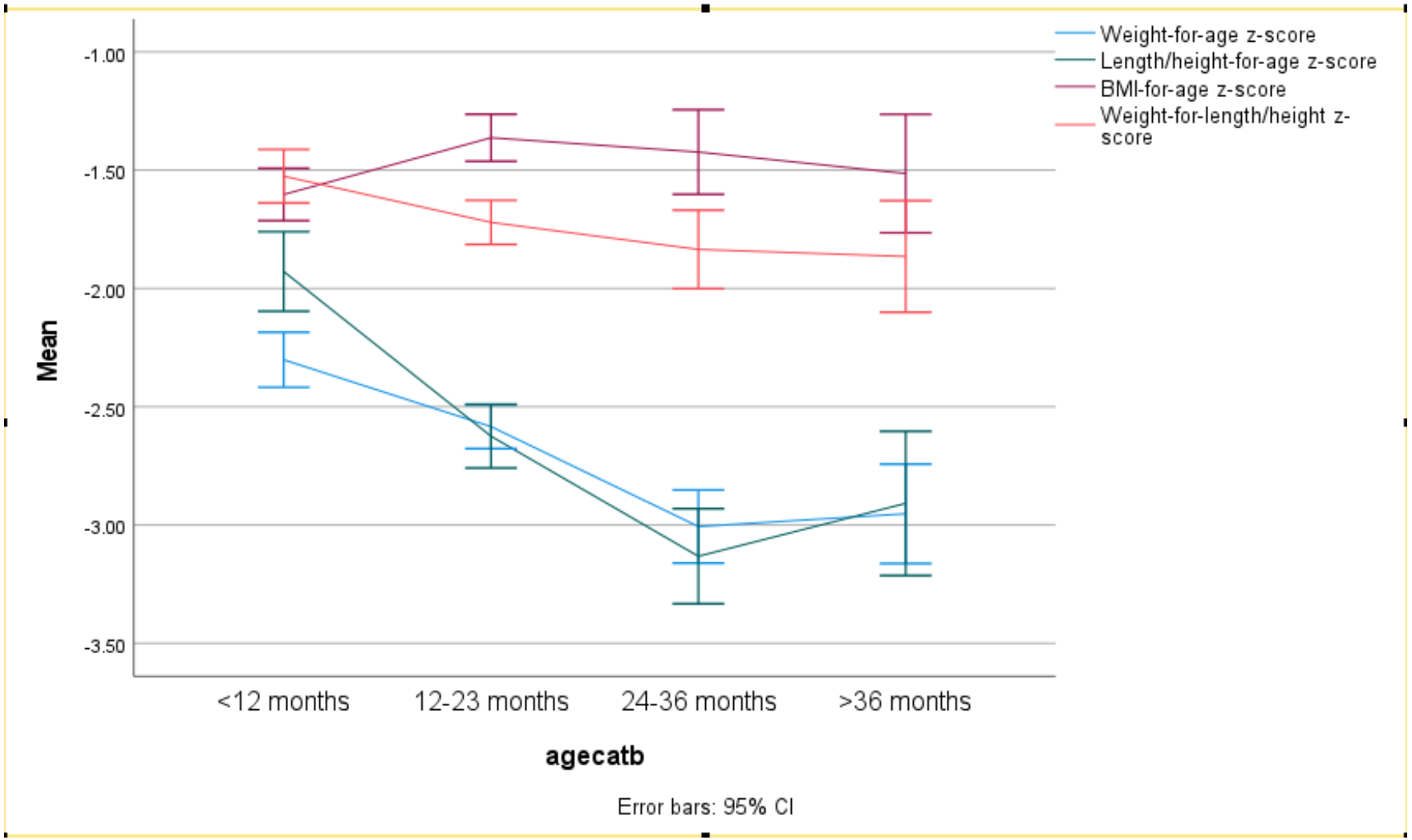


Line graphs

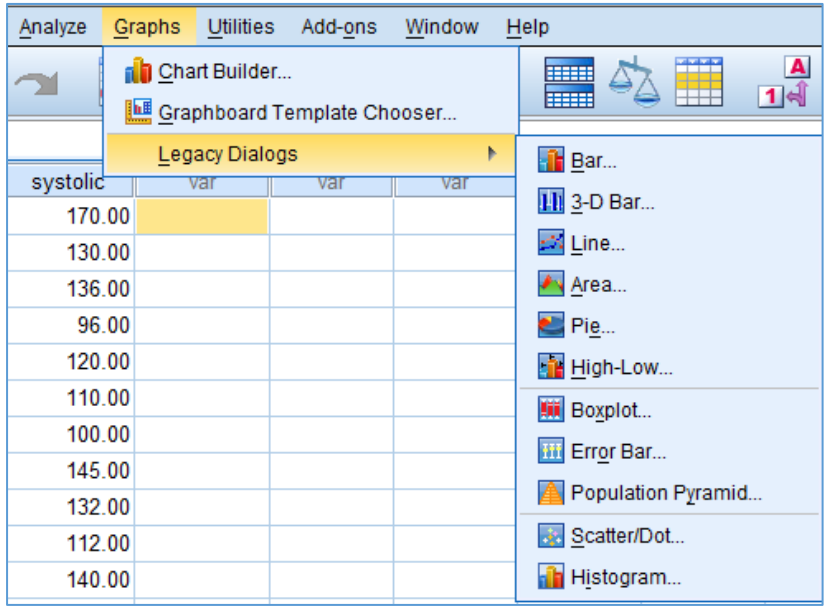

Define Multiple Line: Summaries of Separate Variables
cid
region
datedataco
birthdate
agcalcfp
timeFU
timeFUmo
datedataf
testmuac
testedema
testscreeni
gender
birthdates
Ageb
dd1
dd2
dd3
dd4
dd5
dd6
dd7
dd8
Lines Represent:
MEAN(WAZb)
MEAN(HAZb)
MEAN(BMIZb)
MEAN(WHZb)
Titles...
Options...
Change Summary...
Category Axis:
agecatb
Panel by
Rows:
Nest variables (no empty rows)
Columns:
Nest variables (no empty columns)
Template
Use chart specifications from:
File...
OK
Paste
Reset
Cancel
Help

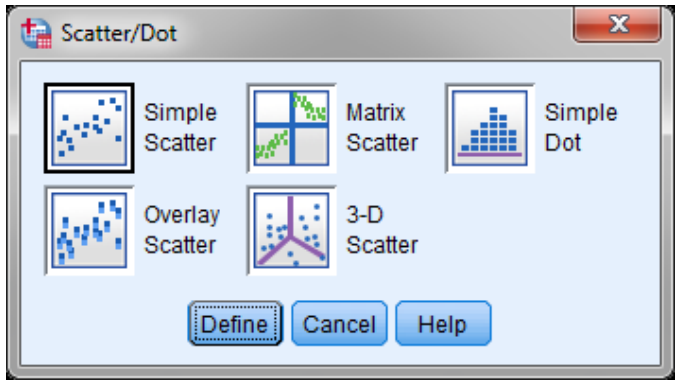

Weight-for-age z-score
Length/height-for-age z-score
BMI-for-age z-score
Weight-for-length/height z-score
-1.00
-1.50
-2.00
-2.50
-3.00
-3.50
Mean
<12 months
12-23 months
24-36 months
>36 months
agecatb

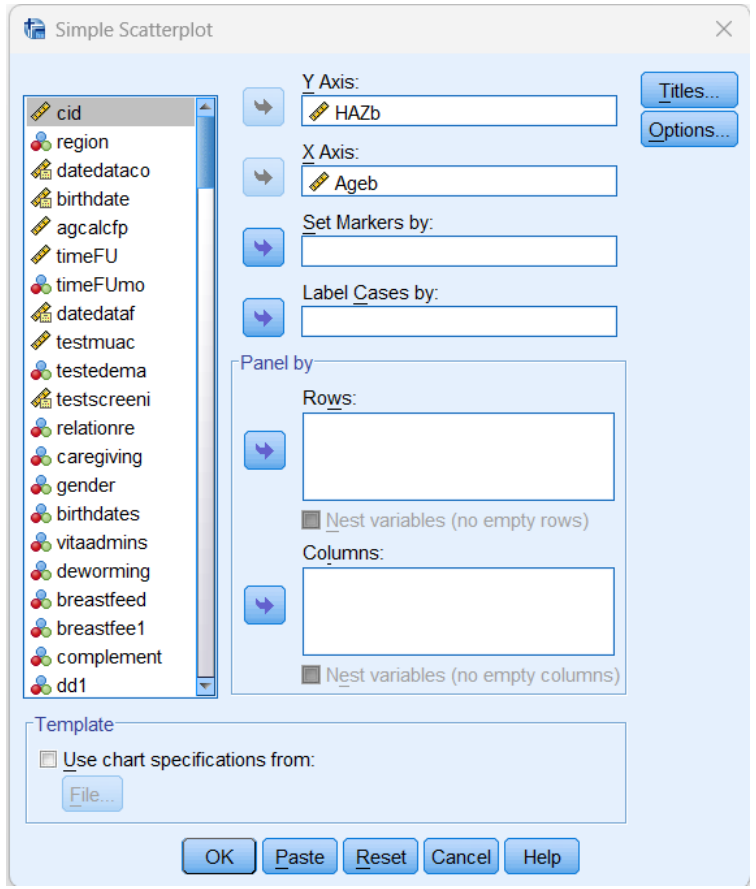
Line graph with error bars

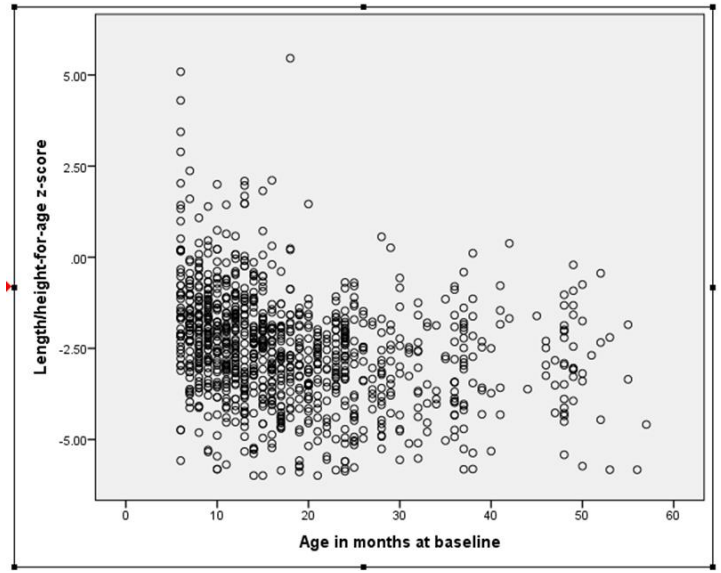


Creating and Editing Charts in SPSS

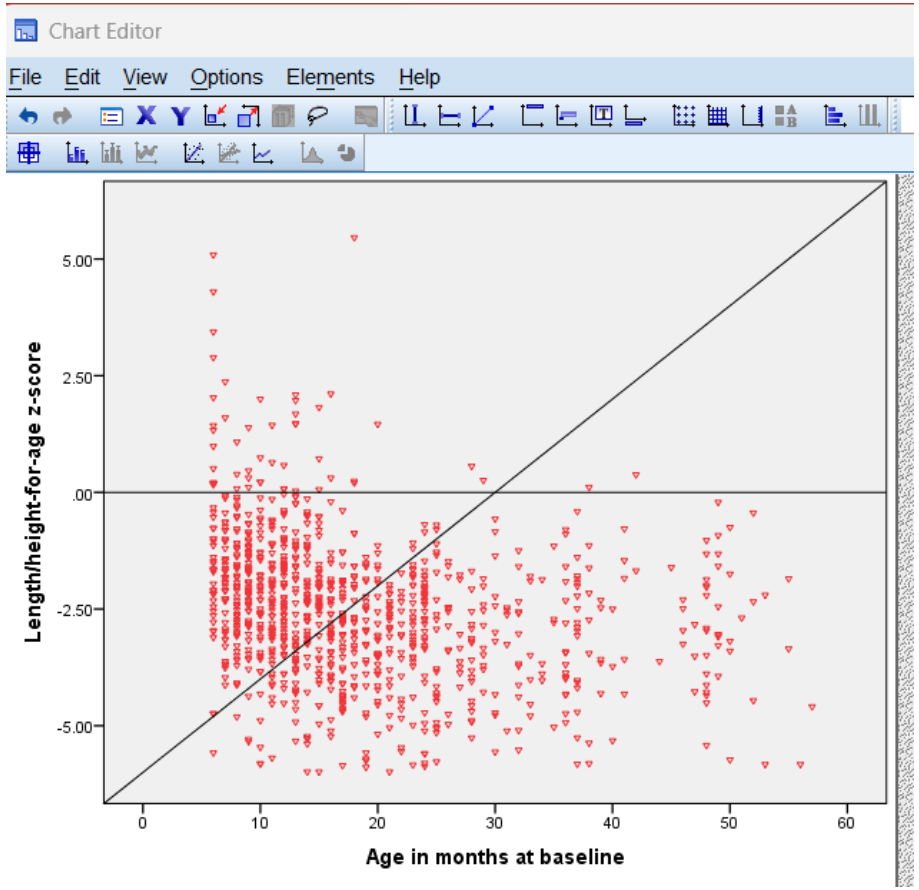


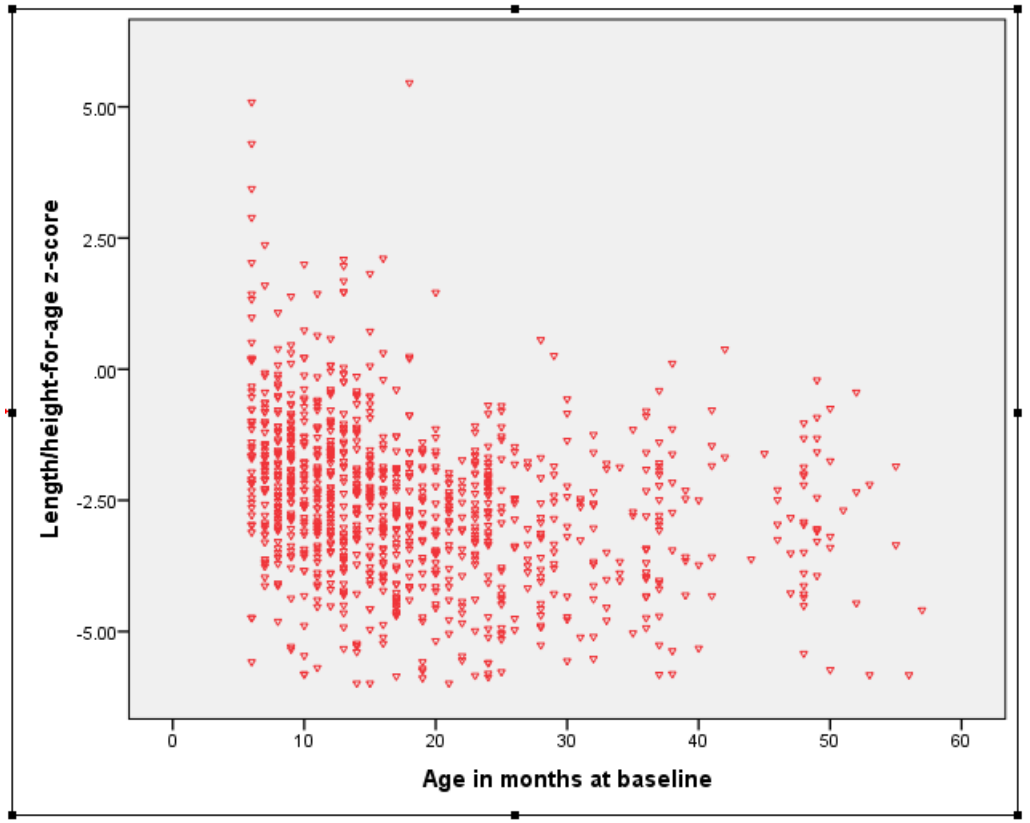






Creating and Editing Charts in SPSS





Practice #1

- Open the data set entitled LR_exampledata.sav
- Create a scatterplot with “read” on the X-axis and “write” on the Y-axis.
  - What type of scatter plot is needed
  - Interpret the results
- Create a bar graph with “ses” on the X axis and mean “total” score on the Y axis.
  - What type of bar graph is needed?

Questions?